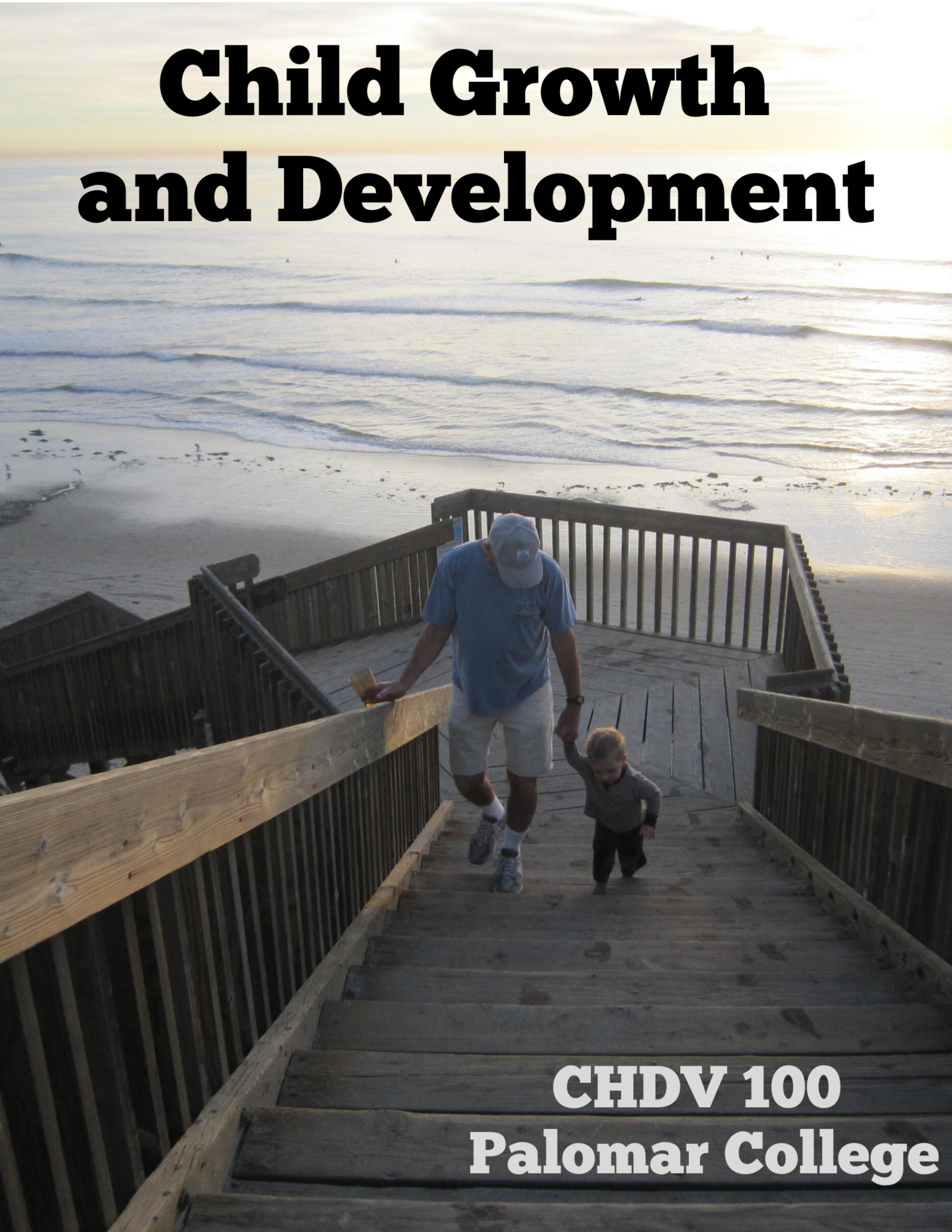


# **Child Growth and Development**



**CHDV 100**  
**Palomar College**

# CHILD GROWTH AND DEVELOPMENT

An Open Educational Resources Publication by College of the  
Canyons

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Version 1.2  
2019

APA Citation:

Paris, J., Ricardo, A., Rymond, D. (2019). *Child growth and development*.

<https://www2.palomar.edu/pages/childdevelopment/chdv-100-online-textbook/>

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## Acknowledgements

College of the Canyons would like to extend appreciation to the following people and organizations for allowing this textbook to be created:

[California Community Colleges Chancellor's Office](#)

Chancellor Dianne G. Van Hook

[Santa Clarita Community College District](#)

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# Chapter 1: Introduction to Child Development

## Chapter Objectives

After this chapter, you should be able to:

1. Describe the principles that underlie development.
2. Differentiate periods of human development.
3. Evaluate issues in development.
4. Distinguish the different methods of research.
5. Define “theory.”
6. Compare and contrast theories of child development.

## Introduction

Welcome to Child Growth and Development. This text is a presentation of how children grow, develop, and learn.

We will look at how we change physically over time from conception through adolescence. We examine cognitive change, or how our ability to think and remember, changes over the first 20 years or so of life. And we will look at how our emotions, psychological state, and social relationships change throughout childhood and adolescence.<sup>1</sup>

## Principles of Development

There are several underlying principles of development to keep in mind:

- Development is lifelong and change is apparent across the lifespan (although this text ends with adolescence). And early experiences affect later development.
- Development is multidirectional. We show gains in some areas of development, while showing a loss in other areas.
- Development is multidimensional. We change across three general domains/dimensions; physical, cognitive, and social and emotional.
  - The physical domain includes changes in height and weight, changes in gross and fine motor skills, sensory capabilities, the nervous system, as well as the propensity for disease and illness.
  - The cognitive domain encompasses the changes in intelligence, wisdom, perception, problem-solving, memory, and language.
  - The social and emotional domain (also referred to as psychosocial) focuses on changes in emotion, self-perception, and interpersonal relationships with families, peers, and friends.

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<sup>1</sup> [Introduction to Lifespan, Growth and Development](#) by [Lumen Learning](#) is licensed under [CC BY 4.0](#)

- The domains influence each other.
- Development is characterized by plasticity, which is our ability to change and that many of our characteristics are malleable. *Early experiences are important, but children are remarkably resilient (able to overcome adversity).*
- Development is multi contextual.<sup>2</sup> We are influenced by both nature (genetics) and nurture (the environment) - when and where we live and our actions, beliefs, and values are a response to circumstances surrounding us. The key here is to understand that behaviors, motivations, emotions, and choices are all part of a bigger picture.<sup>3</sup>

## Periods of Child Development

Developmentalists (those that study development) break this part of the life span into these five stages as follows:

- Prenatal Development (conception through birth)
- Infancy and Toddlerhood (birth through two years)
- Early Childhood (3 to 5 years)
- Middle Childhood (6 to 11 years)
- Adolescence (12 years to adulthood)

## Domains of Child Development

Developmental scientists study three broad domains of development. This book is organized by periods of development and by these domains:

Physical: Growth of body and brain, sensory capacities

Cognitive: Learning, attention, memory, language, reasoning

Socio-Emotional: Emotions, personality, social relationships

## Issues in Development

### Nature and Nurture

Why are people the way they are? Are features such as height, weight, personality, being diabetic, etc. the result of heredity or environmental factors-or both? For decades, scholars have carried on the "nature/nurture" debate. For any particular feature, those on the side of Nature would argue that heredity plays the most important role in bringing about that feature. Those on the side of Nurture would argue that one's environment is most significant in shaping the way we are. This debate continues in all aspects of human development, and most scholars agree that there is a constant interplay between the two forces. It is difficult to isolate the root of any single behavior as a result solely of nature or nurture.

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## Continuity versus Discontinuity

Is human development best characterized as a slow, gradual process, or is it best viewed as one of more abrupt change? The answer to that question often depends on which developmental theorist you ask and what topic is being studied. The theories of Freud, Erikson, Piaget, and Kohlberg are called stage theories. Stage theories, or discontinuous development, assume that developmental change often occurs in distinct stages that are qualitatively different from each other, and in a set, universal sequence. At each stage of development, children and adults have different qualities and characteristics. Thus, stage theorists assume development is more discontinuous. Others, such as the behaviorists, Vygotsky, and information processing theorists, assume development is a more slow and gradual process known as continuous development. For instance, they would see the adult as not possessing new skills, but more advanced skills that were already present in some form in the child. Brain development and environmental experiences contribute to the acquisition of more developed skills.

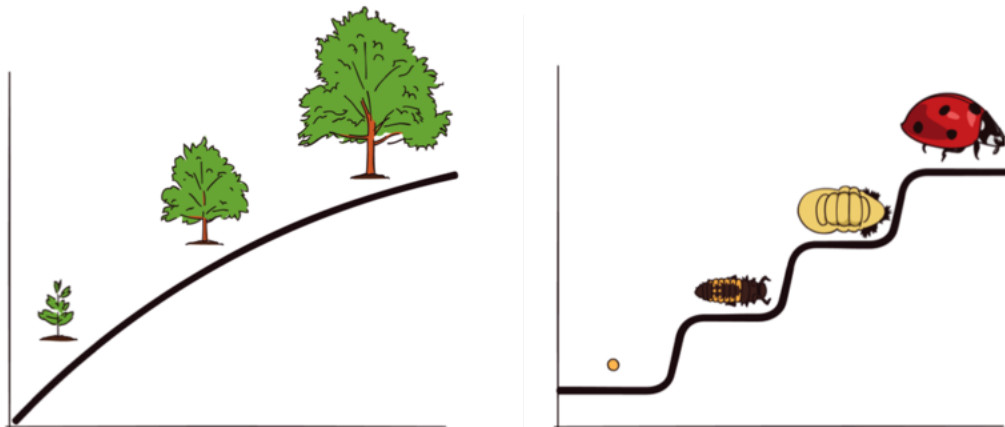


Figure 1.1 – The graph to the left shows three stages in the continuous growth of a tree. The graph to the right shows four distinct stages of development in the life cycle of a ladybug.<sup>4</sup>

## Active versus Passive

How much do you play a role in your own developmental path? Are you at the whim of your genetic inheritance or the environment that surrounds you? Some theorists see humans as playing a much more active role in their own development. Piaget, for instance, believed that children actively explore their world and construct new ways of thinking to explain the things they experience. In contrast, many behaviorists view humans as being more passive in the developmental process.<sup>5</sup>

How do we know so much about how we grow, develop, and learn? Let's look at how that data is gathered through research

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## Research Methods – How we study Child Development

Researchers use a variety of methods to study child development and human behavior. When reading or hearing about research studies, and evaluating the quality of the results, it is important to look at how they gathered their data.

### Scientific Methods

Researchers use a systematic way to make comparisons guard against bias. One quantitative method of scientific investigation involves the following steps:

1. Determining a research question
2. Reviewing previous studies addressing the topic in question (known as a literature review)
3. Determining a method of gathering information
4. Conducting the study, collecting data
5. Analyzing and interpreting results
6. Drawing conclusions; stating limitations of the study and suggestions for future research
7. Making your findings available to others (both to share information and to have your work scrutinized by others)

The findings can then be used by others as they explore the area of interest and through this process, a literature or knowledge base is established. This model of scientific investigation presents research as a linear process guided by a specific research question. And it typically involves quantifying or using statistics to understand and report what has been studied. Many academic journals publish reports on studies conducted in this manner.

Another model of research referred to as qualitative research may involve steps such as these:

1. Begin with a broad area of interest
2. Gain entrance into a group to be researched
3. Gather field notes about the setting, the people, the structure, the activities or other areas of interest
4. Ask open-ended, broad “grand tour” types of questions when interviewing subjects
5. Modify research questions as study continues
6. Note patterns or consistencies
7. Explore new areas deemed important by the people being observed
8. Report findings

In this type of research, theoretical ideas are “grounded” in the experiences of the participants. The researcher is the student and the people in the setting are the teachers as they inform the researcher of their world (Glazer & Strauss, 1967). Researchers are to be aware of their own biases and assumptions, acknowledge them, and bracket them in efforts to keep them from limiting accuracy in reporting. Sometimes qualitative studies are used initially to explore a topic and more quantitative studies are used to test or explain what was first described.



## Research Methods

Different techniques, or research methods, are used to describe, explain, or evaluate. Each of these designs has strengths and weaknesses and is sometimes used in combination with other designs within a single study.

### *Observational Studies*

**Observational studies** involve watching and recording the actions of participants. This may take place in the natural setting, such as observing children at play at a park, or behind a one-way glass while children are at play in a laboratory playroom, or in a classroom. The researcher may follow a checklist and record the frequency and duration of events (perhaps how many conflicts occur among 2-year-olds) or may observe and record as much as possible about an event (such as observing children in a classroom and capturing the details about the room design and what the children and teachers are doing and saying). In general, observational studies have the strength of allowing the researcher to see how people behave rather than relying on self-report. What people do and what they say they do are often very different. A major weakness of observational studies is that they do not allow the researcher to explain causal relationships. Yet, observational studies are useful and widely used when studying children. Children tend to change their behavior when they know they are being watched (known as the Hawthorne effect) and may not survey well.

### *Experiments*

**Experiments** are designed to test hypotheses (or specific statements about the relationship between variables) in a controlled setting in efforts to explain how certain factors or events produce outcomes. A variable is anything that changes in value. Concepts are operationalized or transformed into variables in research, which means that the researcher must specify exactly what is going to be measured in the study.

Three conditions must be met in order to establish cause and effect. Experimental designs are useful in meeting these conditions.

1. The independent and dependent variables must be related. In other words, when one is altered, the other changes in response. (For example, if we are looking at the impact of exercise on stress levels, the independent variable would be exercise; the dependent variable would be stress.)
2. The cause must come before the effect. Experiments involve measuring subjects on the dependent variable before exposing them to the independent variable (establishing a baseline). So we would measure the subjects' level of stress before introducing exercise and then again after the exercise to see if there has been a change in stress levels.
3. The cause must be isolated. The researcher must ensure that no outside, perhaps unknown variables are actually causing the effect we see. The experimental design helps make this possible. In an experiment, we would make sure that our subjects' diets were held constant throughout the exercise program. Otherwise, diet might really be creating the change in stress level rather than exercise.

A basic experimental design involves beginning with a sample (or subset of a population) and randomly assigning subjects to one of two groups: the experimental group or the control group. The experimental group is the group that is going to be exposed to an independent variable or condition the researcher is introducing as a potential cause of an event. The control group is going to be used for comparison and is going to have the same experience as the experimental group but will not be exposed to the independent variable. After exposing the experimental group to the independent variable, the two groups are measured again to see if a change has occurred. If so, we are in a better position to suggest that the independent variable caused the change in the dependent variable.

The major advantage of the experimental design is that of helping to establish cause and effect relationships. A disadvantage of this design is the difficulty of translating much of what happens in a laboratory setting into real life.

### Case Studies

**Case studies** involve exploring a single case or situation in great detail. Information may be gathered with the use of observation, interviews, testing, or other methods to uncover as much as possible about a person or situation. Case studies are helpful when investigating unusual situations such as brain trauma or children reared in isolation. And they are often used by clinicians who conduct case studies as part of their normal practice when gathering information about a client or patient coming in for treatment. Case studies can be used to explore areas about which little is known and can provide rich detail about situations or conditions. However, the findings from case studies cannot be generalized or applied to larger populations; this is because cases are not randomly selected and no control group is used for comparison.

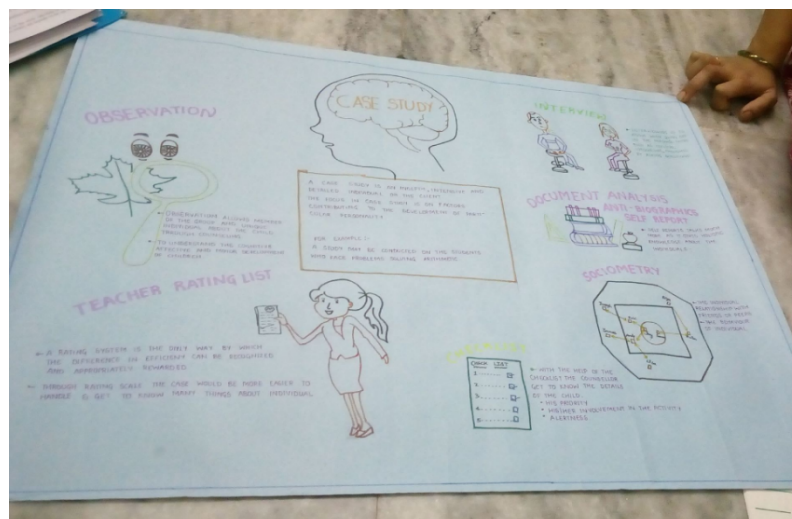


Figure 1.2 - Illustrated poster from a classroom describing a case study.<sup>6</sup>

<sup>6</sup> Image by MaryGeorge is licensed under [CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/)



## Surveys

**Surveys** are familiar to most people because they are so widely used. Surveys enhance accessibility to subjects because they can be conducted in person, over the phone, through the mail, or online. A survey involves asking a standard set of questions to a group of subjects. In a highly structured survey, subjects are forced to choose from a response set such as “strongly disagree, disagree, undecided, agree, strongly agree”; or “0, 1-5, 6-10, etc.” This is known as **Likert Scale**. Surveys are commonly used by sociologists, marketing researchers, political scientists, therapists, and others to gather information on many independent and dependent variables in a relatively short period of time. Surveys typically yield surface information on a wide variety of factors, but may not allow for in-depth understanding of human behavior.

## Developmental Designs

**Developmental designs** are techniques used in developmental research (and other areas as well). These techniques try to examine how age, cohort, gender, and social class impact development.

## Longitudinal Research

**Longitudinal research** involves beginning with a group of people who may be of the same age and background, and measuring them repeatedly over a long period of time. One of the benefits of this type of research is that people can be followed through time and be compared with them when they were younger.

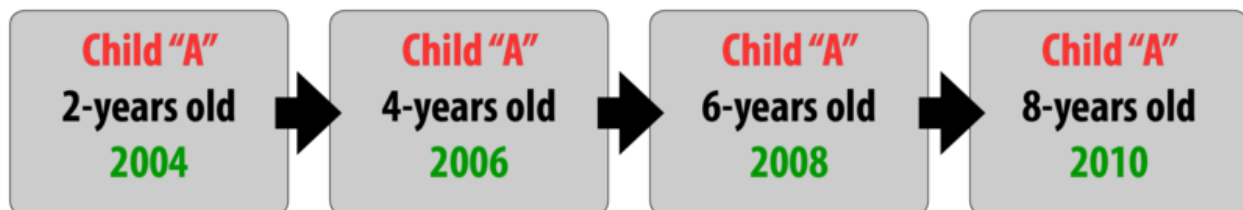


Figure 1.3 – A longitudinal research design.<sup>7</sup>

A problem with this type of research is that it is very expensive and subjects may drop out over time. The Perry Preschool Project which began in 1962 is an example of a longitudinal study that continues to provide data on children’s development.

## Cross-sectional Research

**Cross-sectional research** involves beginning with a sample that represents a cross-section of the population. Respondents who vary in age, gender, ethnicity, and social class might be asked to complete a survey about television program preferences or attitudes toward the use of the Internet. The attitudes of males and females could then be compared, as could attitudes based on age. In cross-sectional research, respondents are measured only once.

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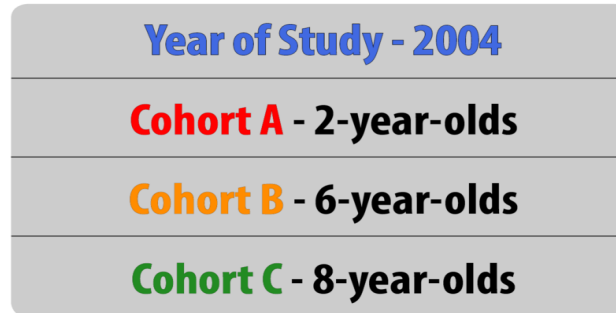


Figure 1.4 – A cross-sectional research design.<sup>8</sup>

This method is much less expensive than longitudinal research but does not allow the researcher to distinguish between the impact of age and the cohort effect. Different attitudes about the use of technology, for example, might not be altered by a person's biological age as much as their life experiences as members of a cohort.

### *Sequential Research*

**Sequential research** involves combining aspects of the previous two techniques; beginning with a cross-sectional sample and measuring them through time.

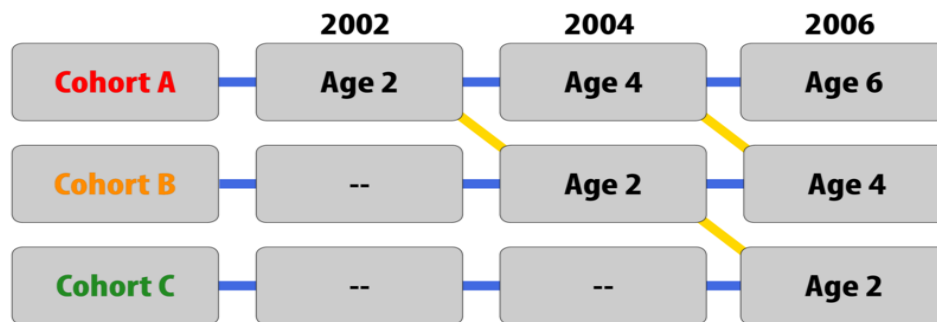


Figure 1.5 - A sequential research design.<sup>9</sup>

This is the perfect model for looking at age, gender, social class, and ethnicity. But the drawbacks of high costs and attrition are here as well.<sup>10</sup>

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<sup>10</sup> [Research Methods](#) by [Lumen Learning](#) is licensed under [CC BY 4.0](#)

**Table 1.1 - Advantages and Disadvantages of Different Research Designs<sup>11</sup>**

Type of Research Design	Advantages	Disadvantages
<b>Longitudinal</b>	<ul style="list-style-type: none"><li>• Examines changes within individuals over time</li><li>• Provides a developmental analysis</li></ul>	<ul style="list-style-type: none"><li>• Expensive</li><li>• Takes a long time</li><li>• Participant attrition</li><li>• Possibility of practice effects</li><li>• Cannot examine cohort effects</li></ul>
<b>Cross-sectional</b>	<ul style="list-style-type: none"><li>• Examines changes between participants of different ages at the same point in time</li><li>• Provides information on age-related change</li></ul>	<ul style="list-style-type: none"><li>• Cannot examine change over time</li><li>• Cannot examine cohort effects</li></ul>
<b>Sequential</b>	<ul style="list-style-type: none"><li>• Examines changes within individuals over time</li><li>• Examines changes between participants of different ages at the same point in time</li><li>• Can be used to examine cohort effects</li></ul>	<ul style="list-style-type: none"><li>• May be expensive</li><li>• Possibility of practice effects</li></ul>

## Consent and Ethics in Research

Research should, as much as possible, be based on participants' freely volunteered informed consent. For minors, this also requires consent from their legal guardians. This implies a responsibility to explain fully and meaningfully to both the child and their guardians what the research is about and how it will be disseminated. Participants and their legal guardians should be aware of the research purpose and procedures, their right to refuse to participate; the extent to which confidentiality will be maintained; the potential uses to which the data might be put; the foreseeable risks and expected benefits; and that participants have the right to discontinue at any time.

But consent alone does not absolve the responsibility of researchers to anticipate and guard against potential harmful consequences for participants.<sup>12</sup> It is critical that researchers protect all rights of the participants including confidentiality.

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<sup>11</sup> [Research Methods in Developmental Psychology](#) by [Angela Lukowski and Helen Milojevich](#) is licensed under a [CC BY-NC-SA 4.0](#)

<sup>12</sup> [Confidentiality and Informed Consent: Issues for Consideration in the Preservation of and Provision of Access to Qualitative Data Archives](#) by Louise Corti, Annette Day & Gill BackhouseSource is licensed under [CC BY 4.0](#) (modified by Jennifer Paris); ["No thank you, not today": Supporting Ethical and Professional Relationships in Large](#)

Child development is a fascinating field of study – but care must be taken to ensure that researchers use appropriate methods to examine infant and child behavior, use the correct experimental design to answer their questions, and be aware of the special challenges that are part-and-parcel of developmental research. Hopefully, this information helped you develop an understanding of these various issues and to be ready to think more critically about research questions that interest you. There are so many interesting questions that remain to be examined by future generations of developmental scientists – maybe you will make one of the next big discoveries!<sup>13</sup>

Another really important framework to use when trying to understand children’s development are theories of development. Let’s explore what theories are and introduce you to some major theories in child development.

## What is a theory?

A **theory** guides and helps us interpret research findings as well. It provides the researcher with a blueprint or model to be used to help piece together various studies. Think of theories as guidelines much like directions that come with an appliance or other object that requires assembly. The instructions can help one piece together smaller parts more easily than if trial and error are used.

Theories can be developed using induction in which a number of single cases are observed and after patterns or similarities are noted, the theorist develops ideas based on these examples. Established theories are then tested through research; however, not all theories are equally suited to scientific investigation. Some theories are difficult to test but are still useful in stimulating debate or providing concepts that have practical application. Keep in mind that theories are not facts; they are guidelines for investigation and practice, and they gain credibility through research that fails to disprove them.<sup>14</sup>

## Theories in Child Development

### Sigmund Freud’s Psychosexual Theory

Sigmund Freud (1856-1939) has been a very influential figure in the area of development; his view of development and psychopathology dominated the field of psychiatry until the growth of behaviorism in the 1950s. His assumptions that personality forms during the first few years of life and that the ways in which parents or other caregivers interact with children have a long-lasting impact on children’s emotional states have guided parents, educators, clinicians, and policy-makers for many years. We have only recently begun to recognize that early childhood

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experiences do not always result in certain personality traits or emotional states. There is a growing body of literature addressing resilience in children who come from harsh backgrounds and yet develop without damaging emotional scars (O'Grady and Metz, 1987). Freud has stimulated an enormous amount of research and generated many ideas. Agreeing with Freud's theory in its entirety is hardly necessary for appreciating the contribution he has made to the field of development.

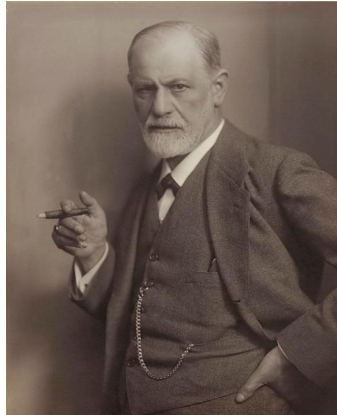


Figure 1.6 - Sigmund Freud.<sup>15</sup>

Freud's theory of self suggests that there are three parts of the self.

The **id** is the part of the self that is inborn. It responds to biological urges without pause and is guided by the principle of pleasure: if it feels good, it is the thing to do. A newborn is all id. The newborn cries when hungry, defecates when the urge strikes.

The **ego** develops through interaction with others and is guided by logic or the reality principle. It has the ability to delay gratification. It knows that urges have to be managed. It mediates between the id and superego using logic and reality to calm the other parts of the self. The **superego** represents society's demands for its members. It is guided by a sense of guilt. Values, morals, and conscience are all part of the superego.

The personality is thought to develop in response to the child's ability to learn to manage biological urges. Parenting is important here. If the parent is either overly punitive or lax, the child may not progress to the next stage. Here is a brief introduction to Freud's stages.

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<sup>15</sup> [Image](#) is in the public domain

**Table 1.2 - Sigmund Freud's Psychosexual Theory**

Name of Stage	Descriptions of Stage
<b>Oral Stage</b>	The <b>oral stage</b> lasts from birth until around age 2. The infant is all id. At this stage, all stimulation and comfort is focused on the mouth and is based on the reflex of sucking. Too much indulgence or too little stimulation may lead to fixation.
<b>Anal Stage</b>	The <b>anal stage</b> coincides with potty training or learning to manage biological urges. The ego is beginning to develop in this stage. Anal fixation may result in a person who is compulsively clean and organized or one who is sloppy and lacks self-control.
<b>Phallic Stage</b>	The <b>phallic stage</b> occurs in early childhood and marks the development of the superego and a sense of masculinity or femininity as culture dictates.
<b>Latency</b>	<b>Latency</b> occurs during middle childhood when a child's urges quiet down and friendships become the focus. The ego and superego can be refined as the child learns how to cooperate and negotiate with others.
<b>Genital Stage</b>	The <b>genital stage</b> begins with puberty and continues through adulthood. Now the preoccupation is that of sex and reproduction.

### *Strengths and Weaknesses of Freud's Theory*

Freud's theory has been heavily criticized for several reasons. One is that it is very difficult to test scientifically. How can parenting in infancy be traced to personality in adulthood? Are there other variables that might better explain development? The theory is also considered to be sexist in suggesting that women who do not accept an inferior position in society are somehow psychologically flawed. Freud focuses on the darker side of human nature and suggests that much of what determines our actions is unknown to us. So why do we study Freud? As mentioned above, despite the criticisms, Freud's assumptions about the importance of early childhood experiences in shaping our psychological selves have found their way into child development, education, and parenting practices. Freud's theory has heuristic value in providing a framework from which to elaborate and modify subsequent theories of development. Many later theories, particularly behaviorism and humanism, were challenges to Freud's views.<sup>16</sup>

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## Main Points to Note About Freud's Psychosexual Theory

Freud believed that:

- ✓ Development in the early years has a lasting impact.
- ✓ There are three parts of the self: the id, the ego, and the superego
- ✓ People go through five stages of psychosexual development: the oral stage, the anal stage, the phallic stage, latency, and the genital stage

We study Freud because his assumptions of the importance of early childhood experience provide a framework for later theories (who both elaborated and contradicted/challenged his work).

## Erik Erikson's Psychosocial Theory

A less controversial theorist, Erik Erikson (1902-1994) was a friend and patient of Freud's daughter Anna Freud. In his theory of psychosocial development, Erikson suggested that our relationships and society's expectations motivate much of our behavior. Erikson agreed with some of Freud's work, but emphasized the importance of the ego, or conscious thought, in determining our actions. In other words, he believed that we are not driven by unconscious urges. As humans, we have the ability to know what motivates us and we consciously think about how to achieve our goals.



Figure 1.7 - Erik Erikson.<sup>17</sup>

Erikson expanded on Freud's theory by emphasizing the importance of culture in parenting practices and motivations and adding three stages of adult development (Erikson, 1950; 1968). He believed that we are aware of what motivates us throughout life and the ego has greater importance in guiding our actions than does the id. We make conscious choices in life and these choices focus on meeting certain social and cultural needs rather than purely biological ones. Humans are motivated, for instance, by the need to feel that the world is a trustworthy place, that we are capable individuals, that we can make a contribution to society, and that we have lived a meaningful life. These are all psychosocial problems.

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<sup>17</sup> [Image](#) is in the public domain

Erikson divided the lifespan into eight stages. In each stage, we have a major psychosocial task to accomplish or crisis to overcome. Erikson believed that our personality continues to take shape throughout our lifespan as we face these challenges in living. Here is a brief overview of the eight stages:

**Table 1.3 - Erik Erikson's Psychosocial Theory**

Name of Stage	Description of Stage
<b>Trust vs. mistrust</b> (0-1)	The infant must have basic needs met in a consistent way in order to feel that the world is a trustworthy place.
<b>Autonomy vs. shame and doubt</b> (1-2)	Mobile toddlers have newfound freedom they like to exercise and by being allowed to do so, they learn some basic independence.
<b>Initiative vs. Guilt</b> (3-5)	Preschoolers like to initiate activities and emphasize doing things "all by myself."
<b>Industry vs. inferiority</b> (6-11)	School-aged children focus on accomplishments and begin making comparisons between themselves and their classmates
<b>Identity vs. role confusion</b> (adolescence)	Teenagers are trying to gain a sense of identity as they experiment with various roles, beliefs, and ideas.
<b>Intimacy vs. Isolation</b> (young adulthood)	In our 20s and 30s, we are making some of our first long-term commitments in intimate relationships.
<b>Generativity vs. stagnation</b> (middle adulthood)	In the 40s through the early 60s, we focus on being productive at work and home and are motivated by wanting to feel that we've made a contribution to society.
<b>Integrity vs. Despair</b> (late adulthood)	We look back on our lives and hope to like what we see - that we have lived well and have a sense of integrity because we lived according to our beliefs.

These eight stages form a foundation for discussions on emotional and social development during the life span. Keep in mind, however, that these stages or crises can occur more than once. For instance, a person may struggle with a lack of trust beyond infancy under certain circumstances. Erikson's theory has been criticized for focusing so heavily on stages and assuming that the completion of one stage is a prerequisite for the next crisis of development. His theory also focuses on the social expectations that are found in certain cultures, but not in

all. For instance, the idea that adolescence is a time of searching for identity might translate well in the middle-class culture of the United States, but not as well in cultures where the transition into adulthood coincides with puberty through rites of passage and where adult roles offer fewer choices.<sup>18</sup>

### Main Points to Note About Erikson's Psychosocial Theory

Erikson was a student of Freud but focused on conscious thought.

- ✓ His stages of psychosocial development address the entire lifespan and suggest the primary psychosocial crisis in some cultures that adults can use to understand how to support children's social and emotional development.
- ✓ The stages include: trust vs. mistrust, autonomy vs. shame and doubt, initiative vs. guilt, industry vs. inferiority, identity vs. role confusion, intimacy vs. isolation, generativity vs. stagnation, and integrity vs. despair.

## Behaviorism

While Freud and Erikson looked at what was going on in the mind, behaviorism rejected any reference to mind and viewed overt and observable behavior as the proper subject matter of psychology. Through the scientific study of behavior, it was hoped that laws of learning could be derived that would promote the prediction and control of behavior.<sup>19</sup>

### Ivan Pavlov

Ivan Pavlov (1880-1937) was a Russian physiologist interested in studying digestion. As he recorded the amount of salivation his laboratory dogs produced as they ate, he noticed that they actually began to salivate before the food arrived as the researcher walked down the hall and toward the cage. "This," he thought, "is not natural!" One would expect a dog to automatically salivate when the food hits their palate, but BEFORE the food comes? Of course, what had happened was . . . you tell me. That's right! The dogs knew that the food was coming because they had learned to associate the footsteps with the food. The keyword here is "learned". A learned response is called a "conditioned" response.

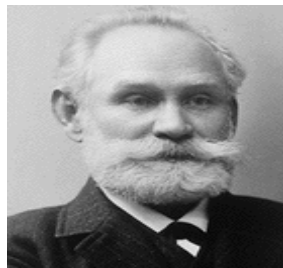


Figure 1.8 - Ivan Pavlov.<sup>20</sup>

<sup>18</sup> [Psychosocial Theory](#) by [Lumen Learning](#) is licensed under [CC BY 4.0](#)

<sup>19</sup> [History of Psychology](#) by [David B. Baker and Heather Sperry](#) is licensed under [CC BY-NC-SA 4.0](#)

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Pavlov began to experiment with this concept of **classical conditioning**. He began to ring a bell, for instance, prior to introducing the food. Sure enough, after making this connection several times, the dogs could be made to salivate to the sound of a bell. Once the bell had become an event to which the dogs had learned to salivate, it was called a **conditioned stimulus**. The act of salivating to a bell was a response that had also been learned, now termed in Pavlov's jargon, a conditioned response. Notice that the response, salivation, is the same whether it is conditioned or unconditioned (unlearned or natural). What changed is the stimulus to which the dog salivates. One is natural (unconditioned) and one is learned (conditioned).

How classical conditioning is used on humans? One of the most widespread applications of classical conditioning principles was brought to us by the psychologist, John B. Watson.

### *John B. Watson*

John B. Watson (1878-1958) believed that most of our fears and other emotional responses are classically conditioned. He had gained a good deal of popularity in the 1920s with his expert advice on parenting offered to the public.



Figure 1.9 - John B. Watson.<sup>21</sup>

He tried to demonstrate the power of classical conditioning with his famous experiment with an 18-month-old boy named "Little Albert". Watson sat Albert down and introduced a variety of seemingly scary objects to him: a burning piece of newspaper, a white rat, etc. But Albert remained curious and reached for all of these things. Watson knew that one of our only inborn fears is the fear of loud noises so he proceeded to make a loud noise each time he introduced one of Albert's favorites, a white rat. After hearing the loud noise several times paired with the rat, Albert soon came to fear the rat and began to cry when it was introduced. Watson filmed this experiment for posterity and used it to demonstrate that he could help parents achieve any outcomes they desired if they would only follow his advice. Watson wrote columns in newspapers and magazines and gained a lot of popularity among parents eager to apply science to household order.

Operant conditioning, on the other hand, looks at the way the consequences of a behavior increase or decrease the likelihood of a behavior occurring again.

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<sup>21</sup> [Image](#) is in the public domain

### *B.F. Skinner and Operant Conditioning*

B. F. Skinner (1904-1990), who brought us the principles of operant conditioning, suggested that reinforcement is a more effective means of encouraging a behavior than is criticism or punishment. By focusing on strengthening desirable behavior, we have a greater impact than if we emphasize what is undesirable. Reinforcement is anything that an organism desires and is motivated to obtain.



Figure 1.10 - B. F. Skinner.<sup>22</sup>

A **reinforcer** is something that encourages or promotes a behavior. Some things are natural rewards. They are considered intrinsic or primary because their value is easily understood. Think of what kinds of things babies or animals such as puppies find rewarding.

Extrinsic or secondary reinforcers are things that have a value not immediately understood. Their value is indirect. They can be traded in for what is ultimately desired.

The use of **positive reinforcement** involves adding something to a situation in order to encourage a behavior. For example, if I give a child a cookie for cleaning a room, the addition of the cookie makes cleaning more likely in the future. Think of ways in which you positively reinforce others.

**Negative reinforcement** occurs when taking something unpleasant away from a situation encourages behavior. For example, I have an alarm clock that makes a very unpleasant, loud sound when it goes off in the morning. As a result, I get up and turn it off. By removing the noise, I am reinforced for getting up. How do you negatively reinforce others?

**Punishment** is an effort to stop a behavior. It means to follow an action with something unpleasant or painful. Punishment is often less effective than reinforcement for several reasons. It doesn't indicate the desired behavior, it may result in suppressing rather than stopping a behavior, (in other words, the person may not do what is being punished when you're around, but may do it often when you leave), and a focus on punishment can result in not noticing when the person does well.

Not all behaviors are learned through association or reinforcement. Many of the things we do are learned by watching others. This is addressed in social learning theory.

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<sup>22</sup> [Image](#) is in the public domain

### *Social Learning Theory*

Albert Bandura (1925-) is a leading contributor to social learning theory. He calls attention to the ways in which many of our actions are not learned through conditioning; rather, they are learned by watching others (1977). Young children frequently learn behaviors through imitation



Figure 1.11 - Albert Bandura.<sup>23</sup>

Sometimes, particularly when we do not know what else to do, we learn by modeling or copying the behavior of others. A kindergartner on his or her first day of school might eagerly look at how others are acting and try to act the same way to fit in more quickly. Adolescents struggling with their identity rely heavily on their peers to act as role-models. Sometimes we do things because we've seen it pay off for someone else. They were operantly conditioned, but we engage in the behavior because we hope it will pay off for us as well. This is referred to as vicarious reinforcement (Bandura, Ross, and Ross, 1963).

Bandura (1986) suggests that there is an interplay between the environment and the individual. We are not just the product of our surroundings, rather we influence our surroundings. Parents not only influence their child's environment, perhaps intentionally through the use of reinforcement, etc., but children influence parents as well. Parents may respond differently with their first child than with their fourth. Perhaps they try to be the perfect parents with their firstborn, but by the time their last child comes along they have very different expectations both of themselves and their child. Our environment creates us and we create our environment.<sup>24</sup>

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<sup>23</sup> [Image](#) by Albert Bandura is licensed under [CC BY-SA 4.0](#)

<sup>24</sup> [Exploring Behavior](#) by [Lumen Learning](#) is licensed under [CC BY 4.0](#); [Lecture Transcript: Developmental Theories](#) by [Lumen Learning](#) is licensed under [CC BY 4.0](#)

## Bandura and the Bobo Doll Experiment & Today's Children and the Media

Other social influences: TV or not TV? Bandura et al. (1963) began a series of studies to look at the impact of television, particularly commercials, on the behavior of children. Are children more likely to act out aggressively when they see this behavior modeled? What if they see it being reinforced? Bandura began by conducting an experiment in which he showed children a film of a woman hitting an inflatable clown or “bobo” doll. Then the children were allowed in the room where they found the doll and immediately began to hit it. This was without any reinforcement whatsoever. Not only that, but they found new ways to behave aggressively. It’s as if they learned an aggressive role.

Children view far more television today than in the 1960s; so much, in fact, that they have been referred to as Generation M (media). The amount of screen time varies by age. As of 2017, children 0-8 spend an average of 2 hours and 19 minutes. Children 8-12 years of age spend almost 6 hours a day on screen media. And 13- to 18-year-olds spend an average of just under 9 hours a day in entertainment media use. The prevalence of violence, sexual content, and messages promoting foods high in fat and sugar in the media are certainly cause for concern and the subjects of ongoing research and policy review. Many children spend even more time on the computer viewing content from the internet. The amount of time spent connected to the internet continues to increase with the use of smartphones that essentially serve as mini-computers. And the ways children and adolescents interact with the media continues to change. The popularity of YouTube and the various social media platforms are examples of this. What might be the implications of this?

## Main Points to Note About Behaviorism

Behaviorists look at observable behavior and how it can be predicted and controlled.

- ✓ Pavlov experimented with classical conditioning, the process of conditioning a response to stimulus (the dog’s salivating to the bell).
- ✓ Watson offered advice to parents to show them how classical conditioning can be used. His most famous experiment was conditioning Little Albert to fear a white rat.
- ✓ Skinner believed that reinforcing behavior is the most effective way of increasing desirable behavior. This is done through operant conditioning.
- ✓ Bandura noted that many behaviors are not learned through any type of conditioning, but rather through imitation. And he believed that people are not only influenced by their surroundings, but that they also have an impact on their surroundings.

Theories also explore cognitive development and how mental processes change over time.

## Jean Piaget's Theory of Cognitive Development

Jean Piaget (1896-1980) is one of the most influential cognitive theorists. Piaget was inspired to explore children's ability to think and reason by watching his own children's development. He was one of the first to recognize and map out the ways in which children's thought differs from that of adults. His interest in this area began when he was asked to test the IQ of children and began to notice that there was a pattern in their wrong answers. He believed that children's intellectual skills change over time through maturation. Children of differing ages interpret the world differently.



Figure 1.12 – Jean Piaget.<sup>25</sup>

Piaget believed our desire to understand the world comes from a need for cognitive **equilibrium**. This is an agreement or balance between what we sense in the outside world and what we know in our minds. If we experience something that we cannot understand, we try to restore the balance by either changing our thoughts or by altering the experience to fit into what we do understand. Perhaps you meet someone who is very different from anyone you know. How do you make sense of this person? You might use them to establish a new category of people in your mind or you might think about how they are similar to someone else.

A **schema** or schemes are categories of knowledge. They are like mental boxes of concepts. A child has to learn many concepts. They may have a scheme for “under” and “soft” or “running” and “sour”. All of these are schema. Our efforts to understand the world around us lead us to develop new schema and to modify old ones.

One way to make sense of new experiences is to focus on how they are similar to what we already know. This is **assimilation**. So, the person we meet who is very different may be understood as being “sort of like my brother” or “his voice sounds a lot like yours.” Or a new food may be assimilated when we determine that it tastes like chicken!

Another way to make sense of the world is to change our mind. We can make a cognitive accommodation to this new experience by adding new schema. This food is unlike anything I’ve tasted before. I now have a new category of foods that are bitter-sweet in flavor, for instance. This is **accommodation**. Do you accommodate or assimilate more frequently? Children

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<sup>25</sup> [Image](#) is in the public domain



accommodate more frequently as they build new schema. Adults tend to look for similarity in their experience and assimilate. They may be less inclined to think “outside the box.” Piaget suggested different ways of understanding that are associated with maturation. He divided this into four stages:

**Table 1.4 - Jean Piaget’s Theory of Cognitive Development**

Name of Stage	Description of Stage
<b>Sensorimotor Stage</b>	During the <b>sensorimotor stage</b> , children rely on use of the senses and motor skills. From birth until about age 2, the infant knows by tasting, smelling, touching, hearing, and moving objects around. This is a real hands-on type of knowledge.
<b>Preoperational Stage</b>	In the <b>preoperational stage</b> , children from ages 2 to 7, become able to think about the world using symbols. A <b>symbol</b> is something that stands for something else. The use of language, whether it is in the form of words or gestures, facilitates knowing and communicating about the world. This is the hallmark of preoperational intelligence and occurs in early childhood. However, these children are preoperational or pre-logical. They still do not understand how the physical world operates. They may, for instance, fear that they will go down the drain if they sit at the front of the bathtub, even though they are too big.
<b>Concrete Operational</b>	Children in the <b>concrete operational</b> stage, ages 7 to 11, develop the ability to think logically about the physical world. Middle childhood is a time of understanding concepts such as size, distance, and constancy of matter, and cause and effect relationships. A child knows that a scrambled egg is still an egg and that 8 ounces of water is still 8 ounces no matter what shape of glass contains it.
<b>Formal Operational</b>	During the <b>formal operational</b> stage children, at about age 12, acquire the ability to think logically about concrete and abstract events. The teenager who has reached this stage is able to consider possibilities and to contemplate ideas about situations that have never been directly encountered. More abstract understanding of religious ideas or morals or ethics and abstract principles such as freedom and dignity can be considered.

### *Criticisms of Piaget’s Theory*

Piaget has been criticized for overemphasizing the role that physical maturation plays in cognitive development and in underestimating the role that culture and interaction (or experience) plays in cognitive development. Looking across cultures reveals considerable

variation in what children are able to do at various ages. Piaget may have underestimated what children are capable of given the right circumstances.<sup>26</sup>

### Main Points to Note About Piaget's Theory of Cognitive Development

Piaget, one of the most influential cognitive theorists, believed that

- ✓ Understanding is motivated by trying to balance what we sense in the world and what we know in our minds.
- ✓ Understanding is organized by creating categories of knowledge. When presented with new knowledge we may add new schema or modify existing ones.

Children's understanding of the world changes as their cognitive skills mature through 4 stages: sensorimotor stage, preoperational stage, concrete operational stage, and formal operational stage.

### Lev Vygotsky's Sociocultural Theory

Lev Vygotsky (1896-1934) was a Russian psychologist who wrote in the early 1900s but whose work was discovered in the United States in the 1960s but became more widely known in the 1980s. Vygotsky differed with Piaget in that he believed that a person not only has a set of abilities, but also a set of potential abilities that can be realized if given the proper guidance from others. His sociocultural theory emphasizes the importance of culture and interaction in the development of cognitive abilities. He believed that through guided participation known as scaffolding, with a teacher or capable peer, a child can learn cognitive skills within a certain range known as the **zone of proximal development**.<sup>27</sup> He believed that development occurred first through children's immediate social interactions, and then moved to the individual level as they began to internalize their learning.<sup>28</sup>

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<sup>28</sup> [Children's Development](#) by Ana R. Leon is licensed under [CC BY 4.0](#)



Figure 1.13- Lev Vygotsky.<sup>29</sup>

Have you ever taught a child to perform a task? Maybe it was brushing their teeth or preparing food. Chances are you spoke to them and described what you were doing while you demonstrated the skill and let them work along with you all through the process. You gave them assistance when they seemed to need it, but once they knew what to do-you stood back and let them go. This is **scaffolding** and can be seen demonstrated throughout the world. This approach to teaching has also been adopted by educators. Rather than assessing students on what they are doing, they should be understood in terms of what they are capable of doing with the proper guidance. You can see how Vygotsky would be very popular with modern-day educators.<sup>30</sup>

### Main Points to Note About Vygotsky's Sociocultural Theory

Vygotsky concentrated on the child's interactions with peers and adults. He believed that the child was an apprentice, learning through sensitive social interactions with more skilled peers and adults.

### Comparing Piaget and Vygotsky

Vygotsky concentrated more on the child's immediate social and cultural environment and his or her interactions with adults and peers. While Piaget saw the child as actively discovering the world through individual interactions with it, Vygotsky saw the child as more of an apprentice, learning through a social environment of others who had more experience and were sensitive to the child's needs and abilities.<sup>31</sup>

Like Vygotsky's, Bronfenbrenner looked at the social influences on learning and development.

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<sup>30</sup> [Exploring Cognition](#) by [Lumen Learning](#) is licensed under [CC BY 4.0](#)

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## Urie Bronfenbrenner's Ecological Systems Model

Urie Bronfenbrenner (1917-2005) offers us one of the most comprehensive theories of human development. Bronfenbrenner studied Freud, Erikson, Piaget, and learning theorists and believed that all of those theories could be enhanced by adding the dimension of context. What is being taught and how society interprets situations depends on who is involved in the life of a child and on when and where a child lives.

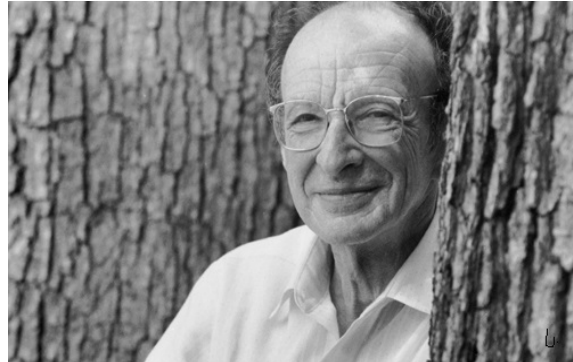


Figure 1.14 - Urie Bronfenbrenner.<sup>32</sup>

Bronfenbrenner's ecological systems model explains the direct and indirect influences on an individual's development.

**Table 1.5 - Urie Bronfenbrenner's Ecological Systems Model**

Name of System	Description of System
<b>Microsystems</b>	<b>Microsystems</b> impact a child directly. These are the people with whom the child interacts such as parents, peers, and teachers. The relationship between individuals and those around them need to be considered. For example, to appreciate what is going on with a student in math, the relationship between the student and teacher should be known.
<b>Mesosystems</b>	<b>Mesosystems</b> are interactions between those surrounding the individual. The relationship between parents and schools, for example, will indirectly affect the child.
<b>Exosystem</b>	Larger institutions such as the mass media or the healthcare system are referred to as the <b>exosystem</b> . These have an impact on families and peers and schools that operate under policies and regulations found in these institutions.
<b>Macrosystems</b>	We find cultural values and beliefs at the level of <b>macrosystems</b> . These larger ideals and expectations inform institutions that will ultimately impact the individual.
<b>Chronosystem</b>	All of this happens in a historical context referred to as the <b>chronosystem</b> . Cultural values change over time, as do policies of educational institutions or governments in certain political climates. Development occurs at a point in time.

<sup>32</sup> [Image](#) by Marco Vicente González is licensed under [CC BY-SA 4.0](#)

For example, in order to understand a student in math, we can't simply look at that individual and what challenges they face directly with the subject. We have to look at the interactions that occur between teacher and child. Perhaps the teacher needs to make modifications as well. The teacher may be responding to regulations made by the school, such as new expectations for students in math or constraints on time that interfere with the teacher's ability to instruct. These new demands may be a response to national efforts to promote math and science deemed important by political leaders in response to relations with other countries at a particular time in history.

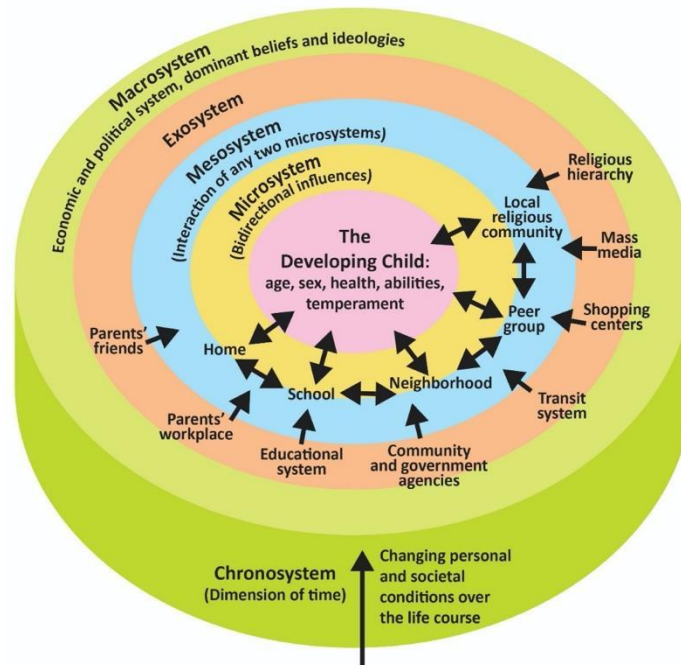


Figure 1.15 - Bronfenbrenner's ecological systems theory.<sup>33</sup>

Bronfenbrenner's ecological systems model challenges us to go beyond the individual if we want to understand human development and promote improvements.<sup>34</sup>

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### **Main Points to Note About Bronfenbrenner's Ecological Model**

After studying all of the prior theories, Bronfenbrenner added an important element of context to the discussion of influences on human development.

- ✓ He believed that the people involved in children's lives and when and where they live are important considerations.
- ✓ He created a model of nested systems that influence the child (and are influenced by the child) that include: microsystems, mesosystems, the exosystem, macrosystems, and chronosystems.

## **Conclusion**

In this chapter we looked at:

- underlying principles of development
- the five periods of development
- three issues in development
- Various methods of research
- important theorists and theories that help us understand development

Next, we are going to be examining where we all started with conception and heredity.

# Chapter 2: Conception and Heredity

## Chapter Objectives

After this chapter, you should be able to:

1. Describe the process of fertilization.
2. Examine the options for couples facing infertility.
3. Evaluate the roles of nature and nurture in development.
4. Define genes and chromosomes.
5. Explain dominant and recessive patterns on inheritance.
6. List common genetic disorders and chromosomal abnormalities.

## Introduction

In this chapter, we will begin by examining some of the ways in which heredity helps to shape the way we are. We will look at what happens genetically during conception, and describe some known genetic and chromosomal disorders.

## Conception

### Fertilization

Fertilization is the process by which the mother's egg cell, or ovum, is fertilized by a sperm cell from the father. Women are born with all of the egg cells they will ever have. In contrast, once men reach puberty, they continually produce millions of sperm daily (however it takes about 2-3 months for the sperm to mature and be ready for ejaculation). About every 28 days, a mature woman ovulates and releases one ovum. The ovum travels down the fallopian tube to the uterus. If it is met by a sperm cell while in the fallopian tube, then fertilization can take place. The newly fertilized egg, called a zygote, starts to duplicate into a bundle of cells as it then continues to travel down the fallopian tube to implant into the uterus. If the ovum is not fertilized by a sperm cell then it will pass through the uterus and be expelled during the woman's next menstrual period.

### Infertility and Building Families

#### Infertility

When a couple has failed to conceive a child in a year, they receive the diagnosis of infertility. Infertility affects about 10 to 15 percent of couples in the United States (Mayo Clinic, 2015). Male factors create infertility in about a third of the cases. For men, the most common cause is a lack of sperm production or low sperm production.

Female factors cause infertility in another third of cases. For women, one of the most common causes of infertility is the failure to ovulate. Another cause of infertility in women is Pelvic Inflammatory Disease (PID), which is an infection of a woman's reproductive organs (Carroll, 2007).

## Options for Building Families

There are numerous options to pursue parenthood and building families.

### Assisted Reproductive Technology

Assisted reproductive technology (ART) is the technology used to achieve pregnancy in procedures such as fertility medication (to stimulate ovulation), surgical procedures, artificial insemination (IUI), in vitro fertilization (IVF), and surrogacy. These options are available for people who are experiencing infertility or cannot conceive children naturally (which also includes single parents, and gay/lesbian couples).<sup>35</sup>

**Intrauterine insemination:** (IUI) as a type of artificial insemination involves the placement of sperm directly into the uterus at the time of ovulation, either in a natural menstrual cycle or following ovarian stimulation.<sup>36</sup>

**In vitro fertilization (IVF):** IVF generally starts with stimulating the ovaries to increase egg production. Most fertility medications are agents that stimulate the development of follicles in the ovary. Examples are gonadotropins and gonadotropin-releasing hormone. After stimulation, the physician surgically extracts one or more eggs from the ovary, and unites them with sperm in a laboratory setting, with the intent of producing one or more embryos. Fertilization takes place outside the body, and the fertilized egg is reinserted into the woman's reproductive tract, in a procedure called embryo transfer.<sup>37</sup>



Figure 2.1 – The IVF process.<sup>38</sup>

**Donor Gametes & Embryos:** People can also use sperm, ova (eggs), and embryos from donors in conjunction with ART. These donations take place through agencies and donor banks or between private individuals. In the U.S., donors can be compensated for their donations.

<sup>35</sup> [Assisted Reproductive Technology](#) by [Fertilitypedia](#) is licensed under [CC BY-SA 4.0](#)



<sup>36</sup> [Intrauterine Insemination](#) by [Fertilitypedia](#) is licensed under [CC BY-SA 4.0](#)

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**Surrogacy:** In surrogacy, one woman (surrogate mother) carries a child for another person/s (commissioning person/couple), based on a legal agreement before conception requiring the child to be relinquished to the commissioning person/couple following birth. There are different types of surrogacy which relate to whether or not the ova used to conceive the child are her own (**traditional surrogacy**) or not (**gestational surrogacy**).<sup>39</sup>

**Adoption:** People can also choose to pursue **adoption** to build their families (with or without experiencing infertility). Adoption can take place through the foster care system, privately, or through agencies. Adoptions can be domestic (within the U.S.) or international. And they can be open (with differing amounts of contact between biological/birth families and adoptive families) or closed.

Family Built with Surrogacy <sup>40</sup>	Family Built through Adoption <sup>41</sup>
	
Figure 2.2 - This same-sex couple used a surrogate.	Figure 2.3 - This single mother adopted her daughter.

## Heredity

### Nature and Nurture

Most scholars agree that there is a constant interplay between nature (heredity) and nurture (the environment). It is difficult to isolate the root of any single characteristic as a result solely of nature or nurture, and most scholars believe that even determining the extent to which nature or nurture impacts a human feature is difficult to answer. In fact, almost all human features are polygenic (a result of many genes) and multifactorial (a result of many factors, both genetic and environmental). It's as if one's genetic make-up sets up a range of possibilities, which may or may not be realized depending upon one's environmental experiences. For instance, a person might be genetically predisposed to develop diabetes, but the person's lifestyle may determine whether or not they actually develop the disease.

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<sup>40</sup> Photo by Daryn Crawford used with permission

<sup>41</sup> Photo by Michaela Szidloski used with permission

This bidirectional interplay between nature and nurture is the **epigenetic framework**, which suggests that the environment can affect the expression of genes just as genetic predispositions can impact a person's potentials. And environmental circumstances can trigger symptoms of a genetic disorder.<sup>42</sup>

## Genes and Chromosomes

The basic building block of the nature perspective is the gene. **Genes** are recipes for making proteins, while proteins influence the structure and functions of cells. Genes are located on the chromosomes and there are an estimated 20,500 genes for humans, according to the Human Genome Project (NIH, 2015).

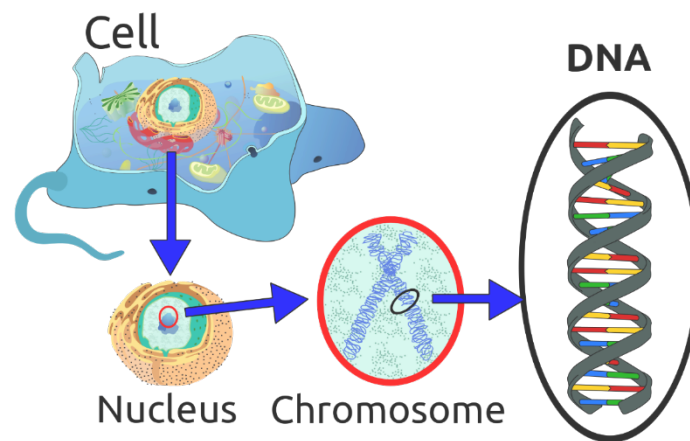


Figure 2.4 – DNA's location in the cell.<sup>43</sup>

Normal human cells contain 46 chromosomes (or 23 pairs; one from each parent) in the nucleus of the cells. After conception, most cells of the body are created by a process called mitosis. **Mitosis** is defined as the cell's nucleus making an exact copy of all the chromosomes and splitting into two new cells.

However, the cells used in sexual reproduction, called the gametes (sperm or ova), are formed in a process called **meiosis**. In meiosis, the gamete's chromosomes duplicate and then divide twice resulting in four cells containing only half the genetic material of the original gamete. Thus, each sperm and egg possess only 23 chromosomes and combine to produce 23 pairs of chromosomes (46 total).

Of the 23 pairs of chromosomes created at conception, 22 pairs are similar in length. These are called **autosomes**. The remaining pair, or **sex chromosomes**, may differ in length. If a child

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<sup>42</sup> [Lifespan Development - Module 3: Prenatal Development](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

<sup>43</sup> [Image](#) by [Radio89](#) is licensed under [CC BY-SA 3.0](#) (original image has been modified)

receives the combination of XY, the child will be genetically male. If the child receives the combination XX, the child will be genetically female.<sup>44</sup>

Here is an image (called a karyogram) of what the 23 pairs of chromosomes look like. Notice the differences between the sex chromosomes in the female (XX) and the male (XY).

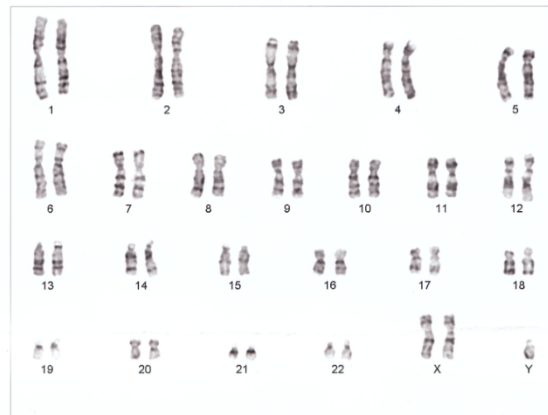


Figure 2.5 – The 23 pairs of chromosomes.<sup>45</sup>

### *Genotypes and Phenotypes & Patterns on Inheritance*

The word **genotype** refers to the sum total of all the genes a person inherits. The word **phenotype** refers to the features that are actually expressed. Look in the mirror. What do you see, your genotype, or your phenotype? What determines whether or not genes are expressed? Because genes are inherited in pairs on the chromosomes, we may receive either the same version of a gene from our mother and father, that is, be **homozygous** for that characteristic the gene influences. If we receive a different version of the gene from each parent, that is referred to as **heterozygous**.

In the homozygous situation, we will display that characteristic. It is in the heterozygous condition that it becomes clear that not all genes are created equal. Some genes are **dominant**, meaning they express themselves in the phenotype even when paired with a different version of the gene, while their silent partner is called recessive. **Recessive** genes express themselves only when paired with a similar version gene. Geneticists refer to different versions of a gene as alleles. Some dominant traits include having facial dimples, curly hair, normal vision, and dark hair. Some recessive traits include blonde hair, being nearsighted, and straight hair.

Most characteristics are not the result of a single gene; they are **polygenic**, meaning they are the result of several genes.

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<sup>44</sup> [Lifespan Development: A Psychological Perspective](#) (page 34-35) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

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## Genetic Disorders

Most of the known **genetic disorders** are dominant gene-linked; however, the vast majority of dominant gene linked disorders are not serious or debilitating. For example, the majority of those with Tourette's Syndrome suffer only minor tics from time to time and can easily control their symptoms. When dominant-gene linked diseases are serious, they do not tend to become symptomatic until later in life. Huntington's Disease is a dominant gene linked disorder that affects the nervous system and is fatal, but does not appear until midlife.

Recessive gene disorders, such as cystic fibrosis and sickle-cell anemia, are less common but may actually claim more lives because they are less likely to be detected as people are unaware that they are carriers of the disease.

Some genetic disorders are sex-linked; the defective gene is found on the X-chromosome. Males have only one X chromosome so are at greater risk for sex-linked disorders. Examples of some of these disorders are hemophilia, color-blindness, and baldness. For females to be affected by recessive genetic defects, they need to inherit the recessive gene on both X-chromosomes. But if the defective gene is dominant, females are equally at risk.

Here are tables of some genetic disorders:

**Autosomal Dominant Disorders (Heterozygous):** In order to have the disorder, the individual only needs to inherit the gene change from one parent.

**Table 2.1 - Autosomal Dominant Disorders (Heterozygous)<sup>46</sup>**

Disorder	Description	Cases per Birth
<b>Huntington's Disease</b>	A condition that affects the individual's nervous system. Nerve cells become damaged, causing various parts of the brain to deteriorate. The disease affects movement, behavior, and cognition. It is fatal and occurs at midlife.	1 in 10,000
<b>Tourette Syndrome</b>	A tic disorder which results in uncontrollable motor and vocal tics as well as body jerking	1 in 250
<b>Achondroplasia</b>	The most common form of disproportionate short stature. The individual has abnormal bone growth resulting in short stature, disproportionately short arms and legs, short fingers, a large head, and specific facial features.	1 in 15,000-40,000

<sup>46</sup> [Lifespan Development: A Psychological Perspective](#) (pages 36-37) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

**Recessive Disorders (Homozygous):** The individual inherits a gene change from both parents. If the gene is inherited from just one parent, the person is a carrier and does not have the condition.

**Table 2.2 - Recessive Disorders (Homozygous)<sup>47</sup>**

Disorder	Description	Cases per Birth
<b>Sickle Cell Disease (SCD)</b>	A condition in which the red blood cells in the body are shaped like a sickle (like the letter C) and affect the ability of the blood to transport oxygen.	1 in 500 Black births 1 in 36,000 Hispanic births
<b>Cystic Fibrosis (CF)</b>	A condition that affects breathing and digestion due to thick mucus building up in the body, especially the lungs and digestive system. In CF, the mucus is thicker than normal and sticky.	1 in 3500
<b>Phenylketonuria (PKU)</b>	A metabolic disorder in which the individual cannot metabolize phenylalanine, an amino acid. Left untreated, intellectual deficits occur. PKU is easily detected and is treated with a special diet.	1 in 10,000
<b>Tay Sachs Disease</b>	Caused by an enzyme deficiency resulting in the accumulation of lipids in the nerve cells of the brain. This accumulation results in progressive damage to the cells and a decrease in cognitive and physical development. Death typically occurs by age five.	1 in 4000 1 in 30 American Jews is a carrier 1 in 20 French Canadians is a carrier
<b>Albinism</b>	When the individual lacks melanin and processes little to no pigment in the skin, hair, and eyes. Vision problems can also occur.	Fewer than 20,000 US cases per year

**Sex-Linked Disorders:** When the X chromosome carries the mutated gene, the disorder is referred to as an X-linked disorder. Males are more affected than females because they possess only one X chromosome without an additional X chromosome to counter the harmful gene.

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**Table 2.3 - Sex-Linked Disorders<sup>48</sup>**

Disorder	Description	Cases per Birth
<b>Fragile X Syndrome</b>	This occurs when the body cannot make enough of a protein it needs for the brain to grow. This is caused by an abnormality in the X chromosome, which then breaks. Problems with learning and behavior can occur. Symptoms usually are more serious in males.	1 in 4000 males 1 in 8000 females
<b>Hemophilia</b>	This occurs when there are problems in blood clotting causing both internal and external bleeding.	1 in 10,000 males
<b>Duchenne Muscular Dystrophy</b>	A weakening of the muscles resulting in an inability to move, wasting away, and possible death.	1 in 3500 males

**Chromosomal Abnormalities:** A **chromosomal abnormality** occurs when a child inherits too many or too few chromosomes. The most common cause of chromosomal abnormalities is the age of the mother. As the mother ages, the ovum is more likely to suffer abnormalities due to longer-term exposure to environmental factors. Consequently, some gametes do not divide evenly when they are forming. Therefore, some cells have more than 46 chromosomes. In fact, it is believed that close to half of all zygotes have an odd number of chromosomes. Most of these zygotes fail to develop and are spontaneously aborted by the mother's body.<sup>49</sup>

Here is a table of some autosomal chromosomal disorders:

**Autosomal Chromosome Disorders:** The individual inherits too many or too few chromosomes.

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**Table 2.4 - Autosomal Chromosomal Disorders<sup>50</sup>**

Disorder	Description
<b>Down Syndrome/Trisomy 21</b>	Caused by an extra chromosome 21 and includes a combination of birth defects. Affected individuals have some degree of intellectual disability, characteristic facial features, often heart defects, and other health problems. The severity varies greatly among affected individuals.
<b>Trisomy 9 Mosaicism</b>	Caused by having an extra chromosome 9 in some cells. The severity of effects relates to the proportion of cells with extra chromosomes. The effects include fetal growth restriction resulting in low birth weight and multiple anomalies, including facial, cardiac, musculoskeletal, genital, kidney, and respiratory abnormalities.
<b>Trisomy 13</b>	Caused by an extra chromosome 13. Affected individuals have multiple birth defects and generally die in the first weeks or months of life.
<b>Trisomy 18</b>	Caused by an extra chromosome 18 and the affected individual also has multiple birth defects and early death.



Figure 2.6 - Infant boy with Trisomy 9 Mosaicism.<sup>51</sup>



Figure 2.7 - Girl with XXX Syndrome.<sup>52</sup>

<sup>50</sup>[Trisomy 9 Mosaicism Diagnosed In Utero](#) by [Hironori Takahashi](#), [Satoshi Hayashi](#), [Yumiko Miura](#), [Keiko Tsukamoto](#), [Rika Kosaki](#), [Yushi Itoh](#), and [Haruhiko Sago](#) is licensed under [CC BY 3.0](#); [Lifespan Development: A Psychological Perspective](#) (page 39) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

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When the abnormality is on the 23rd pair, the result is a **sex-linked chromosomal abnormality**. This happens when a person has less than or more than two sex chromosomes.<sup>53</sup>

Here is a table of some sex-linked chromosomal disorders:

**Table 2.5 - Sex-Linked Chromosomal Disorders<sup>54</sup>**

Disorder	Description
<b>Turner Syndrome (XO)</b>	Caused when all or part of one of the X chromosomes is lost before or soon after conception due to a random event. The resulting zygote has an XO composition. Turner Syndrome affects cognitive functioning and sexual maturation in girls. Infertility and a short stature may be noted.
<b>Klinefelter Syndrome (XXY)</b>	Caused when an extra X chromosome is present in the cells of a male due to a random event. The Y chromosome stimulates the growth of male genitalia, but the additional X chromosome inhibits this development. The male can have some breast development, infertility, and low levels of testosterone.
<b>XYY Syndrome</b>	Caused when an extra Y chromosome is present in the cells of a male. There are few symptoms. They may include being taller than average, acne, and an increased risk of learning problems. The person is generally otherwise normal, including normal fertility.
<b>Triple X Syndrome (XXX)</b>	Caused when an extra X chromosome is present in the cells of a female. It may result in being taller than average, learning difficulties, decreased muscle tone, seizures, and kidney problems.

## Conclusion

In this chapter we looked at:

- Conception and Fertilization
- Infertility and options for building families
- Heredity, including genetic disorders and chromosomal abnormalities

Now let's explore prenatal development!

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<sup>54</sup> [XYY Syndrome](#) by [Wikipedia](#) is licensed under [CC BY-SA 3.0](#); [Triple X Syndrome](#) by [Wikipedia](#) is licensed under [CC BY-SA 3.0](#); [Lifespan Development: A Psychological Perspective](#) (page 39) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

# Chapter 3: Prenatal Development

## Chapter Objectives

After this chapter, you should be able to:

1. Describe changes that occur within each of the three periods of prenatal development.
2. Recognize the risks to prenatal development posed by exposure to teratogens.
3. Evaluate different types of prenatal assessment.

## Prenatal Development

Now we turn our attention to prenatal development which is divided into three periods: The germinal period, the embryonic period, and the fetal period. The following is an overview of some of the changes that take place during each period.

### The Germinal Period

The **germinal period** (about 14 days in length) lasts from **conception** to **implantation** of the fertilized egg in the lining of the uterus. At ejaculation, millions of sperm are released into the vagina, but a few reach the egg and only one fertilizes the egg. Once a single sperm has entered the wall of the egg, the wall becomes hard and prevents other sperm from entering. After the sperm has entered the egg, the tail of the sperm breaks off and the head of the sperm, containing the genetic information from the father, unites with the nucleus of the egg. It is typically fertilized in the top section of the fallopian tube and continues its journey to the uterus. As a result, a new cell is formed. This cell, containing the combined genetic information from both parents, is referred to as a **zygote**.



Figure 3.1 - Sperm and ovum at conception.<sup>55</sup>

During this time, the organism begins cell division through mitosis. After five days of mitosis, there are 100 cells, which is now called a blastocyst. The blastocyst consists of both an inner and an outer group of cells. The inner group of cells, or embryonic disk will become the embryo, while the outer group of cells, or trophoblast, becomes the support system which nourishes the developing organism. This stage ends when the blastocyst fully implants into the uterine wall (U.S. National Library of Medicine, 2015).

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<sup>55</sup> [Image](#) is in the public domain

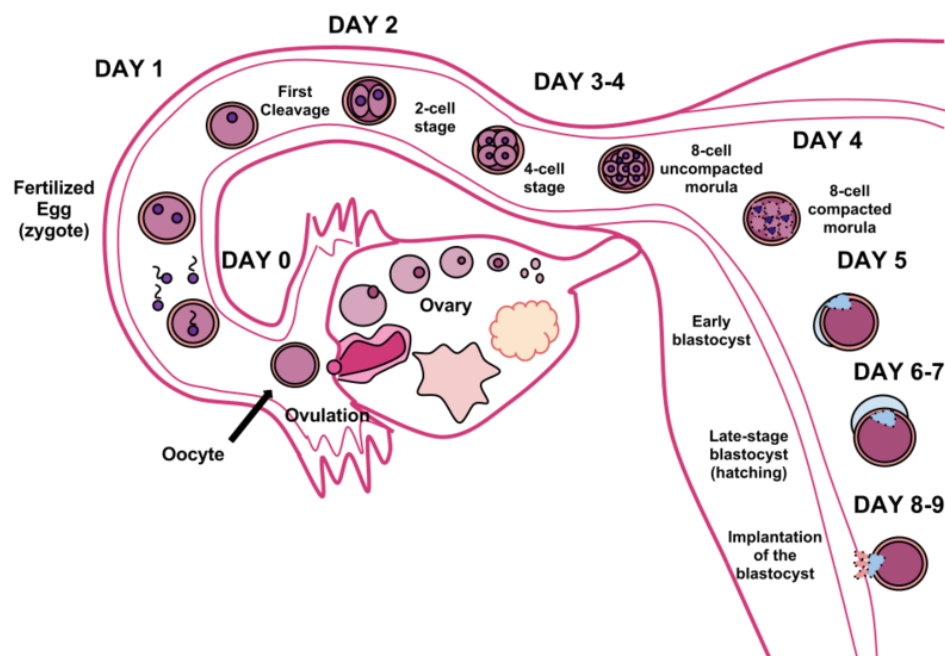


Figure 3.2 – The cycle of fertilization.<sup>56</sup>

Mitosis is a fragile process and fewer than one-half of all zygotes survive beyond the first two weeks (Hall, 2004). Some of the reasons for this include: the egg and sperm do not join properly, thus their genetic material does not combine, there is too little or damaged genetic material, the zygote does not replicate, or the blastocyst does not implant into the uterine wall. The failure rate is higher for in vitro conceptions. The figure above illustrates the journey of the ova from its release to its fertilization, cell duplication, and implantation into the uterine lining.<sup>57</sup>

## The Embryonic Period

Starting the third week, the blastocyst has implanted in the uterine wall. Upon implantation, this multi-cellular organism is called an **embryo**. Now blood vessels grow forming the placenta. The **placenta** is a structure connected to the uterus that provides nourishment and oxygen from the mother to the developing embryo via the umbilical cord.

During this period, cells continue to **differentiate**. Growth during prenatal development occurs in two major directions: from head to tail called **cephalocaudal development** and from the midline outward referred to as **proximodistal development**. This means that those structures nearest the head develop before those nearest the feet and those structures nearest the torso

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<sup>57</sup> Lifespan Development: A Psychological Perspective (pages 42-43) by Martha Lally and Suzanne Valentine-French is licensed under CC BY-NC-SA 3.0



develop before those away from the center of the body (such as hands and fingers). You will see that this pattern continues after birth.

The head develops in the fourth week and the precursor to the heart begins to pulse. In the early stages of the embryonic period, gills and a tail are apparent. However, by the end of this stage, they disappear and the organism takes on a more human appearance.



Figure 3.3 – A human embryo.<sup>58</sup>

About 20 percent of organisms do not survive past the embryonic period, usually due to gross chromosomal abnormalities, often before the mother even knows that she is pregnant. It is during this stage that the major structures of the body are taking form, making the embryonic period the time when the organism is most vulnerable to the greatest amount of damage if exposed to harmful substances. Prospective mothers are not often aware of the risks they introduce to the developing embryo during this time. The embryo is approximately 1 inch in length and weighs about 4 grams at the end of eight weeks. The embryo can move and respond to touch at this time.<sup>59</sup>

## The Fetal Period

From the ninth week until birth (which is forty weeks for a full-term pregnancy), the organism is referred to as a **fetus**. During this stage, the major structures are continuing to develop. By the third month, the fetus has all its body parts including external genitalia. The fetus is about 3 inches long and weighs about 28 grams. In the following weeks, the fetus will develop hair, nails, teeth and the excretory and digestive systems will continue to develop.

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Figure 3.4 – A human fetus.<sup>60</sup>

During the 4th - 6th months, the eyes become more sensitive to light and hearing develops. The respiratory system continues to develop, and reflexes such as sucking, swallowing and hiccupping, develop during the 5th month. Cycles of sleep and wakefulness are present at this time as well. The first chance of survival outside the womb, known as the age of viability is reached at about 24 weeks (Morgan, Goldenberg, & Schulkin, 2008). Many practitioners hesitate to resuscitate before 24 weeks. The majority of the neurons in the brain have developed by 24 weeks, although they are still rudimentary, and the glial cells that support neurons continue to grow. At 24 weeks the fetus can feel pain (Royal College of Obstetricians and Gynecologists, 1997).

Between the 7th - 9th months, the fetus is primarily preparing for birth. It is exercising its muscles and its lungs begin to expand and contract. The fetus gains about 5 pounds and 7 inches during this last trimester of pregnancy, and during the 8th month, a layer of fat develops under the skin. This layer of fat serves as insulation and helps the baby regulate body temperature after birth.

At around 36 weeks the fetus is almost ready for birth. It weighs about 6 pounds and is about 18.5 inches long. By week 37 all of the fetus's organ systems are developed enough that it could survive outside the mother's uterus without many of the risks associated with premature birth. The fetus continues to gain weight and grow in length until approximately 40 weeks. By then the fetus has very little room to move around and birth becomes imminent. The progression through the stages is shown in the following figure.<sup>61</sup>

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<sup>61</sup> [Lifespan Development: A Psychological Perspective](#) (pages 44-45) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)



Figure 3.5 – The development of a fetus.<sup>62</sup>

### Monozygotic and Dizygotic Twins

**Monozygotic** or identical twins occur when a fertilized egg splits apart in the first two weeks of development. The result is the creation of two separate, but genetically identical offspring. That is, they possess the same genotype and often the same phenotype. About one-third of twins are monozygotic twins.

Sometimes, however, two eggs or ova are released and fertilized by two separate sperm. The result is **dizygotic** or fraternal twins. These two individuals share the same amount of genetic material as would any two children from the same mother and father. In other words, they possess a different genotype and phenotype.

<sup>62</sup> Image by [CNX Psychology](#) is licensed under [CC BY 4.0](#)

Older mothers are more likely to have dizygotic twins than are younger mothers, and couples who use fertility drugs are also more likely to give birth to dizygotic twins.<sup>63</sup>

**Monozygotic Twins<sup>64</sup>**



Figure 3.6

**Dizygotic Twins<sup>65</sup>**



Figure 3.7

## Teratogens

Good prenatal care is essential to protect against maternal and fetal/infant mortality and birth complications. The embryo and fetus are most at risk for some of the most severe problems during the first three months of development. Unfortunately, this is a time at which many mothers are unaware that they are pregnant. Today, we know many of the factors that can jeopardize the health of the developing child. The study of factors that contribute to birth defects is called teratology. **Teratogens** are environmental factors that can contribute to birth defects, and include some maternal diseases, pollutants, drugs, and alcohol.

Factors influencing prenatal risks: There are several considerations in determining the type and amount of damage that might result from exposure to a particular teratogen (Berger, 2005).

These include:

- **The timing of the exposure:** Structures in the body are vulnerable to the most severe damage when they are forming. If a substance is introduced during a particular structure's critical period (time of development), the damage to that structure may be greater. For example, the ears and arms reach their critical periods at about 6 weeks after conception. If a mother exposes the embryo to certain substances during this period, the arms and ears may be malformed. (see figure below)

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- **The amount of exposure:** Some substances are not harmful unless the amounts reach a certain level. The critical level depends in part on the size and metabolism of the mother.
- **The number of teratogens:** Fetuses exposed to multiple teratogens typically have more problems than those exposed to only one.
- **Genetics:** Genetic makeup also plays a role in the impact a particular teratogen might have on the child. This is suggested by fraternal twins exposed to the same prenatal environment, but they do not experience the same teratogenic effects. The genetic makeup of the mother can also have an effect; some mothers may be more resistant to teratogenic effects than others.
- **Being male or female:** Males are more likely to experience damage due to teratogens than are females. It is believed that the Y chromosome, which contains fewer genes than the X, may have an impact.<sup>66</sup>

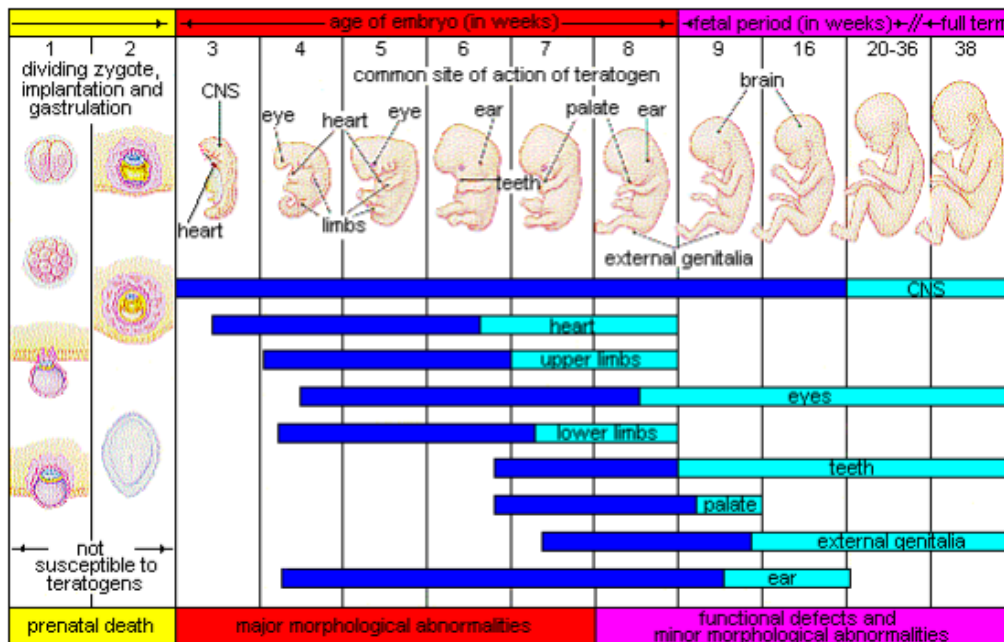


Figure 3.8 – The development of an embryo into a fetus.<sup>67</sup>

There are four categories of teratogens:

1. **Physical teratogens:** These could be saunas, hot tubs, or infections that raise a pregnant woman's body temperature to 102 degrees Fahrenheit or higher. This is associated with neural tube defects, spontaneous abortions, and various cardiovascular abnormalities.
2. **Metabolic conditions affecting pregnant females:** Metabolic conditions are abnormalities in the chemical process of producing energy from food, and thereby affect the development and function of the body. If a pregnant woman is malnourished,

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then her fetus likely lacks the nutrients essential for its development. These include: malnutrition, diabetes, and thyroid disorders.

3. **Infections:** Different maternal infections, including rubella virus, herpes simplex virus, and syphilis can cause congenital abnormalities in fetuses.
4. **Drugs and chemicals:** When pregnant females ingest or absorb these, they may cause a variety of different effects based on the specific agent, amount of exposure, and timing. This category includes radiation, heavy metals (including lead), insecticides and herbicides, prescription and over the counter drugs, illicit and recreational drugs, alcohol, cigarettes, nicotine, caffeine, and even some vitamins.<sup>68</sup>

While there are many, many potential teratogens, the following tables look at the effects of some different types of teratogens. The risks of exposure vary based on lifestyle and health. The effects may vary greatly depending on the factors mentioned previously.

**Table 3.1 – Drugs as Teratogens**

Teratogen	Potential Effects
<b>Caffeine</b>	Some studies have shown a link between higher amounts of caffeine and miscarriage and preterm birth. <sup>69</sup>
<b>Tobacco</b>	Tobacco use has been associated with low birth weight, placenta previa, preterm delivery, fetal growth restriction, sudden infant death syndrome, cleft lip or palate, and later health problems (such as high blood pressure and diabetes). <sup>70</sup>
<b>Alcohol</b>	There is no safe amount of alcohol a woman can drink while pregnant. Alcohol can slow down the baby's growth, affect the baby's brain, and cause birth defects, and may results in fetal alcohol spectrum disorder (FASD). The effects can be mild to severe. Children born with a severe form of FASD can have abnormal facial features, severe learning disabilities, behavioral problems, and other problems. <sup>71</sup>
<b>Cocaine</b>	Cocaine use has connected with low birth weight, stillbirths, placental abruption, premature birth, miscarriage, and neonatal abstinence syndrome (fetal addiction leads the newborn to experience withdrawal). <sup>72</sup>

<sup>68</sup> [The Embryo Project Encyclopedia](#) by Chanapa Tantibanchachai is licensed under [CC BY-NC-SA 3.0](#)

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<b>Marijuana</b>	No amount of marijuana has been proven safe to use during pregnancy. Heavy use has been associated with brain damage, premature birth, and stillbirth. <sup>73</sup>
<b>Heroin</b>	Using heroin during pregnancy can cause birth defects, placental abruption, premature birth, low birthweight, neonatal abstinence syndrome, stillbirth, and sudden infant death syndrome. <sup>74</sup>
<b>Over-the-Counter (OTC) medication</b>	Some OTC medications are safe to use during pregnancy and others may cause health problems during pregnancy. Pregnant women should consult their health care provider before using OTC medications. <sup>75</sup>
<b>Prescription drugs</b>	Some prescription drugs can cause birth defects that change the shape or function of one or more parts of the body that can affect overall health. Pregnant women should consult their health care provider before discontinuing or starting new medications. <sup>76</sup>
<b>Herbal or dietary supplements</b>	Except for some vitamins, little is known about using herbal or dietary supplements while pregnant. Most often there are no good studies to show if the herb can cause harm to the mother or baby. Also, some herbs that are safe when used in small amounts as food might be harmful when used in large amounts as medicines. <sup>77</sup>

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Prescription drugs, over-the-counter drugs, supplements and herbal products (n.d.). Retrieved from: <https://www.marchofdimes.org/pregnancy/prescription-drugs-over-the-counter-drugs-supplements-and-herbal-products.aspx>

<sup>73</sup> Chapter 3: Prenatal Development – Environmental Risks references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, which is licensed under [CC BY 4.0](#);

Prescription drugs, over-the-counter drugs, supplements and herbal products (n.d.). Retrieved from: <https://www.marchofdimes.org/pregnancy/prescription-drugs-over-the-counter-drugs-supplements-and-herbal-products.aspx>

<sup>74</sup> Prescription drugs, over-the-counter drugs, supplements and herbal products (n.d.). Retrieved from: <https://www.marchofdimes.org/pregnancy/prescription-drugs-over-the-counter-drugs-supplements-and-herbal-products.aspx>

<sup>75</sup> Prescription drugs, over-the-counter drugs, supplements and herbal products (n.d.). Retrieved from: <https://www.marchofdimes.org/pregnancy/prescription-drugs-over-the-counter-drugs-supplements-and-herbal-products.aspx>

<sup>76</sup> Prescription drugs, over-the-counter drugs, supplements and herbal products (n.d.). Retrieved from: <https://www.marchofdimes.org/pregnancy/prescription-drugs-over-the-counter-drugs-supplements-and-herbal-products.aspx>

<sup>77</sup> Chapter 3: Prenatal Development – Environmental Risks references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, which is licensed under [CC BY 4.0](#)



**Table 3.2 - Environmental Teratogens**

Teratogen	Potential Effects
<b>Lead</b>	Exposure to high levels of lead before and during pregnancy can lead to high blood pressure, problems with fetal brain and nervous system development, premature birth, low birthweight, and miscarriage. <sup>78</sup>
<b>Mercury</b>	Exposure to mercury in the womb can cause brain damage and hearing and vision problems. <sup>79</sup>
<b>Radiation</b>	Exposure to radiation during pregnancy (especially between 2 and 18 weeks of pregnancy) can slow growth, cause birth defects, affect brain development, cause cancer, and cause miscarriage. <sup>80</sup>
<b>Solvents</b>	These chemicals include degreasers, paint thinners, stain and varnish removers, paints, and more. Maternal inhalation of solvents can cause fetal exposure that may cause miscarriage, slow fetal growth, premature birth, and birth defects. <sup>81</sup>

**Table 3.3 - Maternal Infections as Teratogens**

Teratogen	Potential Effects
<b>Rubella</b>	Congenital infection (becoming infected while in the womb) can damage the development of the eyes, ears, heart, and brain and result in deafness. <sup>82</sup>

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<sup>78</sup> Prescription drugs, over-the-counter drugs, supplements and herbal products (n.d.). Retrieved from: <https://www.marchofdimes.org/pregnancy/prescription-drugs-over-the-counter-drugs-supplements-and-herbal-products.aspx>

<sup>79</sup> Prescription drugs, over-the-counter drugs, supplements and herbal products (n.d.). Retrieved from: <https://www.marchofdimes.org/pregnancy/prescription-drugs-over-the-counter-drugs-supplements-and-herbal-products.aspx>

<sup>80</sup> Prescription drugs, over-the-counter drugs, supplements and herbal products (n.d.). Retrieved from: <https://www.marchofdimes.org/pregnancy/prescription-drugs-over-the-counter-drugs-supplements-and-herbal-products.aspx>

<sup>81</sup> Prescription drugs, over-the-counter drugs, supplements and herbal products (n.d.). Retrieved from: <https://www.marchofdimes.org/pregnancy/prescription-drugs-over-the-counter-drugs-supplements-and-herbal-products.aspx>

<sup>82</sup> [Chapter 3: Prenatal Development – Environmental Risks](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, which is licensed under [CC BY 4.0](#)

<b>Zika</b>	Congenital infection can cause microcephaly and other severe brain abnormalities. <sup>83</sup>
<b>Varicella (chickenpox)</b>	Congenital infection can cause a severe form of the infection affecting the eyes, limbs, skin, and central nervous system. <sup>84</sup>
<b>Sexually transmitted infections</b>	Infections such as HIV, gonorrhea, syphilis, and chlamydia can be passed from the mother during pregnancy and/or delivery. <sup>85</sup>
<b>Listeria</b>	Pregnant women are more susceptible to food-borne illness. Congenital infection can cause miscarriage, stillbirth, premature labor, and neonatal sepsis. <sup>86</sup>

**Figure 3.4 - Teratogens from Animals/Pets**

<b>Teratogen</b>	<b>Potential Effects</b>
<b>Toxoplasmosis</b>	This parasite can be passed through cat feces and undercooked meat (especially pork, lamb, or deer meat). If the fetus is infected it can cause miscarriage, stillbirth, hydrocephalus, macro or microcephalus, vision issues, and damage to the nervous system. <sup>87</sup>
<b>Lymphocytic choriomeningitis</b>	This virus carried by rodents including mice, hamsters, and guinea pigs. If an infected mother passes it to her fetus it can cause issues with brain development, long-term neurological and/or visual impairment, and higher mortality rates after birth. <sup>88</sup>

<sup>83</sup> [Protocols on prenatal care for pregnant women with Zika infection and children with microcephaly: nutritional approach](#) by Rachel de Sá Barreto Luna Callou Cruz, Malaquias Batista Filho, Maria de Fátima Costa Caminha, and Edvaldo da Silva Souza is licensed under [CC BY 4.0](#)

<sup>84</sup> [Congenital Varicella syndrome](#) by WikiDoc is licensed under [CC BY-SA 3.0](#)

<sup>85</sup> [Chapter 3: Prenatal Development – Environmental Risks](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, which is licensed under [CC BY 4.0](#)

<sup>86</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2860824/>

<sup>87</sup> Prescription drugs, over-the-counter drugs, supplements and herbal products (n.d.). Retrieved from: <https://www.marchofdimes.org/pregnancy/prescription-drugs-over-the-counter-drugs-supplements-and-herbal-products.aspx>

<sup>88</sup> Prescription drugs, over-the-counter drugs, supplements and herbal products (n.d.). Retrieved from: <https://www.marchofdimes.org/pregnancy/prescription-drugs-over-the-counter-drugs-supplements-and-herbal-products.aspx>

## Maternal Factors

There are additional factors that affect the outcome of pregnancy for both mother and child. Let's look at these next.

### *Mothers over 35*

Most women over 35 who become pregnant are in good health and have healthy pregnancies. However, according to the March of Dimes (2016d), women over age 35 are more likely to have an increased risk of:

- Fertility problems
- High blood pressure
- Diabetes
- Miscarriages
- Placenta Previa
- Cesarean section
- Premature birth
- Stillbirth
- A baby with a genetic disorder or other birth defects

Because a woman is born with all her eggs, environmental teratogens can affect the quality of the eggs as women get older. Also, a woman's reproductive system ages which can adversely affect the pregnancy. Some women over 35 choose special prenatal screening tests, such as a maternal blood screening, to determine if there are any health risks for the baby.

Although there are medical concerns associated with having a child later in life, there are also many positive consequences to being a more mature parent. Older parents are more confident, less stressed, and typically married, providing family stability. Their children perform better on math and reading tests, and they are less prone to injuries or emotional troubles (Albert, 2013). Women who choose to wait are often well educated and lead healthy lives. According to Gregory (2007), older women are more stable, demonstrate a stronger family focus, possess greater self-confidence, and have more money. Having a child later in one's career equals overall higher wages. In fact, for every year a woman delays motherhood, she makes 9% more in lifetime earnings. Lastly, women who delay having children actually live longer.

### *Teenage Pregnancy*

A teenage mother is at a greater risk for having pregnancy complications including anemia, and high blood pressure. These risks are even greater for those under age 15. Infants born to teenage mothers have a higher risk of being premature and having low birthweight or other serious health problems. Premature and low birthweight babies may have organs that are not fully developed which can result in breathing problems, bleeding in the brain, vision loss, serious intestinal problems, and a higher likelihood of dying. Reasons for these health issues include that teenagers are the least likely of all age groups to get early and regular prenatal care and they may engage in negative behaviors including eating unhealthy food, smoking, drinking alcohol, and taking drugs.

### *Gestational Diabetes*

Seven percent of pregnant women develop **gestational diabetes** (March of Dimes, 2015b). Diabetes is a condition where the body has too much glucose in the bloodstream.



Figure 3.9 – A gestational diabetes kit.<sup>89</sup>

Most pregnant women have their glucose level tested between 24 to 28 weeks of pregnancy. Gestational diabetes usually goes away after the mother gives birth, but it might indicate a risk for developing diabetes later in life. If untreated, gestational diabetes can cause premature birth, stillbirth, the baby having breathing problems at birth, jaundice, or low blood sugar. Babies born to mothers with gestational diabetes can also be considerably heavier (more than 9 pounds) making the labor and birth process more difficult. For expectant mothers, untreated gestational diabetes can cause preeclampsia (high blood pressure and signs that the liver and kidneys may not be working properly) discussed later in the chapter.

Risk factors for gestational diabetes include age (being over age 25), being overweight or gaining too much weight during pregnancy, family history of diabetes, having had gestational diabetes with a prior pregnancy, and race and ethnicity (African-American, Native American, Hispanic, Asian, or Pacific Islander have a higher risk). Eating healthy and maintaining a healthy weight during pregnancy can reduce the chance of gestational diabetes. Women who already have diabetes and become pregnant need to attend all their prenatal care visits, and follow the same advice as those for women with gestational diabetes as the risk of preeclampsia, premature birth, birth defects, and stillbirth are the same.

<sup>89</sup> [Image](#) by [Jessica Merz](#) is licensed under [CC BY 2.0](#)

### *High Blood Pressure (Hypertension)*

Hypertension is a condition in which the pressure against the wall of the arteries becomes too high. There are two types of high blood pressure during pregnancy, gestational and chronic. Gestational hypertension only occurs during pregnancy and goes away after birth. Chronic high blood pressure refers to women who already had hypertension before the pregnancy or to those who developed it during pregnancy and it did not go away after birth.



Figure 3.10 – A woman having her blood pressure taken.<sup>90</sup>

According to the March of Dimes (2015c), about 8 in every 100 pregnant women have high blood pressure. High blood pressure during pregnancy can cause premature birth and low birth weight (under five and a half pounds), placental abruption, and mothers can develop preeclampsia.

### *Rh Disease*

Rh is a protein found in the blood. Most people are Rh positive, meaning they have this protein. Some people are Rh negative, meaning this protein is absent. Mothers who are Rh negative are at risk of having a baby with a form of anemia called Rh disease (March of Dimes, 2009).

A father who is Rh-positive and a mother who is Rh-negative can conceive a baby who is Rh-positive. Some of the fetus's blood cells may get into the mother's bloodstream and her immune system is unable to recognize the Rh factor. The immune system starts to produce antibodies to fight off what it thinks is a foreign invader. Once her body produces immunity, the antibodies can cross the placenta and start to destroy the red blood cells of the developing fetus. As this process takes time, often the first Rh positive baby is not harmed, but as the mother's body will continue to produce antibodies to the Rh factor across her lifetime, subsequent pregnancies can pose a greater risk for an Rh positive baby. In a newborn, Rh disease can lead to jaundice, anemia, heart failure, brain damage, and death.

### *Weight Gain during Pregnancy*

According to March of Dimes (2016f), during pregnancy, most women need only an additional 300 calories per day to aid in the growth of the fetus. Gaining too little or too much weight during pregnancy can be harmful. Women who gain too little may have a baby who is low-birth weight, while those who gain too much are likely to have a premature or large baby. There is

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<sup>90</sup> [Image](#) by [rawpixel](#) on [Unsplash](#)

also a greater risk for the mother developing preeclampsia and diabetes, which can cause further problems during the pregnancy.

The table below shows the healthy weight gain during pregnancy. Mothers who are concerned about their weight should talk to their health care provider.

**Table 3.5 - Weight Gain during Pregnancy**

If you were a healthy weight before pregnancy:	If you were underweight before pregnancy:	If you were overweight before pregnancy:	If you were obese before pregnancy:
<ul style="list-style-type: none"> <li>• Gain 25-35 pounds</li> <li>• 1-4½ pounds in the 1<sup>st</sup> trimester</li> <li>• 1 pound per week in the 2<sup>nd</sup> and 3<sup>rd</sup> trimesters</li> </ul>	<ul style="list-style-type: none"> <li>• Gain 28-30 pounds</li> <li>• 1-4½ pounds in the 1<sup>st</sup> trimester</li> <li>• A little more than 1 pound per week thereafter</li> </ul>	<ul style="list-style-type: none"> <li>• Gain 12-25 pounds</li> <li>• 1-4½ pounds in the 1<sup>st</sup> trimester</li> <li>• A little more than ½ pound per week in 2<sup>nd</sup> and 3<sup>rd</sup> trimesters</li> </ul>	<ul style="list-style-type: none"> <li>• 11-20 pounds</li> <li>• 1-4½ pounds in the 1<sup>st</sup> trimester</li> <li>• A little more than ½ pound per week in 2<sup>nd</sup> and 3<sup>rd</sup> trimesters</li> </ul>
Mothers of twins or higher-order multiples need to gain more in each category.			

### *Stress*

Feeling stressed is common during pregnancy, but high levels of stress can cause complications including having a premature baby or a low-birthweight baby. Babies born early or too small are at an increased risk for health problems. Stress-related hormones may cause these complications by affecting a woman's immune systems resulting in an infection and premature birth. Additionally, some women deal with stress by smoking, drinking alcohol, or taking drugs, which can lead to problems in the pregnancy. High levels of stress in pregnancy have also been correlated with problems in the baby's brain development and immune system functioning, as well as childhood problems such as trouble paying attention and being afraid (March of Dimes, 2012b).

### *Depression*

Depression is a significant medical condition in which feelings of sadness, worthlessness, guilt, and fatigue interfere with one's daily functioning. Depression can occur before, during, or after pregnancy, and 1 in 7 women are treated for depression sometime between the year before pregnancy and year after pregnancy (March of Dimes, 2015a). Women who have experienced depression previously are more likely to have depression during pregnancy. Consequences of depression include the baby being born premature, having a low birthweight, being more irritable, less active, less attentive, and having fewer facial expressions.

About 13% of pregnant women take an antidepressant during pregnancy. It is important that women taking antidepressants during pregnancy discuss the medication with a health care provider as some medications can cause harm to the developing organism.

## Paternal Impact

The age of fathers at the time of conception is also an important factor in health risks for children. According to Nippoldt (2015), offspring of men over 40 face an increased risk of miscarriages, autism, birth defects, achondroplasia (bone growth disorder) and schizophrenia. These increased health risks are thought to be due to accumulated chromosomal aberrations and mutations during the maturation of sperm cells in older men (Bray, Gunnell, & Smith, 2006). However, like older women, the overall risks are small.

In addition, men are more likely than women to work in occupations where hazardous chemicals, many of which have teratogenic effects or may cause genetic mutations, are used (Cordier, 2008). These may include petrochemicals, lead, and pesticides that can cause abnormal sperm and lead to miscarriages or diseases. Men are also more likely to be a source of second-hand smoke for their developing offspring. As noted earlier, smoking by either the mother or around the mother can hinder prenatal development.<sup>91</sup>



Figure 3.11 - A USDA employee pouring hazardous chemicals into a storage container.<sup>92</sup>

## Prenatal Assessment

A number of assessments are suggested to women as part of their routine prenatal care to find conditions that may increase the risk of complications for the mother and fetus (Eisenberg, Murkoff, & Hathaway, 1996). These can include blood and urine analyses and screening and diagnostic tests for birth defects.

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<sup>91</sup> [Lifespan Development: A Psychological Perspective](#) (pages 52-55) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

<sup>92</sup> [Image](#) by [USDA](#) is in the public domain





Figure 3.12 – A woman receiving an ultrasound.<sup>93</sup>

**Ultrasound** is one of the main screening tests done in combination with blood tests. The ultrasound is a test in which sound waves are used to examine the fetus.

Ultrasounds are used to check the fetus for defects or problems. It can also find out the age of the fetus, location of the placenta, fetal position, movement, breathing and heart rate, amount of amniotic fluid in the uterus, and number of fetuses. Most women have at least one ultrasound during pregnancy, but if problems are noted, additional ultrasounds may be recommended.

When a diagnosis of a birth defect is necessary, ultrasounds help guide the more invasive diagnostic tests of amniocentesis and chorionic villus sampling. **Amniocentesis** is a procedure in which a needle is used to withdraw a small amount of amniotic fluid and cells from the sac surrounding the fetus and later tested. **Chorionic villus sampling** can identify birth defects or genetic disease by analyzing a small sample of cells taken from the placenta where it attaches to the wall of the uterus.

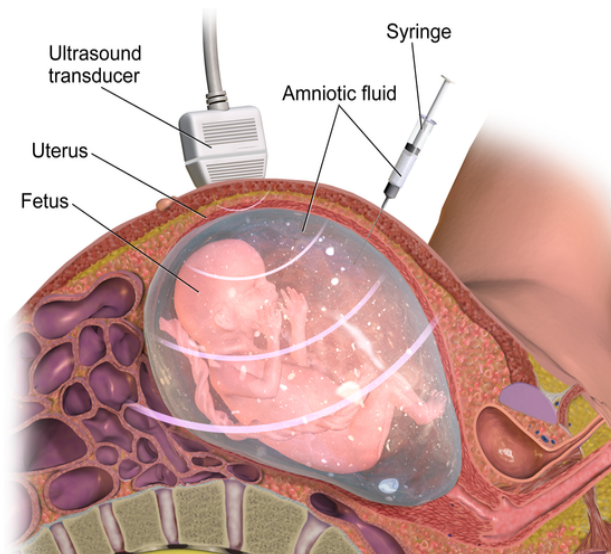


Figure 3.13 – Amniocentesis.<sup>94</sup>

<sup>93</sup> Image by [MedicalPrudens](#) is licensed under [CC0 1.0](#)

<sup>94</sup> Image by [BruceBlaus](#) is licensed under [CC BY-SA 4.0](#)

### *Complications of Pregnancy*

There are a number of common side effects of pregnancy. Not everyone experiences all of these, nor to the same degree. And although they are considered "minor", this is not to say that these problems are not potentially very uncomfortable. These side effects include nausea (particularly during the first 3-4 months of pregnancy as a result of higher levels of estrogen in the system), heartburn, gas, hemorrhoids, backache, leg cramps, insomnia, constipation, shortness of breath or varicose veins (as a result of carrying a heavy load on the abdomen). These are minor issues.

But there are also serious complications of pregnancy which can pose health risks to mother and child and that often require hospitalization.

**Ectopic Pregnancy** occurs when the zygote becomes attached to the fallopian tube before reaching the uterus. About 1 in 50 pregnancies in the United States are tubal pregnancies and this number has been increasing because of the higher rates of pelvic inflammatory disease and Chlamydia (Carroll, 2007). Abdominal pain, vaginal bleeding, nausea, and fainting are symptoms of ectopic pregnancy.



Figure 3.14 – An ectopic pregnancy.<sup>95</sup>

**Spontaneous abortion**, more commonly known as a **miscarriage**, is experienced in an estimated 20-40 percent of undiagnosed pregnancies and in another 10 percent of diagnosed pregnancies. Usually, the body aborts due to chromosomal abnormalities, and this typically happens before the 12th week of pregnancy. Cramping and bleeding result and normal periods return after several months. Some women are more likely to have repeated miscarriages due to chromosomal, amniotic, or hormonal problems, but miscarriage can also be a result of defective sperm (Carrell et. al., 2003).

**Preeclampsia**, also known as **Toxemia**, is characterized by a sharp rise in blood pressure, a leakage of protein into the urine as a result of kidney problems, and swelling of the hands, feet, and face during the third trimester of pregnancy. Preeclampsia is the most common complication of pregnancy. When preeclampsia causes seizures, the condition is known as eclampsia, which is the second leading cause of maternal death in the United States. Preeclampsia is also a leading cause of fetal complications, which include low birth weight,

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<sup>95</sup> [Image](#) by [Takatakakumi](#) is licensed under [CC BY-SA 3.0](#)

premature birth, and stillbirth. Treatment is typically bed rest and sometimes medication. If this treatment is ineffective, labor may be induced.

**Maternal Mortality:** Approximately 1000 women die in childbirth around the world each day (World Health Organization, 2010). Rates are highest in Sub-Saharan Africa and South Asia, although there has been a substantial decrease in these rates. The campaign to make childbirth safe for everyone has led to the development of clinics accessible to those living in more isolated areas and training more midwives to assist in childbirth.<sup>96</sup>

## Conclusion

In this chapter we looked at:

- The germinal, embryonic, and fetal stages of prenatal development
- Influences on prenatal development including teratogens and maternal and paternal factors
- Complications of pregnancy
- Infertility and options for building families

Now let's explore birth and the newborn baby.

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<sup>96</sup> [Hyperemesis Gravidarum](#) by [Wikipedia](#) is licensed under [CC BY-SA 3.0](#)  
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# Chapter 4: Birth and the Newborn

## Chapter Objectives

After this chapter, you should be able to:

- Compare and contrast different methods of childbirth preparation.
- Describe the stages of vaginal delivery.
- Explain why induction or Caesarean section may be necessary.
- Differentiate the common procedures for assessing the condition of the newborn.
- Examine problems newborns experience before, during, and after birth.

## Introduction

After around 38 weeks of developing inside the womb (for a full-term pregnancy), comes the arduous process of childbirth. After birth, newborns have to regulate their own body temperature, breathe for themselves, and take in all of their nutrition through feeding. Let's look at both the process of birth and some attributes of the newborn.

## Preparing for Childbirth

Prepared childbirth refers to being not only in good physical condition to help provide a healthy environment for the baby to develop, but also helping individuals to prepare to accept their new roles as parents. Additionally, parents can receive information and training that will assist them for delivery and life with the baby. The more future parents can learn about childbirth and the newborn, the better prepared they will be for the adjustment they must make to a new life.

## Approaches to Childbirth

There are many different approaches to childbirth that influence how expectant parents prepare. The following table describes a variety of different methods:

**Table 4.1 - Approaches to Childbirth<sup>97</sup>**

Method	Description
<b>The Lamaze Method</b>	The emphasis of this method is on teaching the woman to be in control in the process of delivery. It includes learning muscle relaxation, breathing through contractions, having a focal point (usually a picture to look at) during contractions, and having a support person who goes through the training process with the mother and serves as a coach during delivery.

<sup>97</sup> [Lifespan Development: A Psychological Perspective](#) (page 59) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#); [Lifespan Development - Module 3: Prenatal Development](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

<b>The Leboyer Method</b>	This method involves giving birth in a quiet, dimly lit room and allowing the newborn to lie on the mother's stomach with the umbilical cord intact for several minutes while being given a warm bath.
<b>Dick-Read Method / Mongan Method / Hypnobirthing</b>	This method comes from the suggestion that the fear of childbirth increases tension and makes the process of childbearing more painful. It emphasizes the use of relaxation and proper breathing with contractions as well as family support and education.
<b>Bradley Method</b>	"The Bradley Method focuses on preparing the mother for a natural childbirth coached by her partner. They learn techniques to reduce the perception of pain and stay relaxed. The emphasis is on being prepared for an unassisted vaginal birth without medication." <sup>98</sup>
<b>Alexander Technique</b>	This is a technique that can be used during childbirth that involves training to stop habitual reactions to pain, such as tensing muscles and increase conscious awareness and control over posture and movement. This involves being able to move freely and stay upright during labor and using body positioning that is beneficial to the labor process. <sup>99</sup>
<b>Waterbirth</b>	Involves immersion in warm water. Proponents believe this method is safe and provides many benefits for both mother and infant, including pain relief and a less traumatic birth experience for the baby. However, critics argue that the procedure introduces unnecessary risks to the infant such as infection and water inhalation. <sup>100</sup>
<b>Lotus Birth</b>	Or umbilical cord nonseverance – UCNS, is the practice of leaving the umbilical cord uncut after childbirth so that the baby is left attached to the placenta until the cord naturally separates at the umbilicus. This usually occurs within 3–10 days after birth. The practice is performed mainly for spiritual purposes of the parents, including for the perceived spiritual connection between placenta and newborn. <sup>101</sup>
<b>Medicated Childbirth</b>	Health care providers can provide pain relief during labor with different types of medication, including epidurals, spinal blocks, combined spinal-epidurals, and systemic and local analgesia. There are benefits and side effects of each. <sup>102</sup>

<sup>98</sup> Oberg, Erica (n.d.). *Childbirth Delivery Methods and Types*. Retrieved from [https://www.medicinenet.com/7\\_childbirth\\_and\\_delivery\\_methods/article.htm#childbirth\\_and\\_delivery\\_methods\\_and\\_types\\_facts](https://www.medicinenet.com/7_childbirth_and_delivery_methods/article.htm#childbirth_and_delivery_methods_and_types_facts).

<sup>99</sup> Machover, Ilana. (n.d.). *The Alexander Technique in Natural Childbirth*. Retrieved from <https://www.alexandertechnique.com/articles/childbirth/>.

<sup>100</sup> [Water Birth](#) by Wikidoc is licensed under [CC BY-SA 3.0](#)

<sup>101</sup> [Lotus Birth](#) by [Wikipedia](#) is licensed under [CC BY-SA 3.0](#)

<sup>102</sup> [Epidural and Spinal Anesthesia Use During Labor: 27-state Reporting Area, 2008](#) by Michelle J.K. Osterman and Joyce A. Martin is in the public domain



Figure 4.1 - Expectant parents in a childbirth preparation class.<sup>103</sup>

## Choosing the Location of Childbirth & Who Will Deliver

The vast majority of births occur in a hospital setting. However, one percent of women choose to deliver at home (Martin, Hamilton, Osterman, Curtin, & Mathews, 2015). Women who are at low risk for birth complications can successfully deliver at home. More than half (67%) of home deliveries are by certified nurse-midwives. Midwives are trained and licensed to assist in delivery and are far less expensive than the cost of a hospital delivery. However, because of the potential for a complication during the birth process, most medical professionals recommend that delivery take place in a hospital. In addition to home births, one-third of out-of-hospital births occur in freestanding clinics, birthing centers, in physician's offices, or other locations.<sup>104</sup>

## Childbirth

### Onset of Labor

Childbirth typically occurs within a week of a woman's due date, unless the woman is pregnant with more than one fetus, which usually causes her to go into labor early. As a pregnancy progresses into its final weeks, several physiological changes occur in response to hormones that trigger labor.

A common sign that labor is beginning is the so-called "bloody show." During pregnancy, a plug of mucus accumulates in the cervical canal, blocking the entrance to the uterus. Approximately 1–2 days before the onset of true labor, this plug loosens and is expelled, along with a small amount of blood.

As labor nears, the mothers' pituitary gland produces oxytocin. This begins to stimulate stronger, more painful uterine contractions, which—in a positive feedback loop—stimulate the secretion of prostaglandins from fetal membranes. Like oxytocin, prostaglandins also enhance

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<sup>104</sup> [Lifespan Development: A Psychological Perspective](#) (page 59) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#); [Lifespan Development - Module 3: Prenatal Development](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)



uterine contractile strength. The fetal pituitary gland also secretes oxytocin, which increases prostaglandins even further.

And the stretching of the cervix by a full-term fetus in the head-down position is regarded as a stimulant to uterine contractions. Combined, these stimulate true labor.<sup>105</sup>

## Stages of Birth for Vaginal Delivery

### *The First Stage*

Uterine contractions signify that the first stage of labor has begun. These contractions may initially last about 30 seconds and be spaced 15 to 20 minutes apart. These increase in duration and frequency to more than a minute in length and about 3 to 4 minutes apart. Typically, doctors advise that they be called when contractions are coming about every 5 minutes. Some women experience false labor or Braxton-Hicks Contractions, especially with the first child. These may come and go. They tend to diminish when the mother begins walking around. Real labor pains tend to increase with walking. In one out of 8 pregnancies, the amniotic sac or water in which the fetus is suspended may break before labor begins. In such cases, the physician may induce labor with the use of medication if it does not begin on its own in order to reduce the risk of infection. Normally this sac does not rupture until the later stages of labor.

The first stage of labor is typically the longest. During this stage, the cervix or opening to the uterus dilates to 10 centimeters or just under 4 inches. This may take around 12-16 hours for first children or about 6-9 hours for women who have previously given birth. Labor may also begin with a discharge of blood or amniotic fluid.

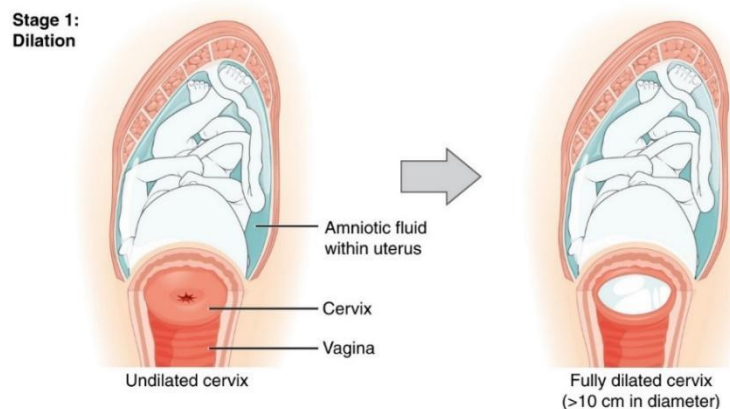


Figure 4.2 - Early cervical dilation.<sup>106</sup>

### *The Second Stage*

The passage of the baby through the birth canal is the second stage of labor. This stage takes about 10-40 minutes. Contractions usually come about every 2-3 minutes. The mother pushes

<sup>105</sup> [28.4 Maternal Changes During Pregnancy, Labor, and Birth](#) by Lindsay M. Biga, Sierra Dawson, Amy Harwell, Robin Hopkins, Joel Kaufmann, Mike LeMaster, Philip Matern, Katie Morrison-Graham, Devon Quick, and Jon Runyeon is licensed under [CC BY-NC-SA 4.0](#)

<sup>106</sup> [Image](#) by [OpenStax](#) is licensed under [CC BY 3.0](#)



and relaxes as directed by the medical staff. Normally the head is delivered first. The baby is then rotated so that one shoulder can come through and then the other shoulder. The rest of the baby quickly passes through. The baby's mouth and nose are suctioned out. The umbilical cord is clamped and cut.<sup>107</sup>

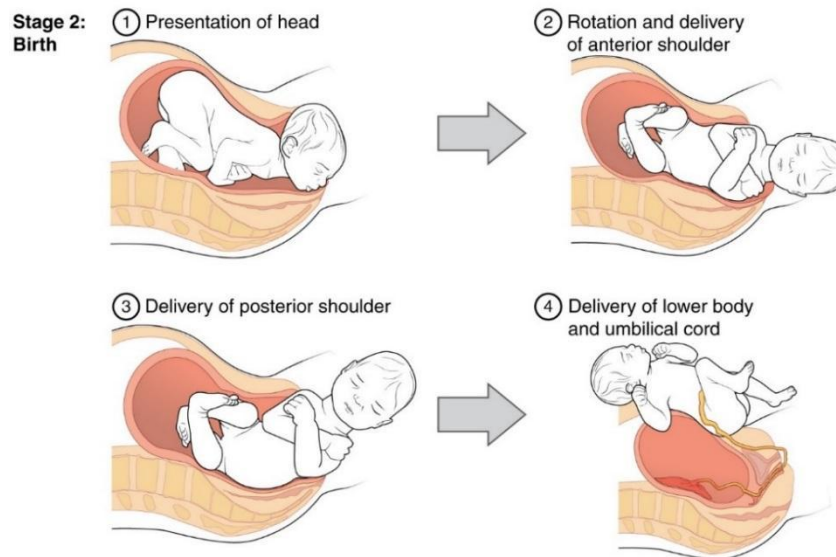


Figure 4.3 - Full dilation and expulsion of the newborn.<sup>108</sup>

### *The Third Stage*

The third and final stage of labor is relatively painless. During this stage, the placenta or afterbirth is delivered. This is typically within 20 minutes after delivery. If an episiotomy was performed it is stitched up during this stage.<sup>109</sup>

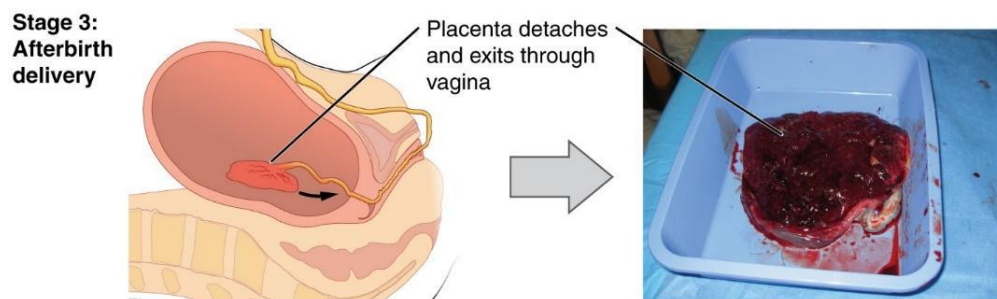


Figure 4.4 - delivery of the placenta and associated fetal membranes.<sup>110</sup>

<sup>107</sup> [Lifespan Development: A Psychological Perspective](#) (page 60) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

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## Additional Considerations

More than 50% of women giving birth at hospitals use an epidural anesthesia during delivery (American Pregnancy Association, 2015). An epidural block is a regional analgesic that can be used during labor and alleviates most pain in the lower body without slowing labor. The epidural block can be used throughout labor and has little to no effect on the baby. Medication is injected into a small space outside the spinal cord in the lower back. It takes 10 to 20 minutes for the medication to take effect. An epidural block with stronger medications, such as anesthetics, can be used shortly before a Cesarean Section or if a vaginal birth requires the use of forceps or vacuum extraction.<sup>111</sup>

Women giving birth can also receive other pain medications (although medications given through injection can have negative side effects on the baby). In emergency situations (such as the need for a C-section), women may be given general anesthesia. They can also choose not to utilize any pain medications. That is often referred to as **natural childbirth**.



Figure 4.5 – Natural childbirth.<sup>112</sup>

Women can also use alternate positions (including standing, squatting, being on hands and knees, and using a birthing stool) and laboring, and even delivering in tubs of warm water to help relieve the pain of childbirth.

## Medical Interventions in Childbirth

Sometimes women cannot go into labor on their own and/or deliver vaginally. Let's look at induction of labor and Cesarean Sections.

Sometimes a baby's arrival may need to be induced before labor begins naturally. **Induction of labor** may be recommended for a variety of reasons when there is concern for the health of the mother or baby. For example:

- The mother is approaching two weeks beyond her due date and labor has not started naturally

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- The mother's water has broken, but contractions have not begun
- There is an infection in the mother's uterus
- The baby has stopped growing at the expected pace
- There is not enough amniotic fluid surrounding the baby
- The placenta peels away, either partially or completely, from the inner wall of the uterus before delivery
- The mother has a medical condition that might put her or her baby at risk, such as high blood pressure or diabetes (Mayo Clinic, 2014).

A Cesarean Section (C-section) is surgery to deliver the baby by being removed through the mother's abdomen. In the United States, 30% (about 1 in 3) of women have their babies delivered this way (Martin et al., 2015). Most C-sections are done when problems occur during delivery unexpectedly. These can include:

- Health problems in the mother
- Signs of distress in the baby
- Not enough room for the baby to go through the vagina
- The position of the baby, such as a breech presentation where the head is not in the downward position.



Figure 4.6 – A woman receiving a C-section.<sup>113</sup>



Figure 4.7 – A baby being delivered by C-section.<sup>114</sup>

C-sections are also more common among women carrying more than one baby. Although the surgery is relatively safe for mother and baby, it is considered major surgery and carries health risks. Additionally, it also takes longer to recover from a C-section than from vaginal birth. After healing, the incision may leave a weak spot in the wall of the uterus. This could cause problems with an attempted vaginal birth later. In the past, doctors were hesitant to allow a vaginal birth after a C-section. However, now more than half of women who have a C-section go on to have a vaginal birth later.<sup>115</sup> This is referred to as a **Vaginal Birth After Cesarean (VBAC)**.

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## The Newborn



Figure 4.8 – A new mother holding her newborn.<sup>116</sup>

### Assessing the Newborn
















The Apgar assessment is conducted one minute and five minutes after birth. This is a very quick way to assess the newborn's overall condition. Five measures are assessed: Heart rate, respiration, muscle tone (assessed by touching the baby's palm), reflex response (the Babinski reflex is tested), and color. A score of 0 to 2 is given on each feature examined. An Apgar of 5 or less is cause for concern. The second Apgar should indicate improvement with a higher score.<sup>117</sup>



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APGAR SCORE

SCORE	APPEARANCE	PULSE	GRIMACE	ACTIVITY	RESPIRATION
0	 <p>Blue all over</p>	 <p>No pulse</p>	 <p>No response to stimulation</p>	 <p>No movement</p>	 <p>No respiration</p>
1	 <p>Blue extremities</p>	 <p>&lt;100 beats/min</p>	 <p>Grimace on stimulation</p>	 <p>Some flexion</p>	 <p>Weak, irregular, slow</p>
2	 <p>No blue colouration</p>	 <p>&gt;100 beats/min</p>	 <p>Cry on stimulation</p>	 <p>Flexed limbs that resist extension</p>	 <p>Strong cry</p>

≥7

NORMAL

4-6

LOW

≤3

CRITICAL

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Figure 4.9 – The Apgar assessment.<sup>118</sup>

Another way to assess the condition of the newborn is the Neonatal Behavioral Assessment Scale (NBAS). The baby's motor development, muscle tone, and stress response are assessed. This tool has been used around the world to further assess the newborn, especially those with low Apgar scores, and to make comparisons of infants in different cultures (Brazelton & Nugent, 1995).

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<sup>118</sup> [Image](#) by [Event Medicine Group](#)

Newborns are also routinely screened for different conditions. Within the first 24 to 48 hours after birth, babies born in hospitals undergo a simple heel stick and a few drops of blood are collected on a special paper card. Providers test those dried blood spots for a variety of different congenital disorders, or conditions that are present when the baby is born. In California, newborns are now screened for 80 different genetic and congenital disorders.



Figure 4.10 – A medical professional performing the heel stick test.<sup>119</sup>

Newborns are also screened for hearing disorders and certain serious heart problems using methods other than dried blood spots.<sup>120</sup>

## Problems of the Newborn

### *Anoxia*

Anoxia is a temporary lack of oxygen to the brain. Difficulty during delivery may lead to anoxia which can result in brain damage or in severe cases, death. Babies who suffer both low birth weight and anoxia are more likely to suffer learning disabilities later in life as well.

### *Low Birth Weight*

A child is considered low birth weight if he or she weighs less than 5 pounds 8 ounces (2500 grams). About 8.2 percent of babies born in the United States are of low birth weight (Center for Disease Control, 2015a). Sixty-seven percent of these babies are also preterm.

A low birth weight baby has difficulty maintaining adequate body temperature because it lacks the fat that would otherwise provide insulation. Such a baby is also at more risk for infection. Very low birth weight babies (2 pounds or less) have an increased risk of developing cerebral palsy. Many causes of low birth weight are preventable with proper prenatal care.

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<sup>120</sup> [Newborn Screening](#) is in the public domain ; [Newborn Screening Program \(NBS\)](#) by the [California Department of Public Health](#) is in the public domain



### *Preterm*

A newborn might also have a **low birth weight** if it is born at less than 37 weeks gestation, which qualifies it as a **preterm baby** (CDC, 2015c). Early birth can be triggered by anything that disrupts the mother's system. For instance, vaginal infections can lead to premature birth because such infection causes the mother to release anti-inflammatory chemicals which, in turn, can trigger contractions. Smoking and the use of other teratogens can lead to preterm birth. A significant consequence of preterm birth includes respiratory distress syndrome, which is characterized by weak and irregular breathing (see the image below). Premature babies often cannot yet regulate their own temperature or feed by nursing or bottle. They may struggle to regulate their heart rate effectively and may experience jaundice. They often require care in the Neonatal Intensive Care Unit (NICU) until they are as healthy as a full-term baby.



Figure 4.11 - a premature baby on CPAP in the NICU.<sup>121</sup>

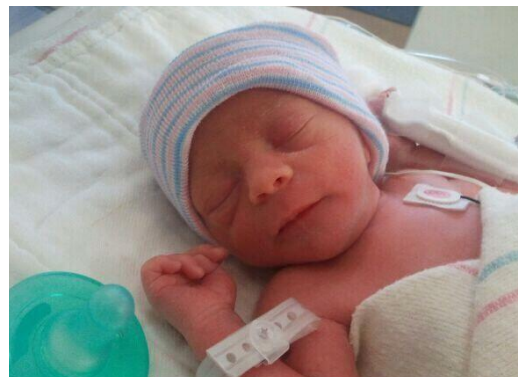


Figure 4.12 - This baby was born at 32 weeks and only weighed 2 pounds and 15 ounces.<sup>122</sup>

### *Small-for-Date Infants*

Infants that have birth weights that are below expectation based on their gestational age are referred to as **small-for-date**. These infants may be full-term or preterm (see image below), but still weigh less than 90% of all babies of the same gestational age. This is a very serious situation for newborns as their growth was adversely affected. Regev et al. (2003) found that small-for-date infants died at rates more than four times higher than other infants.

### *Postmature*

When babies are not born by 42 weeks gestation, or two weeks after their due date, they are considered overdue or **postmature**. There are some concerns about how long the placenta can function and most doctors will consider induction for overdue babies.

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<sup>121</sup> Photo by Jennifer Paris used with permission

<sup>122</sup> Photo by Jennifer Paris used with permission

## Stillborn

When a fetus (unborn baby) dies while still inside the mother (after 20-24 weeks gestation) or dies during delivery (childbirth). It is said that the delivered baby is **stillborn**. The causes of many stillbirths are unknown, even when special tests are done to learn the cause. Possible causes include: nicotine, alcohol, or drugs taken by the mother during pregnancy, physical trauma, radiation poisoning, Rh disease, and umbilical cord problems. The number of stillbirths in the United States is about 1 in 115 births, which is about 26,000 a year, or one every 20 minutes.<sup>123</sup>

## Characteristics of Newborns

### Size

The average newborn in the United States weighs about 7.5 pounds and is about 20 inches in length. For the first few days of life, infants typically lose about 5 percent of their body weight as they eliminate waste and get used to feeding. This often goes unnoticed by most parents, but can be cause for concern for those who have a smaller infant. This weight loss is temporary, however, and is followed by a rapid period of growth.



Figure 4.13 – A newborn being weighed.<sup>124</sup>

<sup>123</sup> [Lifespan Development: A Psychological Perspective](#) (pages 62-63) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#); [Stillbirth by Wikipedia](#) by [Wikipedia](#) is licensed under [CC BY-SA 3.0](#)

<sup>124</sup> [Image](#) by [Trei Brundrett](#) is licensed under [CC BY-SA 2.0](#)



### *Body Proportions*

The head initially makes up about 50 percent of our entire length when we are developing in the womb. At birth, the head makes up about 25 percent of our length (think about how much of your length would be head if the proportions were still the same!).

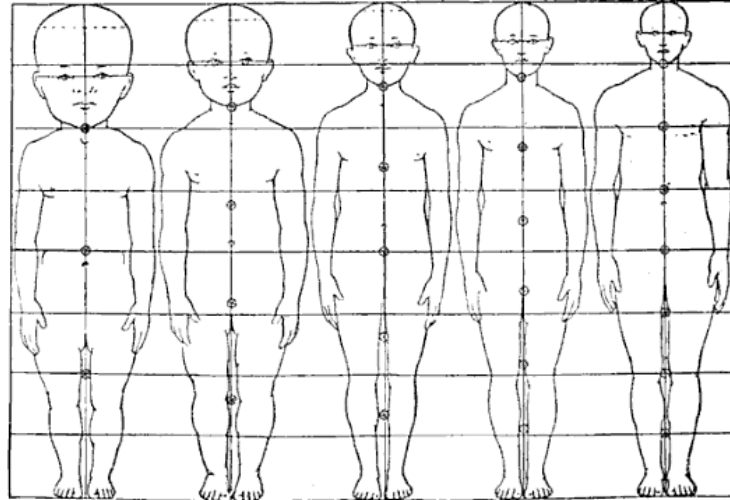


Figure 4.14 – Body proportions from infancy to adulthood.<sup>125</sup>

### *Brain Development*

Some of the most dramatic physical change that occurs during this period is in the brain. At birth, the brain is about 25 percent of its adult weight and this is not true for any other part of the body. While most of the brain's 100 to 200 billion neurons are present at birth, they are not fully mature. During the next several years dendrites or connections between neurons will undergo a period of transient exuberance or temporary dramatic growth.<sup>126</sup>

### *Appearance at Birth*

During labor and birth, the infant's skull changes shape to fit through the birth canal, sometimes causing the child to be born with a misshapen or elongated head. It will usually return to normal on its own within a few days or weeks.

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<sup>125</sup> [Image](#) is in the public domain

<sup>126</sup> [Lifespan Development - Chapter 4: Infancy - Physical Development](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

Some newborns have a fine, downy body hair called **lanugo**. It may be particularly noticeable on the back, shoulders, forehead, ears, and face of premature infants. Lanugo disappears within a few weeks. Likewise, not all infants are born with lush heads of hair. Some may be nearly bald while others may have very fine, almost invisible hair. Some babies are even born with a full head of hair. Amongst fair-skinned parents, this fine hair may be blond, even if the parents are not. The picture on the left shows lanugo on the shoulders of newborn twins.



Figure 4.15 - Lanugo on the shoulder and back of twin girls.<sup>127</sup>



Figure 4.16 - A newborn baby covered in vernix.<sup>128</sup>

Immediately after birth, a newborn's skin is often grayish to dusky blue in color. As soon as the newborn begins to breathe, usually within a minute or two, the skin's color returns to its normal tone. Newborns are wet, covered in streaks of blood, and coated with a white substance known as **vernix**, which is thought to act as an antibacterial barrier, seen in the picture on the right.

The scalp may also be temporarily bruised or swollen, especially in hairless newborns, and the area around the eyes may be puffy.

The newborn may also have Mongolian spots (blue or blue-black birthmark on the lower back), various other birthmarks, or peeling skin, particularly on the wrists, hands, ankles, and feet.<sup>129</sup>

A newborn's genitals are enlarged and reddened, with male infants having an unusually large scrotum. The breasts may also be enlarged, even in male infants. This is caused by naturally-occurring maternal hormones and is a temporary condition.

The umbilical cord of a newborn is bluish-white in color. After birth, the umbilical cord is normally cut, leaving a 1–2 inch stub. The umbilical stub will dry out, shrivel, darken, and spontaneously fall off within about 3 weeks. Occasionally, hospitals may apply triple dye to the umbilical stub to prevent infection, which may temporarily color the stub and surrounding skin purple.

<sup>127</sup> [Image](#) is in the public domain

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<sup>129</sup> [Mongolian Spot](#) by [Wiktionary](#) is licensed under [CC BY-SA 3.0](#)



Figure 4.17 - The clamping and cutting of a newborn's umbilical cord.<sup>130</sup>

Newborns lose many of the above physical characteristics quickly. Thus older babies look very different. While older babies are considered "cute," newborns can be "unattractive" by the same criteria and first-time parents may need to be educated in this regard.<sup>131</sup>

### *Sleep*

A newborn typically sleeps approximately 16.5 hours per 24-hour period. The infant sleeps in several periods throughout the day and night, which means they wake often throughout the day and night. (Salkind, 2005).<sup>132</sup>



Figure 4.18 – An older newborn baby.<sup>133</sup>

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<sup>131</sup> [Infant](#) by [WikiDoc](#) is licensed under [CC BY-SA 3.0](#)

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## Reflexes

Newborns are equipped with a number of **reflexes**, which are involuntary movements in response to stimulation. Some of the more common reflexes, such as the sucking reflex and rooting reflex, are important to feeding. The grasping and stepping reflexes are eventually replaced by more voluntary behaviors. Within the first few months of life, these reflexes disappear, while other reflexes, such as the eye-blink, swallowing, sneezing, gagging, and withdrawal reflex stay with us as they continue to serve important functions.<sup>134</sup>

## Sensory Capacities

Throughout much of history, the newborn was considered a passive, disorganized being who possessed minimal abilities. However, current research techniques have demonstrated just how developed the newborn is with especially organized sensory and perceptual abilities.

## Vision

Vision is the most poorly developed sense at birth and time is needed to build those neural pathways between the eye and the brain. Newborns typically cannot see further than 8 to 16 inches away from their faces, and their visual acuity is about 20/400, which means that an infant can see something at 20 feet that an adult with normal vision could see at 400 feet. Thus, the world probably looks blurry to young infants.



Figure 4.19 – A newborn gazing up at a parent.<sup>135</sup>

## Hearing

The infant's sense of hearing is very keen at birth, and the ability to hear is evidenced by the 7th month of prenatal development. Infants are especially sensitive to the frequencies of sounds in human speech and prefer the exaggeration of infant-directed speech, which will be discussed later. Newborns also prefer their mother's voices over another female when speaking

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the same material (DeCasper & Fifer, 1980). Additionally, they will register in utero specific information heard from their mother's voice.<sup>136</sup>

## Early Hearing

DeCasper and Spence (1986) tested 16 infants whose mothers had previously read to them prenatally. The mothers read several passages to their fetuses, including the first 28 paragraphs of *The Cat in the Hat*, beginning when they were 7 months pregnant. The fetuses had been exposed to the stories on average of 67 times or 3.5 hours.

During the testing, the infants were able to choose between their mother's recordings of two stories, one of which was a story their mothers read to them while in the womb. They showed a preference, based on how fast they sucked on their pacifiers, for the stories that their mothers read to them while in the womb.<sup>137</sup>



Figure 4.20 – A collection of children's books.<sup>138</sup>

## Touch and Pain

Immediately after birth, a newborn is sensitive to touch and temperature, and is also highly sensitive to pain, responding with crying and cardiovascular responses (Balaban & Reisenauer, 2013). Newborns who are circumcised, which is the surgical removal of the foreskin of the penis, without anesthesia experience pain as demonstrated by increased blood pressure, increased heart rate, decreased oxygen in the blood, and a surge of stress hormones (United States National Library of Medicine, 2016). Research has demonstrated that infants who were circumcised without anesthesia experienced more pain and fear during routine childhood vaccines. Fortunately, many circumcisions are now done with the use of local anesthetics.

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### *Taste and Smell*

Studies of taste and smell demonstrate that babies respond with different facial expressions, suggesting that certain preferences are innate. Newborns can distinguish between sour, bitter, sweet, and salty flavors and show a preference for sweet flavors. Newborns also prefer the smell of their mothers. An infant only 6 days old is significantly more likely to turn toward its own mother's breast pad than to the breast pad of another baby's mother (Porter, Makin, Davis, & Christensen, 1992), and within hours of birth, an infant also shows a preference for the face of its own mother (Bushnell, 2001; Bushnell, Sai, & Mullin, 1989).

Infants seem to be born with the ability to perceive the world in an intermodal way; that is, through stimulation from more than one sensory modality. For example, infants who sucked on a pacifier with a smooth surface preferred looking at visual models of a pacifier with a smooth surface. But those that were given a pacifier with a textured surface preferred to look at a visual model of a pacifier with a textured surface.<sup>139</sup>



Figure 4.21 – A baby sucking on a pacifier.<sup>140</sup>

## Racial and Ethnic Disparities in Birth Outcomes

Women die in childbirth, or as a result of pregnancy or its complications, at a higher rate in the United States than in any other developed country (Melillo, 2020). Within the US, significant disparities exist across racial groups in pregnancy-related deaths. From 2007 through 2016, the overall pregnancy-related mortality ratio (PRMR) was 16.7 pregnancy-related deaths per 100,000 births. This rate is much higher for some ethnic groups. For black women, the PRMR was 40.8 followed by American Indian/Alaska Native (AI/AN) women who experienced a PRMR of 29.7 while this figure was 12.7 for white women. This disparity was consistent over time and across age groups. The PRMR for black and AI/AN women over the age of 30 years was approximately four to five times that for their white counterparts. Disparities persisted over

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time and across age groups and were present even among groups with higher levels of education (Petersen et al., 2019; Melillo, 2020).

Racial disparities also exist in rates of infant mortality, preterm birth, and low birthweight in the United States. More than 16% of black infants born in 2013 were born preterm, compared to only 10% of white infants. Black infants had a low birthweight rate of 8.5% compared to 4.6% for white infants. The rate for very low birthweight for black infants was 2.8% vs. 1.06% for white infants (Martin et al., 2015). 2013 was not an anomaly; African-American infants have shown higher rates of preterm birth since the CDC began comparing data in 1981 (Centers for Disease Control, 2013).

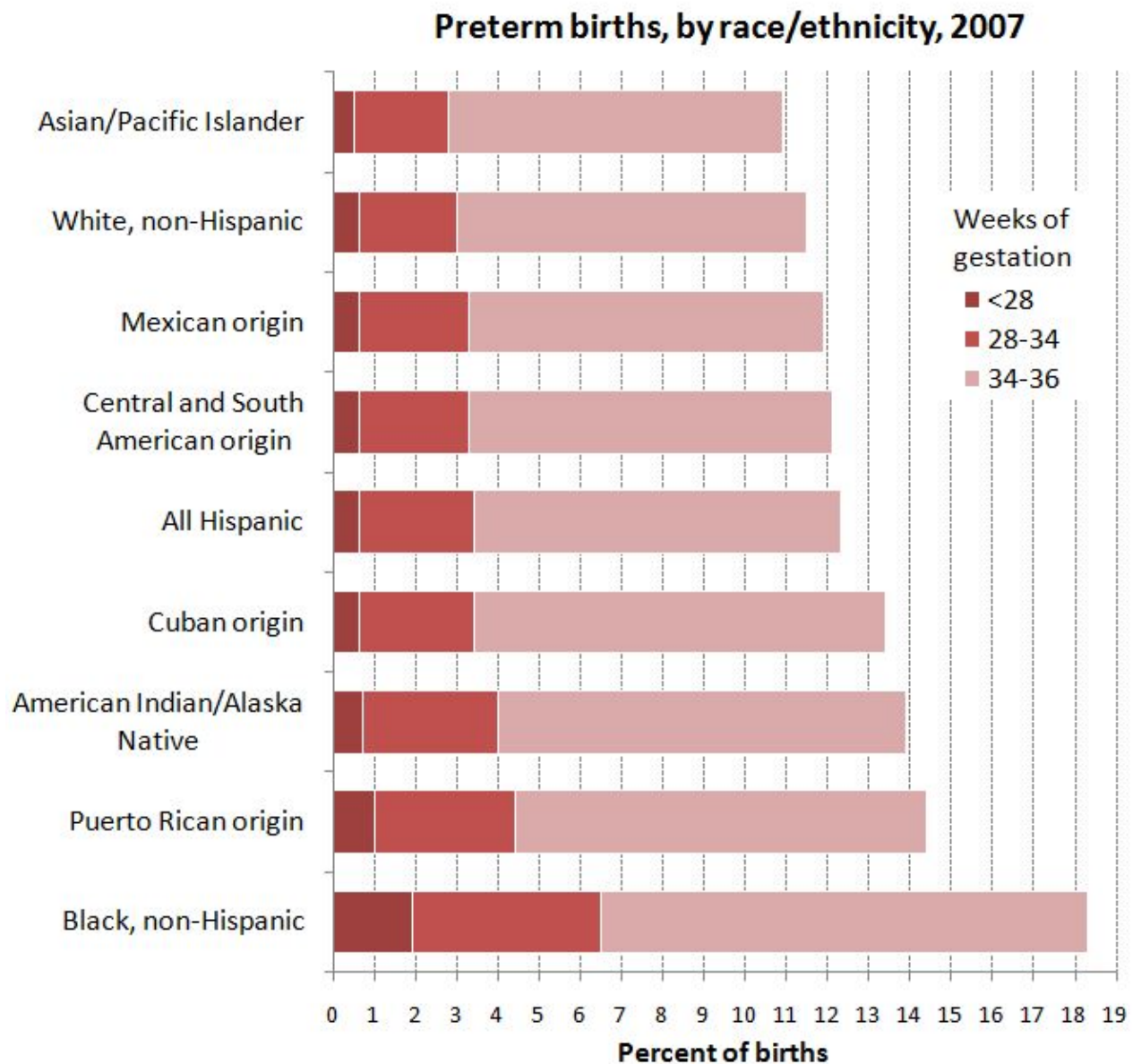


Figure 4.22 – This graph demonstrates the racial disparities in preterm births. <sup>141</sup>

<sup>141</sup> Image is in the public domain



Despite efforts to improve racial disparities in birth outcomes, black infants are more than twice as likely as white infants to die in their first year of life. All of these disparities in birth outcomes exist even after researchers control for known medical and sociodemographic risk factors, such as low income, low education, and alcohol and tobacco use (Collins et al., 2004). The results can't be explained by the greater likelihood of black families experiencing poverty. Research shows that the gap in negative birth outcomes for black women compared to white widens as socioeconomic levels increase (Kleinman and Kessel, 1987; Collins et al., 2004).

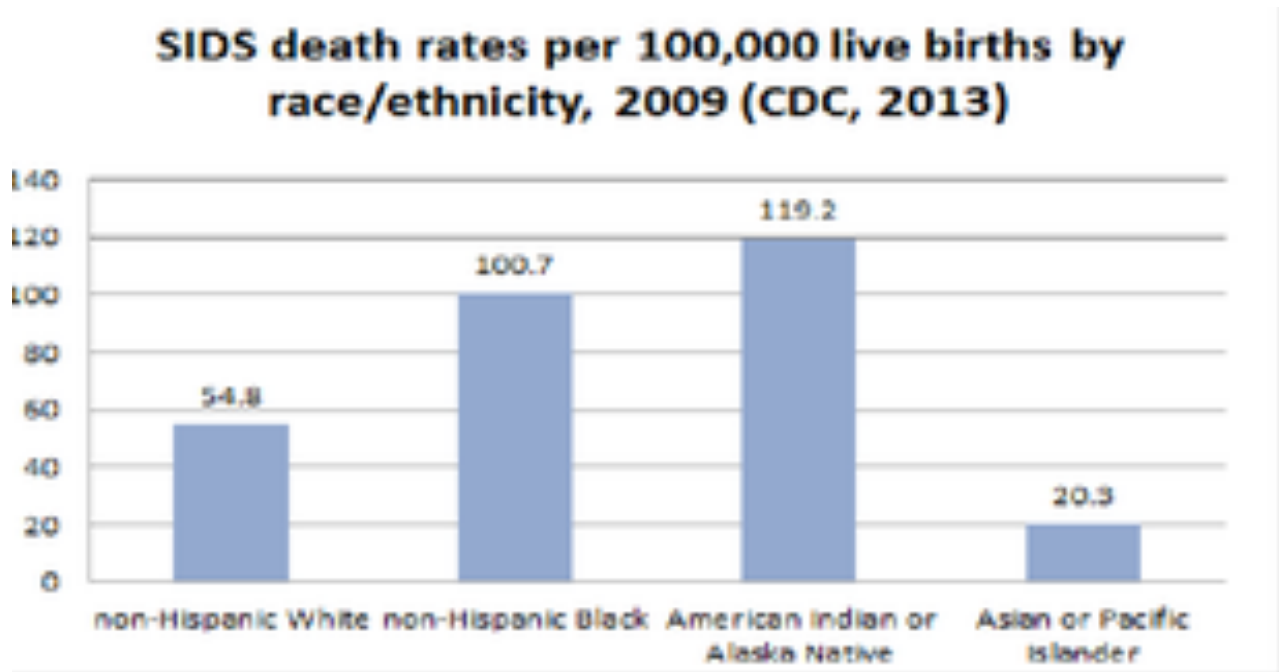


Figure 4.23 – This graph shows the racial disparities in the rate of SIDS.<sup>142</sup>

Researchers are beginning to conclude that exposure to racism and discrimination powerfully affect birth outcomes. Hormones perform a central role in pregnancy and childbirth, including initiating the physiological process of labor. Relationships have been shown between elevated stress hormone levels and chronic exposures throughout life to stress in general. Such research suggests that those who experience racism and discrimination have measurably higher levels of stress hormones (Makrigiannakis, et al., 2007). These increased levels cause the body to remain “chronically activated”, unable to return to its normal state following a stressful event. A chronically activated maternal stress response may initiate pre-term labor (Latendresse, 2009).

<sup>142</sup> Image is in the public domain



Figure 4.24 – Racism can be a chronic source of stress for women of color.<sup>143</sup>

African-American women experience more chronic stress in their lives than white women, in part due to the effects of lifetime exposure to interpersonal racism (Stancil et al., 200; Geronimus et al., 2006). Black women who delivered very low birthweight infants reported more incidences of interpersonal racism than those who delivered higher weight infants at term. It has also been found that black participants who reported high levels of racial discrimination were at 3.1 times the risk of preterm delivery and almost 5 times more likely to deliver low birthweight infants (Mustillo et al., 2004).

Research also suggests that chronic stress, such as the discrimination that mothers experience can have effects on the developing fetus. Stimuli during critical periods of embryonic and fetal development may alter such development and influence lifelong health (Checkley, 1996)

## Conclusion

In this chapter we looked at:

- methods of childbirth preparation
- the process of childbirth (for both vaginal and Cesarean deliveries)
- assessing newborn health
- problems for the newborn
- characteristics of newborns (including appearance, reflexes, and perceptual abilities)

In the next three chapters, we will explore the first three years of life more. Many rapid changes occur during these foundational years.

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<sup>143</sup> [Image](#) is in the public domain

# Chapter 5: Infants & Toddlers

## Physical Development

### Chapter Objectives

After this chapter, you should be able to:

1. Describe the physical changes that occur during the first two years of life.
2. Identify common infant reflexes.
3. Discuss the sleep needs during the first two years of life.
4. Summarize the sequence of both fine and gross motor skills.
5. Describe the developing sensory capacities of infants and toddlers.
6. Explain how to meet the evolving nutritional needs of infants and toddlers.

### Introduction

Welcome to the story of development from infancy through toddlerhood; from birth until about two years of age. Researchers have given this part of the life span more attention than any other period, perhaps because changes during this time are so dramatic and so noticeable and perhaps because we have assumed that what happens during these years provides a foundation for one's life to come. However, it has been argued that the significance of development during these years has been overstated (Bruer, 1999). Nevertheless, this is the period of life that contemporary educators, healthcare providers, and parents have focused on most heavily. We will examine growth and nutrition during infancy, as well as other prominent physical changes that take place during this time.<sup>144</sup>



Figure 5.1 – A sleeping newborn.<sup>145</sup>

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<sup>145</sup> [Image](#) by [Carlo Navarro](#) on [Unsplash](#)

## Rapid Physical Changes

As mentioned in the previous chapter, the average newborn in the United States weighs about 7.5 pounds and is about 20 inches in length. After about a 5% weight loss in the first few days, there is a period of rapid growth. By the time an infant is 4 months old, it usually doubles in weight and by one year has tripled its birth weight. By age 2, the weight has quadrupled. The average length at one year is about 30 inches.<sup>146</sup>

Two hormones are very important to this growth process. The first is Human Growth Hormone (HGH) which influences all growth except that in the Central Nervous System (CNS). The hormone influencing growth in the CNS is called Thyroid Stimulating Hormone. Together these hormones influence the growth in early childhood. Sleep is very important to the growth process as these hormones are released as children sleep each night.



Figure 5.2 – An infant sleeping.<sup>147</sup>

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## Proportions of the Body

Another dramatic physical change that takes place in the first several years of life is the change in body proportions. The head initially makes up about 50 percent of our entire length when we are developing in the womb. At birth, the head makes up about 25 percent of our length (think about how much of your length would be head if the proportions were still the same!). By age 25 it comprises about 13 percent our length. Imagine now how difficult it must be to raise one's head during the first year of life! And indeed, if you have ever seen a 2 to 4-month-old infant lying on the stomach trying to raise the head, you know how much of a challenge this is. The comparison in this graphic was originally introduced in the last chapter.

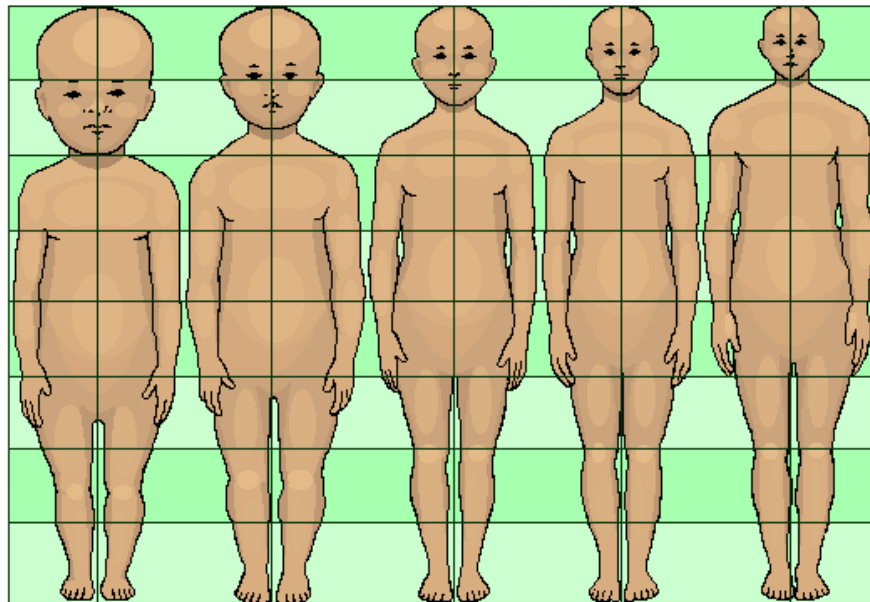


Figure 5.3 - Shown from left to right: Human body proportions at birth, at 2 years, at 6 years, at 12 years, and 19 years.<sup>148</sup>

Some of the most dramatic physical change that occurs during this period is in the brain. At birth, the brain is about 25 percent of its adult weight and this is not true for any other part of the body. By age 2, it is at 75 percent its adult weight, at 95 percent by age 6.

While most of the brain's 100 to 200 billion neurons are present at birth, they are not fully mature and during the next several years **dendrites** or connections between neurons will undergo a period of transient exuberance or temporary dramatic growth.

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## Components of the Neuron

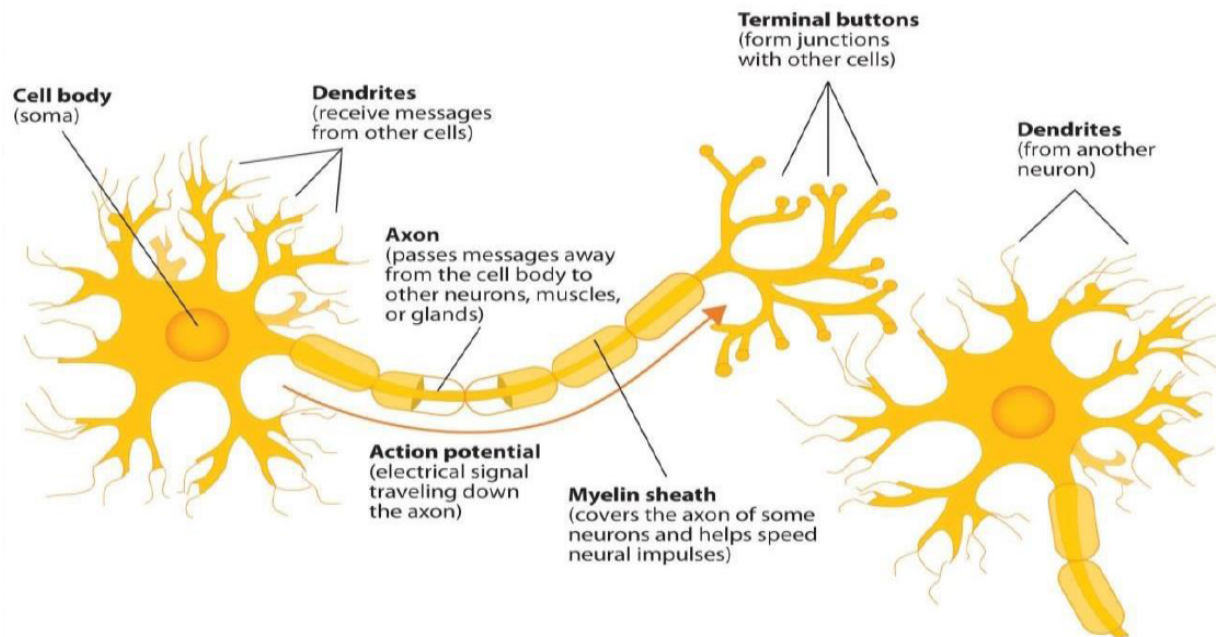


Figure 5.4 – The neuron.<sup>149</sup>

There is an abundance of these dendrites during the first two years so that by age 2, a single neuron might have thousands of dendrites. After this dramatic increase, the neural pathways that are not used will be eliminated thereby making those that are used much stronger.<sup>150</sup> This is known as the pruning process in the brain.

**Synaptogenesis**, or the formation of connections between neurons, continues from the prenatal period forming thousands of new connections during infancy and toddlerhood. This period of rapid neural growth is referred to as **Synaptic Blooming**.<sup>151</sup> This activity is occurring primarily in the cortex or the thin outer covering of the brain involved in voluntary activity and thinking.

The prefrontal cortex that is located behind our forehead continues to grow and mature throughout childhood and experiences an additional growth spurt during adolescence. It is the last part of the brain to mature and will eventually comprise 85 percent of the brain's weight. Experience will shape which of these connections are maintained and which of these are lost. Ultimately, about 40 percent of these connections will be lost (Webb, Monk, and Nelson, 2001). As the prefrontal cortex matures, the child is increasingly able to regulate or

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control emotions, plan activity, strategize, and have better judgment. Of course, this is not fully accomplished in infancy and toddlerhood, but continues throughout childhood and adolescence and even into adulthood.

Another major change occurring in the central nervous system is the development of **myelin**, a coating of fatty tissues around the axon of the neuron. Myelin helps insulate the nerve cell and speed the rate of transmission of impulses from one cell to another. This enhances the building of neural pathways and improves coordination and control of movement and thought processes. The development of myelin continues into adolescence but is most dramatic during the first several years of life.<sup>152</sup>

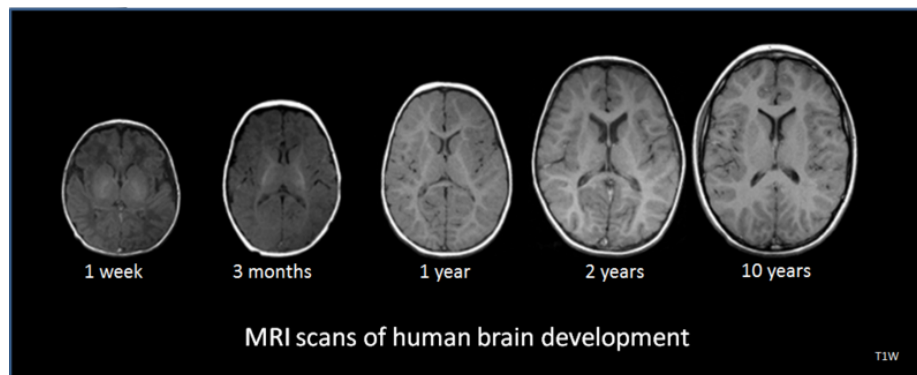


Figure 5.5 – MRI scans of the human brain.<sup>153</sup>

## Reflexes

Infants are equipped with a number of reflexes which are involuntary movements in response to stimulation. These include the sucking reflex (infants suck on objects that touch their lips automatically), the rooting reflex (which involves turning toward any object that touches the cheek), the palmar grasp (the infant will tightly grasp any object placed in its palm), and the dancing reflex (evident when the infant is held in a standing position and moves its feet up and down alternately as if dancing). These movements occur automatically and are signals that the infant is functioning well neurologically. Within the first several weeks of life, these reflexes are integrated and replaced with voluntary movements or motor skills.<sup>154</sup> It is important to give babies plenty of time laying on a firm surface while away (on both their backs and stomachs) to help integrate the reflexes, build healthy brain development, and develop future motor skills.

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<sup>152</sup> [Lifespan Development - Module 4: Infancy](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

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**Table 5.1 - Some Common Infant Reflexes<sup>155</sup>**

Reflex	Description	Image	Reflex	Description	Image
<b>Sucking</b>	Suck on anything that touches the lips	 Figure 5.6 <sup>156</sup>	<b>Moro</b>	A sudden noise or loss of support to the head and neck will cause infants to spread out their arms and legs then quickly contract the limbs inward	 Figure 5.7 <sup>157</sup>
<b>Rooting</b>	Turning the head when the cheek is touched	 Figure 5.8 <sup>158</sup>	<b>Tonic Neck</b>	When lying on the back with the head to one side infants will extend the arm and leg on that side while flexing the limbs on the opposite side (looks like a fencer pose).	 Figure 5.9 <sup>159</sup>
<b>Grasp</b>	Fingers automatically grip anything that touches the palm of the hand	 Figure 5.10 <sup>160</sup>	<b>Stepping</b>	Legs move in stepping like motion when feet touch a smooth surface	 Figure 5.11 <sup>161</sup>

<sup>155</sup> [Lifespan Development: A Psychological Perspective](#) (page 74) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#) (modified by Antoinette Ricardo)

<sup>156</sup> [Image](#) is in the public domain

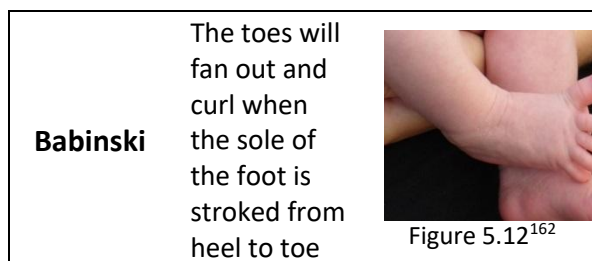
<sup>157</sup> [Image](#) is in the public domain

<sup>158</sup> [Image](#) is in the public domain

<sup>159</sup> [Image](#) by [Samuel Finlayson](#) is licensed under [CC BY-SA 4.0](#)

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Infants and children grow and develop at a rapid pace during the first few years of life. The development of both gross and fine motor skills helps a child go from a completely dependent newborn to an independently functioning toddler in about a 3-year span.<sup>163</sup>

## Gross Motor Skills

Voluntary movements involve the use of large muscle groups and are typically large movements of the arms, legs, head, and torso. They are referred to as **gross motor skills** (or large motor skills). These skills begin to develop first. Examples include moving to bring the chin up when lying on the stomach, moving the chest up, rocking back and forth on hands and knees, and then crawling. But it also includes exploring an object with one's feet as many babies do as early as 8 weeks of age if seated in a carrier or other device that frees the hips. This may be easier than reaching for an object with the hands, which requires much more practice (Berk, 2007). And sometimes an infant will try to move toward an object while crawling and surprisingly move backward because of the greater amount of strength in the arms than in the legs! This also tends to lead infants to pulling up on furniture, usually with the goal of reaching a desired object. Usually, this will also lead to taking steps and eventually walking.<sup>164</sup>

## Physical Gross Motor Milestones

As stated above, children grow very quickly and meet physical milestones rapidly in the first few years of life. The following is a table of the major **milestones** (behaviors or physical skills seen in infants and children as they grow and develop that typically occur within normal range) that occur in children during those first formative years.<sup>165</sup>

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<sup>165</sup> [Developmental milestones record](#) by the [U.S. National Library of Medicine](#) is in the public domain



Figure 5.13 – An infant playing in the sand.<sup>166</sup>

**Table 5.2 - Gross Motor Milestones<sup>167</sup>**

Typical Age	What Most Children Do by This Age
<b>2 months</b>	<ul style="list-style-type: none"> <li>• Can hold head up and begins to push up when lying on tummy</li> <li>• Makes smoother movements with arms and legs</li> </ul>
<b>4 months</b>	<ul style="list-style-type: none"> <li>• Holds head steady, unsupported</li> <li>• Pushes down on legs when feet are on a hard surface</li> <li>• May be able to roll over from tummy to back</li> <li>• Brings hands to mouth</li> <li>• When lying on stomach, pushes up to elbows</li> </ul>
<b>6 months</b>	<ul style="list-style-type: none"> <li>• Rolls over in both directions (front to back, back to front)</li> <li>• Begins to sit without support</li> <li>• When standing, supports weight on legs and might bounce</li> <li>• Rocks back and forth, sometimes crawling backward before moving forward</li> </ul>
<b>9 months</b>	<ul style="list-style-type: none"> <li>• Stands, holding on</li> <li>• Can get into sitting position</li> <li>• Sits without support</li> <li>• Pulls to stand</li> <li>• Crawls</li> </ul>

<sup>166</sup> Image by Andres and Antoinette Ricardo used with permission

<sup>167</sup> [Developmental Milestones](#) by the [CDC](#) is in the public domain

<b>1 year</b>	<ul style="list-style-type: none"> <li>● Gets to a sitting position without help</li> <li>● Pulls up to stand, walks holding on to furniture (“cruising”)</li> <li>● May take a few steps without holding on</li> <li>● May stand alone</li> </ul>
<b>18 months</b>	<ul style="list-style-type: none"> <li>● Walks alone</li> <li>● May walk up steps and run</li> <li>● Pulls toys while walking</li> <li>● Can help undress self</li> </ul>
<b>2 years</b>	<ul style="list-style-type: none"> <li>● Stands on tiptoe</li> <li>● Kicks a ball</li> <li>● Begins to run</li> <li>● Climbs onto and down from furniture without help</li> <li>● Walks up and down stairs holding on</li> <li>● Throws ball overhand</li> </ul>

## Fine Motor Skills

Small, more exact and precise movements of the feet, toes, hands, fingers and mouth are referred to as **fine motor skills**. These include the ability to grasp an object in coordination with vision, and hold, shake, pass an object. Newborns cannot grasp objects voluntarily but do wave their arms toward objects of interest. At about 4 months of age, the infant is able to reach for an object, first with both arms and within a few weeks, with only one arm. The first type of grasp seen in the grasping an object is the ulnar grasp involves the whole hand, bringing the fingers to the palm, but not using thumbs.

Use of the thumb comes at about 9 months of age when the infant is able to grasp an object using the forefinger and thumb. This is known as the **pincer grip**. This ability greatly enhances the ability to control and manipulate an object and infants take great delight in this newfound ability. They may spend hours picking up small objects from the floor and placing them in containers. And as those objects will often next go into the mouth, caregivers must be vigilant about keeping items small enough to be choking hazards out of reach of little fingers. By 9 months, an infant can also watch a moving object, reach for it as it approaches, grab it, and switch it from one hand to the other. This is quite a complicated set of actions if we remember how difficult this would have been just a few months earlier.<sup>168</sup>

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Figure 5.14 – An infant feeding themselves.<sup>169</sup>

### Physical Fine Motor Milestones

While fine motor skills are slower to develop (in accordance with proximodistal development), pretty remarkable progress is made in fine motor development during the first two years. As stated above, in the first few years of life children go from having no intentional fine motor control to being able to manipulate objects to play and learn, as well as beginning to care of themselves. The following is a table of the major milestones in fine motor development.

**Table 5.3 - Fine Motor Milestones<sup>170</sup>**

Typical Age	What Most Children Do by This Age
<b>2 months</b>	<ul style="list-style-type: none"> <li>● Grasps reflexively</li> <li>● Does not reach for objects</li> <li>● Holds hands in fist</li> </ul>
<b>4 months</b>	<ul style="list-style-type: none"> <li>● Brings hands to mouth</li> <li>● Uses hands and eyes together, such as seeing a toy and reaching for it</li> <li>● Follows moving things with eyes from side to side</li> <li>● Can hold a toy with whole hand (<b>ulnar grasp</b>) and shake it and swing at dangling toys</li> </ul>
<b>6 months</b>	<ul style="list-style-type: none"> <li>● Reaches with both arms</li> <li>● Brings things to mouth</li> <li>● Begins to pass things from one hand to the other</li> </ul>

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<sup>170</sup> [Developmental Milestones](#) by the [CDC](#) is in the public domain

<b>9 months</b>	<ul style="list-style-type: none"> <li>● Puts things in mouth</li> <li>● Moves things smoothly from one hand to the other</li> <li>● Picks up things between thumb and index finger (<b>pincer grip</b>)</li> </ul>
<b>1 year</b>	<ul style="list-style-type: none"> <li>● Reaches with one hand</li> <li>● Bangs two things together</li> <li>● Puts things in a container, takes things out of a container</li> <li>● Lets things go without help</li> <li>● Pokes with index (pointer) finger</li> </ul>
<b>18 months</b>	<ul style="list-style-type: none"> <li>● Scribbles on own</li> <li>● Can help undress herself</li> <li>● Drinks from a cup</li> <li>● Eats with a spoon with some accuracy</li> <li>● Stacks 2-4 objects</li> </ul>
<b>2 years</b>	<ul style="list-style-type: none"> <li>● Builds towers of 4 or more blocks</li> <li>● Might use one hand more than the other</li> <li>● Makes copies of straight lines and circles</li> <li>● Enjoys pouring and filling</li> <li>● Unbuttons large buttons</li> <li>● Unzips large zippers</li> <li>● Drinks and feeds self with more accuracy</li> </ul>

## Sensory Capacities

Throughout much of history, the newborn was considered a passive, disorganized being who possessed minimal abilities. William James, an early psychologist, had described the newborn's world as "a blooming, buzzing confusion," (Shaffer, 1985). However, current research techniques have demonstrated just how developed the newborn is with especially organized sensory and perceptual abilities.

### Vision

Vision is the most poorly developed sense at birth and time is needed to build those neural pathways between the eye and the brain. Newborns typically cannot see further than 8 to 16 inches away from their faces (which is about the distance from the newborn's face to the mother/caregiver when an infant is breastfeeding/bottle-feeding). Their visual acuity is about 20/400, which means that an infant can see something at 20 feet that an adult with normal vision could see at 400 feet. Thus, the world probably looks blurry to young infants. Because of their poor visual acuity, they look longer at checkerboards with fewer large squares than with many small squares. Infants' thresholds for seeing a visual pattern are higher than adults'. Thus, toys for infants are sometimes manufactured with black and white patterns rather than pastel colors because the higher contrast between black and white makes the pattern more visible to the immature visual system. By about 6 months, infants' visual acuity improves and approximates adult 20/25 acuity.





Figure 5.15 – An infant looking up at the person feeding them.<sup>171</sup>

When viewing a person's face, newborns do not look at the eyes the way adults do; rather, they tend to look at the chin—a less detailed part of the face. However, by 2 or 3 months, they will seek more detail when exploring an object visually and begin showing preferences for unusual images over familiar ones, for patterns over solids, for faces over patterns, and for three-dimensional objects over flat images. Newborns have difficulty distinguishing between colors, but within a few months, they are able to discriminate between colors as well as adults do. Sensitivity to binocular depth cues, which require inputs from both eyes, is evident by about 3 months and continues to develop during the first 6 months. By 6 months, the infant can perceive depth perception in pictures as well (Sen, Yonas, & Knill, 2001). Infants who have experienced crawling and exploring will pay greater attention to visual cues of depth and modify their actions accordingly (Berk, 2007).

## Hearing

The infant's sense of hearing is very keen at birth, and the ability to hear is evident by the 7<sup>th</sup> month of prenatal development. An infant can distinguish between very similar sounds as early as one month after birth and can distinguish between a familiar and unfamiliar voice even earlier. Infants are especially sensitive to the frequencies of sounds in human speech and prefer the exaggeration of infant-directed speech, which will be discussed later. Additionally, infants are innately ready to respond to the sounds of any language, but some of this ability will be lost by 7 or 8 months as the infant becomes familiar with the sounds of a particular language and less sensitive to sounds that are part of an unfamiliar language.

Newborns also prefer their mother's voices over another female when speaking the same material (DeCasper & Fifer, 1980). Additionally, they will register in utero specific information heard from their mother's voice. You may remember the Cat in the Hat study featured in the last chapter that illustrates this.

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<sup>171</sup> [Image](#) by [Ben Kerckx](#) on [Pixabay](#)



## Touch and Pain

Immediately after birth, a newborn is sensitive to touch and temperature, and is also highly sensitive to pain, responding with crying and cardiovascular responses (Balaban & Reisenauer, 2013). Newborns who are **circumcised**, which is the surgical removal of the foreskin of the penis, without anesthesia experience pain as demonstrated by increased blood pressure, increased heart rate, decreased oxygen in the blood, and a surge of stress hormones (United States National Library of Medicine, 2016). Research has demonstrated that infants who were circumcised without anesthesia experienced more pain and fear during routine childhood vaccines. Fortunately, local painkillers are now used during many circumcisions.

## Taste and Smell

Studies of taste and smell demonstrate that babies respond with different facial expressions, suggesting that certain preferences are innate. Newborns can distinguish between sour, bitter, sweet, and salty flavors and show a preference for sweet flavors. Newborns also prefer the smell of their mothers. An infant only 6 days old is significantly more likely to turn toward its own mother's breast pad than to the breast pad of another baby's mother (Porter, Makin, Davis, & Christensen, 1992), and within hours of birth, an infant also shows a preference for the face of its own mother (Bushnell, 2001; Bushnell, Sai, & Mullin, 1989).

These sensory processes can be affected by the infant's developing motor abilities. Reaching, crawling, and other actions allow the infant to see, touch, and organize his or her experiences in new ways.<sup>172</sup>

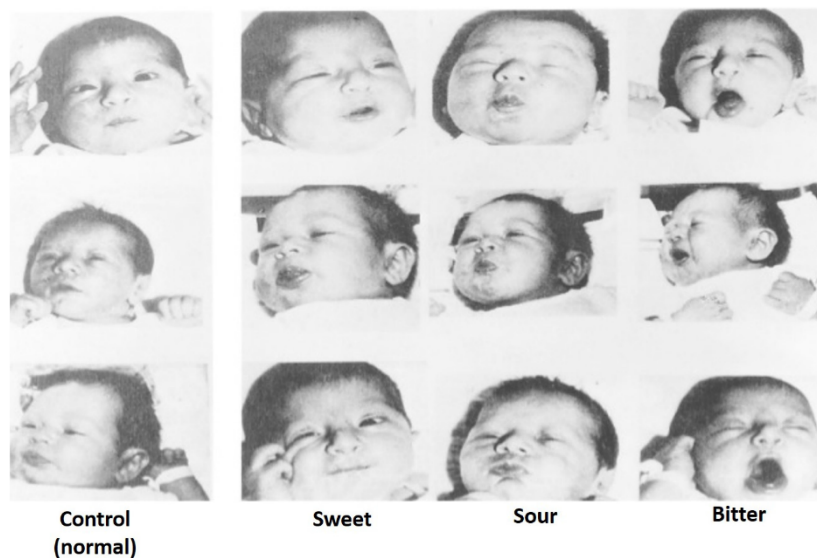


Figure 5.16 – The responses of infants to different tastes.<sup>173</sup>

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## Nutrition

Nutritional needs change with age. How should caregivers nourish children during the first years of life and what are some risks to nutrition that they should be aware of?

### Breastfeeding

Breast milk is considered the ideal diet for newborns. Colostrum, the first breast milk produced during pregnancy and just after birth has been described as “liquid gold” (United States Department of Health and Human Services (USDHHS), 2011). It is very rich in nutrients and antibodies. Breast milk changes by the third to fifth day after birth, becoming much thinner, but containing just the right amount of fat, sugar, water, and proteins to support overall physical and neurological development. For most babies, breast milk is also easier to digest than formula. Formula-fed infants experience more diarrhea and upset stomachs. The absence of antibodies in formula often results in a higher rate of ear infections and respiratory infections. Children who are breastfed have lower rates of childhood leukemia, asthma, obesity, type 1 and 2 diabetes, and a lower risk of SIDS. The USDHHS recommends that mothers breastfeed their infants exclusively (meaning without adding any other foods or starting solid foods) until at least 6 months of age and that breast milk is used in the diet throughout the first year or two.



Figure 5.17 – A nurse helping a new mother to breastfeed.<sup>174</sup>

### *Maternal Benefits of Breastfeeding*

Several recent studies have reported that it is not just babies that benefit from breastfeeding. Breastfeeding stimulates contractions in the mother’s uterus to help it regain its normal size, and women who breastfeed are more likely to space their pregnancies further apart. Mothers who breastfeed for 6 months or longer are at a lower risk of developing breast cancer (Islami et al., 2015), especially among higher-risk racial and ethnic groups (Islami et al., 2015; Redondo et al., 2012). Women who breastfeed have lower rates of ovarian cancer (Titus-Ernstoff, Rees, Terry, & Cramer, 2010), reduced risk for developing Type 2 diabetes (Schwarz et al., 2010; Gunderson, et al., 2015), and rheumatoid arthritis (Karlson, Mandl, Hankinson, & Grodstein, 2004).

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<sup>174</sup> [Image](#) by the [Military Health System](#) is in the public domain

In addition to the nutritional benefits of breastfeeding, breast milk does not have to be purchased. Anyone who has priced formula recently can appreciate this added incentive to breastfeeding. Prices for a year's worth of formula and feeding supplies can cost well over \$1,500 (USDHHS, 2011).

### *Challenges to Breastfeeding*

Unfortunately, most mothers who breastfeed in the United States stop breastfeeding at about 6-8 weeks, often in order to return to work outside the home (USDHHS, 2011). Mothers can certainly continue to provide breast milk to their babies by expressing and freezing the milk to be bottle-fed at a later time or by being available to their infants at feeding time. However, some mothers find that after the initial encouragement they receive in the hospital to breastfeed, the outside world is less supportive of such efforts. Workplaces are required by law to support breastfeeding mothers by providing a clean private area to pump (besides the bathroom) and allow breaks to do so, but often this is still difficult. In addition, a small number of women may be unable to breastfeed. Women with HIV are routinely discouraged from breastfeeding as the infection may pass to the infant. Similarly, women who are taking certain medications or undergoing radiation treatment may be told not to breastfeed (USDHHS, 2011). Mothers who breastfeed may have to watch their diets as some foods they eat may irritate their baby's digestive system. A mother should not do drugs or drink alcohol while breastfeeding as these substances enter her milk supply.

### **A Historic Look at Breastfeeding**

The use of wet nurses, or lactating women hired to nurse others' infants, during the middle ages eventually declined and mothers increasingly breastfed their own infants in the late 1800s. In the early part of the 20<sup>th</sup> century, breastfeeding began to go through another decline. By the 1950s, it was practiced less frequently as formula began to be viewed as superior to breast milk.

In the late 1960s and 1970s, greater emphasis began to be placed on natural childbirth and breastfeeding and the benefits of breastfeeding were more widely publicized. Gradually rates of breastfeeding began to climb, particularly among middle-class educated mothers who received the strongest messages to breastfeed.

Today, women receive consultation from lactation specialists before being discharged from the hospital to ensure that they are informed of the benefits of breastfeeding and given support and encouragement to get their infants to get used to taking the breast. This does not always happen immediately and first-time mothers, especially, can become upset or discouraged. In this case, lactation specialists and nursing staff can encourage the mother to keep trying until baby and mother are comfortable with the feeding.<sup>175</sup>

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### *Alternatives to Breastfeeding*

There are many reasons that mothers struggle to breastfeed or should not breastfeed, including: low milk supply, previous breast surgeries, illicit drug use, medications, infectious disease, and inverted nipples. Other mothers choose not to breastfeed. Some reasons for this include: lack of personal comfort with nursing, the time commitment of nursing, inadequate or unhealthy diet, and wanting more convenience and flexibility with who and when an infant can be fed. Besides breast milk, infant formula is the only other milk product that the medical community considers nutritionally acceptable for infants under the age of one year (as opposed to cow's milk, goat's milk, or follow-on formula).

Babies can receive formula and breastmilk (a practice known as supplementing) and this is encouraged for mothers who cannot or do not want to pump but can breastfeed their babies (for example in the evening and first thing in the morning).



Figure 5.18 – A father bottle-feeding his infant.<sup>176</sup>

### **When, What, and How to Introduce Solid Foods**

The American Academy of Pediatrics recommends children be introduced to foods other than breast milk or infant formula when they are 6 months old and showing signs they are ready for foods other than breast milk or infant formula like:

- Child can sit with little or no support.
- Child has good head control.
- Child opens his or her mouth and leans forward when food is offered.

### *How Should Foods Be Introduced?*

The American Academy of Pediatrics says that for most children, foods do not need to be given in a certain order. However, children should be allowed to try one food at a time at first and there should be 3 to 5 days before another food is introduced. This helps caregivers see if the child has any problems with that food, such as food allergies. The eight most common allergenic foods are milk, eggs, fish, shellfish, tree nuts, peanuts, wheat, and soybeans. It is no longer recommended that caregivers delay introducing these foods to all children, but if there is a family history of food allergies, the child's doctor or nurse should be consulted.<sup>177</sup>

First foods include infant cereals, meat or other proteins, fruits, vegetables, grains meat or other proteins, yogurts and cheeses, and more. Avoid feeding an infant honey, cow's milk, highly processed foods (with added sugars or salt), and foods that are choking hazards.

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<sup>177</sup> [When, What, and How to Introduce Solid Foods](#) by the [CDC](#) is in the public domain



Figure 5.19 – A baby being fed solid food.<sup>178</sup>

It may take numerous attempts before a child gains a taste for it. So caregivers should not give up if a food is refused on first offering.

## Child Malnutrition

There can be serious effects on children when there are deficiencies in their nutrition.

### *Wasting*

Children in developing countries and countries experiencing the harsh conditions of war are at risk for two major types of malnutrition, also referred to as wasting. Infantile **marasmus** refers to starvation due to a lack of calories and protein. Children who do not receive adequate nutrition lose fat and muscle until their bodies can no longer function. Babies who are breastfed are much less at risk of malnutrition than those who are bottle-fed.

After weaning from breastmilk, children who have diets deficient in protein may experience **kwashiorkor** or the “disease of the displaced child,” often occurring after another child has been born and taken over breastfeeding. This results in a loss of appetite and swelling of the abdomen as the body begins to break down the vital organs as a source of protein.

Around the world, the rates of wasting have been dropping. However, according to the World Health Organization and UNICEF, in 2014 there were 50 million children under the age of five that experienced these forms of wasting, and 16 million were severely wasted (UNICEF, 2015). Worldwide, these figures indicate that nearly 1 child in every 13 suffers from some form of wasting. The majority of these children live in Asia (34.3 million) and Africa (13.9 million).

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<sup>178</sup> [Image](#) by [Ben Kerckx](#) on [Pixabay](#)

Wasting can occur as a result of severe food shortages, regional diets that lack certain proteins and vitamins, or infectious diseases that inhibit appetite (Latham, 1997).

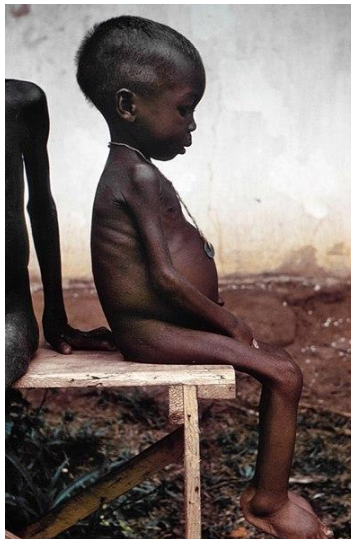


Figure 5.20 – A child suffering from wasting.<sup>179</sup>

The consequences of wasting depend on how late in the progression of the disease parents and guardians seek medical treatment for their children. Unfortunately, in some cultures families do not seek treatment early, and as a result by the time a child is hospitalized the child often dies within the first three days after admission (Latham, 1997). Several studies have reported long-term cognitive effects of early malnutrition (Galler & Ramsey, 1989; Galler, Ramsey, Salt & Archer, 1987; Richardson, 1980), even when home environments were controlled (Galler, Ramsey, Morley, Archer & Salt, 1990). Lower IQ scores (Galler et al., 1987), poor attention (Galler & Ramsey, 1989), and behavioral issues in the classroom (Galler et al., 1990) have been reported in children with a history of serious malnutrition in the first few years of life.<sup>180</sup>

### *Milk Anemia*

About 9 million children in the United States are malnourished (Children's Welfare, 1998). More still suffer from milk anemia, a condition in which milk consumption leads to a lack of iron in the diet. This can be due to the practice of giving toddlers milk as a pacifier-when resting, when riding, when waking, and so on. Appetite declines somewhat during toddlerhood and a small amount of milk (especially with added chocolate syrup) can easily satisfy a child's appetite for many hours. The calcium in milk interferes with the absorption of iron in the diet as well. Many preschools and daycare centers give toddlers milk after they have finished their meal in order to prevent spoiling their appetites.<sup>181</sup>

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## *Failure to Thrive*

**Failure to thrive (FTT)** occurs in children whose nutritional intake is insufficient for supporting normal growth and weight gain. FTT typically presents before two years of age, when growth rates are highest. Parents may express concern about picky eating habits, poor weight gain, or smaller size compared relative to peers of similar age. Physicians often identify FTT during routine office visits, when a child's growth parameters are not tracking appropriately on growth curves.

FTT can be caused by physical or mental issues within the child (such as errors of metabolism, acid reflux, anemia, diarrhea, Cystic fibrosis, Crohn's disease, celiac disease, cleft palate, tongue tie, milk allergies, hyperthyroidism, congenital heart disease, etc.) It can also be caused by the caregiver's actions (environmental), including an inability to produce enough breastmilk, inadequate food supply, providing an insufficient number of feedings, and neglect. These causes may also co-exist. For instance, a child who is not getting sufficient nutrition may act content so that caregivers do not offer feedings of sufficient frequency or volume, and a child with severe acid reflux who appears to be in pain while eating may make a caregiver hesitant to offer sufficient feedings.<sup>182</sup>

## Health

Infants depend on the adults who care for them to promote and protect their health. The following section addresses common physical conditions that can affect infants, the danger of shaking babies, and the importance of immunizations.

### Common Physical Conditions and Issues during Infancy

Some physical conditions and issues are very common during infancy. Many are normal, and the infant's caregivers can deal with them if they occur. Mostly, it is a matter of the caregivers learning about what is normal for their infant and getting comfortable with the new routine in the household. New parents and caregivers often have questions about the following:

- Bowel Movements
- Colic
- Diaper Rash
- Spitting Up/Vomiting
- Teething
- Urination
- Jaundice

### *Bowel Movements*

Infants' bowel movements go through many changes in color and consistency, even within the first few days after birth. While the color, consistency, and frequency of stool will vary, hard or dry stools may indicate dehydration and increased frequency of watery stools may indicate diarrhea.

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<sup>182</sup> [Failure to Thrive](#) by [Wikipedia](#) is licensed under [CC BY-SA 3.0](#)



Figure 5.21 – An infant getting their diaper changed.<sup>183</sup>

### *Colic*

Many infants are fussy in the evenings, but if the crying does not stop and gets worse throughout the day or night, it may be caused by colic. According to the American Academy of Pediatrics, about one-fifth of all infants develop colic, usually starting between 2 and 4 weeks of age. They may cry inconsolably or scream, extend or pull up their legs, and pass gas. Their stomachs may be enlarged. The crying spells can occur anytime, although they often get worse in the early evening.

The colic will likely improve or disappear by the age of 3 or 4 months. There is no definite explanation for why some infants get colic. Health care providers can help ensure there is no medical reason behind the crying.

Some infants seem to be soothed by being held, rocked, or wrapped snugly in a blanket. Some like a pacifier.



Figure 5.22 – A father holding a crying infant.<sup>184</sup>

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<sup>183</sup> [Image](#) by [Kevin Phillips](#) is licensed under [CC BY 2.0](#)

<sup>184</sup> [Image](#) by [David D](#) is licensed under [CC BY 2.0](#)

## Shaken Baby Syndrome

Here is a PSA from the Center for Disease Control (CDC)

*The crying.*

*The late-night feedings.*

*The diaper changes.*

*The exhaustion.*

*If you've ever been around a baby who won't stop crying, you know there's potential to get frustrated. Focus on calming yourself and understand that you may not be able to calm your baby. It's not your fault or your baby's.<sup>185</sup>*

It's normal for healthy babies to cry and some babies cry much more than others. And they cannot always be consoled and caregivers can feel pushed to the limit. When caregivers lose control and shake a baby it can have devastating effects.

Shaken Baby Syndrome (SBS) is a severe form of physical child abuse. SBS may be caused from vigorously shaking an infant by the shoulders, arms, or legs. The “whiplash” effect can cause intracranial (within the brain) or intraocular (within the eyes) bleeding. Often there is no obvious external head trauma. However, SBS can result in death, mental retardation or developmental delays, paralysis, severe motor dysfunction, spasticity, blindness, and seizures.

### Who's at Risk?

Small children are especially vulnerable to this type of abuse. Their heads are large in comparison to their bodies, and their neck muscles are weak. Children under one year of age are at the highest risk, but SBS has been reported in children up to five years of age. Shaking often occurs in response to a baby crying or having a toilet-training accident. The perpetrator tends to be male and is primarily the biological father or the mother's boyfriend or partner. Caregivers are responsible for about 9%-21% of cases. The explanation typically provided by the caregiver—“I was playing with the baby”—does not begin to account for the severity of trauma. Many times there is also a history of child abuse.

### Can It Be Prevented?

SBS is completely preventable. However, it is not known whether educational efforts will effectively prevent this type of abuse. Home visitation programs are shown to prevent child abuse in general. Because the child's father or the mother's partner often causes SBS, they should be included in-home visitation programs. Home visits bring community resources to families in their homes. Health professionals provide information, healthcare, psychological support, and other services that can help people to be more effective parents and caregivers.

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<sup>185</sup> [Coping with Crying 3 PSA](#) by the [CDC](#) is in the public domain

### The Bottom Line

- Shaking a baby can cause death or permanent brain damage. It can result in life-long disability.
- Healthy strategies for dealing with a crying baby include:
  - finding the reason for the crying
  - checking for signs of illness or discomfort, such as diaper rash, teething, tight clothing;
  - feeding or burping;
  - soothing the baby by rubbing its back; gently rocking; offering a pacifier; singing or talking;
  - taking a walk using a stroller or a drive in a properly-secured car seat;
  - or calling the doctor if sickness is suspected
- All babies cry. Caregivers often feel overwhelmed by a crying baby. Calling a friend, relative, or neighbor for support or assistance lets the caregiver take a break from the situation. If immediate support is not available, the caregiver could place the baby in a crib (making sure the baby is safe), close the door, and check on the baby every five minutes.<sup>186</sup>



Figure 5.23 – Medical professionals caring for an infant.<sup>187</sup>

### Abusive Head Trauma

Shaken baby syndrome is part of abusive head trauma (AHT), a severe form of physical child abuse that results in an injury to the brain of a child. This is important to note because:

- Abusive head trauma is a leading cause of physical child abuse deaths in children under 5 in the United States.
- Abusive head trauma accounts for approximately one-third of all child maltreatment deaths.
- The most common trigger for abusive head trauma is inconsolable crying.
- Babies less than one year old are at greatest risk of injury from abusive head trauma.<sup>188</sup>

<sup>186</sup> [Shaken Baby Syndrome](#) by the [CDC](#) is in the public domain

<sup>187</sup> [Image](#) by the [U.S. Air Force](#) is in the public domain

<sup>188</sup> [Preventing Abusive Head Trauma in Children](#) by the [CDC](#) is in the public domain

### *Teething*

Although newborns usually have no visible teeth, baby teeth begin to appear generally about 6 months after birth. During the first few years, all 20 baby teeth will push through the gums, and most children will have their full set of these teeth in place by age 3.

An infant's front four teeth usually appear first, at about 6 months of age, although some children don't get their first tooth until 12-14 months. As their teeth break through the gums, some infants become fussy and irritable; lose their appetite, or drool more than usual.

The FDA does not recommend gum-numbing medications with an ingredient called benzocaine because they can cause a potentially fatal condition in young children. Safe forms of relief include a chilled teething ring or gently rubbing the child's gums with a clean finger.

### *Spitting Up/Vomiting*

Spitting up is a common occurrence for young infants and is usually not a sign of a more serious problem. But if an infant is not gaining weight or shows other signs of illness, a health care provider should be consulted.



Figure 5.24 – A father holding his baby with a cloth protecting his shoulder from spit-up.<sup>189</sup>

### *Urination*

Infants urinate as often as every 1 to 3 hours or as infrequently as every 4 to 6 hours. In case of sickness or if the weather is very hot, urine output might drop by half and still be normal. If an infant shows any signs of distress while urinating or if any blood is found in a wet diaper medical care should be sought.

### *Diaper Rash*

A rash on the skin covered by a diaper is quite common. It is usually caused by irritation of the skin from being in contact with stool and urine. It can get worse during bouts of diarrhea. Diaper rash usually can be prevented by frequent diaper changes.

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<sup>189</sup> [Image](#) by [Colin](#) is licensed under [CC BY 2.0](#)

## Jaundice

Jaundice can cause an infant's skin, eyes, and mouth to turn a yellowish color. The yellow color is caused by a buildup of bilirubin, a substance that is produced in the body during the normal process of breaking down old red blood cells and forming new ones.

Normally the liver removes bilirubin from the body. But, for many infants, in the first few days after birth, the liver is not yet working at its full power. As a result, the level of bilirubin in the blood gets too high, causing the infant's color to become slightly yellow—this is jaundice. Although jaundice is common and usually not serious, in some cases, high levels of bilirubin could cause brain injury. All infants with jaundice need to be seen by a health care provider. Many infants need no treatment. Their livers start to catch up quickly and begin to remove bilirubin normally, usually within a few days after birth. For some infants, health care providers prescribe phototherapy—a treatment using a special lamp—to help break down the bilirubin in their bodies.



Figure 5.25 – An infant receiving treatment for jaundice.<sup>190</sup>

## Protecting Health through Immunization

One way we can protect a child's health (and those around them) is through immunization. The vaccines (given through injection) may hurt a little...but the diseases they can prevent can hurt a lot more! Immunization shots, or vaccinations, are essential. They protect against things like measles, mumps, rubella, hepatitis B, polio, diphtheria, tetanus, and pertussis (whooping cough). Immunizations are important for adults as well as for children. Here's why.

The immune system helps the human body fight germs by producing substances to combat them. Once it does, the immune system "remembers" the germ and can fight it again. Vaccines contain germs that have been killed or weakened. When given to a healthy person, the vaccine triggers the immune system to respond and thus build immunity.

Before vaccines, people became immune only by actually getting a disease and surviving it. Immunizations are an easier and less risky way to become immune.

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<sup>190</sup> Image by Andres and Antoinette Ricardo used with permission



Vaccines are the best defense we have against serious, preventable, and sometimes deadly contagious diseases. Vaccines are some of the safest medical products available, but like any other medical product, there may be risks. Accurate information about the value of vaccines as well as their possible side effects helps people to make informed decisions about vaccination.



Figure 5.26 – A nurse giving an infant vaccinations.<sup>191</sup>

### *Potential Side Effects*

Vaccines, like all medical products, may cause side effects in some people. For the most part, these are minor (for example, redness or swelling at the injection site, a sore arm, or low-grade fever) and go away within a few days.<sup>192</sup> Serious side effects after vaccination, such as severe allergic reaction, are very rare.<sup>193</sup> A decision not to immunize a child also involves risk and could put the child and others who come into contact with him or her at risk of contracting a potentially deadly disease.

### *How Well Do Vaccines Work?*

Vaccines work really well. No medicine is perfect, of course, but most childhood vaccines produce immunity about 90–100% of the time.

What about the argument made by some people that vaccines don't work that well . . . that diseases would be going away on their own because of better hygiene or sanitation, even if there were no vaccines? That simply isn't true. Certainly better hygiene and sanitation can help prevent the spread of disease, but the germs that cause disease will still be around, and as long as they are they will continue to make people sick.

All vaccines must be licensed (approved) by the Food and Drug Administration (FDA) before being used in the United States, and a vaccine must go through extensive testing to show that it works and that it is safe before the FDA will approve it. Among these tests are clinical trials, which compare groups of people who get a vaccine with groups of people who get a control. A vaccine is approved only if the FDA determines that it is safe and effective for its intended use.

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<sup>191</sup> [Image](#) by [Maria Immaculata Hospital](#) is licensed under [CC BY-SA 4.0](#)

<sup>192</sup> [Disease Prevention and Healthy Lifestyles](#) references [Contemporary Health Issues](#) by Judy Baker, Ph.D., licensed under [CC BY-SA 4.0](#)

<sup>193</sup> [Making the Vaccine Decision](#) by the [CDC](#) is in the public domain

If you look at the history of any vaccine-preventable disease, you will virtually always see that the number of cases of disease starts to drop when a vaccine is licensed. Vaccines are the most effective tool we have to prevent infectious diseases.

### *Opposition to Vaccines*

In 2010, a pertussis (whooping cough) outbreak in California sickened 9,143 people and resulted in 10 infant deaths: the worst outbreak in 63 years (Centers for Disease Control 2011b). Researchers, suspecting that the primary cause of the outbreak was the waning strength of pertussis vaccines in older children, recommended a booster vaccination for 11–12-year-olds and also for pregnant women (Zacharyczuk 2011). Pertussis is most serious for babies; one in five needs to be hospitalized, and since they are too young for the vaccine themselves, it is crucial that people around them be immunized (Centers for Disease Control 2011b). Several states, including California, have been requiring the pertussis booster for older children in recent years with the hope of staving off another outbreak.

But what about people who do not want their children to have this vaccine, or any other? That question is at the heart of a debate that has been simmering for years. Vaccines have contributed to the eradication and weakening of numerous infectious diseases, including smallpox, polio, mumps, chickenpox, and meningitis. However, many people express concern about potential negative side effects from vaccines. These concerns range from fears about overloading the child's immune system to controversial reports about devastating side effects of the vaccines.<sup>194</sup>



Figure 5.27 - These two young children contracted polio.<sup>195</sup>

<sup>194</sup> [Disease Prevention and Healthy Lifestyles](#) references [Contemporary Health Issues](#) by Judy Baker, Ph.D., licensed under [CC BY-SA 4.0](#)

<sup>195</sup> [Image](#) by the [CDC](#) is in the public domain

Although children continue to get several vaccines up to their second birthday, these vaccines do not overload the immune system. Every day, an infant's healthy immune system successfully fights off thousands of antigens – the parts of germs that cause their immune system to respond. Even if your child receives several vaccines in one day, vaccines contain only a tiny number of antigens compared to the antigens a baby encounters every day.

This is the case even if your child receives combination vaccines. Combination vaccines take two or more vaccines that could be given individually and put them into one shot. Children get the same protection as they do from individual vaccines given separately—but with fewer shots.<sup>196</sup>

One misapprehension is that the vaccine itself might cause the disease it is supposed to be immunizing against.<sup>197</sup> Vaccines help develop immunity by imitating an infection, but this “imitation” infection does not cause illness. Instead, it causes the immune system to develop the same response as it does to a real infection so the body can recognize and fight the vaccine-preventable disease in the future. Sometimes, after getting a vaccine, the imitation infection can cause minor symptoms, such as fever. Such minor symptoms are normal and should be expected as the body builds immunity.<sup>198</sup>

Another commonly circulated concern is that vaccinations, specifically the MMR vaccine (MMR stands for measles, mumps, and rubella), are linked to autism. The autism connection has been particularly controversial. In 1998, a British physician named Andrew Wakefield published a study in Great Britain's *Lancet* magazine that linked the MMR vaccine to autism. The report received a lot of media attention, resulting in British immunization rates decreasing from 91 percent in 1997 to almost 80 percent by 2003, accompanied by a subsequent rise in measles cases (Devlin 2008). A prolonged investigation by the British Medical Journal proved that not only was the link in the study nonexistent, but that Dr. Wakefield had falsified data in order to support his claims (CNN 2011). Dr. Wakefield was discredited and stripped of his license, but the doubt still lingers in many parents' minds.

In the United States, many parents still believe in the now-discredited MMR-autism link and refuse to vaccinate their children. Other parents choose not to vaccinate for various reasons like religious or health beliefs. In one instance, a boy whose parents opted not to vaccinate returned home to the U.S. after a trip abroad; no one yet knew he was infected with measles. The boy exposed 839 people to the disease and caused 11 additional cases of measles, all in other unvaccinated children, including one infant who had to be hospitalized.

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<sup>196</sup> [Making the Vaccine Decision](#) by the [CDC](#) is in the public domain

<sup>197</sup> [Disease Prevention and Healthy Lifestyles](#) references [Contemporary Health Issues](#) by Judy Baker, Ph.D., licensed under [CC BY-SA 4.0](#)

<sup>198</sup> [Making the Vaccine Decision](#) by the [CDC](#) is in the public domain



Figure 5.28 - A baby with measles<sup>199</sup>

According to a study published in *Pediatrics* (2010), the outbreak cost the public sector \$10,376 per diagnosed case. The study further showed that the intentional non-vaccination of those infected occurred in students from private schools, public charter schools, and public schools in upper-socioeconomic areas (Sugerman et al. 2010).<sup>200</sup>

### The Immunization Schedule

On-time vaccination throughout childhood is essential because it helps provide immunity before children are exposed to potentially life-threatening diseases. Vaccines are tested to ensure that they are safe and effective for children to receive at the recommended ages.<sup>201</sup> Fully vaccinated children in the U.S. are protected against sixteen potentially harmful diseases. Vaccine-preventable diseases can be very serious, may require hospitalization, or even be deadly — especially in infants and young children.<sup>202</sup>

On the next page is the schedule from the CDC that shows the timing of important vaccinations and a chart that briefly discusses the diseases children are protected from when they are fully vaccinated:

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<sup>199</sup> [Image](#) by [CDC Global](#) is licensed under [CC BY 2.0](#)

<sup>200</sup> [Disease Prevention and Healthy Lifestyles](#) references [Contemporary Health Issues](#) by Judy Baker, Ph.D., licensed under [CC BY-SA 4.0](#)

<sup>201</sup> [For Parents: Vaccines for Your Children](#) by the [CDC](#) is in the public domain

<sup>202</sup> [Vaccines for Your Children: Protect Your Child at Every Age](#) by the [CDC](#) is in the public domain

## 2018 Recommended Immunizations for Children from Birth Through 6 Years Old

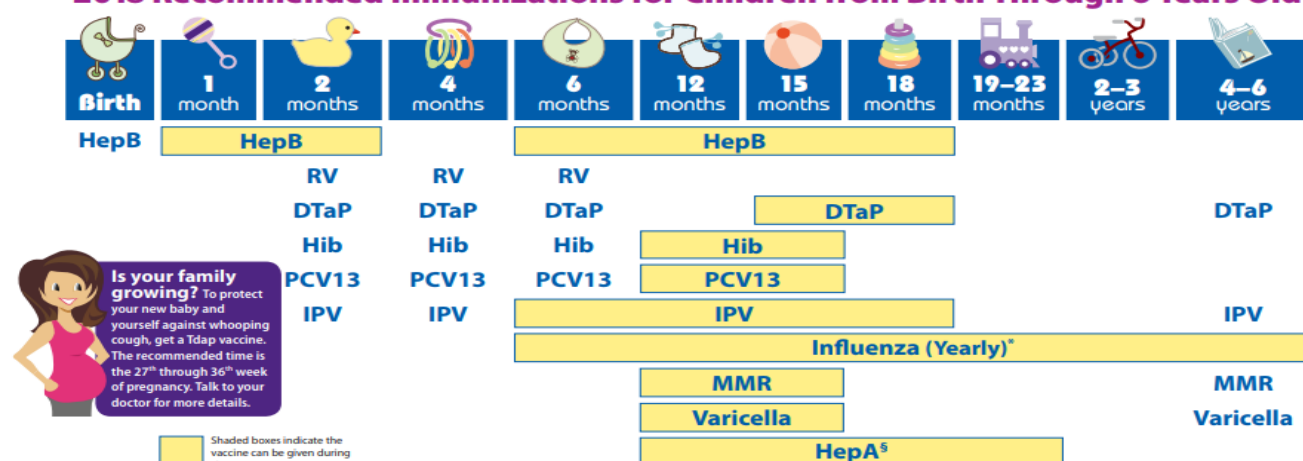


Figure 5.29 – Immunization schedule.<sup>203</sup>

## Vaccine-Preventable Diseases and the Vaccines that Prevent Them

Disease	Vaccine	Disease spread by	Disease symptoms	Disease complications
Chickenpox	Varicella vaccine protects against chickenpox.	Air, direct contact	Rash, tiredness, headache, fever	Infected blisters, bleeding disorders, encephalitis (brain swelling), pneumonia (infection in the lungs)
Diphtheria	DTaP* vaccine protects against diphtheria.	Air, direct contact	Sore throat, mild fever, weakness, swollen glands in neck	Swelling of the heart muscle, heart failure, coma, paralysis, death
Hib	Hib vaccine protects against <i>Haemophilus influenzae</i> type b.	Air, direct contact	May be no symptoms unless bacteria enter the blood	Meningitis (infection of the covering around the brain and spinal cord), intellectual disability, epiglottitis (life-threatening infection that can block the windpipe and lead to serious breathing problems), pneumonia (infection in the lungs), death
Hepatitis A	HepA vaccine protects against hepatitis A.	Direct contact, contaminated food or water	May be no symptoms, fever, stomach pain, loss of appetite, fatigue, vomiting, jaundice (yellowing of skin and eyes), dark urine	Liver failure, arthralgia (joint pain), kidney, pancreatic, and blood disorders
Hepatitis B	HepB vaccine protects against hepatitis B.	Contact with blood or body fluids	May be no symptoms, fever, headache, weakness, vomiting, jaundice (yellowing of skin and eyes), joint pain	Chronic liver infection, liver failure, liver cancer
Influenza (Flu)	Flu vaccine protects against influenza.	Air, direct contact	Fever, muscle pain, sore throat, cough, extreme fatigue	Pneumonia (infection in the lungs)
Measles	MMR** vaccine protects against measles.	Air, direct contact	Rash, fever, cough, runny nose, pink eye	Encephalitis (brain swelling), pneumonia (infection in the lungs), death
Mumps	MMR** vaccine protects against mumps.	Air, direct contact	Swollen salivary glands (under the jaw), fever, headache, tiredness, muscle pain	Meningitis (infection of the covering around the brain and spinal cord), encephalitis (brain swelling), inflammation of testicles or ovaries, deafness
Pertussis	DTaP* vaccine protects against pertussis (whooping cough).	Air, direct contact	Severe cough, runny nose, apnea (a pause in breathing in infants)	Pneumonia (infection in the lungs), death
Polio	IPV vaccine protects against polio.	Air, direct contact, through the mouth	May be no symptoms, sore throat, fever, nausea, headache	Paralysis, death
Pneumococcal	PCV13 vaccine protects against pneumococcus.	Air, direct contact	May be no symptoms, pneumonia (infection in the lungs)	Bacteremia (blood infection), meningitis (infection of the covering around the brain and spinal cord), death
Rotavirus	RV vaccine protects against rotavirus.	Through the mouth	Diarrhea, fever, vomiting	Severe diarrhea, dehydration
Rubella	MMR** vaccine protects against rubella.	Air, direct contact	Children infected with rubella virus sometimes have a rash, fever, swollen lymph nodes	Very serious in pregnant women—can lead to miscarriage, stillbirth, premature delivery, birth defects
Tetanus	DTaP* vaccine protects against tetanus.	Exposure through cuts in skin	Stiffness in neck and abdominal muscles, difficulty swallowing, muscle spasms, fever	Broken bones, breathing difficulty, death

\* DTaP combines protection against diphtheria, tetanus, and pertussis.

\*\* MMR combines protection against measles, mumps, and rubella.

Last updated August 2018 • CS295321-A

Figure 5.30 – Vaccine-Preventable Diseases.<sup>204</sup>

<sup>203</sup> Image by the CDC is in the public domain

<sup>204</sup> Image by the CDC is in the public domain

## Safety

There are different risks to infant safety. According to the CDC, nonfatal injury rates varied by age group.

- Nonfatal suffocation rates were highest for those less than 1 year of age.
- Rates for fires or burns, and drowning were highest for children 4 years and younger.
- Children 1 to 4 years of age had the highest rates of nonfatal falls and poisoning.

And the leading causes of injury death also differed by age group.

- For children less than 1 year of age, two-thirds of injury deaths were due to suffocation.
- Drowning was the leading cause of injury or death for those 1 to 4 years of age.<sup>205</sup>

### Car Seat Safety

Motor vehicle injuries are a leading cause of death among children in the United States. But many of these deaths can be prevented.

- In the United States, 723 children ages 12 years and younger died as occupants in motor vehicle crashes during 2016, and more than 128,000 were injured in 2016.
- One CDC study found that, in one year, more than 618,000 children ages 0-12 rode in vehicles without the use of a child safety seat or booster seat or a seat belt at least some of the time.
- Of the children ages 12 years and younger who died in a crash in 2016 (for which restraint use was known), 35% were not buckled up.<sup>206</sup>

Buckling children in age- and size-appropriate car seats, booster seats, and seat belts reduces the risk of serious and fatal injuries:

- Car seat use reduces the risk for injury in a crash by 71-82% for children when compared to seat belt use alone.
- Booster seat use reduces the risk for serious injury by 45% for children aged 4–8 years when compared with seat belt use alone.
- For older children and adults, seat belt use reduces the risk for death and serious injury by approximately half.<sup>207</sup>

<sup>205</sup> [Protect the Ones You Love: Child Injuries are Preventable](#) by the [CDC](#) is in the public domain

<sup>206</sup> [Child Passenger Safety: Get the Facts](#) by the [CDC](#) is in the public domain

<sup>207</sup> [Child Passenger Safety: Get the Facts](#) by the [CDC](#) is in the public domain



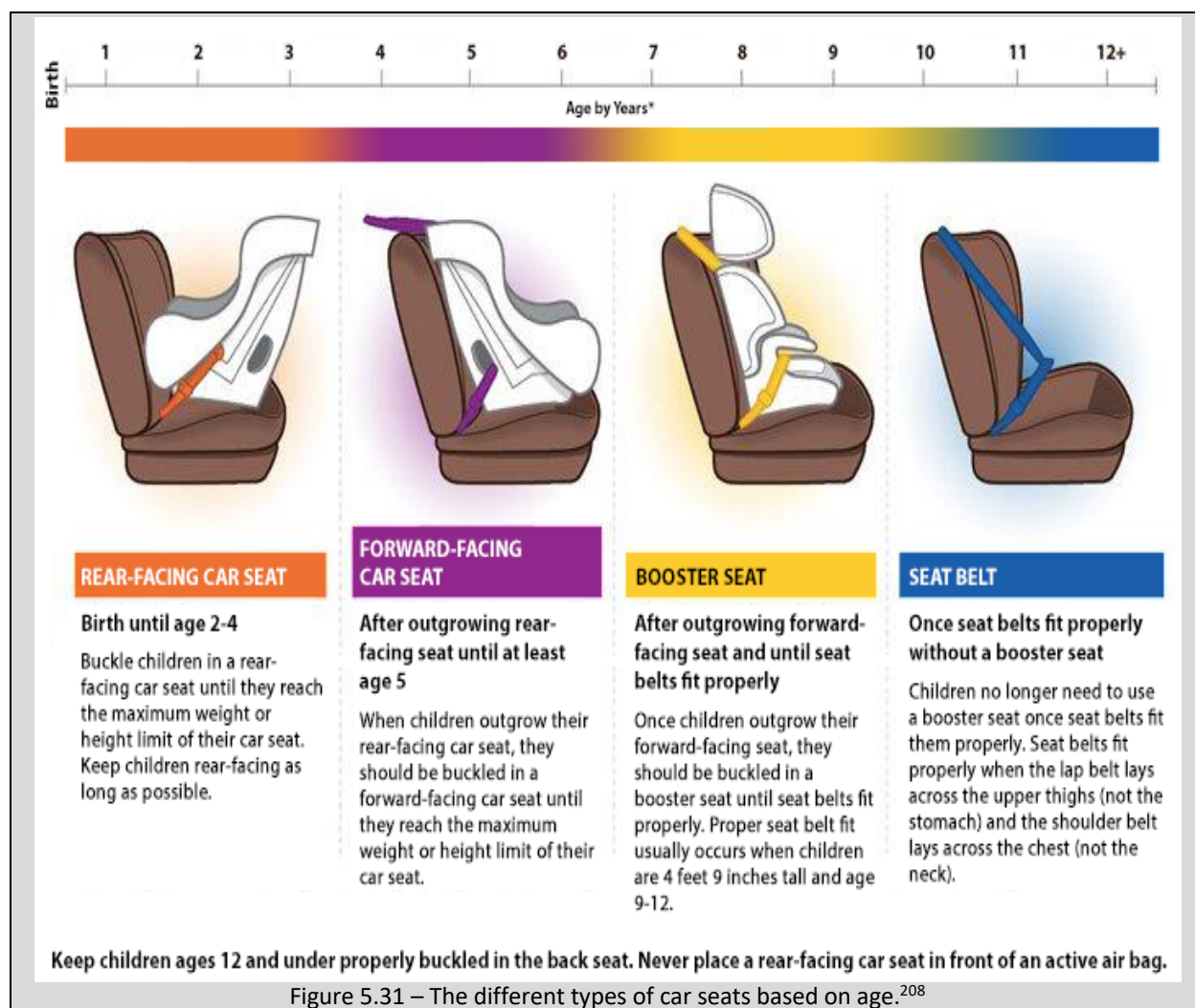


Figure 5.31 – The different types of car seats based on age.<sup>208</sup>

## Sleep

A newborn typically sleeps approximately 16.5 hours per 24-hour period. The infant is averaging 15 hours per 24-hour period by one month, and 14 hours by 6 months. By the time children turn two, they are averaging closer to 10 hours per 24 hours. Additionally, the average newborn will spend close to 50% of the sleep time in the Rapid Eye Movement (REM) phase, which decreases to 25% to 30% in childhood.<sup>209</sup>

<sup>208</sup> Image by the CDC is in the public domain

<sup>209</sup> Lifespan Development: A Psychological Perspective by Martha Lally and Suzanne Valentine-French is licensed under CC BY-NC-SA 3.0

## Sudden Infant Death Syndrome and Safe Sleep

Sudden Infant Death Syndrome (SIDS) is identified when the death of a healthy infant occurs suddenly and unexpectedly, and medical and forensic investigation findings (including an autopsy) are inconclusive. SIDS is the leading cause of death in infants 1 to 12 months old, and approximately 1,500 infants died of SIDS in 2013 (CDC, 2015). Because SIDS is diagnosed when no other cause of death can be determined, possible causes of SIDS are regularly researched. One leading hypothesis suggests that infants who die from SIDS have abnormalities in the area of the brainstem responsible for regulating breathing (Weekes-Shackelford & Shackelford, 2005).<sup>210</sup>



Figure 5.32 – A baby sleeping safely.<sup>211</sup>

### Risk Factors

Babies are at higher risk for SIDS if they:

- Sleep on their stomachs
- Sleep on soft surfaces, such as an adult mattress, couch, or chair or under soft coverings
- Sleep on or under soft or loose bedding
- Get too hot during sleep
- Are exposed to cigarette smoke in the womb or in their environment, such as at home, in the car, in the bedroom, or other areas
- Sleep in an adult bed with parents, other children, or pets; this situation is especially dangerous if:
  - The adult smokes, has recently had alcohol, or is tired.
  - The baby is covered by a blanket or quilt.
  - The baby sleeps with more than one bed-sharer.
  - The baby is younger than 11 to 14 weeks of age.

<sup>210</sup> [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

<sup>211</sup> [Image](#) by the [U.S. Department of Health and Human Services](#) is in the public domain

## Reducing the Risks

There have been dramatic improvements in reducing baby deaths during sleep since the 1990s, when recommendations were introduced to place babies on their back for sleep. However, since the late 1990s, declines have slowed.

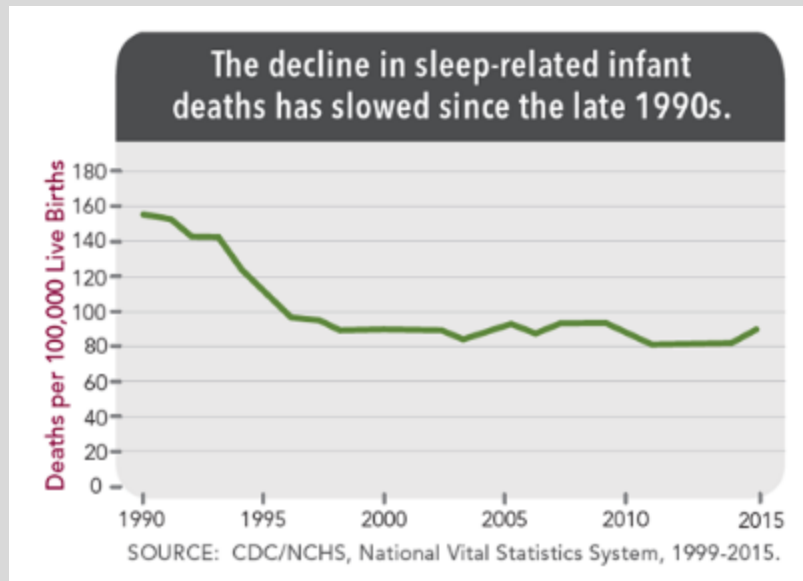


Figure 5.33 – A graph showing the decline in sleep-related infant deaths.<sup>212</sup>

In 2012, the Back to Sleep campaign became the Safe to Sleep campaign. Safe to Sleep aims to educate all caregivers about SIDS and safe sleep practices. Current recommendations to reduce the risk of SIDS and other sleep-related causes of infant death:

- Always place baby on his or her back to sleep (for naps and at night).
- Use a firm and flat surface.
- Use only a tight-fitting sheet on the sleep surface; no other bedding or soft items in the sleep area.
- Breastfeed.
- Share your room, but have baby sleep on a separate surface designed for infants.
- Do not put soft objects, toys, crib bumpers, or loose bedding under, over, or anywhere near baby's sleep area.
- Do not smoke during pregnancy or allow smoking around baby.
- Consider giving baby a pacifier.
- Do not let baby get too hot during sleep.
- Get regular health care (including vaccines).
- Avoid products that go against safe sleep recommendations, especially those that claim to prevent or reduce the risk of SIDS.
- Do not use heart or breathing monitors to reduce the risk of SIDS.<sup>213</sup>

<sup>212</sup> [Image](#) by the [CDC](#) is in the public domain

<sup>213</sup> [Ways to Reduce the Risk of SIDS and Other Sleep-Related Causes of Infant Death](#) by the [CDC](#) is in the public domain

## Conclusion

In this chapter we looked at:

- Physical changes during the first two years
- Some common infant reflexes
- How fine and gross motor skills develop
- Sensory capacities during the first two years
- Health and safety for infants and toddlers
- The sleep needs during the first two years and ways to reduce the risk of SIDS

In the next chapter, we are going to be taking a closer look at theories that help us explain the cognitive and language development during infancy and toddlerhood.

# Chapter 6: Infants & Toddlers

## Cognitive Development

### Objectives

After this chapter, you should be able to:

1. Describe the substages of the Piaget's sensorimotor stage.
2. Explain how the social environment affects cognitive development according to Vygotsky's theory.
3. Discuss the progression of language development during the first two years.

### Introduction

To better understand the large spectrum of cognition that infants and toddlers go through, it is important to analyze and comprehend various theories that relate to their growth and development. This chapter will take a look at the following theorists: Piaget and Vygotsky.

### Piaget

Jean Piaget (1896-1980) is the most noted theorist when it comes to children's cognitive development. He believed that children's cognition develops in stages. He explained this growth in the following stages:

1. Sensorimotor Stage (Birth through 2 years old)
2. Preoperational Stage (2-7 years old)
3. Concrete Operational Stage (7-11 years old)
4. Formal Operational Stage (12 years old- adulthood)

In this cognitive chapter, we will focus on his first stage which occurs in infancy.<sup>214</sup>

### Piaget and Sensorimotor Intelligence

Piaget describes intelligence in infancy as sensorimotor or based on direct, physical contact. Infants taste, feel, pound, push, hear, and move in order to experience the world. Let's explore the transition infants make from responding to the external world reflexively as newborns to solving problems using mental strategies as two years old.

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<sup>214</sup> [Children's Development](#) by Ana R. Leon is licensed under [CC BY 4.0](#)

**Table 6.1 - Substages of Piaget's Sensorimotor Stage<sup>215</sup>**

Substage	Age	Description
<b>Substage One: Simple Reflexes</b>	Birth to 1 month	This active learning begins with automatic movements or reflexes. A ball comes into contact with an infant's cheek and is automatically sucked on and licked.
<b>Substage Two: Primary Circular Reactions</b>	1 to 4 months	The infant begins to discriminate between objects and adjust responses accordingly as reflexes are replaced with voluntary movements. An infant may accidentally engage in a behavior and find it interesting such as making a vocalization. This interest motivates trying to do it again and helps the infant learn a new behavior that originally occurred by chance. At first, most actions have to do with the body, but in months to come, actions will be directed more toward objects.
<b>Substage Three: Secondary Circular Reactions</b>	4 to 8 months	The infant becomes more and more actively engaged in the outside world and takes delight in being able to make things happen. Although not initially goal-directed, infants will now intentionally repeat actions, like dropping an object or shaking a rattle, in order to prolong an interesting experience.
<b>Substage Four: Coordination of circular reactions</b>	8 to 12 months	The infant can engage in behaviors that others perform and anticipate upcoming events. Perhaps because of continued maturation of the prefrontal cortex, the infant becomes capable of having a thought and carrying out a planned, goal-directed activity such as seeking a toy that has rolled under the couch. The object continues to exist in the infant's mind even when out of sight and the infant now is capable of making attempts to retrieve it.
<b>Substage Five: Tertiary Circular Reactions</b>	12 to 18 months	The infant more actively engages in experimentation to learn about the physical world. Gravity is learned by pouring water from a cup or pushing bowls from high chairs. The caregiver tries to help the child by picking it up again and placing it on the tray. And what happens? Another experiment! The child pushes it off the tray again causing it to fall and the caregiver to pick it up again!
<b>Substage Six: Internalization of Schemes and Early Representational thought</b>	18 months to 2 years	The child is now able to solve problems using mental strategies, to remember something heard days before and repeat it, to engage in pretend play, and to find objects that have been moved even when out of sight. Take, for instance, the child who is upstairs in a room with the door closed, supposedly taking a nap. The doorknob has a safety device on it that makes it impossible for the child to turn the knob. After trying several times in vain to push the door or turn the doorknob, the child carries out a mental strategy learned from prior experience to get the door opened-he knocks on the door! The child is now better equipped with mental strategies for problem-solving.

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Figure 6.1 – An infant sitting in a highchair.<sup>216</sup>

## Evaluating Piaget's Sensorimotor Stage

Piaget opened up a new way of looking at infants with his view that their main task is to coordinate their sensory impressions with their motor activity. However, the infant's cognitive world is not as neatly packaged as Piaget portrayed it, and some of Piaget's explanations for the cause of change are debated. In the past several decades, sophisticated experimental techniques have been devised to study infants, and there have been a large number of research studies on infant development. Much of the new research suggests that Piaget's view of sensorimotor development needs to be modified (Baillargeon, 2014; Brooks & Meltzoff, 2014; Johnson & Hannon, 2015).

### *Object Permanence*

One necessary modification would be to when children develop object permanence. Infants seem to be able to recognize that objects have permanence at much younger ages than Piaget proposed (even as young as 3.5 months of age).

### *The A-not-B Error*

The data does not always support Piaget's claim that certain processes are crucial in transitions from one stage to the next. For example, in Piaget's theory, an important feature in the progression into substage 4, *coordination of secondary circular reactions*, is an infant's inclination to search for a hidden object in a familiar location rather than to look for the object in a new location. Thus, if a toy is hidden twice, initially at location A and subsequently at location B, 8- to 12-month-old infants search correctly at location A initially. But when the toy is subsequently hidden at location B, they make the mistake of continuing to search for it at location A. **A-not-B error** is the term used to describe this common mistake. Older infants are less likely to make the A-not-B error because their concept of object permanence is more complete.

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Researchers have found, however, that the A-not-B error does not show up consistently (Sophian, 1985). The evidence indicates that A-not-B errors are sensitive to the delay between hiding the object at B and the infant's attempt to find it (Diamond, 1985). Thus, the A-not-B error might be due to a failure in memory. Another explanation is that infants tend to repeat a previous motor behavior (Clearfield & others, 2006; Smith, 1999).

## Vygotsky

### Development Is Determined by Environmental Factors

Piaget set the tone for much of current-day research but his theory has also received a great deal of criticism. Many believe that Piaget ignored the huge influence that society and culture have in shaping a child's development. At a similar time, another researcher named Lev Vygotsky (1896–1934) had come to similar conclusions as Piaget about children's development, in thinking that children learned about the world through physical interaction with it. However, where Piaget felt that children moved naturally through different stages of development, based on biological predispositions and their individual interactions with the world, Vygotsky claimed that adult or peer intervention was a much more important part of the developmental process.

Vygotsky concentrated more on the child's immediate social and cultural environment and his or her interactions with adults and peers. He argued that development occurred first through children's immediate social interactions, and then moved to the individual level as they began to internalize their learning. While Piaget saw the child as actively discovering the world through individual interactions with it, Vygotsky saw the child as more of an apprentice, learning through a social environment of others who had more experience and were sensitive to the child's needs and abilities.<sup>217</sup>



Figure 6.2 – An adult playing Legos with a child.<sup>218</sup>

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<sup>218</sup> [Image](#) by [Tabajaichhalt](#) on [Pixabay](#)

## Cognitive Milestones

Children are actively learning about the world as they perceive it from the time they are in the womb. Here is a table of some of the cognitive milestones infants and toddlers typically develop.

**Table 6.2 - Cognitive Milestones<sup>219</sup>**

Typical Age	What Most Children Do by This Age
<b>2 months</b>	<ul style="list-style-type: none"><li>● Pays attention to faces</li><li>● Begins to follow things with eyes and recognize people at a distance</li><li>● Begins to act bored (cries, fussy) if activity doesn't change</li></ul>
<b>4 months</b>	<ul style="list-style-type: none"><li>● Indicates happy or sad</li><li>● Responds to affection</li><li>● Reaches for a toy with one hand</li><li>● Uses hands and eyes together, such as seeing a toy and reaching for it</li><li>● Follows moving things with eyes from side to side</li><li>● Watches faces closely</li><li>● Recognizes familiar people and things at a distance</li></ul>
<b>6 months</b>	<ul style="list-style-type: none"><li>● Looks around at things nearby</li><li>● Brings things to mouth</li><li>● Shows curiosity about things and tries to get things that are out of reach</li><li>● Begins to pass things from one hand to the other</li></ul>
<b>9 months</b>	<ul style="list-style-type: none"><li>● Watches the path of something as it falls</li><li>● Looks for things he sees you hide</li><li>● Plays peek-a-boo</li><li>● Puts things in mouth</li><li>● Moves things smoothly from one hand to the other</li><li>● Picks up things like cereal o's between thumb and index finger</li></ul>
<b>1 year</b>	<ul style="list-style-type: none"><li>● Explores things in different ways, like shaking, banging, throwing</li><li>● Finds hidden things easily</li><li>● Looks at the right picture or thing when it's named</li><li>● Copies gestures</li><li>● Starts to use things correctly; for example, drinks from a cup, brushes hair</li><li>● Bangs two things together</li><li>● Puts things in a container, takes things out of a container</li><li>● Lets go of objects without help</li></ul>

<sup>219</sup> [Developmental Milestones](#) by the [CDC](#) is in the public domain

	<ul style="list-style-type: none"> <li>● Pokes with index (pointer) finger</li> <li>● Follows simple directions like “pick up the toy”</li> </ul>
<b>18 months</b>	<ul style="list-style-type: none"> <li>● Knows what ordinary things are for; for example, telephone, brush, spoon</li> <li>● Points to get the attention of others</li> <li>● Shows interest in a doll or stuffed animal by pretending to feed</li> <li>● Points to one body part</li> <li>● Scribbles on own</li> <li>● Can follow 1-step verbal commands without any gestures; for example, sits when you say “sit down”</li> </ul>
<b>2 years</b>	<ul style="list-style-type: none"> <li>● Finds things even when hidden under two or three covers</li> <li>● Begins to sort shapes and colors</li> <li>● Completes sentences and rhymes in familiar books</li> <li>● Plays simple make-believe games</li> <li>● Builds towers of 4 or more blocks</li> <li>● Might use one hand more than the other</li> <li>● Follows two-step instructions such as “Pick up your shoes and put them in the closet.”</li> <li>● Names items in a picture book such as a cat, bird, or dog</li> </ul>

## Language Development

Do newborns communicate? Absolutely! However, they do not communicate with the use of language. Instead, they communicate their thoughts and needs with body posture (being relaxed or still), gestures, cries, and facial expressions. A person who spends adequate time with an infant can learn which cries indicate pain and which ones indicate hunger, discomfort, or frustration as well as translate their vocalizations, movements, gestures, and facial expressions.



Figure 6.3 – An infant looking up at the camera.<sup>220</sup>

<sup>220</sup> Image by Andres and Antoinette Ricardo used with permission

## Stages of Language Development

1. **Intentional Vocalizations - Cooing and taking turns:** Infants begin to vocalize and repeat vocalizations within the first couple of months of life. That gurgling, musical vocalization called cooing can serve as a source of entertainment to an infant who has been laid down for a nap or seated in a carrier on a car ride. Cooing serves as practice for vocalization as well, as the infant hears the sound of his or her voice and tries to repeat entertaining sounds. Infants also begin to learn the pace and pause of conversation as they alternate their vocalization with that of someone else and then take their turn again when the other person's vocalization has stopped. Cooing initially involves making vowel sounds like "oooo". Later, consonants are added to vocalizations such as "nananananana".
2. **Babbling and gesturing:** At about four to six months of age, infants begin making even more elaborate vocalizations that include the sounds required for any language. Guttural sounds, clicks, consonants, and vowel sounds stand ready to equip the child with the ability to repeat whatever sounds are characteristic of the language heard. Eventually, these sounds will no longer be used as the infant grows more accustomed to a particular language. Deaf babies also use gestures to communicate wants, reactions, and feelings. Because gesturing seems to be easier than vocalization for some toddlers, sign language is sometimes taught to enhance one's ability to communicate by making use of the ease of gesturing. The rhythm and pattern of language is used when deaf babies sign just as it is when hearing babies babble.
3. **Understanding:** At around ten months of age, the infant can understand more than he or she can say. You may have experienced this phenomenon as well if you have ever tried to learn a second language. You may have been able to follow a conversation more easily than to contribute to it.
4. **Holophrastic speech:** Children begin using their first words at about 12 or 13 months of age and may use partial words to convey thoughts at even younger ages. These one-word expressions are referred to as **holophrastic speech**. For example, the child may say "ju" for the word "juice" and use this sound when referring to a bottle. The listener must interpret the meaning of the holophrase and when this is someone who has spent time with the child, interpretation is not too difficult. They know that "ju" means "juice" which means the baby wants some milk! But someone who has not been around the child will have trouble knowing what is meant. Imagine the parent who to a friend exclaims, "Ezra's talking all the time now!" The friend hears only "ju da ga" which, the parent explains, means "I want some milk when I go with Daddy."

5. Underextension: A child who learns that a word stands for an object may initially think that the word can be used for only that particular object. Only the family's Irish Setter is a "doggie". This is referred to as **underextension**. More often, however, a child may think that a label applies to all objects that are similar to the original object. In **overextension**, all animals become "doggies", for example.
6. First words and cultural influences: First words in English tend to be nouns. The child labels objects such as cup or ball. In a verb-friendly language such as Chinese, however, children may learn more verbs. This may also be due to the different emphasis given to objects based on culture. Chinese children may be taught to notice action and relationship between objects while children from the United States may be taught to name an object and its qualities (color, texture, size, etc.). These differences can be seen when comparing interpretations of art by older students from China and the United States.
7. Vocabulary growth spurt: One-year-olds typically have a vocabulary of about 50 words. But by the time they become toddlers, they have a vocabulary of about 200 words and begin putting those words together in telegraphic speech (It can now be thought of as 'text message' speech because texting is more common and is similar in that text messages typically only include the minimal amount of words to convey the message).
8. Two-word sentences and **telegraphic speech**: Words are soon combined and 18-month-old toddlers can express themselves further by using expressions such as "baby bye-bye" or "doggie pretty". Words needed to convey messages are used, but the articles and other parts of speech necessary for grammatical correctness are not yet used. These expressions sound like a telegraph (or perhaps a better analogy today would be that they read like a text message) where unnecessary words are not used. "Give baby ball" is used rather than "Give the baby the ball." Or a text message of "Send money now!" rather than "Dear Mother. I really need some money to take care of my expenses."<sup>221</sup>

## Language Milestones

In the first two years of life, children go from communicating by crying to being able to express themselves with words. Here is a table of common language milestones for infants and toddlers.

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**Table 6.3 - Language Milestones<sup>222</sup>**

Typical Age	What Most Children Do By This Age
<b>2 months</b>	<ul style="list-style-type: none"> <li>• Coos, makes gurgling sounds</li> <li>• Turns head toward sounds</li> </ul>
<b>4 months</b>	<ul style="list-style-type: none"> <li>• Begins to babble</li> <li>• Babbles with expression and copies sounds he hears</li> <li>• Cries in different ways to show hunger, pain, or being tired</li> </ul>
<b>6 months</b>	<ul style="list-style-type: none"> <li>• Responds to sounds by making sounds</li> <li>• Strings vowels together when babbling (“ah,” “eh,” “oh”) and likes taking turns with parent while making sounds</li> <li>• Responds to own name</li> <li>• Makes sounds to show joy and displeasure</li> <li>• Begins to say consonant sounds (jabbering with “m,” “b”)</li> </ul>
<b>9 months</b>	<ul style="list-style-type: none"> <li>• Understands “no”</li> <li>• Makes a lot of different sounds like “mamamama” and “bababababa”</li> <li>• Copies sounds and gestures of others</li> <li>• Uses fingers to point at things</li> </ul>
<b>1 year</b>	<ul style="list-style-type: none"> <li>• Responds to simple spoken requests</li> <li>• Uses simple gestures, like shaking head “no” or waving “bye-bye”</li> <li>• Makes sounds with changes in tone (sounds more like speech)</li> <li>• Says “mama” and “dada” and exclamations like “uh-oh!”</li> <li>• Tries to say words you say</li> </ul>
<b>18 months</b>	<ul style="list-style-type: none"> <li>• Says several single words</li> <li>• Says and shakes head now</li> <li>• Points to show others what is wanted</li> </ul>
<b>2 years</b>	<ul style="list-style-type: none"> <li>• Points to things or pictures when they are named</li> <li>• Knows names of familiar people and body parts</li> <li>• Says sentences with 2 to 4 words</li> <li>• Follows simple instructions</li> <li>• Repeats words overheard in conversation</li> <li>• Points to things in a book</li> </ul>

<sup>222</sup> [Developmental Milestones](#) by the [CDC](#) is in the public domain

## Child-Directed Speech

Why is a horse a “horsie”? Have you ever wondered why adults tend to use “baby talk” or that sing-song type of intonation and exaggeration used when talking to children? This represents a universal tendency and is known as **child-directed speech or parentese** (historically referred to as **motherese**). It involves exaggerating the vowel and consonant sounds, using a high-pitched voice, and delivering the phrase with great facial expression. Why is this done? It may be to clearly articulate the sounds of a word so that the child can hear the sounds involved. Or it may be because when this type of speech is used, the infant pays more attention to the speaker and this sets up a pattern of interaction in which the speaker and listener are in tune with one another.<sup>223</sup>

## Conclusion

In this chapter we looked at:

- Piaget’s sensorimotor stage.
- The impact of the social environment on children’s learning.
- The progression and theories of language development.

In the following chapter, we will finish looking at the first two years of life by examining social and emotional development, including temperament and attachment.

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# Chapter 7: Infants & Toddlers

## Social-Emotional Development

### Objectives

After this chapter, you should be able to:

1. Classify types of temperament.
2. Discuss the roles of culture and gender in socialization.
3. Describe the sequence of emotional development during the first two years.
4. Compare different theories of attachment and attachment styles.
5. Explain Erikson's stage of trust versus mistrust.
6. Contrast child care options for families.

### Introduction

While temperament is determined by genetics and emotions develop through maturation, the early interactions we have with the adults that care for us as infants and toddlers are very important for healthy emotional development. Let's examine some of the important interactions and milestones in social and emotional development during the first two years of life.

### Temperament

Perhaps you have spent time with a number of infants. How were they alike? How did they differ? How do you compare with your siblings or other children you have known well? You may have noticed that some seemed to be in a better mood than others and that some were more sensitive to noise or more easily distracted than others. These differences may be attributed to temperament. **Temperament** is the innate characteristics of the infant, including mood, activity level, and emotional reactivity, noticeable soon after birth.

In a 1956 landmark study, Chess and Thomas (1996) evaluated 141 children's temperament based on parental interviews. Referred to as the New York Longitudinal Study, infants were assessed on 10 dimensions of temperament including:

- activity level
- rhythmicity (regularity of biological functions)
- approach/withdrawal (how children deal with new things)
- adaptability to situations
- intensity of reactions
- threshold of responsiveness (how intense a stimulus has to be for the child to react)
- quality of mood
- distractibility
- attention span
- persistence

Based on the infants' behavioral profiles, they were categorized into three general types of temperament:

**Table 7.1 - Types of Temperament**

Type	Percentage	Description
Easy	40%	<ul style="list-style-type: none"><li>• Able to quickly adapt to routine and new situations</li><li>• Remains calm</li><li>• Easy to soothe</li><li>• Usually in a positive mood</li></ul>
Difficult	10%	<ul style="list-style-type: none"><li>• Reacts negatively to new situations</li><li>• Has trouble adapting to routine</li><li>• Usually negative in mood</li><li>• Cries frequently</li></ul>
Slow-to-warm-up	15%	<ul style="list-style-type: none"><li>• Low activity level</li><li>• Adjusts slowly to new situations</li><li>• Often negative in mood</li></ul>

As can be seen, the percentages do not equal 100% as some children were not able to be placed neatly into one of the categories. Think about how each type of child should be approached to improve interactions with them. An easy child requires less intervention, but still has needs that must not be overlooked. A slow-to-warm-up child may need to be given advance warning if new people or situations are going to be introduced. A child with a difficult temperament may need to be given extra time to burn off their energy.

A caregiver's ability to work well and accurately read the child will enjoy a **goodness-of-fit**, meaning their styles match, and communication and interaction can flow. Parents who recognize each child's temperament and accept it, will nurture more effective interactions with the child and encourage more adaptive functioning.<sup>224</sup>



Figure 7.1 – This adventurous child's parents provide a good "fit" to her temperament.<sup>225</sup>

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## Parenting Is Bidirectional

Not only do parents affect their children, children influence their parents. A child's characteristics, such as temperament, affect parenting behaviors and roles. For example, an infant with an easy temperament may enable parents to feel more effective, as they are easily able to soothe the child and elicit smiling and cooing. On the other hand, a cranky or fussy infant elicits fewer positive reactions from his or her parents and may result in parents feeling less effective in the parenting role (Eisenberg et al., 2008). Over time, parents of more difficult children may become more punitive and less patient with their children (Clark, Kochanska, & Ready, 2000; Eisenberg et al., 1999; Kiff, Lengua, & Zalewski, 2011). Parents who have a fussy, difficult child are less satisfied with their marriages and have greater challenges in balancing work and family roles (Hyde, Else-Quest, & Goldsmith, 2004). Thus, child temperament is one of the child characteristics that influence how parents behave with their children.

## Personality

Temperament does not change dramatically as we grow up, but we may learn how to work around and manage our temperamental qualities. Temperament may be one of the things about us that stays the same throughout development. In contrast, **personality**, defined as an individual's consistent pattern of feeling, thinking, and behaving, is the result of the continuous interplay between biological disposition and experience.

Personality also develops from temperament in other ways (Thompson, Winer, & Goodvin, 2010). As children mature biologically, temperamental characteristics emerge and change over time. A newborn is not capable of much self-control, but as brain-based capacities for self-control advance, temperamental changes in self-regulation become more apparent. For example, a newborn who cries frequently doesn't necessarily have a grumpy personality; over time, with sufficient parental support and an increased sense of security, the child might be less likely to cry.

Personality is made up of many other features besides temperament. Children's developing self-concept, their motivations to achieve or to socialize, their values and goals, their coping styles, their sense of responsibility and conscientiousness, as well as many other qualities are encompassed into personality. These qualities are influenced by biological dispositions, but even more by the child's experiences with others, particularly in close relationships, that guide the growth of individual characteristics. Also, their cultural values can influence their personality (some value independence while others value group needs over individual needs). Indeed, personality development begins with the biological foundations of temperament but becomes increasingly elaborated, extended, and refined over time. The newborn that parents gazed upon thus becomes an adult with a personality of depth and nuance.<sup>226</sup>

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## Gender and Personality

Gender norms (the behaviors that males and females are expected to conform to in a given society) can also influence personality by emphasizing different traits between different genders.



Figure 7.2 – A female infant wearing stereotypically feminine clothing and accessories.<sup>227</sup>



Figure 7.3 – A male infant wearing stereotypically masculine clothing.<sup>228</sup>

Ideas of appropriate behavior for each gender (masculine and feminine) vary among cultures and tend to change over time. For example, aggression and assertiveness have historically been emphasized as positive masculine personality traits in the United States. Meanwhile, submissiveness and caretaking have historically been held as ideal feminine traits. While many **gender roles** remain the same, others change over time. In 1938, for example, only 1 out of 5 Americans agreed that a married woman should earn money in industry and business. By 1996, however, 4 out of 5 Americans approved of women working in these fields. This type of attitude change has been accompanied by behavioral shifts that coincide with changes in trait expectations and shifts in personal identity for men and women.<sup>229</sup>

## Infant Emotions

At birth, infants exhibit two emotional responses: attraction and withdrawal. They show attraction to pleasant situations that bring comfort, stimulation, and pleasure, and they withdraw from unpleasant stimulation such as bitter flavors or physical discomfort. At 6 weeks, infants exhibit social engagement in the form of social smiling as they respond with smiles to those who engage their positive attention (Lavelli & Fogel, 2005).

The Social smile becomes more stable and organized as infants learn to use their smiles to engage their parents in interactions. Pleasure is expressed as laughter at 3 to 5 months of age, and displeasure becomes more specific as fear, sadness, or anger between ages 6 and 8

<sup>227</sup> [Image](#) by [Abdullah Shakoore](#) on [Pixabay](#)

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<sup>229</sup> [Lifespan Development - Module 4: Infancy](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)



months. Anger is often the reaction to being prevented from obtaining a goal, such as a toy being removed (Braungart-Rieker, Hill-Soderlund, & Karrass, 2010). In contrast, sadness is typically the response when infants are deprived of a caregiver (Papousek, 2007). Fear is often associated with the presence of a stranger, known as **stranger wariness**, or the departure of significant others known as **separation anxiety**. Both appear sometime between 6 and 15 months after object permanence has been acquired. Further, there is some indication that infants may experience jealousy as young as 6 months of age (Hart & Carrington, 2002).



Figure 7.4 – An infant making an angry facial expression.<sup>230</sup>

Emotions are often divided into two general categories: **Basic emotions** (primary emotions), such as interest, happiness, anger, fear, surprise, sadness and disgust, which appear first, and **self-conscious emotions** (secondary emotions), such as envy, pride, shame, guilt, doubt, and embarrassment. Unlike primary emotions, secondary emotions appear as children start to develop a self-concept, and require social instruction on when to feel such emotions. The situations in which children learn self-conscious emotions vary from culture to culture. Individualistic cultures teach us to feel pride in personal accomplishments, while in more collective cultures, children are taught to not call attention to themselves, unless you wish to feel embarrassed for doing so (Akimoto & Sanbinmatsu, 1999).

Facial expressions of emotion are important regulators of social interaction. In the developmental literature, this concept has been investigated under the concept of **social referencing**; that is, the process whereby infants seek out information from others to clarify a situation and then use that information to act (Klinnert, Campos, & Sorce, 1983). To date, the strongest demonstration of social referencing comes from work on the visual cliff. In the first study to investigate this concept, Campos and colleagues (Sorce, Emde, Campos, & Klinnert, 1985) placed mothers on the far end of the “cliff” from the infant. Mothers first smiled to the infants and placed a toy on top of the safety glass to attract them; infants invariably began

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<sup>230</sup> [Image](#) by [Brytny.com](#) on [Unsplash](#)

crawling to their mothers. When the infants were in the center of the table, however, the mother then posed an expression of fear, sadness, anger, interest, or joy. The results were clearly different for the different faces; no infant crossed the table when the mother showed fear; only 6% did when the mother posed anger, 33% crossed when the mother posed sadness, and approximately 75% of the infants crossed when the mother posed joy or interest.

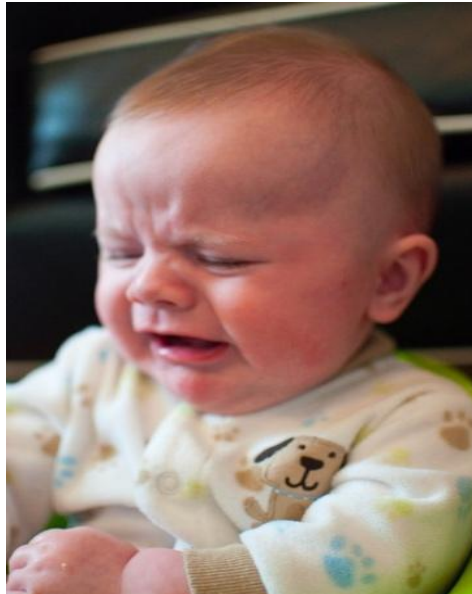


Figure 7.5 – An infant making a sad facial expression<sup>231</sup>.

Other studies provide similar support for facial expressions as regulators of social interaction. Researchers posed facial expressions of neutral, anger, or disgust toward babies as they moved toward an object and measured the amount of inhibition the babies showed in touching the object (Bradshaw, 1986). The results for 10- and 15-month olds were the same: Anger produced the greatest inhibition, followed by disgust, with neutral the least. This study was later replicated using joy and disgust expressions, altering the method so that the infants were not allowed to touch the toy (compared with a distractor object) until one hour after exposure to the expression (Hertenstein & Campos, 2004). At 14 months of age, significantly more infants touched the toy when they saw joyful expressions, but fewer touched the toy when the infants saw disgust.

A final emotional change is in self-regulation. **Emotional self-regulation** refers to strategies we use to control our emotional states so that we can attain goals (Thompson & Goodvin, 2007). This requires effortful control of emotions and initially requires assistance from caregivers (Rothbart, Posner, & Kieras, 2006). Young infants have very limited capacity to adjust their emotional states and depend on their caregivers to help soothe themselves. Caregivers can offer distractions to redirect the infant's attention and comfort to reduce the emotional distress. As areas of the infant's prefrontal cortex continue to develop, infants can tolerate more stimulation. By 4 to 6 months, babies can begin to shift their attention away from

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upsetting stimuli (Rothbart et al, 2006). Older infants and toddlers can more effectively communicate their need for help and can crawl or walk toward or away from various situations (Cole, Armstrong, & Pemberton, 2010). This aids in their ability to self-regulate. Temperament also plays a role in children's ability to control their emotional states, and individual differences have been noted in the emotional self-regulation of infants and toddlers (Rothbart & Bates, 2006).<sup>232</sup>



Figure 7.6 – A toddler at a park.<sup>233</sup>

**Development of Sense of Self:** During the second year of life, children begin to recognize themselves as they gain a sense of self as separate from their primary caregiver. In a classic experiment by Lewis and Brooks (1978) children 9 to 24 months of age were placed in front of a mirror after a spot of rouge was placed on their nose as their mothers pretended to wipe something off the child's face. If the child reacted by touching his or her nose rather than that of the "baby" in the mirror, it was taken to suggest that the child recognized the reflection as him or herself. Lewis and Brooks found that somewhere between 15 and 24 months most infants developed a sense of self-awareness. **Self-awareness** is the realization that you are separate from others (Kopp, 2011). Once a child has achieved self-awareness, the child is moving toward understanding social emotions such as guilt, shame, or embarrassment, as well as, sympathy or empathy.<sup>234</sup>

## Social-Emotional Milestones

As infants and toddlers interact with other people, their social and emotional skills develop. Here is a table of social and emotional milestones that they typically experience during the first two years.

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**Table 7.2 - Social and Emotional Milestones<sup>235</sup>**

Typical Age	What Most Children Do By This Age
<b>2 months</b>	<ul style="list-style-type: none"><li>● Begins to smile at people</li><li>● Can briefly calm self (may bring hands to mouth and suck on hand)</li><li>● Tries to look at parent</li></ul>
<b>4 months</b>	<ul style="list-style-type: none"><li>● Smiles spontaneously, especially at people</li><li>● Likes to play with people and might cry when playing stops</li><li>● Copies some movements and facial expressions, like smiling or frowning</li></ul>
<b>6 months</b>	<ul style="list-style-type: none"><li>● Knows familiar faces and begins to know if someone is a stranger</li><li>● Likes to play with others, especially parents</li><li>● Responds to other people's emotions and often seems happy</li><li>● Likes to look at self in a mirror</li></ul>
<b>9 months</b>	<ul style="list-style-type: none"><li>● May be afraid of strangers</li><li>● May be clingy with familiar adults</li><li>● Has favorite toys</li></ul>
<b>1 year</b>	<ul style="list-style-type: none"><li>● Is shy or nervous with strangers</li><li>● Cries when mom or dad leaves</li><li>● Has favorite things and people</li><li>● Shows fear in some situations</li><li>● Hands you a book when wants to hear a story</li><li>● Repeats sounds or actions to get attention</li><li>● Puts out arm or leg to help with dressing</li><li>● Plays games such as "peek-a-boo" and "pat-a-cake"</li></ul>
<b>18 months</b>	<ul style="list-style-type: none"><li>● Likes to hand things to others as play</li><li>● May have temper tantrums</li><li>● May be afraid of strangers</li><li>● Shows affection to familiar people</li><li>● Plays simple pretend, such as feeding a doll</li><li>● May cling to caregivers in new situations</li><li>● Points to show others something interesting</li><li>● Explores alone but with a parent close by</li></ul>
<b>2 years</b>	<ul style="list-style-type: none"><li>● Copies others, especially adults and older children</li><li>● Gets excited when with other children</li><li>● Shows more and more independence</li><li>● Shows defiant behavior (doing what he has been told not to)</li><li>● Plays mainly beside other children, but is beginning to include other children, such as in chase games</li></ul>

<sup>235</sup> [Developmental Milestones](#) by the [CDC](#) is in the public domain

## Forming Attachments

**Attachment** is the close bond with a caregiver from which the infant derives a sense of security. The formation of attachments in infancy has been the subject of considerable research as attachments have been viewed as foundations for future relationships. Additionally, attachments form the basis for confidence and curiosity as toddlers, and as important influences on self- concept.



Figure 7.7 – The formation of attachment in action as a father snuggles a newborn.<sup>236</sup>

## Freud's Psychoanalytic Theory

According to Freud (1938), infants are oral creatures who obtain pleasure from sucking and mouthing objects. Freud believed the infant will become attached to a person or object that provides this pleasure. Consequently, infants were believed to become attached to their mother because she was the one who satisfied their oral needs and provided pleasure. Freud further believed that the infants will become attached to their mothers “if the mother is relaxed and generous in her feeding practices, thereby allowing the child a lot of oral pleasure,” (Shaffer, 1985, p. 435).

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<sup>236</sup> Image by Andres and Antoinette Ricardo used with permission



## Harlow's Research

In one classic study, Wisconsin University psychologists Harry and Margaret Harlow investigated the responses of young rhesus monkeys to explore if breastfeeding was the most important factor to attachment.



Figure 7.8 – A rhesus monkey sucking its thumb.<sup>237</sup>

The infant monkeys were separated from their biological mothers, and two surrogate mothers were introduced to their cages. The first mother (the wire mother) consisted of a round wooden head, a mesh of cold metal wires, and a bottle of milk from which the baby monkey could drink. The second mother was a foam-rubber form wrapped in a heated terry-cloth blanket. The infant monkeys went to the wire mother for food, but they overwhelmingly preferred and spent significantly more time with the warm terry-cloth mother. The warm terry-cloth mother provided no food but did provide comfort (Harlow, 1958). The infant's need for physical closeness and touching is referred to as **contact comfort**. Contact comfort is believed to be the foundation for attachment. The Harlows' studies confirmed that babies have social as well as physical needs. Both monkeys and human babies need a secure base that allows them to feel safe. From this base, they can gain the confidence they need to venture out and explore their worlds.

## Bowlby's Theory

Building on the work of Harlow and others, John Bowlby developed the concept of attachment theory. He defined attachment as the affectional bond or tie that an infant forms with the mother (Bowlby, 1969). An infant must form this bond with a primary caregiver in order to have normal social and emotional development. In addition, Bowlby proposed that this attachment bond is very powerful and continues throughout life. He used the concept of secure base to define a healthy attachment between parent and child (Bowlby, 1982). A **secure base** is a parental presence that gives the child a sense of safety as the child explores the surroundings.

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Figure 7.9 – A mother offering a secure base as her infant plays on a slide.<sup>238</sup>

Bowlby said that two things are needed for a healthy attachment: The caregiver must be responsive to the child’s physical, social, and emotional needs; and the caregiver and child must engage in mutually enjoyable interactions (Bowlby, 1969). Additionally, Bowlby observed that infants would go to extraordinary lengths to prevent separation from their parents, such as crying, refusing to be comforted, and waiting for the caregiver to return.



Figure 7.10 - This child is seeking comfort from an attachment figure.<sup>239</sup>

Bowlby also observed that these same expressions were common to many other mammals, and consequently argued that these negative responses to separation serve an evolutionary function. Because mammalian infants cannot feed or protect themselves, they are dependent upon the care and protection of adults for survival. Thus, those infants who were able to maintain proximity to an attachment figure were more likely to survive and reproduce.

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## Erikson: Trust vs. Mistrust

As previously discussed in chapter 1, Erikson formulated an eight-stage theory of psychosocial development. Erikson agreed on the importance of a secure base, arguing that the most important goal of infancy was the development of a basic sense of trust in one's caregivers. Consequently, the first stage, trust vs. mistrust, highlights the importance of attachment. Erikson maintained that the first year to year and a half of life involves the establishment of a sense of trust (Erikson, 1982). Infants are dependent and must rely on others to meet their basic physical needs as well as their needs for stimulation and comfort. A caregiver who consistently meets these needs instills a sense of trust or the belief that the world is a trustworthy place. The caregiver should not worry about overindulging a child's need for comfort, contact, or stimulation.



Figure 7.11 – This baby-wearing father is creating trust with his infant child.<sup>240</sup>

### *Problems Establishing Trust*

Erikson (1982) believed that mistrust could contaminate all aspects of one's life and deprive the individual of love and fellowship with others. Consider the implications for establishing trust if a caregiver is unavailable or is upset and ill-prepared to care for a child. Or if a child is born prematurely, is unwanted, or has physical problems that make him or her more challenging to parent. Under these circumstances, we cannot assume that the parent is going to provide the child with a feeling of trust.

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<sup>240</sup> [Image](#) by [Ferenc Horvath](#) on [Unsplash](#)

## Mary Ainsworth and the Strange Situation

Developmental psychologist Mary Ainsworth, a student of John Bowlby, continued studying the development of attachment in infants. Ainsworth and her colleagues created a laboratory test that measured an infant's attachment to his or her parent. The test is called **The Strange Situation** because it is conducted in a context that is unfamiliar to the child and therefore likely to heighten the child's need for his or her parent (Ainsworth, 1979).



Figure 7.12 – An infant crawling on the floor with toys around as done in the Strange Situation.<sup>241</sup>

During the procedure, which lasts about 20 minutes, the parent and the infant are first left alone, while the infant explores the room full of toys. Then a strange adult enters the room and talks for a minute to the parent, after which the parent leaves the room. The stranger stays with the infant for a few minutes, and then the parent again enters and the stranger leaves the room. During the entire session, a video camera records the child's behaviors, which are later coded by the research team. The investigators were especially interested in how the child responded to the caregiver leaving and returning to the room, referred to as the "reunion." Based on their behaviors, the children are categorized into one of four groups where each group reflects a different kind of attachment relationship with the caregiver. One style is secure and the other three styles are referred to as insecure.

- A child with a **secure attachment style** usually explores freely while the caregiver is present and may engage with the stranger. The child will typically play with the toys and bring one to the caregiver to show and describe from time to time. The child may be upset when the caregiver departs, but is also happy to see the caregiver return.
- A child with an **ambivalent** (sometimes called resistant) **attachment style** is wary about the situation in general, particularly the stranger, and stays close or even clings to the caregiver rather than exploring the toys. When the caregiver leaves, the child is extremely distressed and is ambivalent when the caregiver returns. The child may rush to the caregiver, but then fails to be comforted when picked up. The child may still be angry and even resist attempts to be soothed.

<sup>241</sup> [Image](#) is in the public domain

- A child with an **avoidant attachment style** will avoid or ignore the mother, showing little emotion when the mother departs or returns. The child may run away from the mother when she approaches. The child will not explore very much, regardless of who is there, and the stranger will not be treated much differently from the mother.
- A child with a **disorganized/disoriented attachment style** seems to have an inconsistent way of coping with the stress of the strange situation. The child may cry during the separation, but avoid the mother when she returns, or the child may approach the mother but then freeze or fall to the floor.

How common are the attachment styles among children in the United States? It is estimated that about 65 percent of children in the United States are securely attached. Twenty percent exhibit avoidant styles and 10 to 15 percent are ambivalent. Another 5 to 10 percent may be characterized as disorganized.

Some cultural differences in attachment styles have been found (Rothbaum, Weisz, Pott, Miyake, & Morelli, 2010). For example, German parents value independence and Japanese mothers are typically by their children's sides. As a result, the rate of insecure-avoidant attachments is higher in Germany and insecure-resistant attachments are higher in Japan. These differences reflect cultural variation rather than true insecurity, however (van Ijzendoorn and Sagi, 1999).

Keep in mind that methods for measuring attachment styles have been based on a model that reflects middle-class, U. S. values and interpretation. Newer methods for assessment attachment styles involve using a **Q-sort technique** in which a large number of behaviors are recorded on cards and the observer sorts the cards in a way that reflects the type of behavior that occurs within the situation (Waters, 1987). There are 90 items in the third version of the Q-sort technique, and examples of the behaviors assessed include:

- When child returns to mother after playing, the child is sometimes fussy for no clear reason.
- When the child is upset or injured, the child will accept comforting from adults other than mother.
- Child often hugs or cuddles against mother, without her asking or inviting the child to do so.
- When the child is upset by mother's leaving, the child continues to cry or even gets angry after she is gone.

At least two researchers observe the child and parent in the home for 1.5-2 hours per visit. Usually, two visits are sufficient to gather adequate information. The parent is asked if the behaviors observed are typical for the child. This information is used to test the validity of the Strange Situation classifications across age, cultures, and clinical populations.

## Caregiver Consistency

Having a consistent caregiver may be jeopardized if the infant is cared for in a child care setting with a high turnover of staff or if institutionalized and given little more than basic physical care. Infants who, perhaps because of being in orphanages with inadequate care, have not had the opportunity to attach in infancy may still form initial secure attachments several years later. However, they may have more emotional problems of depression, anger, or be overly friendly as they interact with others (O'Connor et. al., 2003).

## Social Deprivation

Severe deprivation of parental attachment can lead to serious problems. According to studies of children who have not been given warm, nurturing care, they may show developmental delays, failure to thrive, and attachment disorders (Bowlby, 1982). **Non-Organic Failure to Thrive** is the diagnosis for an infant who does not grow, develop, or gain weight on schedule. Postpartum depression can also cause even a well-intentioned mother to neglect her infant.

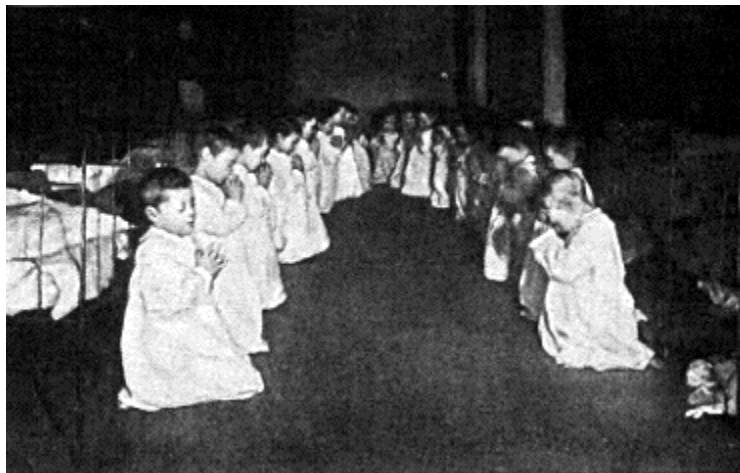


Figure 7.13 - This is a residential nursery in 1888.<sup>242</sup>

## Reactive Attachment Disorder

Children who experience social neglect or deprivation, repeated changes of primary caregivers, or those who are reared in unusual settings (such as institutions) can certainly have difficulty forming attachments. According to the Diagnostic and Manual of Mental Disorders, 5<sup>th</sup> edition (American Psychiatric Association, 2013), those children experiencing neglectful situations and also displaying markedly disturbed and developmentally inappropriate attachment behavior, may be diagnosed with **Reactive Attachment Disorder**. Symptoms include such things as being inhibited and withdrawn, minimal social and emotional responsiveness to others, and limited positive affect. This disorder often occurs with developmental delays, especially in cognitive and language areas. Fortunately, the majority of severely neglected children do not develop Reactive Attachment Disorder, which occurs in less than 10% of such children. The quality of the caregiving environment after serious neglect affects the development of this disorder.

<sup>242</sup> [Image](#) is in the public domain



## Resiliency

Being able to overcome challenges and successfully adapt is **resiliency**. Even young children can exhibit strong resilience to harsh circumstances. Resiliency can be attributed to certain personality factors, such as an easy-going temperament. Some children are warm, friendly, and responsive, whereas others tend to be more irritable, less manageable, and difficult to console, and these differences play a role in attachment (Gillath, Shaver, Baek, & Chun, 2008; Seifer, Schiller, Sameroff, Resnick, & Riordan, 1996). It seems safe to say that attachment, like most other developmental processes, is affected by an interplay of genetic and socialization influences.

Receiving support from others also leads to resiliency. A positive and strong support group can help a parent and child build a strong foundation by offering assistance and positive attitudes toward the newborn and parent. In a direct test of this idea, Dutch researcher van den Boom (1994) randomly assigned some babies' mothers to a training session in which they learned to better respond to their children's needs. The research found that these mothers' babies were more likely to show a secure attachment style in comparison to the mothers in a control group that did not receive training.<sup>243</sup>



Figure 7.14 - This infant massage class for new mothers could provide training and support for mothers.<sup>244</sup>

## Child Care

According to the U.S. Census Bureau in 2011, over sixty percent of families with children under five relied on regular child care arrangements. Around a quarter of those families used organized child care facilities as their primary arrangement.<sup>245</sup>

Child care involves supervising a child or children, usually from infancy to age thirteen, and typically refers to work done by somebody outside the child's immediate family. Child care is a

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<sup>245</sup> [Who's Minding the Kids](#) by the [U.S. Census Bureau](#) is in the public domain



broad topic covering a wide spectrum of contexts, activities, social and cultural conventions, and institutions. The majority of child care institutions that are available require that child care providers have extensive training in first aid and are CPR certified. In addition, background checks, drug testing, and reference verification are normally required.

It is traditional in Western society for children to be cared for by their parents or their legal guardians. In families where children live with one or both of their parents, the child care role may also be taken on by the child's extended family. If a parent or extended family is unable to care for the children, orphanages and foster homes are a way of providing for children's care, housing, and schooling.

### Child Care in the United States

Formal child care options include **center-based care** and **family child care homes**. Each state has different regulations for licensing child care centers, including teacher requirements. In some states, teaching in a child care center requires an associate's degree in child development. States with quality standards built into their licensing programs may have higher requirements for support staff, such as teacher assistants. **Head Start** (a federally funded child care program for income-qualified families) lead teachers must have a bachelor's degree in Early Childhood Education. States vary in other standards set for daycare providers, such as teacher to child ratios.



Figure 7.15 – A caretaker reading to an infant.<sup>246</sup>

State legislation may regulate the number and ages of children allowed before the home is considered an official family child care program and subject to licensing regulations. Often the nationally recognized Child Development Associate credential is the minimum standard for the individual leading this home care program.

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<sup>246</sup> [Image](#) by the [Air Force Medical Service](#) is in the public domain



Figure 7.16 – A caretaker playing with a group of children.<sup>247</sup>

In addition to these licensed options, parents may also choose to find their own caregiver or arrange childcare exchanges/swaps with another family. This care is typically provided by nannies, au pairs, or friends and family. The child is watched inside their own home or the caregiver's home, reducing exposure to outside children and illnesses. Depending on the number of children in the home, the children utilizing in-home care can enjoy the greatest amount of interaction with their caregiver and form a close bond.

There are no required licensing or background checks for this type of in-home care, making parental vigilance essential in choosing an appropriate caregiver. The cost of in-home care is the highest of childcare options per child, though a household with many children may find this the most convenient and affordable option.<sup>248</sup>

## Conclusion

In this chapter, we looked at:

- Temperament and goodness-of-fit.
- Cultural and gender influences.
- The development of emotions.
- Theories and styles of attachment.
- Erikson's stage of trust versus mistrust.
- Importance of attachment and things that can impede it.
- The types of child care available to families.

<sup>247</sup> [Image](#) by the [U.S. Air Force](#) is in the public domain

<sup>248</sup> [Lifespan Development - Module 4: Infancy](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

# Chapter 8: Early Childhood Physical Development

## Objectives

After this chapter, you should be able to:

1. Describe the physical changes that occur in early childhood.
2. Explain how to provide healthy nutrition for 3- to 5-year-olds.
3. Summarize how to support the progression of motor skills with age-appropriate activities.
4. Discuss the sleep needs during early childhood and sleep disorders that may affect children.
5. Explain the development behind toilet training and some elimination disorders that children may experience.
6. Recognize the importance of awareness of sexual development in early childhood.
7. Discuss risks and a variety of ways to promote and protect children's health and safety.

## Introduction

During the early childhood years of three to five, we see significant changes in the way children look, think, communicate, regulate their emotions, and interact with others. Children are often referred to as preschoolers during this period. We'll examine the physical changes of the preschooler in this chapter.



Figure 8.1 – Two children walking across a bridge.<sup>249</sup>

## Growth in Early Childhood

Children between the ages of 2 and 6 years tend to grow about 3 inches in height each year and gain about 4 to 5 pounds in weight each year. The 3-year-old, who is on average just over 30

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<sup>249</sup> [Image](#) by [Kevin Gent](#) on [Unsplash](#)

pounds and 30 inches tall, is very similar to a toddler with a large head, large stomach, short arms and legs. But by the time the child reaches age 6, the torso has lengthened and body proportions have become more like those of adults. The average 6-year-old weighs approximately 46 pounds and is about 46 inches in height. This growth rate is slower than that of infancy.

## Nutritional Concerns

That slower rate of growth is accompanied by a reduced appetite between the ages of 2 and 6. This change can sometimes be surprising to parents and lead to the development of poor eating habits. However, children between the ages of 2 and 3 need 1,000 to 1,400 calories, while children between the ages of 4 and 8 need 1,200 to 2,000 calories (Mayo Clinic, 2016a).<sup>250</sup>

Caregivers who have established a feeding routine with their child can find the reduction in appetite a bit frustrating and become concerned that the child is going to starve. However, by providing adequate, sound nutrition, and limiting sugary snacks and drinks, the caregiver can be assured that 1) the child will not starve; and 2) the child will receive adequate nutrition. Preschoolers can experience iron deficiencies if not given well-balanced nutrition or if they are given too much milk as calcium interferes with the absorption of iron in the diet as well.

Caregivers need to keep in mind that they are setting up taste preferences at this age. Young children who grow accustomed to high fat, very sweet, and salty flavors may have trouble eating foods that have more subtle flavors such as fruits and vegetables. Consider the following advice about establishing eating patterns for years to come (Rice, F.P., 1997). Notice that keeping mealtime pleasant, providing sound nutrition, and not engaging in power struggles over food are the main goals.<sup>251</sup>

## Tips for Establishing Healthy Eating Habits

1. **Don't try to force your child to eat or fight over food.** Of course, it is impossible to force someone to eat. But the real advice here is to avoid turning food into a power struggle so that food doesn't become a way to gain favor with or express anger toward someone else.
2. **Recognize that appetite varies.** Children may eat well at one meal and have no appetite at another. Rather than seeing this as a problem, it may help to realize that appetites do vary. Continue to provide good nutrition at each mealtime (even if children don't choose to eat the occasional meal).
3. **Keep it pleasant.** This tip is designed to help caregivers create a positive atmosphere during mealtime. Mealtimes should not be the time for arguments or expressing

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- tensions. You do not want the child to have painful memories of mealtimes together or have nervous stomachs and problems eating and digesting food due to stress.
4. **No short-order chefs.** While it is fine to prepare foods that children enjoy, preparing a different meal for each child or family member sets up an unrealistic expectation from others. Children probably do best when they are hungry and a meal is ready. Limiting snacks rather than allowing children to “graze” continuously can help create an appetite for whatever is being served.
  5. **Limit choices.** If you give your preschool-aged child choices, make sure that you give them one or two specific choices rather than asking “What would you like for lunch?” If given an open choice, children may change their minds or choose whatever their sibling does not choose!
  6. **Serve balanced meals.** Meals prepared at home tend to have better nutritional value than fast food or frozen dinners. Prepared foods tend to be higher in fat and sugar content as these ingredients enhance taste and profit margin because fresh food is often more costly and less profitable. However, preparing fresh food at home is not costly. It does, however, require more activity. Including children in meal preparation can provide a fun and memorable experience.
  7. **Don’t bribe.** Bribing a child to eat vegetables by promising dessert is not a good idea. First, the child will likely find a way to get the dessert without eating the vegetables (by whining or fidgeting, perhaps, until the caregiver gives in). Secondly, it teaches the child that some foods are better than others. Children tend to naturally enjoy a variety of foods until they are taught that some are considered less desirable than others. A child, for example, may learn the broccoli they have enjoyed is seen as yucky by others unless it’s smothered in cheese sauce!<sup>252</sup>
  8. **Involve children** in planning, purchasing, and preparing meals. Have children help create a written menu or place settings for dinner. Have children help pick healthy foods to buy at the grocery store or farmer’s market. Involve the child in trying to find how they can eat all the colors of the rainbow. Encourage even young children to help cook in the kitchen.



Figure 8.2 – Two children cooking together.<sup>253</sup>

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## USDA Meal Patterns for Young Children

The United States Department of Agriculture Food and Nutrition Service provides child care providers the following guidance for the daytime feeding of children age 3 to 5.

*Meal Patterns*<sup>254</sup>

**Table 8.1**

Meal	Ages 3-5
<b>Breakfast</b>	3/4 cup milk 1/2 cup vegetables, fruit, or both ½ ounce equivalent grains
<b>Lunch</b>	3/4 cup milk 1½ ounces of meat or meat alternative 1/4 cup vegetables 1/4 cup fruits ½ ounce equivalent of grains
<b>Snack</b>	<i>Select two of the following:</i> ½ cup of milk ½ ounce meat or meat alternative ½ cup vegetables ½ cup fruit ½ ounce equivalent of grains

## Brain Maturation

### Brain Weight

The brain is about 75 percent of its adult weight by two years of age. By age 6, it is approximately 95 percent of its adult weight. Myelination and the development of dendrites continue to occur in the cortex and as it does, we see a corresponding change in the child's abilities. Significant development in the **prefrontal cortex** (the area of the brain behind the forehead that helps us to think, strategize, and control emotion) makes it increasingly possible to control emotional outbursts and to understand how to play games. Consider 4- or 5-year-old children and how they might approach a game of soccer. Chances are, every move would be a response to the commands of a coach standing nearby calling out, "Run this way! Now, stop. Look at the ball. Kick the ball!" And when the child is not being told what to do, he or she is likely to be looking at the clover on the ground or a dog on the other side of the

<sup>254</sup> [https://fns-prod.azureedge.net/sites/default/files/cacfp/CACFP\\_MealBP.pdf](https://fns-prod.azureedge.net/sites/default/files/cacfp/CACFP_MealBP.pdf)



fence! Understanding the game, thinking ahead, coordinating movement, and handling losing improve with practice and myelination.<sup>255</sup>

## Visual Pathways

Children's drawings are representative of the development of visual pathways; as children's brains mature the images in their drawings change. Early scribbles and dots illustrate the use of simple motor skills. No real connection is made between an image being visualized and what is created on paper.

At age 3, the child begins to draw wispy creatures with heads and not much other detail. Gradually pictures begin to have more detail and incorporate more parts of the body. Arm buds become arms and faces take on noses, lips, and eventually eyelashes.



Figure 8.3 – Early scribbles.<sup>256</sup>

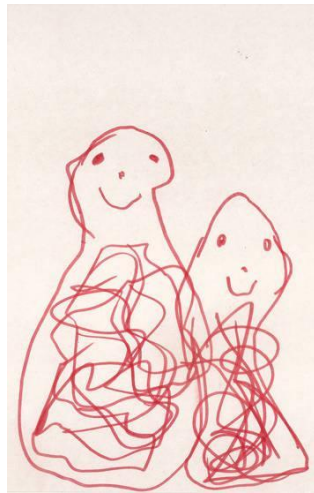


Figure 8.4 – Creatures with heads.<sup>257</sup>



Figure 8.5 – A detailed face.<sup>258</sup>

## Growth in the Hemispheres and Corpus Callosum

Between ages 3 and 6, the left hemisphere of the brain grows dramatically. This side of the brain or hemisphere is typically involved in language skills. The right hemisphere continues to grow throughout early childhood and is involved in tasks that require spatial skills such as recognizing shapes and patterns. The **corpus callosum** which connects the two hemispheres of the brain undergoes a growth spurt between ages 3 and 6 and results in improved coordination between right and left hemisphere tasks.

<sup>255</sup> [Lifespan Development - Module 5: Early Childhood](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

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## Motor Skill Development

Early childhood is a time when children are especially attracted to motion and song. Days are filled with jumping, running, swinging, and clapping and every place becomes a playground. Even the booth at a restaurant affords the opportunity to slide around in the seat or disappear underneath and imagine being a sea creature in a cave! Of course, this can be frustrating to a caregiver, but it's the business of early childhood.

### Gross Motor Skills

Children continue to improve their gross motor skills as they run and jump. They frequently ask their caregivers to “look at me” while they hop or roll down a hill. Children’s songs are often accompanied by arm and leg movements or cues to turn around or move from left to right. Here is a table showing the progression of gross motor skills that children will typically develop during early childhood:

**Table 8.2 - Gross Motor Milestones<sup>259</sup>**

Typical Age	What Most Children Do by This Age
<b>3 years</b>	<ul style="list-style-type: none"><li>● Climbs well</li><li>● Runs easily</li><li>● Pedals a tricycle (3-wheel bike)</li><li>● Walks up and down stairs, one foot on each step</li></ul>
<b>4 years</b>	<ul style="list-style-type: none"><li>● Hops and stands on one foot up to 2 seconds</li><li>● Catches a bounced ball most of the time</li></ul>
<b>5 years</b>	<ul style="list-style-type: none"><li>● Stands on one foot for 10 seconds or longer</li><li>● Hops; may be able to skip</li><li>● Can do a somersault</li><li>● Can use the toilet on own</li><li>● Swings and climbs</li></ul>

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<sup>259</sup> [Developmental Milestones](#) by the [CDC](#) is in the public domain



Figure 8.6 – Children riding tricycles together.<sup>260</sup>

### *Activities to Support Gross Motor Skills*

Here are some activities focused on play that young children enjoy and that support their gross motor skill development.

- Tricycle
- Slides and Swings
- Mini trampoline
- Bowling pins (can use plastic soda bottles also)
- Tent (try throwing blankets over chairs and other furniture to make a fort)
- Playground ladders
- Suspension bridge on playground
- Tunnels (try throwing a bean bag chair underneath for greater challenge)
- Ball play (kick, throw, catch)
- Simon Says
- Target games with bean bags, ball, etc.
- Dancing/moving to music
- Pushing self on scooter or skateboard while on stomach

### **Fine Motor Skills**

Fine motor skills are also being refined as they continue to develop more dexterity, strength, and endurance. Fine motor skills are very important as they are foundational to self-help skills and later academic abilities (such as writing). Here is a table showing how fine motor skills progress during early childhood for children that are typically developing.

<sup>260</sup> [Image](#) by [Hanscom Air Force Base](#) is in the public domain

**Table 8.3 - Fine Motor Milestones<sup>261</sup>**

Typical Age	What Most Children Do by This Age
<b>3 years</b>	<ul style="list-style-type: none"><li>• Copies a circle with a pencil or crayon</li><li>• Turns book pages one at a time</li><li>• Builds towers of more than 6 blocks</li><li>• Screws and unscrews jar lids or turns door handles</li></ul>
<b>4 years</b>	<ul style="list-style-type: none"><li>• Pours, cuts with supervision, and mashes own food</li><li>• Draws a person with 2 to 4 body parts</li><li>• Uses scissors</li><li>• Starts to copy some capital letters</li></ul>
<b>5 years</b>	<ul style="list-style-type: none"><li>• Can draw a person with at least 6 body parts</li><li>• Can print some letters or numbers</li><li>• Copies a triangle and other geometric shapes</li><li>• Uses a fork and spoon and sometimes a table knife</li></ul>

*Activities to Support Fine Motor Skills*

Here are some fun activities that will help children continue to refine their fine motor abilities. Fine motor skills are slower to develop than gross motor skills, so it is important to have age-appropriate expectations and play-based activities for children.

- Pouring water into a container
- Drawing, coloring and painting
- Using scissors
- Finger painting
- Fingerplays and songs (such as the Itsy, Bitsy Spider)
- Playdough
- Lacing and beading
- Stacking blocks
- Practicing with large tweezers, tongs, and eye droppers



Figure 8.7 – Children coloring.<sup>262</sup>

<sup>261</sup> [Developmental Milestones](#) by the [CDC](#) is in the public domain

<sup>262</sup> [Image](#) by [Spangdahlem Air Base](#) is in the public domain

## Sleep and Early Childhood

Sleep is one of the human body's most important physiological needs—we cannot live without it. Extended sleeplessness (i.e., lack of sleep for longer than a few days) has severe psychological and physical effects. Recently, neuroscientists have learned that at least one vital function of sleep is related to learning and memory. Preschoolers need about 10-11 hours of sleep. New findings suggest that napping and sleep in general plays a critical role in flagging and storing important memories, both intellectual and physical, and perhaps in making subtle connections that were invisible during waking hours.<sup>263</sup>



Figure 8.8 – A child sleeping.<sup>264</sup>

### Sleepwalking (Somnambulism)

Sleepwalking (sometimes called sleepwalking disorder, **somnambulism**, or noctambulation) causes a person to get up and walk during the early hours of sleep. The person may sit up and look awake (though they're actually asleep), get up and walk around, move items, or dress or undress themselves. They will have a blank stare and still be able to perform complex tasks. Some individuals also talk while in their sleep, saying meaningless words and even having arguments with people who are not there. A person who sleepwalks will be confused upon waking up and may also experience anxiety and fatigue.

Sleepwalking can be dangerous—people have been known to seriously hurt themselves during sleepwalking episodes. It is most common in children, but it also occurs occasionally in adults. For adults, alcohol, sedatives, medications, medical conditions and mental disorders are all associated with sleepwalking.

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<sup>264</sup> [Image](#) by Peter Griffin is in the public domain

## Sleep Terrors and Nightmare Disorder

Sleep terrors are characterized by a sudden arousal from deep sleep with a scream or cry, accompanied by some behavioral manifestations of intense fear. Sleep terrors typically occur in the first few hours of sleep, during stage 3 NREM sleep. Night terrors tend to happen during periods of arousal from delta sleep (i.e., slow-wave sleep). They are worse than nightmares, causing significant disorientation, panic, and anxiety. They can last up to 10 minutes, and the person may be screaming and difficult to wake. In some cases, sleep terrors continue into adulthood.

Distinct from sleep terrors is a nightmare disorder. Also known as "dream anxiety disorder," nightmare disorder is characterized by frequent nightmares. The nightmares, which often portray the individual in a situation that jeopardizes their life or personal safety, usually occur during the second half of the sleeping process, called the REM stage. Though many people experience nightmares, those with nightmare disorder experience them more frequently.<sup>265</sup>

## Toilet Training

Toilet training typically occurs after the second birthday. Some children show interest by age 2, but others may not be ready until months later. The average age for girls to be toilet trained is 29 months and for boys, it is 31 months, and 98% of children are trained by 36 months (Boyse & Fitzgerald, 2010). The child's age is not as important as his/her physical and emotional readiness. If started too early, it might take longer to train a child.

According to The Mayo Clinic (2016b), the following questions can help parents determine if a child is ready for toilet training:

- Does your child seem interested in the potty chair or toilet, or in wearing underwear?
- Can your child understand and follow basic directions?
- Does your child tell you through words, facial expressions or posture when he or she needs to go?
- Does your child stay dry for periods of two hours or longer during the day?
- Does your child complain about wet or dirty diapers?
- Can your child pull down his or her pants and pull them up again?
- Can your child sit on and rise from a potty chair?

If a child resists being trained or training is not successful after a few weeks, it is best to take a break and try again when they show more significant interest in the process. Most children master daytime bladder control first, typically within two to three months of consistent toilet training. However, nap and nighttime training might take months or even years.

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Figure 8.9 – A child learning to be toilet trained.<sup>266</sup>

## Elimination Disorders

Some children experience elimination disorders including:

- **enuresis** - the repeated voiding of urine into bed or clothes (involuntary or intentional) after age 5
- **encopresis** - the repeated passage of feces into inappropriate places (involuntary or intentional).

The prevalence of enuresis is 5%-10% for 5 year-olds, 3%-5% for 10 year-olds, and approximately 1% for those 15 years of age or older. Around 1% of 5 year-olds have encopresis, and it is more common in males than females. These are diagnosed by a medical professional and may require treatment.<sup>267</sup>

## Sexual Development in Early Childhood

**Self-stimulation** is common in early childhood for both boys and girls. Curiosity about the body and others' bodies is a natural part of early childhood as well. Consider this example. A girl asks her mother: "So it's okay to see a boy's privates as long as it's the boy's mother or a doctor?" The mother hesitates a bit and then responds, "Yes. I think that's alright." "Hmmm," the girl begins, "When I grow up, I want to be a doctor!" While this subject can feel uncomfortable to deal with, caregivers can teach children to be safe and know what is appropriate without frightening them or causing shame.

As children grow, they are more likely to show their genitals to siblings or peers, and to take off their clothes and touch each other (Okami et al., 1997). Masturbation is common for both boys and girls. Boys are often shown by other boys how to masturbate. But girls tend to find out

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<sup>267</sup> [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

accidentally. And boys masturbate more often and touch themselves more openly than do girls (Schwartz, 1999).

Caregivers should respond to this without undue alarm and without making the child feel guilty about their bodies. Instead, messages about what is going on and the appropriate time and place for such activities help the child learn what is appropriate.<sup>268</sup>

## Health in Early Childhood

While preschoolers are becoming more and more independent, they depend on their caregivers to keep protecting and promoting their health.<sup>269</sup>

### Childhood Obesity

**Childhood obesity** is a complex health issue. It occurs when a child is well above the normal or healthy weight for his or her age and height. Childhood obesity is a serious problem in the United States putting children at risk for poor health. In 2015-2016, 13.9% of 2- to 5-year-olds were obese.

Where people live can affect their ability to make healthy choices. Obesity disproportionately affects children from low-income families.

### *Causes of Obesity*

The causes of excess weight gain in young people are similar to those in adults, including factors such as a person's behavior and genetics. Behaviors that influence excess weight gain include:

- eating high calorie, low-nutrient foods
- not getting enough physical exercise
- sedentary activities (such as watching television or other screen devices)
- medication use
- sleep routines

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<sup>268</sup> [Lifespan Development - Module 5: Early Childhood](#) by [Lumen](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY-SA 3.0](#)

<sup>269</sup> [Prevalence of Childhood Obesity in the United States](#) by the [CDC](#) is in the public domain



Figure 8.10 – A child watching TV instead of playing.<sup>270</sup>

### *Consequences of Obesity*

The consequences of childhood obesity are both immediate and long term. It can affect physical as well as social and emotional well-being.

- More Immediate Health Risks
  - High blood pressure and high cholesterol, which are risk factors for cardiovascular disease (CVD).
  - Increased risk of impaired glucose tolerance, insulin resistance, and type 2 diabetes.
  - Breathing problems, such as asthma and sleep apnea.
  - Joint problems and musculoskeletal discomfort.
  - Fatty liver disease, gallstones, and gastro-esophageal reflux (i.e., heartburn).
- Childhood obesity is also related to
  - Psychological problems such as anxiety and depression.
  - Low self-esteem and lower self-reported quality of life.
  - Social problems such as bullying and stigma.
- Future Health Risks
  - Children who have obesity are more likely to become adults with obesity.<sup>11</sup> Adult obesity is associated with an increased risk of several serious health conditions including heart disease, type 2 diabetes, and cancer.
  - If children have obesity, their obesity and disease risk factors in adulthood are likely to be more severe.<sup>271</sup>

### **Food Allergies**

A **food allergy** occurs when the body has a specific and reproducible immune response to certain foods. The body's immune response can be severe and life-threatening, such as

<sup>270</sup> [Image](#) by [Melissa Gutierrez](#) is licensed under [CC-BY-2.0](#)

<sup>271</sup> [Childhood Obesity Causes & Consequences](#) by the [CDC](#) is in the public domain

anaphylaxis. Although the immune system normally protects people from germs, in people with food allergies, the immune system mistakenly responds to food as if it were harmful.

Eight foods or food groups account for 90% of serious allergic reactions in the United States: milk, eggs, fish, crustacean shellfish, wheat, soy, peanuts, and tree nuts.

The symptoms and severity of allergic reactions to food can be different between individuals, and can also be different for one person over time. Anaphylaxis is a sudden and severe allergic reaction that may cause death.<sup>4</sup> Not all allergic reactions will develop into anaphylaxis.

- Children with food allergies are two to four times more likely to have asthma or other allergic conditions than those without food allergies.
- The prevalence of food allergies among children increased 18% during 1997-2007, and allergic reactions to foods have become the most common cause of anaphylaxis in community health settings.
- Although difficult to measure, research suggests that approximately 4% of children and adolescents are affected by food allergies.

The CDC recommends that as part of maintaining a healthy and safe environment for children, caregivers should:

- Be aware of any food allergies.
- Educate other children and all adults that care for a child with food allergies.
- Ensure the daily management of food allergies.
- Prepare for food allergy emergencies.<sup>272</sup>

## Oral Health

Tooth decay (cavities) is one of the most common chronic conditions of childhood in the United States. Untreated tooth decay can cause pain and infections that may lead to problems with eating, speaking, playing, and learning. The good news is that tooth decay is preventable. Fluoride varnish, a high concentration fluoride coating that is painted on teeth, can prevent about one-third (33%) of decay in the primary (baby) teeth. Children living in communities with fluoridated tap water have fewer decayed teeth than children who live in areas where their tap water is not fluoridated. Similarly, children who brush daily with fluoride toothpaste will have less tooth decay.

Applying dental sealants to the chewing surfaces of the back teeth is another way to prevent tooth decay. Studies in children show that sealants reduce decay in the permanent molars by 81% for 2 years after they are placed on the tooth and continue to be effective for 4 years after placement.<sup>273</sup>

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<sup>272</sup> [Food Allergies in Schools](#) by the [CDC](#) is in the public domain

<sup>273</sup> [Children's Oral Health](#) by the [CDC](#) is in the public domain

The first visit to the dentist should happen after the first tooth erupts. After that, children should be seeing the dentist every six months.<sup>274</sup>



Figure 8.11 – A dentist checking a child's teeth.<sup>275</sup>

## Protection from Illness

Two important ways to help protect children from illness are immunization and handwashing.

### *Immunizations*

While vaccines begin in infancy, children need additional doses of vaccines to keep them protected. These boosters, given between ages 4 and 6, are doses of the vaccines they received earlier in life to help them maintain the best protection against vaccine-preventable diseases.



Figure 8.12 – Vaccines.<sup>276</sup>

Many states require children to be fully vaccinated (unless they have a medical reason to be exempt) before they can enroll in licensed child care or public school. If vaccinations were missed, a health care provider can help the child's caregivers to create a catch up schedule to

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<sup>276</sup> [Image](#) by [Ramstein Air Base](#) is in the public domain

ensure the child correctly “catches up” with the recommended childhood vaccination schedule.<sup>277</sup>

### *Handwashing*

Handwashing is one of the best ways to prevent the spread of illness. It’s important for children (and adults) to wash their hands often, especially when they are likely to get and spread germs, including:

- Before, during, and after preparing food.
- Before eating food.
- After blowing nose, coughing, or sneezing.
- After using the toilet.
- After touching an animal, animal feed, or animal waste.
- After touching garbage.

Children need to learn how to properly wash their hands. When washing hands children (and adults) should follow these five steps every time.

1. Wet your hands with clean, running water (warm or cold), turn off the tap, and apply soap.
2. Lather your hands by rubbing them together with the soap. Lather the backs of your hands, between your fingers, and under your nails.
3. Scrub your hands for at least 20 seconds. Need a timer? Hum or sing the *Happy Birthday* song or ABCs from beginning to end twice.
4. Rinse your hands well under clean, running water.
5. Dry your hands using a clean towel or air dry them.<sup>278</sup>



Figure 8.13 – A mother helping her son wash his hands.<sup>279</sup>

Caregivers can help keep children healthy by:

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<sup>277</sup> [Vaccines for Your Children: Protect Your Child at Every Age](#) by the [CDC](#) is in the public domain

<sup>278</sup> [Wash Your Hands](#) by the [CDC](#) is in the public domain

<sup>279</sup> [Image](#) is in the public domain



- Teaching them good handwashing techniques.
- Reminding their kids to wash their hands.
- Washing their own hands with the children.<sup>280</sup>

## Safety

Child injuries are preventable, yet more than 9,000 children (from 0-19 years) died from injuries in the US in 2009. Car crashes, suffocation, drowning, poisoning, fires, and falls are some of the most common ways children are hurt or killed. The number of children dying from injury dropped nearly 30% over the last decade. However, injury is still the number 1 cause of death among children.<sup>281</sup>

Children during early childhood are more at risk for certain injuries. Using data from 2000-2006, the CDC determined that:

- Drowning was the leading cause of injury death between 1 and 4 years of age.
- Falls were the leading cause of nonfatal injury for all age groups of less than 15 years.
- For children ages 0 to 9, the next two leading causes were being struck by or against an object and animal bites or insect stings.
- Rates for fires or burns, and drowning were highest for children 4 years and younger.<sup>282</sup>

Here is a table summarizing some tips from the CDC to protect children from these injuries:

**Table 8.4 – Preventing Injuries**

Type of Injury	Prevention Tips
<b>Burns</b>	<ul style="list-style-type: none"> <li>• Have smoke alarms on every floor and rooms where people sleep</li> <li>• Involve children in creating and practicing an escape plan</li> <li>• Never leave food cooking on the stove unattended;</li> <li>• Make sure the water heater is set to 120 degrees or lower<sup>283</sup></li> </ul>
<b>Drowning</b>	<ul style="list-style-type: none"> <li>• Make sure caregivers are trained in CPR</li> <li>• Fence off pools; gates should be self-closing and self-latching</li> <li>• Have children wear life jackets in and around bodies of water</li> <li>• Supervise children in or near water (including the bathtub)<sup>284</sup></li> </ul>
<b>Falls</b>	<ul style="list-style-type: none"> <li>• Make sure playground surfaces are safe, soft, and made of impact-absorbing material (such as wood chips or sand) at an appropriate depth and are well maintained</li> <li>• Use safety devices (such as window guards)</li> </ul>

<sup>280</sup> [Handwashing: A Family Activity](#) by the [CDC](#) is in the public domain

<sup>281</sup> [Child Injury](#) by the [CDC](#) is in the public domain

<sup>282</sup> [CDC Childhood Injury Report](#) by the [CDC](#) is in the public domain

<sup>283</sup> [Burn Prevention](#) by the [CDC](#) is in the public domain

<sup>284</sup> [Drowning Prevention](#) by the [CDC](#) is in the public domain

	<ul style="list-style-type: none"> <li>• Make sure children are wearing protective gear during sports and recreation (such as bicycle helmets)</li> <li>• Supervise children around fall hazards at all times<sup>285</sup></li> </ul>
<b>Poisoning</b>	<ul style="list-style-type: none"> <li>• Lock up all medications and toxic products (such as cleaning solutions and detergents) in original packaging out of sight and reach of children</li> <li>• Know the number to poison control (1-800-222-1222)</li> <li>• Read and follow labels of all medications</li> <li>• Safely dispose of unused, unneeded, or expired prescription drugs and over the counter drugs, vitamins, and supplements<sup>286</sup></li> </ul>
<b>Motor-accident, in vehicle</b>	<ul style="list-style-type: none"> <li>• Children should still be safely restrained in a five-point harnessed car seat and remain in a booster until age 8</li> <li>• Children should be in the back seat</li> </ul>
<b>Motor-accident, pedestrian</b>	<ul style="list-style-type: none"> <li>• Teach children about safety including: <ul style="list-style-type: none"> <li>○ Walking on the sidewalk</li> <li>○ Not assuming vehicles see you or will stop</li> <li>○ Crossing only in crosswalks, with an adult</li> <li>○ Looking both ways before crossing</li> <li>○ Never playing in the road</li> </ul> </li> <li>• Supervise children near all roadways and model safe behavior<sup>287</sup></li> </ul>



Figure 8.14 – Children playing on a jungle gym at a park.<sup>288</sup>

<sup>285</sup> [Poisoning Prevention](#) by the [CDC](#) is in the public domain

<sup>286</sup> [Road Traffic Safety](#) by the [CDC](#) is in the public domain

<sup>287</sup> [Safety Tips for Pedestrians](#) by the [Pedestrian and Bicycle Information Center](#) is in the public domain

<sup>288</sup> [Image](#) is in the public domain

## Effects of Poverty and Racial/Ethnic Disparities on Development

A family's socioeconomic status, particularly their income and parental education level, is among the many different factors that influence healthy development. Lower-income individuals, regardless of race or ethnicity, are often in poorer health than those in higher-income brackets. An individual's income may influence many other determinants of health status, such as one's access to educational opportunities, decent medical care, and affordable housing in a healthy community (Adler and Newman, 2002).

Violence and crime have a disproportionate impact on minority neighborhoods (Center for Disease Control and Prevention, 1996). Neighborhoods with a higher incidence of violent crime are less likely to have quality recreational facilities and grocery stores offering better nutritional options, thus promoting better dietary choices (Cheadle et al., 1991). Also, neighborhoods with a higher incidence of crime are less likely to have convenient medical facilities for primary care services, making access to health care worse.



Figure 8.15 – Living conditions in poor neighborhoods disadvantage the development of children living there.<sup>289</sup>

Racial and ethnic minority families are disproportionately exposed to harmful environmental toxins in their communities, workplaces, and schools (Shavers and Shavers, 2006). Asthma rates, among African Americans in particular, increase dramatically in areas where environmental dangers persist. In some areas of the country, one in four Black individuals is diagnosed with asthma, a chronic respiratory disease (Bell & Standish, 2005). Factors influencing asthma include exposure to air pollutants, like automobile and industrial plant emissions. As such, studies have shown that children who live near freeways are more likely to be diagnosed with asthma than other youths. Other research shows that a disproportionate number of Hispanics and Asian and Pacific Islanders reside in areas that fail to meet air quality-level standards (Healthypeople.gov. Healthy People 2010, 2009). It has also been shown that other toxic pollutants, such as mercury, are disproportionately found in women of certain racial and ethnic minorities. Exposure to mercury can cause neurologic damage in fetuses and children and may harm the body's nervous immune and cardiovascular systems (Payne-Sturgis and Gee, 2006).

<sup>289</sup> Image is in the public domain

### *Access to Health Care*

Racial and ethnic minorities receive poorer quality care compared with nonminorities, even when access-related factors, such as insurance status and income, are controlled (Institute of Medicine, 2002). The sources of racial and ethnic health care disparities include differences in geography, lack of access to adequate health coverage, communication difficulties between patient and provider, cultural barriers, provider stereotyping, and lack of access to providers (Brenden et al., 2008). Closing the disparity gap is not only professionally and morally imperative for the medical profession, it remains a glaring civil rights injustice that must be addressed.

Disparities in the health care system contribute to the overall disparities in general health measures that affect racial and ethnic minorities. An individual's health statistics are influenced not only by the health care system, but also environmental, genetic, and social determinants. Racial and ethnic minorities have present-day health statistics that are much lower than those for whites (Heron et al., 2006; MacDorman and Mathews, 2009; Williams, 2007; Satcher et al., 2005). These disparities exist in the context of broader social and economic inequity and racial and ethnic discrimination that have become all too painfully clear recently.

### **Conclusion**

In this chapter we looked at:

- The physical characteristics of preschoolers.
- Healthy nutrition.
- The changes in the brain.
- The progression of motor skills and developmentally appropriate ways to support that development.
- Sleep and sleep disorders.
- Toilet training and elimination disorders
- Sexual development in early childhood.
- Ways to keep children healthy and safe.

In the next chapter, we'll investigate how children understand the world and their communication abilities.

# Chapter 9: Early Childhood Cognitive Development

## Objectives

After reading this chapter, you should be able to:

1. Compare and contrast Piaget and Vygotsky's beliefs about cognitive development.
2. Explain the role of information processing in cognitive development.
3. Discuss how preschool-aged children understand their worlds.
4. Put cognitive and language milestones into the order in which they appear in typically developing children.
5. Discuss how early childhood education supports development and how our understanding of development influences education.
6. Describe autism spectrum disorder, including characteristics and possible interventions.

## Introduction

Early childhood is a time of pretending, blending fact and fiction, and learning to think of the world using language. As young children move away from needing to touch, feel, and hear about the world toward learning some basic principles about how the world works, they hold some pretty interesting initial ideas. For example, while adults have no concerns with taking a bath, a child of three might genuinely worry about being sucked down the drain.<sup>290</sup>



Figure 9.1 – A child in a bathtub.<sup>291</sup>

<sup>290</sup> [Lifespan Development - Module 5: Early Childhood](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

<sup>291</sup> [Image](#) by [Ian Cameron](#) is licensed under [CC BY 2.0](#)



A child might protest if told that something will happen “tomorrow” but be willing to accept an explanation that an event will occur “today after we sleep.” Or the young child may ask, “How long are we staying? From here to here?” while pointing to two points on a table. Concepts such as tomorrow, time, size, and distance are not easy to grasp at this young age. Understanding size, time, distance, fact, and fiction are all tasks that are part of cognitive development in the preschool years.<sup>292</sup>

## Piaget’s Preoperational Intelligence

Piaget’s stage that coincides with early childhood is the **preoperational stage**. The word operational means logical, so these children were thought to be illogical. However, they were learning to use language or to think of the world symbolically. Let’s examine some of Piaget’s assertions about children’s cognitive abilities at this age.

### Pretend Play

Pretending is a favorite activity at this time. A toy has qualities beyond the way it was designed to function and can now be used to stand for a character or object unlike anything originally intended. A teddy bear, for example, can be a baby or the queen of a faraway land!



Figure 9.2 – A child pretending to buy items at a toy grocery store.<sup>293</sup>

According to Piaget, children’s pretend play helps them solidify new schemes they were developing cognitively. This play, then, reflects changes in their conceptions or thoughts. However, children also learn as they pretend and experiment. Their play does not simply represent what they have learned (Berk, 2007).

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<sup>292</sup> [Lifespan Development - Module 5: Early Childhood](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

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## Egocentrism

**Egocentrism** in early childhood refers to the tendency of young children to think that everyone sees things in the same way as the child. Piaget's classic experiment on egocentrism involved showing children a 3-dimensional model of a mountain and asking them to describe what a doll that is looking at the mountain from a different angle might see. Children tend to choose a picture that represents their own view, rather than that of the doll. However, children tend to use different sentence structures and vocabulary when addressing a younger child or an older adult. This indicates some awareness of the views of others.



Figure 8.3 – Piaget's egocentrism experiment.<sup>294</sup>

## Syncretism

**Syncretism** refers to a tendency to think that if two events occur simultaneously, one caused the other. An example of this is a child putting on their bathing suit to turn it to summertime.

## Animism

Attributing lifelike qualities to objects is referred to as **animism**. The cup is alive, the chair that falls and hits the child's ankle is mean, and the toys need to stay home because they are tired. Cartoons frequently show objects that appear alive and take on lifelike qualities. Young children do seem to think that objects that move may be alive but after age 3, they seldom refer to objects as being alive (Berk, 2007).

## Classification Errors

Preoperational children have difficulty understanding that an object can be classified in more than one way. For example, if shown three white buttons and four black buttons and asked whether there are more black buttons or buttons, the child is likely to respond that there are

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<sup>294</sup> [Image](#) by [Rosenfeld Media](#) is licensed under [CC BY 2.0](#)

more black buttons. As the child's vocabulary improves and more schemes are developed, the ability to classify objects improves.<sup>295</sup>

## Conservation Errors

**Conservation** refers to the ability to recognize that moving or rearranging matter does not change the quantity. Let's look at an example. A father gave a slice of pizza to 10-year-old Keiko and another slice to 3-year-old Kenny. Kenny's pizza slice was cut into five pieces, so Kenny told his sister that he got more pizza than she did. Kenny did not understand that cutting the pizza into smaller pieces did not increase the overall amount. This was because Kenny exhibited **Centration**, or focused on only one characteristic of an object to the exclusion of others.

Kenny focused on the five pieces of pizza to his sister's one piece even though the total amount was the same. Keiko was able to consider several characteristics of an object than just one. Because children have not developed this understanding of conservation, they cannot perform mental operations.

The classic Piagetian experiment associated with conservation involves liquid (Crain, 2005). As seen below, the child is shown two glasses (as shown in a) which are filled to the same level and asked if they have the same amount. Usually, the child agrees they have the same amount. The researcher then pours the liquid from one glass to a taller and thinner glass (as shown in b). The child is again asked if the two glasses have the same amount of liquid. The preoperational child will typically say the taller glass now has more liquid because it is taller. The child has concentrated on the height of the glass and fails to conserve.<sup>296</sup>

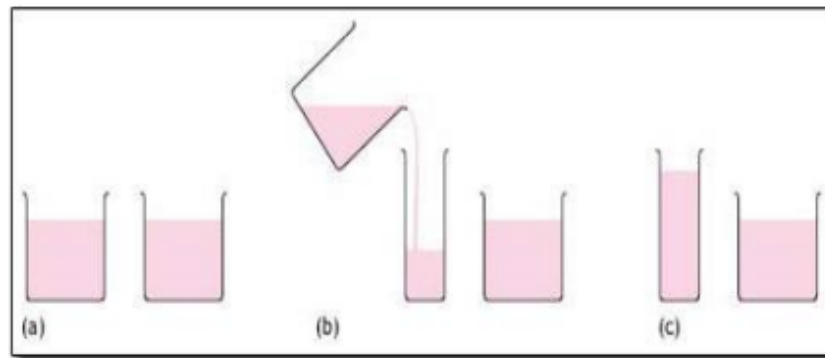


Figure 9.4 – Piagetian liquid conservation experiments.<sup>297</sup>

<sup>295</sup> [Lifespan Development - Module 5: Early Childhood](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

<sup>296</sup> [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

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## Cognitive Schemas

As introduced in the first chapter, Piaget believed that in a quest for cognitive equilibrium, we use schemas (categories of knowledge) to make sense of the world. And when new experiences fit into existing schemas, we use assimilation to add that new knowledge to the schema. But when new experiences do not match an existing schema, we use accommodation to add a new schema. During early childhood, children use accommodation often as they build their understanding of the world around them.

## Vygotsky's Sociocultural Theory of Cognitive Development

As introduced in Chapter 1, Lev Vygotsky was a Russian psychologist who argued that culture has a major impact on a child's cognitive development. He believed that the social interactions with adults and more knowledgeable peers can facilitate a child's potential for learning. Without this interpersonal instruction, he believed children's minds would not advance very far as their knowledge would be based only on their own discoveries

### Zone of Proximal Development and Scaffolding

Vygotsky's best-known concept is the zone of proximal development (ZPD). Vygotsky stated that children should be taught in the ZPD, which occurs when they can perform a task with assistance, but not quite yet on their own. With the right kind of teaching, however, they can accomplish it successfully. A good teacher identifies a child's ZPD and helps the child stretch beyond it. Then the adult (teacher) gradually withdraws support until the child can then perform the task unaided. Researchers have applied the metaphor of scaffolds (the temporary platforms on which construction workers stand) to this way of teaching. Scaffolding is the temporary support that parents or teachers give a child to do a task.

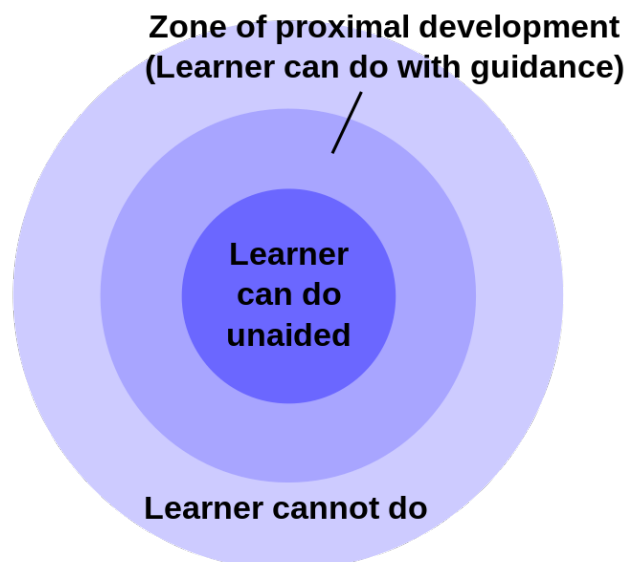


Figure 9.5 – Zone of proximal development.<sup>298</sup>

<sup>298</sup> Image by [Dcoetzee](#) is licensed under [CC0 1.0](#)

## Private Speech

Do you ever talk to yourself? Why? Chances are, this occurs when you are struggling with a problem, trying to remember something, or feel very emotional about a situation. Children talk to themselves too. Piaget interpreted this as **egocentric speech** or a practice engaged in because of a child's inability to see things from another's point of view. Vygotsky, however, believed that children talk to themselves in order to solve problems or clarify thoughts. As children learn to think in words, they do so aloud before eventually closing their lips and engaging in **private speech** or inner speech.

Thinking out loud eventually becomes thought accompanied by internal speech, and talking to oneself becomes a practice only engaged in when we are trying to learn something or remember something. This inner speech is not as elaborate as the speech we use when communicating with others (Vygotsky, 1962).<sup>299</sup>

## Contrast with Piaget

Piaget was highly critical of teacher-directed instruction, believing that teachers who take control of the child's learning place the child into a passive role (Crain, 2005). Further, teachers may present abstract ideas without the child's true understanding, and instead, they just repeat back what they heard. Piaget believed children must be given opportunities to discover concepts on their own. As previously stated, Vygotsky did not believe children could reach a higher cognitive level without instruction from more learned individuals. Who is correct? Both theories certainly contribute to our understanding of how children learn.

## Information Processing

Information processing researchers have focused on several issues in cognitive development for this age group, including improvements in attention skills, changes in the capacity, and the emergence of executive functions in working memory. Additionally, in early childhood, memory strategies, memory accuracy, and autobiographical memory emerge. Early childhood is seen by many researchers as a crucial time period in memory development (Posner & Rothbart, 2007).

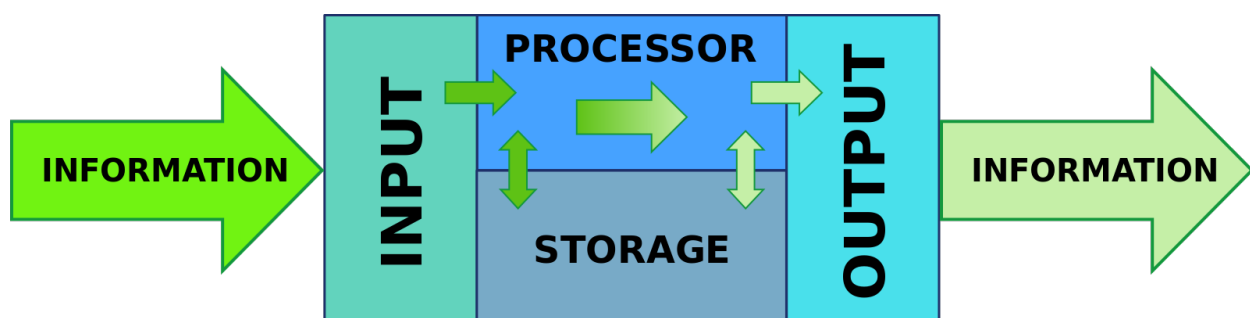


Figure 9.6 – How information is processed.<sup>300</sup>

<sup>299</sup> [Lifespan Development - Module 5: Early Childhood](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

<sup>300</sup> [Image](#) by [Gradient drift](#) is in the public domain

## Attention

Changes in attention have been described by many as the key to changes in human memory (Nelson & Fivush, 2004; Posner & Rothbart, 2007). However, attention is not a unified function; it is comprised of sub-processes. The ability to switch our focus between tasks or external stimuli is called **divided attention** or **multitasking**. This is separate from our ability to focus on a single task or stimulus while ignoring distracting information, called **selective attention**.

Different from these is **sustained attention**, or the ability to stay on task for long periods of time. Moreover, we also have attention processes that influence our behavior and enable us to inhibit a habitual or dominant response, and others that enable us to distract ourselves when upset or frustrated.

## Divided Attention

Young children (age 3-4) have considerable difficulties in dividing their attention between two tasks, and often perform at levels equivalent to our closest relative, the chimpanzee, but by age five they have surpassed the chimp (Hermann, Misch, Hernandez-Lloreda & Tomasello, 2015; Hermann & Tomasello, 2015). Despite these improvements, 5-year-olds continue to perform below the level of school-age children, adolescents, and adults.

## Selective Attention

Children's ability with selective attention tasks improve as they age. However, this ability is also greatly influenced by the child's temperament (Rothbart & Rueda, 2005), the complexity of the stimulus or task (Porporino, Shore, Iarocci & Burack, 2004), and along with whether the stimuli are visual or auditory (Guy, Rogers & Cornish, 2013). Guy et al. (2013) found that children's ability to selectively attend to visual information outpaced that of auditory stimuli. This may explain why young children are not able to hear the voice of the teacher over the cacophony of sounds in the typical preschool classroom (Jones, Moore & Amitay, 2015). Jones and his colleagues found that 4 to 7 year-olds could not filter out background noise, especially when its frequencies were close in sound to the target sound. In comparison, 8- to 11-year-old children often performed similarly to adults.



Figure 9.7 – A group of children making crafts.<sup>301</sup>

<sup>301</sup> [Image](#) by [Joint Base Charleston](#) is in the public domain

## Sustained Attention

Most measures of sustained attention typically ask children to spend several minutes focusing on one task, while waiting for an infrequent event, while there are multiple distractors for several minutes. Berwid, Curko-Kera, Marks & Halperin (2005) asked children between the ages of 3 and 7 to push a button whenever a “target” image was displayed, but they had to refrain from pushing the button when a non-target image was shown. The younger the child, the more difficulty he or she had maintaining their attention.



Figure 9.8 – A child playing a game that measures her sustained attention.<sup>302</sup>

## Memory

Based on studies of adults, people with amnesia, and neurological research on memory, researchers have proposed several “types” of memory (see Figure 4.14). **Sensory memory** (also called the sensory register) is the first stage of the memory system, and it stores sensory input in its raw form for just a few seconds; essentially long enough for the brain to register and start processing the information. Researchers have also found that young children hold sounds for a shorter duration than do older children and adults, and that this deficit is not due to attentional differences between these age groups, but reflects differences in the performance of the sensory memory system (Gomes et al., 1999).

The second stage of the memory system is called short-term or **working memory**. Working memory is the component of memory in which current conscious mental activity occurs. Working memory often requires conscious effort and adequate use of attention to function effectively. Children in this age group struggle with many aspects of attention and this greatly diminishes their ability to consciously juggle several pieces of information in memory. The capacity of working memory, that is the amount of information someone can hold in consciousness, is smaller in young children than in older children and adults. The typical adult and teenager can hold a 7-digit number active in their short-term memory. The typical 5-year-old can hold only a 4-digit number active. This means that the more complex a mental task is

<sup>302</sup> Image by [Fabrice Florin](#) is licensed under [CC BY-SA 2.0](#)



(like a word problem in math), the less efficient a younger child will be in paying attention to, and actively processing, information in order to complete the task.



Figure 9.9 – A child thinking.<sup>303</sup>

The third component in memory is **long-term memory**, which is also known as permanent memory. The human brain is capable of holding limitless amounts of information in long-term memory. The difficult part is actually retrieving the memories. Young children do not use strategies to try and remember information. Older children and adults learn to use different strategies to help remember information (like repeating a phone number over and over, putting their history test information into a song, or making work associations like “her name is Shirley, I remember it that it’s Shirley because she has curly hair.”

A basic division of long-term memory is between declarative and non-declarative memory.

- **Declarative memories**, sometimes referred to as **explicit memories**, are memories for facts or events that we can consciously recollect. Declarative memory is further divided into semantic and episodic memory.
  - **Semantic memories** are memories for facts and knowledge that are not tied to a timeline,
  - **Episodic memories** are tied to specific events in time.
- **Non- declarative memories**, sometimes referred to as **implicit memories**, are typically automated skills that do not require conscious recollection.

**Autobiographical memory** is our personal narrative. Adults rarely remember events from the first few years of life. In other words, we lack autobiographical memories from our experiences as an infant, toddler, and very young preschooler. Several factors contribute to the emergence of autobiographical memory including brain maturation, improvements in language, opportunities to talk about experiences with parents and others, the development of theory of mind, and a representation of “self” (Nelson & Fivush, 2004). Two-year-olds do remember fragments of personal experiences, but these are rarely coherent accounts of past events (Nelson & Ross, 1980). Between 2 and 2 1/2 years of age children can provide more information

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<sup>303</sup> Image by [Leonid Mamchenkov](#) is licensed under [CC BY 2.0](#)

about past experiences. However, these recollections require considerable prodding by adults (Nelson & Fivush, 2004). Over the next few years, children will form more detailed autobiographical memories and engage in more reflection of the past.

## Neo-Piagetians

As previously discussed, Piaget's theory has been criticized on many fronts, and updates to reflect more current research have been provided by the **Neo-Piagetians**, or those theorists who provide "new" interpretations of Piaget's theory. Morra, Gobbo, Marini, and Sheese (2008) reviewed Neo-Piagetian theories, which were first presented in the 1970s, and identified how these "new" theories combined Piagetian concepts with those found in Information Processing. Similar to Piaget's theory, Neo-Piagetian theories believe in constructivism, assume cognitive development can be separated into different stages with qualitatively different characteristics, and advocate that children's thinking becomes more complex in advanced stages. Unlike Piaget, Neo-Piagetians believe that aspects of information processing change the complexity of each stage, not logic as determined by Piaget.

Neo-Piagetians propose that working memory capacity is affected by biological maturation, and therefore restricts young children's ability to acquire complex thinking and reasoning skills. Increases in working memory performance and cognitive skills development coincide with the timing of several neurodevelopmental processes. These include myelination, axonal and synaptic pruning, changes in cerebral metabolism, and changes in brain activity (Morra et al., 2008).

Myelination especially occurs in waves between birth and adolescence, and the degree of myelination in particular areas explains the increasing efficiency of certain skills. Therefore, brain maturation, which occurs in spurts, affects how and when cognitive skills develop. Additionally, all Neo-Piagetian theories support that experience and learning interact with biological maturation in shaping cognitive development.<sup>304</sup>

## Children's Understanding of the World

Both Piaget and Vygotsky believed that children actively try to understand the world around them. More recently developmentalists have added to this understanding by examining how children organize information and develop their own theories about the world.

## Theory-Theory

The tendency of children to generate theories to explain everything they encounter is called **theory-theory**. This concept implies that humans are naturally inclined to find reasons and generate explanations for why things occur. Children frequently ask questions about what they see or hear around them. When the answers provided do not satisfy their curiosity or are too complicated for them to understand, they generate their own theories. In much the same way

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<sup>304</sup> [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

that scientists construct and revise their theories, children do the same with their intuitions about the world as they encounter new experiences (Gopnik & Wellman, 2012). One of the theories they start to generate in early childhood centers on the mental states; both their own and those of others.



Figure 9.10 - What theories might this boy be creating?<sup>305</sup>

## Theory of Mind

**Theory of mind** refers to the ability to think about other people's thoughts. This mental mind reading helps humans to understand and predict the reactions of others, thus playing a crucial role in social development. One common method for determining if a child has reached this mental milestone is the false belief task, described below.

The research began with a clever experiment by Wimmer and Perner (1983), who tested whether children can pass a false-belief test (see Figure 4.17). The child is shown a picture story of Sally, who puts her ball in a basket and leaves the room. While Sally is out of the room, Anne comes along and takes the ball from the basket and puts it inside a box. The child is then asked *where* Sally thinks the ball is located when she comes back to the room. Is she going to look first in the box or the basket? The right answer is that she will look in the basket, because that's where she put it and thinks it is, but we have to infer this **false belief** against our own better knowledge that the ball is in the box.



Figure 9.11 – A ball.<sup>306</sup>



Figure 9.12 – A basket.<sup>307</sup>



Figure 9.13 – A box.<sup>308</sup>

<sup>305</sup> [Image](#) by [Eglin Air Force Base](#) is in the public domain

<sup>306</sup> [Image](#) is in the public domain

<sup>307</sup> [Image](#) is licensed under [CC0](#)

<sup>308</sup> [Image](#) is in the public domain

This is very difficult for children before the age of four because of the cognitive effort it takes. Three-year-olds have difficulty distinguishing between what they once thought was true and what they now know to be true. They feel confident that what they know now is what they have always known (Birch & Bloom, 2003). Even adults need to think through this task (Epley, Morewedge, & Keysar, 2004).

To be successful at solving this type of task the child must separate what he or she “knows” to be true from what someone else might “think” is true. Children who are egocentric cannot see things from another person’s point of view, and so they will assume everyone knows what they know. Consequently, before age four children are rarely successful at solving such a task (Wellman, Cross & Watson, 2001).

Researchers examining the development of theory of mind have been concerned by the overemphasis on the mastery of false belief as the primary measure of whether a child has attained theory of mind. Wellman and his colleagues (Wellman, Fang, Liu, Zhu & Liu, 2006) suggest that theory of mind is comprised of several components, each with its own developmental timeline (see Table 4.2).

Two-year-olds understand the diversity of desires, yet as noted earlier it is not until age four or five that children grasp false belief, and often not until middle childhood do they understand that people may hide how they really feel. In part, because children in early childhood have difficulty hiding how they really feel.

### **Cultural Differences in Theory of Mind**

Those in early childhood in the US, Australia, and Germany develop theory of mind in the sequence outlined above. Yet, Chinese and Iranian preschoolers acquire knowledge access before diverse beliefs (Shahaeian, Peterson, Slaughter & Wellman, 2011). Shahaeian and colleagues suggested that cultural differences in childrearing may account for this reversal. Parents in collectivistic cultures, such as China and Iran, emphasize conformity to the family and cultural values, greater respect for elders, and the acquisition of knowledge and academic skills more than they do autonomy and social skills (Frank, Plunkett & Otten, 2010). This could reduce the degree of familial conflict of opinions expressed in the family. In contrast, individualistic cultures encourage children to think for themselves and assert their own opinion, and this could increase the risk of conflict in beliefs being expressed by family members.



Figure 9.14 – A family from a non-Western culture.<sup>309</sup>

As a result, children in individualistic cultures would acquire insight into the question of diversity of belief earlier, while children in collectivistic cultures would acquire knowledge access earlier in the sequence. The role of conflict in aiding the development of theory of mind may account for the earlier age of onset of an understanding of false belief in children with siblings, especially older siblings (McAlister & Petersen, 2007; Perner, Ruffman & Leekman, 1994).

This awareness of the existence of theory of mind is part of social intelligence, such as recognizing that others can think differently about situations. It helps us to be self-conscious or aware that others can think of us in different ways and it helps us to be able to be understanding or be empathetic toward others. Moreover, this mind-reading ability helps us to anticipate and predict people's actions. The awareness of the mental states of others is important for communication and social skills.<sup>310</sup>

## Milestones of Cognitive Development

The many theories of cognitive development and the different research that has been done about how children understand the world, has allowed researchers to study the milestones that children who are typically developing experience in early childhood. Here is a table that summarizes those.

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**Table 9.1 - Cognitive Milestones<sup>311</sup>**

Typical Age	What Most Children Do by This Age
<b>3 years</b>	<ul style="list-style-type: none"><li>• Can work toys with buttons, levers, and moving parts</li><li>• Plays make-believe with dolls, animals, and people</li><li>• Does puzzles with 3 or 4 pieces</li><li>• Understands what “two” means</li></ul>
<b>4 years</b>	<ul style="list-style-type: none"><li>• Names some colors and some numbers</li><li>• Understands the idea of counting</li><li>• Starts to understand time</li><li>• Remembers parts of a story</li><li>• Understands the idea of “same” and “different”</li><li>• Plays board or card games</li><li>• Tells you what he thinks is going to happen next in a book</li></ul>
<b>5 years</b>	<ul style="list-style-type: none"><li>• Counts 10 or more things</li><li>• Knows about things used every day, like money and food</li></ul>

## Language Development

### Vocabulary Growth

A child’s vocabulary expands between the ages of 2 to 6 from about 200 words to over 10,000 words through a process called fast-mapping. Words are easily learned by making connections between new words and concepts already known. The parts of speech that are learned depend on the language and what is emphasized. Children speaking verb-friendly languages such as Chinese and Japanese, tend to learn verbs more readily. But, those learning less verb-friendly languages such as English, seem to need assistance in grammar to master the use of verbs (Imai, et al, 2008).



Figure 9.15 – A woman instructing a girl on vocabulary.<sup>312</sup>

<sup>311</sup> [Developmental Milestones](#) by the [CDC](#) is in the public domain

<sup>312</sup> [Image](#) by the [U.S. Department of the Interior](#) is in the public domain



## Literal Meanings

Children can repeat words and phrases after having heard them only once or twice. But they do not always understand the meaning of the words or phrases. This is especially true of expressions or figures of speech which are taken literally. For example, two preschool-aged girls began to laugh loudly while listening to a tape-recording of Disney's "Sleeping Beauty" when the narrator reports, "Prince Phillip lost his head!" They imagine his head popping off and rolling down the hill as he runs and searches for it. Or a classroom full of preschoolers hears the teacher say, "Wow! That was a piece of cake!" The children began asking "Cake? Where is my cake? I want cake!"

## Overregularization

**Overregularization** is the overuse of a grammar rule. This can actually be a sign of language sophistication in 2 and 3-year-olds because it shows that the child knows the grammar rule. For example, we add "ed" to make a work past tense and we add "s" when there is more than one of something. However, they have not yet learned all the words that are an exception to the rule. So, it would be common to hear sentences such as "I goed home" or, "I have two foots." If you hear a child say these things, the best thing to do is just repeat it back correctly. "Oh! You went home? Or, "yes, you have two feet!" By age 5, children should display much less overregularization in their speech.

## Language Milestones

The prior aspects of language development in early childhood can also be summarized into the progression of milestones children typically experience from ages 3 to 5. Here is a table of those.

**Table 9.2 - Language Milestones<sup>313</sup>**

Typical Age	What Most Children Do By This Age
3 years	<ul style="list-style-type: none"><li>● Follows instructions with 2 or 3 steps</li><li>● Can name most familiar things</li><li>● Understands words like "in," "on," and "under"</li><li>● Says first name, age, and sex</li><li>● Names a friend</li><li>● Says words like "I," "me," "we," and "you" and some plurals (cars, dogs, cats)</li><li>● Talks well enough for strangers to understand most of the time</li><li>● Carries on a conversation using 2 to 3 sentences</li></ul>

<sup>313</sup> [Developmental Milestones](#) by the [CDC](#) is in the public domain

<b>4 years</b>	<ul style="list-style-type: none"> <li>● Knows some basic rules of grammar, such as correctly using “he” and “she”</li> <li>● Sings a song or says a poem from memory such as the “Itsy Bitsy Spider” or the “Wheels on the Bus”</li> <li>● Tells stories</li> <li>● Can say first and last name</li> </ul>
<b>5 years</b>	<ul style="list-style-type: none"> <li>● Speaks very clearly</li> <li>● Tells a simple story using full sentences</li> <li>● Uses future tense; for example, “Grandma will be here.”</li> <li>● Says name and address</li> </ul>

## Supporting Language Development

While there are language milestones for each age, a child’s language development is impacted not only by their age, but also their experiences. To build children’s language skills, talk to them often. Ask open-ended questions and give them time to respond. Connect at their level with eye contact and give them your full attention – without phones and other screens as a distraction. Use times like car rides and mealtime as a time to have conversations. Read books, make up your own stories and rhymes, and sing songs.

## Early Childhood Education

Because there is research that shows that at-risk children who attend quality preschool do better in elementary school, are more likely to graduate high school, less likely to end up on welfare and in prison, there has been growing support to have preschool for all, or universal preschool, where preschool would be available for free to all 4-year-olds. However, universal preschool covering all four-year-olds in the country would require significant funding through tax dollars. Further, how effective preschools are in preparing all children for elementary school, and what constitutes high-quality early childhood education have been debated.

To set criteria for designation as a high-quality preschool, the National Association for the Education of Young Children (NAEYC) identifies 10 standards (NAEYC, 2016). These include:

- Positive relationships among all children and adults are promoted.
- A curriculum that supports learning and development in social, emotional, physical, language, and cognitive areas.
- Teaching approaches that are developmentally, culturally, and linguistically appropriate.
- Assessment of children’s progress to provide information on learning and development.
- The health and nutrition of children are promoted, while they are protected from illness and injury.
- Teachers possess the educational qualifications, knowledge, and commitment to promote children’s learning.
- Collaborative relationships with families are established and maintained.

- Relationships with agencies and institutions in the children’s communities are established to support the program’s goals.
- The indoor and outdoor physical environments are safe and well-maintained.
- Leadership and management personnel are well qualified, effective, and maintain licensure status with the applicable state agency.

Parents should review preschool programs using the NAEYC criteria as a guide and template for asking questions that will assist them in choosing the best program for their child.



Figure 9.16 – Children making crafts at preschool.<sup>314</sup>

Selecting the right preschool is difficult because there are so many types of preschools available. Zachry (2013) identified Montessori, Waldorf, Reggio Emilia, High Scope, Creative Curriculum, and Bank Street as types of early childhood education programs that focus on children learning through discovery. Teachers act as facilitators of children’s learning and development and create activities based on the child’s developmental level. Here is a table summarizes the characteristics of each type of program.

<sup>314</sup> [Image](#) by [Seattle City Council](#) is in the public domain

**Table 9.3 - Types of Early Childhood Education Programs<sup>315</sup>**

Program	Founder	Characteristics
<b>Montessori</b>	Dr. Maria Montessori	<ul style="list-style-type: none"> <li>● Refers to children's activity as work (not play); children are given long periods of time to work</li> <li>● Focus on individual learning</li> <li>● Features child-sized furniture and defined work areas</li> <li>● Materials are carefully chosen and introduced to children by the teacher</li> <li>● Features mixed-aged grouping</li> <li>● Teachers should be certified</li> </ul>
<b>Waldorf</b>	Rudolf Steiner	<ul style="list-style-type: none"> <li>● Focus on whole child</li> <li>● Features connections to nature, sensory learning, and imagination</li> <li>● Provides large blocks of time for play</li> <li>● Delay formal academic instruction</li> <li>● Environment protects children from negative influences</li> <li>● Relationships are important so groupings last for several years (<b>looping</b>)</li> <li>● Teachers should be certified</li> </ul>
<b>Reggio Emilia</b>	Loris Malaguzzi	<ul style="list-style-type: none"> <li>● Teachers and children co-construct the curriculum</li> <li>● Teachers are researchers</li> <li>● Environment is the third teacher and features beauty and order</li> <li>● Children's learning is documented through the multiple methods (100 languages of children)</li> <li>● Have atelier (art studio) with an atelierista (artist) to instruct children</li> <li>● Believe children are competent and capable</li> <li>● Children stay together for 3 years</li> <li>● Parents partner with teachers</li> <li>● Community is an extension of school</li> </ul>
<b>High Scope</b>	David Weikart	<ul style="list-style-type: none"> <li>● Features defined learning areas</li> <li>● Has 8 content areas with 58 key developmental indicators</li> <li>● Consistency of daily routine is important</li> </ul>

<sup>315</sup> Gordon, A. M., & Browne, K. W. (2016). Beginning essentials in early childhood education. (3rd ed.). Cengage: Boston.

		<ul style="list-style-type: none"> <li>• Uses plan-do-review sequence in which they make a plan, act on it, and then reflect on the results</li> <li>• Teachers are partners and use the Child Observation Record (COR) to help assess children and plan curriculum</li> <li>• Utilizes 6 step process to teach children conflict resolution</li> </ul>
<b>Bank Street</b>	Lucy Sprague Mitchell	<ul style="list-style-type: none"> <li>• Also referred to as the Developmental-Interactionist Approach</li> <li>• Environment is arranged into learning centers</li> <li>• Focus on hands-on experience with long periods of time given</li> <li>• Teachers use questions to further children's exploration</li> <li>• Blocks are primary material in the classroom</li> <li>• Field trips are frequently used</li> </ul>
<b>Creative Curriculum</b>	Diane Trister Dodge	<ul style="list-style-type: none"> <li>• Focus on children's play and self-selected activities</li> <li>• Environment is arranged into learning areas</li> <li>• Large blocks of time are given for self-selected play</li> <li>• Uses projects as the basis for curriculum</li> <li>• Is researched based and includes assessment system</li> </ul>

### Head Start

For children who live in poverty, Head Start has been providing preschool education since 1965 when it was begun by President Lyndon Johnson as part of his war on poverty. It currently serves nearly one million children and annually costs approximately 7.5 billion dollars (United States Department of Health and Human Services, 2015). However, concerns about the effectiveness of Head Start have been ongoing since the program began. Armor (2015) reviewed existing research on Head Start and found there were no lasting gains, and the average child in Head Start had not learned more than children who did not receive preschool education.



Figure 9.17 – A photograph from when Head Start began.<sup>316</sup>

A recent report dated July 2015 evaluating the effectiveness of Head Start comes from the What Works Clearinghouse. The What Works Clearinghouse identifies research that provides reliable evidence of the effectiveness of programs and practices in education and is managed by the Institute of Education Services for the United States Department of Education. After reviewing 90 studies on the effectiveness of Head Start, only one study was deemed scientifically acceptable and this study showed disappointing results (Barshay, 2015). This study showed that 3- and 4-year-old children in Head Start received “potentially positive effects” on general reading achievement, but no noticeable effects on math achievement and social-emotional development.

Nonexperimental designs are a significant problem in determining the effectiveness of Head Start programs because a control group is needed to show group differences that would demonstrate educational benefits. Because of ethical reasons, low-income children are usually provided with some type of pre-school programming in an alternative setting. Additionally, Head Start programs are different depending on the location, and these differences include the length of the day or qualification of the teachers. Lastly, testing young children is difficult and strongly dependent on their language skills and comfort level with an evaluator (Barshay, 2015).<sup>317</sup>

## Applications to Early Education

Understanding how children think and learn has proven useful for improving education. Activities like playing games that involve working with numbers and spatial relationships can give young children a developmental advantage over peers who have less exposure to the same concepts.

### Mathematics

Even before they enter kindergarten, the mathematical knowledge of children from low-income backgrounds lags far behind that of children from more affluent backgrounds. Ramani and

<sup>316</sup> [Image](#) by [Children’s Bureau Centennial](#)

<sup>317</sup> [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)



Siegler (2008) hypothesized that this difference is due to the children in middle- and upper-income families engaging more frequently in numerical activities, for example playing numerical board games such as Chutes and Ladders. Chutes and Ladders is a game with a number in each square; children start at the number one and spin a spinner or throw a dice to determine how far to move their token. Playing this game seemed likely to teach children about numbers, because in it, larger numbers are associated with greater values on a variety of dimensions. In particular, the higher the number that a child's token reaches, the greater the distance the token will have traveled from the starting point, the greater the number of physical movements the child will have made in moving the token from one square to another, the greater the number of number-words the child will have said and heard, and the more time will have passed since the beginning of the game. These spatial, kinesthetic, verbal, and time-based cues provide a broad-based, multisensory foundation for knowledge of numerical magnitudes (the sizes of numbers), a type of knowledge that is closely related to mathematics achievement test scores (Booth & Siegler, 2006).

Playing this numerical board game for roughly 1 hour, distributed over a 2-week period, improved low-income children's knowledge of numerical magnitudes, ability to read printed numbers, and skill at learning novel arithmetic problems. The gains lasted for months after the game-playing experience (Ramani & Siegler, 2008; Siegler & Ramani, 2009). An advantage of this type of educational intervention is that it has minimal if any cost—a parent could just draw a game on a piece of paper.

## Reading

Cognitive developmental research has shown that phonemic awareness—that is, awareness of the component sounds within words—is a crucial skill in learning to read. To measure awareness of the component sounds within words, researchers ask children to decide whether two words rhyme, to decide whether the words start with the same sound, to identify the component sounds within words, and to indicate what would be left if a given sound were removed from a word. Kindergartners' performance on these tasks is the strongest predictor of reading achievement in third and fourth grade, even stronger than IQ or social class background (Nation, 2008). Moreover, teaching these skills to randomly chosen 4- and 5-year-olds results in their being better readers years later (National Reading Panel, 2000).

## Cognitive Differences

Sometimes children's brains work differently. One of the most common forms of this neurodiversity is Autism spectrum disorder.

### Autism: Defining Spectrum Disorder

The term **Autism spectrum disorder (ASD)** is now used to describe a range of conditions and is used in place of the terms autism, Asperger syndrome, pervasive developmental disorder not otherwise specified (PDD-NOS), and childhood disintegrative disorder. These disorders are characterized by social deficits and communication difficulties, repetitive behaviors and interests, sensory issues, and in some cases, cognitive delays.

Autism spectrum disorders are considered to be on a spectrum because each individual with ASD expresses the disorder uniquely and has varying degrees of functionality. Many have above-average intellectual abilities and excel in visual skills, music, math, and the arts, while others have significant disabilities and are unable to live independently. About 25 percent of individuals with ASD are nonverbal; however, they may learn to communicate using other means like using sign language, or an augmentative communication device.

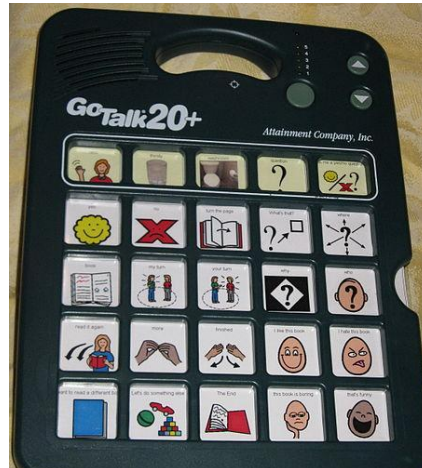


Figure 9.18 Go Talk Static communication device<sup>318</sup>

### *Social Communication Symptoms*

Social impairments in children with autism can be characterized by a distinctive lack of intuition about others. Unusual social development becomes apparent early in childhood. Infants with ASD show less attention to social stimuli, smile and look at others less often, and respond less to their own name. Toddlers with ASD may show less eye contact and turn-taking and may not have the ability to use simple movements to express themselves. Individuals with severe forms of ASD do not develop enough natural speech to meet their daily communication needs.

### *Restricted and Repetitive Behaviors*

Children with ASD may exhibit repetitive or restricted behavior, including:

- Stereotypy—repetitive movement, such as hand flapping, head rolling, or body rocking.
- Compulsive behavior—exhibiting intention to follow rules, such as arranging objects in stacks or lines.
- Sameness—resistance to change; for example, insisting that the furniture not be moved or sticking to an unvarying pattern of daily activities.
- Restricted behavior—limits in focus, interest, or activity, such as preoccupation with a single television program, toy, or game.
- Self-injury—movements that injure or can injure the person, such as eye-poking, skin picking, hand biting, and headbanging.

<sup>318</sup> [Image](#) is in the public domain

### *Etiology (Causes)*

While specific causes of ASD have yet to be found, many risk factors have been identified in the research literature that may contribute to its development. These risk factors include genetics, prenatal and perinatal factors, neuroanatomical abnormalities, and environmental factors. It is possible to identify general risk factors, but much more difficult to pinpoint specific factors.

### *Genetics*

ASD affects information processing in the brain by altering how nerve cells and their synapses connect and organize; thus, it is categorized as a neurodevelopmental disorder. The results of family and twin studies suggest that genetic factors play a role in the etiology of ASD and other pervasive developmental disorders. Studies have consistently found that the prevalence of ASD in siblings of children with ASD is approximately 15 to 30 times greater than the rate in the general population. Also, research suggests that there is a much higher concordance rate among monozygotic (identical) twins compared to dizygotic (fraternal) twins. It appears that there is no single gene that can account for ASD; instead, there seem to be multiple genes involved, each of which is a risk factor for part of the autism syndrome through various groups. It is unclear whether ASD is explained more by rare mutations or by combinations of common genetic variants.

### *The Diversity of the Autism Spectrum*

The rainbow-colored infinity symbol represents the diversity of the autism spectrum as well as the greater neurodiversity movement. The neurodiversity movement suggests that diverse neurological conditions appear as a result of normal variations in the human genome. It challenges the idea that such neurological differences are inherently pathological, instead asserting that differences should be recognized and respected as a social category on a par with gender, ethnicity, sexual orientation, or disability status.



Figure 9.19 – A symbol of the autism spectrum.<sup>319</sup>

### *Prenatal and Perinatal Factors*

A number of prenatal and perinatal complications have been reported as possible risk factors for ASD. These risk factors include maternal gestational diabetes, maternal and paternal age over 30, bleeding after first trimester, use of prescription medication (such as valproate) during pregnancy, and meconium (the earliest stool of an infant) in the amniotic fluid. While research is not conclusive on the relation of these factors to ASD, each of these factors has been identified more frequently in children with ASD than in developing youth without ASD.

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<sup>319</sup> [Image](#) is in the public domain

### *Environmental Factors*

Evidence for environmental causes is anecdotal and has not been confirmed by reliable studies. In the last few decades, controversy surrounded the idea that vaccinations may be the cause for many cases of autism; however, these theories lack scientific evidence and are biologically implausible. Even still, parental concern about a potential vaccine link with autism has led to lower rates of childhood immunizations, outbreaks of previously controlled childhood diseases in some countries, and the preventable deaths of several children.

### *Treatment*

There is no known cure for ASD, and treatment tends to focus on the management of symptoms. The main goals when treating children with ASD are to lessen associated deficits and family distress and to increase quality of life and functional independence.<sup>320</sup> Treatment for ASD should begin as soon as possible after diagnosis. Early treatment for ASD is important as proper care can reduce individuals' difficulties while helping them learn new skills and make the most of their strengths.

The wide range of issues facing people with ASD means that there is no single best treatment for ASD.<sup>321</sup> So treatment is typically tailored to the individual's needs. Intensive, sustained special education programs and behavior therapy early in life can help children acquire self-care, social, and job skills. The most widely used therapy is **applied behavior analysis (ABA)**; other available approaches include developmental models, structured teaching, speech and language therapy, social skills therapy, and occupational therapy.<sup>322</sup>



Figure 9.20 – A boy with ASD receiving therapy.<sup>323</sup>

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<sup>321</sup> [Autism Spectrum Disorder](#) by the [National Institute of Mental Health](#) is in the public domain

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<sup>323</sup> [Image](#) by [Edwards Air Force Base](#) is in the public domain

There has been increasing attention to the development of evidence-based interventions for young children with ASD. Although evidence-based interventions for children with ASD vary in their methods, many adopt a psychoeducational approach to enhancing cognitive, communication, and social skills while minimizing behaviors that are thought to be problematic.<sup>324</sup>

## Conclusion

In this chapter we covered,

- Piaget's preoperational stage.
- Vygotsky's sociocultural theory.
- Information processing.
- How young children understand the world.
- Typical progression of cognitive and language development (milestones).
- Early childhood education.
- Autism spectrum disorder.

In the next chapter, we will finish covering early childhood education by looking at how children understand themselves and interact with the world.

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# Chapter 10: Early Childhood Social-Emotional Development

## Objectives

After reading this chapter, you should be able to:

1. Describe how preschoolers view themselves.
2. Summarize Erikson's stage of initiative versus guilt.
3. Discuss the progression of social-emotional development during early childhood.
4. Explain how children develop their understanding of gender.
5. Compare and contrast different styles of parenting.
6. Define the characteristics of high-quality child care.
7. Discuss the role of peers.
8. Describe the types of play.
9. Summarize the development of social understanding and personality during Early Childhood.
10. Identify the effects of stress on three- to five-year-old children.

## Introduction

In early childhood, children's understanding of themselves and their role in the world expands greatly.

## Social and Emotional Milestones

That expanding understanding of themselves and others develops with age. Here is a table of social and emotional milestones that children typically experience during early childhood.

**Table 10.1 - Social and Emotional Milestones<sup>325</sup>**

Typical Age	What Most Children Do by This Age
3 years	<ul style="list-style-type: none"><li>• Copies adults and friends</li><li>• Shows affection for friends without prompting</li><li>• Takes turns in games</li><li>• Shows concern for a crying friend</li><li>• Dresses and undresses self</li><li>• Understands the idea of "mine" and "his" or "hers"</li><li>• Shows a wide range of emotions</li><li>• Separates easily from mom and dad</li><li>• May get upset with major changes in routine</li></ul>

<sup>325</sup> [Developmental Milestones](#) by the [CDC](#) is in the public domain



<b>4 years</b>	<ul style="list-style-type: none"> <li>• Enjoys doing new things</li> <li>• Is more and more creative with make-believe play</li> <li>• Would rather play with other children than by self</li> <li>• Cooperates with other children</li> <li>• Plays “mom” or “dad”</li> <li>• Often can’t tell what’s real and what’s make-believe</li> <li>• Talks about what she likes and what she is interested in</li> </ul>
<b>5 years</b>	<ul style="list-style-type: none"> <li>• Wants to please friends</li> <li>• Wants to be like friends</li> <li>• More likely to agree with rules</li> <li>• Likes to sing, dance, and act</li> <li>• Is aware of gender</li> <li>• Can tell what’s real and what’s make-believe</li> <li>• Shows more independence</li> <li>• Is sometimes demanding and sometimes very cooperative</li> </ul>

Many things influence how children develop those milestones as how they view themselves and how they interact with those around them changes. Let’s look more at these.

## Interactionism and Views of Self

Early childhood is a time of forming an initial sense of self. A **self-concept** or idea of who we are, what we are capable of doing, and how we think and feel is a social process that involves taking into consideration how others view us. So, to develop a sense of self, you must interact with others. Interactionist theorists, Cooley and Mead offer two interesting explanations of how a sense of self develops.

### Cooley

Charles Horton Cooley (1964) suggests that our self-concept comes from looking at how others respond to us. This process, known as the **looking-glass self** involves looking at how others seem to view us and interpreting this as we make judgments about whether we are good or bad, strong or weak, beautiful or ugly, and so on. Of course, we do not always interpret their responses accurately so our self-concept is not simply a mirror reflection of the views of others. After forming an initial self-concept, we may use it as a mental filter screening out those responses that do not seem to fit our ideas of who we are. Some compliments may be negated, for example. The process of the looking-glass self is pronounced when we are preschoolers, or perhaps when we are in a new school or job or are taking on a new role in our personal lives and are trying to gauge our own performances. When we feel more confident about who we are, we focus less on how we appear to others.<sup>326</sup>

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Figure 10.1 – A child looking at herself wearing glasses in a mirror.<sup>327</sup>

## Mead

Herbert Mead (1967) explains how we develop a social sense of self by being able to see ourselves through the eyes of others. There are two parts of the self: the “I” which is the part of the self that is spontaneous, creative, innate, and is not concerned with how others view us and the “me” or the social definition of who we are.

When we are born, we are all “I” and act without concern about how others view us. But the socialized self begins when we can consider how one important person views us. This initial stage is called “taking the role of the significant other”. For example, a child may pull a cat’s tail and be told by his mother, “No! Don’t do that, that’s bad” while receiving a slight slap on the hand. Later, the child may mimic the same behavior toward the self and say aloud, “No, that’s bad” while patting his own hand. What has happened? The child can see himself through the eyes of the mother. As the child grows and is exposed to many situations and rules of culture, he begins to view the self in the eyes of many others through these cultural norms or rules. This is referred to as “taking the role of the generalized other” and results in a sense of self with many dimensions. The child comes to have a sense of self as a student, as a friend, as a son, and so on.

## Exaggerated Sense of Self

One of the ways to gain a clearer sense of self is to exaggerate those qualities that are to be incorporated into the self. Preschoolers often like to exaggerate their own qualities or to seek validation as the biggest, smartest, or child who can jump the highest. This exaggeration tends to be replaced by a more realistic sense of self in middle childhood.

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<sup>327</sup> [Image](#) is in the public domain

## Self-Esteem

Early childhood is a time of forming an initial sense of self. **Self-concept** is our self-description according to various categories, such as our external and internal qualities. In contrast, **self-esteem** is an evaluative judgment about who we are. The emergence of cognitive skills in this age group results in improved perceptions of the self, but when researchers ask young children to describe themselves, their descriptions tend to include physical descriptors, preferred activities, and favorite possessions. Thus, the **self-description** of a 3-year-old might be a 3-year-old girl with red hair, who likes to play with blocks. However, even children as young as three know there is more to themselves than these external characteristics.

Harter and Pike (1984) challenged the method of measuring personality with an open-ended question as they felt that language limitations were hindering the ability of young children to express their self-knowledge. They suggested a change to the method of measuring self-concept in young children, whereby researchers provide statements that ask whether something is true of the child (e.g., “I like to boss people around”, “I am grumpy most of the time”). They discovered that in early childhood, children answer these statements in an internally consistent manner, especially after the age of four (Goodvin, Meyer, Thompson & Hayes, 2008) and often give similar responses to what others (parents and teachers) say about the child (Brown, Mangelsdorf, Agathen, & Ho, 2008; Colwell & Lindsey, 2003). This shows why it is important to be careful in labeling a child. By saying in front of a child, “sorry, she is shy” you might actually be causing her to be more “shy.”



Figure 10.2 – Young children don’t always feel good about themselves.<sup>328</sup>

Young children tend to have a generally positive self-image. This optimism is often the result of a lack of social comparison when making self-evaluations (Ruble, Boggiano, Feldman, & Loeble, 1980), and with a comparison between what the child once could do to what they can do now (Kemple, 1995). However, this does not mean that preschool children are exempt from negative self-evaluations. Preschool children with insecure attachments to their caregivers tend to have lower self-esteem at age four (Goodvin et al., 2008). Maternal negative affect (emotional state) was also found by Goodwin and her colleagues to produce more negative self-evaluations in preschool children.

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## Self-Control

Self-control is not a single phenomenon but is multi-faceted. It includes **response initiation**, the ability to not initiate a behavior before you have evaluated all of the information, **response inhibition**, the ability to stop a behavior that has already begun, and **delayed gratification**, the ability to hold out for a larger reward by forgoing a smaller immediate reward (Dougherty, Marsh, Mathias, & Swann, 2005). It is in early childhood that we see the start of self-control, a process that takes many years to fully develop. In the now-classic “Marshmallow Test” (Mischel, Ebbesen, & Zeiss, 1972) children are confronted with the choice of a small immediate reward (a marshmallow) and a larger delayed reward (more marshmallows). Walter Mischel and his colleagues over the years have found that the ability to delay gratification at the age of four predicted better academic performance and health later in life (Mischel, et al., 2011). Self-control is related to executive function. Executive function involves cognitive skills of being able to plan, remember, focus on what is important, and manage distractions, disappointments, and frustrations. As executive function improves, children become less impulsive (Traverso, Viterbori, & Usai, 2015).<sup>329</sup>

### Self-Control and Play

Thanks to the new Centre for Research on Play in Education, Development and Learning (PEDaL), Whitebread, Baker, Gibson, and a team of researchers hope to provide evidence on the role played by play in how a child develops.

“A strong possibility is that play supports the early development of children’s self-control,” explains Baker. “These are our abilities to develop awareness of our own thinking processes – they influence how effectively we go about undertaking challenging activities.”

In a study carried out by Baker with toddlers and young preschoolers, she found that children with greater self-control solved problems quicker when exploring an unfamiliar set-up requiring scientific reasoning, regardless of their IQ. “This sort of evidence makes us think that giving children the chance to play will make them more successful and creative problem-solvers in the long run.”

If playful experiences do facilitate this aspect of development, say the researchers, it could be extremely significant for educational practices because the ability to self-regulate is a key predictor of academic performance.

Gibson adds: “Playful behavior is also an important indicator of healthy social and emotional development. In my previous research, I investigated how observing children at play can give us important clues about their well-being and can even be useful in the diagnosis of neurodevelopmental disorders like autism.”<sup>330</sup>

<sup>329</sup> [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

<sup>330</sup> [Play’s the Thing](#) by the [University of Cambridge](#) is licensed under [CC BY 4.0](#)

## Erikson: Initiative vs. Guilt

Psychologist Erik Erikson argues that children in early childhood go through a stage of “initiative vs. guilt”. If the child is placed in an environment where he/she can explore, make decisions, and initiate activities, they will develop initiative. On the other hand, if the child is put in an environment where initiation is repressed through criticism and control, he/she will develop a sense of guilt.



Figure 10.3 – Children playing in the sand.<sup>331</sup>

The trust and autonomy of previous stages develop into a desire to take initiative or to think of ideas and initiative action. Children may want to build a fort with the cushions from the living room couch or open a lemonade stand in the driveway or make a zoo with their stuffed animals and issue tickets to those who want to come. Or they may just want to get themselves ready for bed without any assistance. To reinforce taking initiative, caregivers should offer encouragement and focus on the child’s efforts and avoid being critical of messes or mistakes. Soggy washrags and toothpaste left in the sink pales in comparison to the smiling face of a five-year-old who emerges from the bathroom with clean teeth and pajamas!<sup>332</sup>

## Gender Identity, Gender Constancy, and Gender Roles

Another important dimension of the self is the sense of self as male or female. Preschool-aged children become increasingly interested in finding out the differences between boys and girls both physically and in terms of what activities are acceptable for each. While 2-year-olds can identify some differences and learn whether they are boys or girls, preschoolers become more interested in what it means to be male or female. This self-identification or **gender identity** is followed sometime later with **gender constancy** or the knowledge that gender does not change. **Gender roles** or the rights and expectations that are associated with being male or female are learned throughout childhood and into adulthood.

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<sup>331</sup> [Image](#) is in the public domain

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## Freud and the Phallic Stage

Freud believed that masculinity and femininity were learned during the phallic stage of psychosexual development. According to Freud, during the phallic stage, the child develops an attraction to the opposite-sex parent but after recognizing that they cannot after the same-sex parent. The child develops his or her sense of masculinity or femininity from this resolution. And, according to Freud, a person who does not exhibit gender-appropriate behavior, such as a woman who competes with men for jobs or a man who lacks self-assurance and dominance, has not successfully completed this stage of development. Consequently, such a person continues to struggle with his or her own gender identity. This model assumes that early childhood experiences result in lifelong gender self-concepts. However, gender socialization is a process that continues throughout life. Children, teens, and adults refine and can modify their sense of self based on gender.

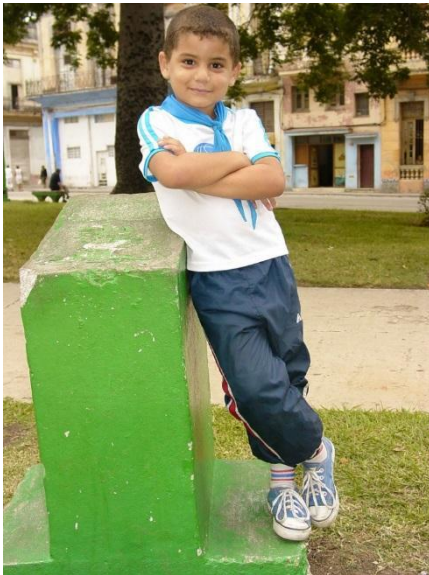


Figure 10.4 – A boy showing independence and confidence.<sup>333</sup>



Figure 10.5 – A girl showing dependence and comfort within a relationship.<sup>334</sup>

## Learning through Reinforcement and Modeling

Learning theorists suggest that gender role socialization is a result of the ways in which parents, teachers, friends, schools, religious institutions, media, and others send messages about what is acceptable or desirable behavior as males or females. This socialization begins early-in fact, it may even begin the moment a parent learns that a child is on the way. Knowing the sex of the child can conjure up images of the child's behavior, appearance, and potential on the part of a parent. And this stereotyping continues to guide perception through life. Consider parents of newborns, shown a 7-pound, 20-inch baby, wrapped in blue (a color designating males)

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<sup>334</sup> [Image](#) by [Free-Photos](#) on [Pixabay](#)



describe the child as tough, strong, and angry when crying. Shown the same infant in pink (a color used in the United States for baby girls), these parents are likely to describe the baby as pretty, delicate, and frustrated when crying. (Maccoby & Jacklin, 1987). Female infants are held more, talked to more frequently, and given direct eye contact, while male infants play is often mediated through a toy or activity.

Sons are given tasks that take them outside the house and that have to be performed only on occasion while girls are more likely to be given chores inside the home such as cleaning or cooking that is performed daily. Sons are encouraged to think for themselves when they encounter problems and daughters are more likely to be given assistance even when they are working on an answer. This impatience is reflected in teachers waiting less time when asking a female student for an answer than when asking for a reply from a male student (Sadker and Sadker, 1994). Girls are given the message from teachers that they must try harder and endure to succeed while boys' successes are attributed to their intelligence. Of course, the stereotypes of advisors can also influence which kinds of courses or vocational choices girls and boys are encouraged to make.

Friends discuss what is acceptable for boys and girls and popularity may be based on modeling what is considered ideal behavior or looks for the sexes. Girls tend to tell one another secrets to validate others as best friends while boys compete for position by emphasizing their knowledge, strength, or accomplishments. This focus on accomplishments can even give rise to exaggerating accomplishments in boys, but girls are discouraged from showing off and may learn to minimize their accomplishments as a result.

Gender messages abound in our environment. But does this mean that each of us receives and interprets these messages in the same way? Probably not. In addition to being recipients of these cultural expectations, we are individuals who also modify these roles (Kimmel, 2008). Based on what young children learn about gender from parents, peers, and those who they observe in society, children develop their own conceptions of the attributes associated with maleness or femaleness which is referred to as **gender schemas**.

How much does gender matter? In the United States, gender differences are found in school experiences, social interactions, and media messages. (Even into college and professional school, girls are less vocal in the classrooms and much more at risk for sexual harassment from teachers, coaches, classmates, and professors.) The **stereotypes** that boys should be strong, forceful, active, dominant, and rational and that girls should be pretty, subordinate, unintelligent, emotional, and gabby are portrayed in children's toys, books, commercials, video games, movies, television shows and music.



Figure 10.6 – Store shelves filled with pink and purple colors and girls' toys.<sup>335</sup>



Figure 10.7 – Store shelves filled with primary colors and boys' toys.<sup>336</sup>

In adulthood, these differences are reflected in income gaps between men and women where women working full-time earn about 74 percent the income of men, in higher rates of women suffering rape and domestic violence, higher rates of eating disorders for females, and in higher rates of violent death for men in young adulthood. Each of these differences will be explored further in subsequent chapters.<sup>337</sup>

## Gender Dysphoria

A growing body of research is now focused on Gender Dysphoria, or the distress accompanying a mismatch between one's gender identity and biological sex (American Psychiatric Association, 2013). Although prevalence rates are low, at approximately 0.3 percent of the United States population (Russo, 2016), children who later identified as transgender, often stated that they were the opposite gender as soon as they began talking. Comments such as stating they prefer the toys, clothing, and anatomy of the opposite sex, while rejecting the toys, clothing, and anatomy of their assigned sex are criteria for a diagnosis of Gender Dysphoria in children. Certainly, many young children do not conform to the gender roles modeled by the culture and even push back against assigned roles. However, they do not experience discomfort regarding their gender identity and would not be identified with Gender Dysphoria. A more comprehensive description of Gender Dysphoria, including current treatments, will be discussed in the chapter on adolescence.<sup>338</sup>

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## Family Life

Relationships between parents and children continue to play a significant role in children's development during early childhood. We will explore two models of parenting styles. Keep in mind that most parents do not follow any model completely. Real people tend to fall somewhere in between these styles. And sometimes parenting styles change from one child to the next or in times when the parent has more or less time and energy for parenting. Parenting styles can also be affected by concerns the parent has in other areas of his or her life. For example, parenting styles tend to become more authoritarian when parents are tired and perhaps more authoritative when they are more energetic. Sometimes parents seem to change their parenting approach when others are around, maybe because they become more self-conscious as parents or are concerned with giving others the impression that they are a “tough” parent or an “easy-going” parent. And of course, parenting styles may reflect the type of parenting someone saw modeled while growing up.



Figure 10.8 – A family playing outside together.<sup>339</sup>

## Baumrind

Baumrind (1971) offers a model of parenting that includes four styles. The first, **authoritarian**, is the traditional model of parenting in which parents make the rules and children are expected to be obedient. Baumrind suggests that authoritarian parents tend to place maturity demands on their children that are unreasonably high and tend to be aloof and distant. Consequently, children reared in this way may fear rather than respect their parents and, because their parents do not allow discussion, may take out their frustrations on safer targets—perhaps as bullies toward peers.

**Permissive parenting** involves holding expectations of children that are below what could be reasonably expected from them. Children are allowed to make their own rules and determine their own activities. Parents are warm and communicative, but provide little structure for their

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<sup>339</sup> Image by [Air Force Medical Service](#) is in the public domain

children. Children fail to learn self-discipline and may feel somewhat insecure because they do not know the limits.

**Authoritative parenting** involves being appropriately strict, reasonable, and affectionate. Parents allow negotiation where appropriate and discipline matches the severity of the offense. A popular parenting program that is offered in many school districts is called “Love and Logic” and reflects the authoritative or democratic style of parenting just described.

**Uninvolved parents** (also referred to as rejecting/neglecting) are disengaged from their children. They do not make demands on their children and are non-responsive. These children can suffer in school and in their relationships with their peers (Gecas & Self, 1991).

### Lemasters and Defrain

Lemasters and Defrain (1989) offer another model of parenting. This model is interesting because it looks more closely at the motivations of the parent and suggests that parenting styles are often designed to meet the psychological needs of the parent rather than the developmental needs of the child.

The **martyr** is a parent who will do anything for the child; even tasks that the child should do for himself or herself. All of the good deeds performed for the child, in the name of being a “good parent”, may be used later should the parent want to gain compliance from the child. If a child goes against the parent’s wishes, the parent can remind the child of all of the times the parent helped the child and evoke a feeling of guilt so that the child will do what the parent wants. The child learns to be dependent and manipulative as a result.

The **pal** is like the permissive parent described previously in Baumrind’s model. The pal wants to be the child’s friend. Perhaps the parent is lonely or perhaps the parent is trying to win a popularity contest against an ex-spouse. Pals let children do what they want and focus mostly on being entertaining and fun and set few limitations. Consequently, the child may have little self-discipline and may try to test limits with others.

The **police officer/drill sergeant** style of parenting is similar to the authoritarian parent described by Baumrind. The parent focuses primarily on making sure that the child is obedient and that the parent has full control of the child. Sometimes this can be taken to an extreme by giving the child tasks that are really designed to check on their level of obedience. For example, the parent may require that the child fold the clothes and place items back in the drawer in a particular way. If not, the child might be scolded or punished for not doing things “right”. This type of parent has a very difficult time allowing the child to grow and learn to make decisions independently. And the child may have a lot of resentment toward the parent that is displaced on others.

The **teacher-counselor** parent is one who pays a lot of attention to expert advice on parenting and who believes that as long as all of the steps are followed, the parent can rear a perfect

child. “What’s wrong with that?” you might ask. There are two major problems with this approach. First, the parent is taking all of the responsibility for the child’s behavior—at least indirectly. If the child has difficulty, the parent feels responsible and thinks that the solution lies in reading more advice and trying more diligently to follow that advice.

Parents can certainly influence children, but thinking that the parent is fully responsible for the child’s outcome is misguided. A parent can only do so much and can never have full control over the child. Another problem with this approach is that the child may get an unrealistic sense of the world and what can be expected from others. For example, if a teacher-counselor parent decides to help the child build self-esteem and has read that telling the child how special he or she is or how important it is to compliment the child on a job well done, the parent may convey the message that everything the child does is exceptional or extraordinary. A child may come to expect that all of his efforts warrant praise and in the real world, this is not something one can expect. Perhaps children get more of a sense of pride from assessing their own performance than from having others praise their efforts.



Figure 10.9 – A father interacting with his son who is drawing a picture. He could be portraying the style of teacher-counselor or athletic coach<sup>340</sup>

So what is left? Lemasters and Defrain (1989) suggest that the **athletic coach** style of parenting is best. Before you draw conclusions here, set aside any negative experiences you may have had with coaches in the past. The principles of coaching are what are important to Lemasters and Defrain. A coach helps players form strategies, supports their efforts, gives feedback on what went right and what went wrong, and stands at the sideline while the players perform. Coaches and referees make sure that the rules of the game are followed and that all players adhere to those rules. Similarly, the athletic coach as parent helps the child understand what needs to happen in certain situations whether in friendships, school, or home life, and encourages and advises the child about how to manage these situations. The parent does not intervene or do things for the child. Their role is to provide guidance while the child learns firsthand how to handle these situations. And the rules for behavior are consistent and

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<sup>340</sup> [Image](#) by [U.S. Air Forces Central Command](#) is in the public domain



objective and presented in that way. So, a child who is late for dinner might hear the parent respond in this way, “Dinner was at six o’clock.” Rather than, “You know good and well that we always eat at six. If you expect me to get up and make something for you now, you have got another thing coming! Just who do you think you are showing up late and looking for food? You’re grounded until further notice!”

The most important thing to remember about parenting is that you can be a better, more objective parent when you are directing your actions toward the child’s needs and while considering what they can reasonably be expected to do at their stage of development. Parenting is more difficult when you are tired and have psychological needs that interfere with the relationship. Some of the best advice for parents is to try not to take the child’s actions personally and be as objective as possible.

### Cultural Influences on Parenting Styles

The impact of class and culture cannot be ignored when examining parenting styles. The two models of parenting described above assume that authoritative and athletic coaching styles are best because they are designed to help the parent raise a child who is independent, self-reliant, and responsible. These are qualities favored in “individualistic” cultures such as the United States, particularly by the white middle class. African-American, Hispanic, and Asian parents tend to be more authoritarian than non-Hispanic whites.



Figure 10.10 – A family from a collectivistic culture.<sup>341</sup>

In “collectivistic” cultures such as China or Korea, being obedient and compliant are favored behaviors. Authoritarian parenting has been used historically and reflects the cultural need for children to do as they are told. In societies where family members’ cooperation is necessary for

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<sup>341</sup> [Image](#) by the [National Cancer Institute](#) is in the public domain



survival, as in the case of raising crops, rearing children who are independent and who strive to be on their own makes no sense. But in an economy based on being mobile in order to find jobs and where one's earnings are based on education, raising a child to be independent is very important.

Working-class parents are more likely than middle-class parents to focus on obedience and honesty when raising their children. In a classic study on social class and parenting styles called *Class and Conformity*, Kohn (1977) explains that parents tend to emphasize qualities that are needed for their own survival when parenting their children. Working-class parents are rewarded for being obedient, reliable, and honest in their jobs. They are not paid to be independent or to question the management; rather, they move up and are considered good employees if they show up on time, do their work as they are told, and can be counted on by their employers. Consequently, these parents reward honesty and obedience in their children.

Middle-class parents who work as professionals are rewarded for taking initiative, being self-directed, and assertive in their jobs. They are required to get the job done without being told exactly what to do. They are asked to be innovative and to work independently. These parents encourage their children to have those qualities as well by rewarding independence and self-reliance. Parenting styles can reflect many elements of culture.<sup>342</sup>

### Spanking

Many adults can remember being spanked as a child. This method of discipline continues to be endorsed by the majority of parents (Smith, 2012). Just how effective is spanking, however, and are there any negative consequences? After reviewing the research, Smith (2012) states “many studies have shown that physical punishment, including spanking, hitting and other means of causing pain, can lead to increased aggression, antisocial behavior, physical injury and mental health problems for children” (p. 60).



Figure 10.11 – A boy crying.<sup>343</sup>

<sup>342</sup> [Lifespan Development - Module 5: Early Childhood](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

<sup>343</sup> [Image](#) on [Pexels](#)

Gershoff, (2008) reviewed decades of research and recommended that parents and caregivers make every effort to avoid physical punishment and called for the banning of physical discipline in all U.S. schools. Gershoff and Grogan-Kaylor (2016) completed another metanalysis that looked at research over 160,927 children. They found an increased risk for negative outcomes for children who are spanked and that effects of spanking were similar to that of physical abuse.

In a longitudinal study that followed more than 1500 families from 20 U.S. cities, parents' reports of spanking were assessed at ages three and five (MacKenzie, Nicklas, Waldfogel, & Brooks-Gunn, 2013). Measures of externalizing behavior (aggression and rule-breaking) and receptive vocabulary were assessed at age nine.

Overall, 57% of mothers and 40% of fathers engaged in spanking when children were age 3, and 52% of mothers and 33% of fathers engaged in spanking at age 5. Maternal spanking at age 5, even at low levels, was associated with higher levels of aggression at age 9, even after an array of risks and earlier child behavior were controlled for. Father's high-frequency spanking at age 5 was associated with lower child receptive vocabulary scores at age 9. This study revealed the negative cognitive effects of spanking in addition to the increase in aggressive behavior.

Internationally, physical discipline is increasingly being viewed as a violation of children's human rights. Thirty countries have banned the use of physical punishment, and the United Nations Committee on the Rights of the Child (2014) called physical punishment "legalized violence against children" and advocated that physical punishment be eliminated in all settings.

Alternatives to spanking are advocated by child development specialists and include:

- Praising and modeling appropriate behavior
- Providing time-outs for inappropriate behavior
- Giving choices
- Helping the child identify emotions and learning to calm down
- Ignoring small annoyances
- Withdrawing privileges

## Child Care Concerns

About 77.3 percent of mothers of school-aged and 64.2 percent of mothers of preschool-aged children in the United States work outside the home (Cohen and Bianchi, 1999; Bureau of Labor Statistics, 2010). Seventy-five percent of children under age 5 are in scheduled childcare programs. Others are cared for by family members or friends. Older children are often in after school programs, before school programs, or stay at home alone after school once they are older.

Quality childcare programs can enhance a child's social skills and can provide rich learning experiences. But long hours in poor quality care can have negative consequences, especially for young children.

### *Quality of Care*

What determines the quality of child care? One consideration is the **teacher/child ratio**. States specify the maximum number of children that can be supervised by one teacher. In general, the younger the children, the more teachers required for a given number of children. The lower the teacher to child ratio, the more time the teacher has for involvement with the children and the less stressed the teacher may be so that the interactions can be more relaxed, stimulating and positive. Larger group sizes present challenges to quality as well. The program may be more rigid in rules and structure to accommodate the large number of children in the facility.

The **physical environment** should be engaging, clean, and safe. The **philosophy** of the organization and the **curriculum** available should be child-centered, positive, and stimulating. Providers should be trained in early childhood education. A majority of states do not require training for their childcare providers. And while a formal education is not required for a person to provide a warm, loving relationship to a child, knowledge of a child's development is useful for addressing their social, emotional, and cognitive needs in an effective way.



Figure 10.12 - Children playing in a quality childcare environment.<sup>344</sup>

By working toward improving the quality of childcare and increasing family-friendly workplace policies such as more flexible scheduling and perhaps childcare facilities at places of employment, we can accommodate families with younger children and relieve parents of the stress sometimes associated with managing work and family life.<sup>345</sup>

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<sup>344</sup> [Image](#) by [Hurlburt Field](#) is in the public domain

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## Peers

Relationships within the family (parent-child and siblings) are not the only significant relationships in a child's life. Peer relationships are also important. Social interaction with another child who is similar in age, skills, and knowledge provokes the development of many social skills that are valuable for the rest of life (Bukowski, Buhrmester, & Underwood, 2011). In peer relationships, children learn how to initiate and maintain social interactions with other children. They learn skills for managing conflict, such as turn-taking, compromise, and bargaining. Play also involves the mutual, sometimes complex, coordination of goals, actions, and understanding. For example, as preschoolers engage in pretend play they create narratives together, choose roles, and collaborate to act out their stories. Through these experiences, children develop friendships that provide additional sources of security and support to those provided by their parents.



Figure 10.13 – Navigating dramatic play provides great opportunities to continue to develop social skills with same-age peers.<sup>346</sup>

However, peer relationships can be challenging as well as supportive (Rubin, Coplan, Chen, Bowker, & McDonald, 2011). Being accepted by other children is an important source of affirmation and self-esteem, but peer rejection can foreshadow later behavior problems (especially when children are rejected due to aggressive behavior).

Peer relationships require developing very different social and emotional skills than those that emerge in parent-child relationships. They also illustrate the many ways that peer relationships influence the growth of personality and self-concept.<sup>347</sup>

## Play

Freud saw play as a means for children to release pent-up emotions and to deal with emotionally distressing situations in a more secure environment. Vygotsky and Piaget saw play as a way of children developing their intellectual abilities (Dyer & Moneta, 2006). Piaget created stages of play that correspond with his stages of cognitive development. The stages are:

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**Table 10.2 - Piaget's Stages of Play<sup>348</sup>**

Stage	Description
<b>Functional Play</b>	Exploring, inspecting, and learning through repetitive physical activity.
<b>Symbolic Play</b>	The ability to use objects, actions, or ideas to represent other objects, actions, or ideas and may include taking on roles. <sup>349</sup>
<b>Constructive Play</b>	Involves experimenting with objects to build things <sup>350</sup> ; learning things that were previously unknown with hands-on manipulations of materials.
<b>Games with Rules</b>	Imposes rules that must be followed by everyone who is playing; the logic and order involved forms the foundations for developing game playing strategy <sup>351</sup>

While Freud, Piaget, and Vygotsky looked at play slightly differently, all three theorists saw play as providing positive outcomes for children.

Mildred Parten (1932) observed two to five-year-old children and noted six types of play. Three types she labeled as non-social (unoccupied, solitary, and onlooker) and three types were categorized as social play (parallel, associative, and cooperative). The table below describes each type of play. Younger children engage in non-social play more than those who are older; by age five associative and cooperative play are the most common forms of play (Dyer & Moneta, 2006).<sup>352</sup>

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<sup>348</sup> Cognitive and Social Types of Play (n.d.). Retrieved from <https://groundsforplay.com/cognitive-and-social-forms-play>

<sup>349</sup> Symbolic Play (n.d.). Retrieved from <https://www.pgpedia.com/s/symbolic-play>

<sup>350</sup> Constructive Play (n.d.). Retrieved from <https://www.pgpedia.com/c/constructive-play>

<sup>351</sup> Games with Rules (n.d.). Retrieved from <https://www.pgpedia.com/g/games-rules>

<sup>352</sup> [Lifespan Development - Module 5: Early Childhood](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#)

**Table 10.3 - Parten's Classification of Types of Play<sup>353</sup>**

Category	Description
<b>Unoccupied Play</b>	Children's behavior seems more random and without a specific goal. This is the least common form of play. Example: An infant kicking is feet moving his arms while being held by his mom.
<b>Solitary Play</b>	Children play by themselves, do not interact with others, nor are they engaging in similar activities as the children around them. Examples: An infant playing on a blanket with sensory rattles. Or, an older child playing the card game, solitaire.
<b>Onlooker Play</b>	Children are observing other children playing. They may comment on the activities and even make suggestions, but will not directly join the play. Example: A child new to the class sits by the teacher and watches the other children playing "firefighters" on the play structure. At one point she points to the water table and says "get more water from the lake to put out the flames!"
<b>Parallel Play</b>	Children play alongside each other, using similar toys, but do not directly act with each other. Example: Two children are playing with playdough. One says "I am making snakes!" the other child continues lumping his playdough into a large clump and says "mine is a mountain"
<b>Associative Play</b>	Children will interact with each other and share toys, but are not working toward a common goal. Examples: Children are playing tag where everyone is tagging and running from everyone. Or, children are adding to one common block tower, but blocks are being put on however one can stack them and one child is calling it a castle, and another says it's a Costco.
<b>Cooperative Play</b>	Children are interacting to achieve a common goal. Children may take on different tasks or agree on certain rules to reach that goal. Examples: An organized game of tag where one child is "it" and everyone agreed the picnic table is "safe". Or everyone is riding tricycles, pretending to be Amazon delivery drivers on a route.

## Social Understanding

Children's experience of relationships at home and the peer group contributes to an expanding repertoire of social and emotional skills and also to broadened social understanding. In these relationships, children develop expectations for specific people (leading, for example, to secure or insecure attachments to parents), understanding of how to interact with adults and peers,

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and develop a self-concept based on how others respond to them. These relationships are also significant forums for emotional development.

Remarkably, young children begin developing social understanding very early in life. Before the end of the first year, infants are aware that other people have perceptions, feelings, and other mental states that affect their behavior, and which are different from the child's own mental states. Carefully designed experimental studies show that by late in the preschool years, young children understand that another's beliefs can be mistaken rather than correct, that memories can affect how you feel, and that one's emotions can be hidden from others (Wellman, 2011). Social understanding grows significantly as children's theory of mind develops.

How do these achievements in social understanding occur? One answer is that young children are remarkably sensitive observers of other people, making connections between their emotional expressions, words, and behavior to derive simple inferences about mental states (e.g., concluding, for example, that what Mommy is looking at is in her mind) (Gopnik, Meltzoff, & Kuhl, 2001). This is especially likely to occur in relationships with people whom the child knows well, consistent with the ideas of attachment theory discussed above.



Figure 10.14 – A father speaking to his child.<sup>354</sup>

Growing language skills give young children words with which to represent these mental states (e.g., “mad,” “wants”) and talk about them with others. Thus in conversation with their parents about everyday experiences, children learn much about people's mental states from how adults talk about them (“Your sister was sad because she thought Daddy was coming home.”) (Thompson, 2006b).

Developing social understanding is based on children's everyday interactions with others and their careful interpretations of what they see and hear. Some scientists believe that infants are biologically prepared to perceive people in a special way, as organisms with an internal mental life, and this facilitates their interpretation of people's behavior concerning those mental states (Leslie, 1994).

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<sup>354</sup> [Image](#) is in the public domain

## Personality

Parents often scrutinize their child's preferences, characteristics, and responses for clues of a developing personality. They are quite right to do so, because temperament is a foundation for personality growth. But temperament (defined as early-emerging differences in reactivity and self-regulation) is not the whole story. Although temperament is biologically based, it interacts with the influence of experience from the moment of birth (if not before) to shape personality (Rothbart, 2011). Temperamental dispositions are affected, for example, by the support level of parental care. More generally, personality is shaped by the goodness of fit between the child's temperamental qualities and characteristics of the environment (Chess & Thomas, 1999). For example, an adventurous child whose parents regularly take her on weekend hiking and fishing trips would be a good "fit" to her lifestyle, supporting personality growth. Personality is the result, therefore, of the continuous interplay between biological disposition and experience, as is true for many other aspects of social and personality development.

Personality develops from temperament in other ways (Thompson, Winer, & Goodvin, 2010). As children mature biologically, temperamental characteristics emerge and change over time. A newborn is not capable of much self-control, but as brain-based capacities for self-control advance, temperamental changes in self-regulation become more apparent. So, an infant who cries frequently doesn't necessarily have a grumpy personality. With sufficient parental support and an increased sense of security, the child may develop into a content preschooler who is not likely to cry to get her needs met.



Figure 10.15 – A girl enjoying nature.<sup>355</sup>

Personality is made up of many other features besides temperament. Children's developing self-concept, their motivations to achieve or to socialize, their values and goals, their coping styles, their sense of responsibility and conscientiousness, and many other qualities are

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<sup>355</sup> [Image](#) by [Khanh Steven](#) on [Unsplash](#)

encompassed into personality. These qualities are influenced by biological dispositions, but even more by the child's experiences with others, particularly in close relationships, that guide the growth of individual characteristics.

Indeed, personality development begins with the biological foundations of temperament but becomes increasingly elaborated, extended, and refined over time. The development of personality, social and emotional competence, and conscience is influenced first by temperament but then also by having a good fit between the child's temperamental qualities and how parents and caregivers communicate and reinforce behavioral expectations.



Figure 10.16 – This child might be experiencing a guilty conscience.<sup>356</sup>

## Childhood Stress and Development

What is the impact of stress on child development? Children experience different types of stressors. Normal, everyday stress can provide an opportunity for young children to build coping skills and poses little risk to development. Even more long-lasting stressful events such as changing schools or losing a loved one can be managed fairly well. But children who experience **toxic stress** or who live in extremely stressful situations of abuse over long periods of time can suffer long-lasting effects. The structures in the midbrain or limbic system such as the hippocampus and amygdala can be vulnerable to prolonged stress during early childhood (Middlebrooks and Audage, 2008). High levels of the stress hormone cortisol can reduce the size of the hippocampus and affect the child's memory abilities. Stress hormones can also reduce immunity to disease. The brain exposed to long periods of severe stress can develop a low threshold making the child hypersensitive to stress in the future. However, the effects of stress can be minimized if the child has the support of caring adults. Let's take a look at childhood stressors.

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<sup>356</sup> [Image](#) by George Hodan is in the public domain

## Race/Ethnicity, ACEs, and Stress

The first study of Adverse Childhood Experiences (ACE) was conducted in the mid-1990s by the Center for Disease Control (CDC) and Kaiser Permanente. Seven categories of adverse childhood experiences were identified: psychological, physical, or sexual abuse; violence against mother; or living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned. The number of categories individuals experienced as children was then compared to measures of adult outcomes and disease. People who had experienced four or more categories as children, compared to those who had experienced none, were 2-4 times more likely to smoke, experience sexual promiscuity and sexually transmitted diseases, and poor health in general. They were also 4-12 times at greater risk for alcoholism, drug abuse, depression, and suicide attempts (Felitti et al., 1998). Subsequent studies have identified lower thresholds, ranging from one to three ACEs, as the tipping point at which risk increases greatly (Rutter, 1979; Mersky, Topitzes, & Reynolds, 2013).



Figure 10.17 – Adverse Childhood Experiences lead to many on-going life problems including early death.<sup>357</sup>

Since that seminal study, researchers associated with the CDC and other institutions have surveyed increasingly diverse samples of people in the United States to gauge their level of exposure to adverse childhood experiences. Many states collect data about ACEs annually. ACEs can cause stress reactions in children that include feelings of helplessness, intense fear, and terror. When children experience these events repeatedly or over a prolonged period, toxic levels of stress hormones can interrupt normal physical and mental development and can even change the brain's architecture. Children who experience ACEs are more likely to struggle in school and have emotional and behavioral challenges (Bethell et al., 2017).

There are very large disparities in the amount and ways children of different racial or ethnic groups experience ACEs. At the national level, while 60 percent of white children have had no

<sup>357</sup> Image is in the public domain

ACEs, this is true for only 49 percent of Hispanic children and only 39 percent of black children. Below is a chart that illustrates these inequities. Discriminatory practices in housing and employment, immigration policies, and the bias in law enforcement and sentencing decisions have left black and Hispanic children with a concentrated disadvantage leaving them disproportionately vulnerable to traumatic experiences.

A number of researchers recommend expanding the concept of ACEs to include community-level stressors (Cronholm et al., 2015; Bruner, 2017). Although it would be challenging to accurately assess something with such pervasive (and historically embedded) effects, many researchers believe that the experience of racism can itself have toxic effects (Brody, et al., 2015; Huynh, et al., 2016; Wade, Rubin, & Wood, 2014).

**Table 10.4 – Racial Differences in Experiences of Specific ACEs**

Specific ACE	White	Black	Hispanic	All Children
Hard to cover basics like food or housing somewhat or very often	22	37	29	25
Parent or guardian divorced or separated	23	35	28	25
Parent or guardian died	3	7	3	3
Parent or guardian served time in jail	7	16	8	8
Saw or heard parents or other adults slap, hit, kick, or punch in home	5	9	6	6
Victim of or witness to violence in neighborhood	3	7	4	4
Lived with anyone mentally ill, suicidal, or severely depressed	9	6	6	8
Lived with anyone with a problem with alcohol or drugs	10	8	9	9

Yellow shading = Percentage is higher than white children at a statistically significant level.

Blue shading = Percentage is lower than white children at a statistically significant level.

Regardless of race/ethnicity, economic hardship and the divorce or separation of a parent or guardian are the most common ACEs reported for children.

### Effects of Domestic Abuse

3.3 million children witness domestic violence each year in the US. There has been an increase in acknowledgment that children exposed to domestic abuse during their upbringing will suffer in their developmental and psychological welfare. Because of the awareness of domestic violence that some children have to face, it also generally impacts how the child develops emotionally, socially, behaviorally as well as cognitively. Some emotional and behavioral

problems that can result due to domestic violence include increased aggressiveness, anxiety, and changes in how a child socializes with friends, family, and authorities. Bruises, broken bones, head injuries, lacerations, and internal bleeding are some of the acute effects of a domestic violence incident that require medical attention and hospitalization.

## Child Maltreatment

Child abuse is the physical, sexual, or emotional mistreatment or neglect of a child or children. Different jurisdictions have developed their own definitions of what constitutes child abuse to legally remove a child from his/her family and/or prosecute a criminal charge. There are four major categories of child abuse: neglect, physical abuse, psychological/emotional abuse, and sexual abuse. Neglect is the most common type of abuse in the United States and accounts for over 60 percent of child abuse cases.



Figure 10.17 – A child hiding.<sup>358</sup>

### *Physical Abuse*

Physical abuse involves physical aggression directed at a child by an adult. Most nations with child-abuse laws consider the deliberate infliction of serious injuries, or actions that place the child at an obvious risk of serious injury or death, to be illegal. Beyond this, there is considerable variation. The distinction between child discipline and abuse is often poorly defined. Cultural norms about what constitutes abuse vary widely among professionals as well as the wider public. Some professionals claim that cultural norms that sanction physical punishment are one of the causes of child abuse, and have undertaken campaigns to redefine such norms.

### *Sexual Abuse*

Child sexual abuse is a form of child abuse in which an adult or older adolescent abuses a child for sexual stimulation. Effects of child sexual abuse include guilt and self-blame, flashbacks, nightmares, insomnia, and fear of things associated with the abuse. Approximately 15 percent to 25 percent of women and 5 percent to 15 percent of men were sexually abused when they were children.

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<sup>358</sup> [Image](#) by [Joint Base Elmendorf-Richardson Alaska](#) is in the public domain



### *Emotional Abuse*

Out of all the possible forms of abuse, emotional abuse is the hardest to define. It could include name-calling, ridicule, degradation, destruction of personal belongings, torture or killing of a pet, excessive criticism, inappropriate or excessive demands, withholding communication, and routine labeling or humiliation.

### *Neglect*

Neglect is a passive form of abuse in which a perpetrator is responsible to provide care for a victim who is unable to care for himself or herself, but fails to provide adequate care. Neglect may include the failure to provide sufficient supervision, nourishment, or medical care, or the failure to fulfill other needs for which the victim is helpless to provide for himself or herself. The term is also applied when necessary care is withheld by those responsible for providing it from animals, plants, and even inanimate objects. Neglect can have many long-term side effects, such as physical injuries, low self-esteem, attention disorders, violent behavior, and even death. In the U.S., neglect is defined as the failure to meet the basic needs of children: housing, clothing, food, and access to medical care. Researchers found over 91,000 cases of neglect in one year using information from a database of cases verified by protective services agencies.<sup>359</sup>

## Conclusion

In this chapter we covered,

- The development of self-concept and self-esteem.
- Erikson's psychosocial stage of initiative versus guilt.
- Gender identity, gender constancy, gender roles, and gender dysphoria.
- Parenting Styles
- Child care
- The role of peers.
- The types of play.
- The social understanding of preschoolers.
- Personality development
- The effects of stress on children, including maltreatment.

In the next chapter, we begin exploring middle childhood and how children from 6 to 11 grow and develop.

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# Chapter 11: Middle Childhood

## Physical Development

### Chapter Objectives

After this chapter, you should be able to:

1. Describe the patterns of physical growth
2. Summarize nutrition needs
3. Explain the causes of obesity and the negative consequences of excessive weight gain
4. Discuss the pros and cons of organized sports
5. Compare and contrast developmental disorders
6. Summarize several different mental health disorders

### Introduction

Middle childhood spans the years between early childhood and adolescence, children are approximately 6 to 11 years old. Children in middle childhood go through tremendous changes in the growth and development of their brain. During this period of development children's bodies are not only growing, but they are becoming more coordinated and physically capable. These children are more mindful of their greater abilities in school and are becoming more responsible for their health and diet. Some children may be challenged with physical or mental health concerns. It's important to know what typical development looks like in order to identify and to help those that are struggling with health concerns.

### Brain Development

The brain reaches its adult size at about age 7. Then between 10 and 12 years of age, the frontal lobes become more developed and improvements in logic, planning, and memory are evident (van der Molen & Molenaar, 1994). The school-aged child is better able to plan and coordinate activity using both the left and right hemispheres of the brain, which control the development of emotions, physical abilities, and intellectual capabilities. The attention span also improves as the prefrontal cortex matures. The myelin also continues to develop and the child's reaction time improves as well. Myelination improvement is one factor responsible for these growths.

From age 6 to 12, the nerve cells in the association areas of the brain, that is those areas where sensory, motor, and intellectual functioning connect, become almost completely myelinated (Johnson, 2005). This myelination contributes to increases in information processing speed and the child's reaction time. The **hippocampus**, which is responsible for transferring information from the short-term to long-term memory, also shows increases in myelination resulting in improvements in memory functioning (Rolls, 2000).

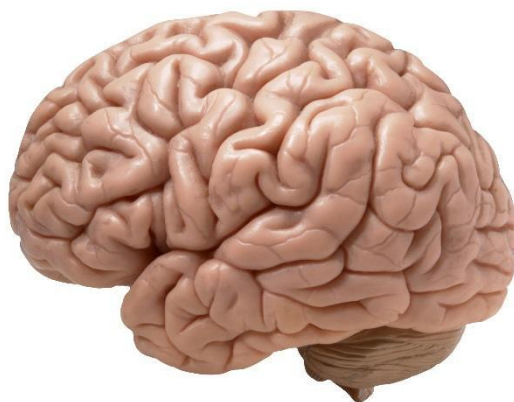


Figure 11.1 – The human brain.<sup>360</sup>

Changes in the brain during this age enable not only physical development but also allow children to understand what others think of them and gives them a greater ability to deal socially with the positive and negative consequences of that. Within this development period, children may struggle with mental health disorders or other health problems. As children are growing and becoming more capable, adults need to remember that children don't grow physically in isolation. The development of their bodies isn't separate from the changes that are occurring socially, emotionally, and cognitively. Awareness and understanding of their other developmental domains and needs will support the child during these changes.<sup>361</sup>

## Physical Growth

During the middle childhood years, children come in all shapes and sizes: height, weight, abilities, and disabilities. Physical growth rates are generally slow and steady during these years. However, growth spurts do occur during middle to late childhood (Spreen, Riser, & Edgell, 1995). Typically, a child will gain about 5-7 pounds a year and grow about 2 inches per year. They also tend to slim down and gain muscle strength. As bones lengthen and broaden and muscles strengthen, many children want to engage in strenuous physical activity and can participate for longer periods of time. Also, the rate of growth for the extremities is faster than for the trunk, which results in more adult-like proportions. Long-bone growth stretches muscles and ligaments, which results in many children experiencing growing pains, at night, in particular.<sup>362</sup>

Children between ages 6 and 9, show significant improvement in their abilities to perform motor skills. This development growth allows children to gain greater control over the movement of their bodies, mastering many gross and fine motor skills that were beyond that of

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<sup>362</sup> Polan EU, Taylor DR. Journey Across the LifeSpan: Human Development and Health Promotion. Philadelphia: F. A. Davis Company; 2003, 150–51

the younger child. Riding a bike that is bigger or running longer and further is a big improvement in gross motor skills. Eye-hand coordination and fine motor skills allow children to become better at writing and cutting. Sports and extracurricular activities may become a part of the lives of children during middle childhood due to their better endurance, quicker reaction times, and ability to coordinate tasks (like running and kicking simultaneously, or catching a ball and immediately throwing it back).

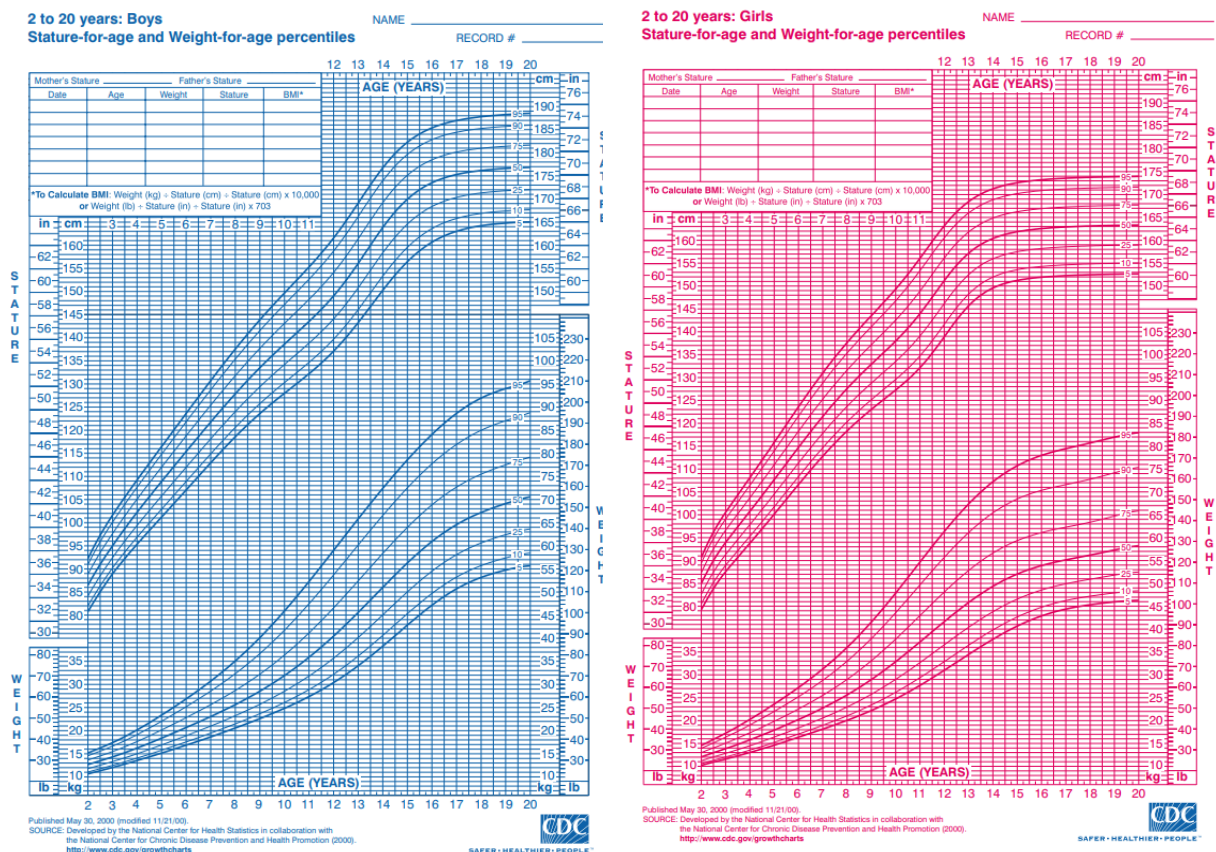


Figure 11.2 – Stature for age and weight for age percentiles.<sup>363</sup>

## Nutritional Needs

Different factors can influence children's eating habits and attitudes toward food. Family environment, societal trends, taste preferences, and messages in the media all impact the emotions that children develop about their diet. Television commercials can entice children to consume sugary products, fatty fast foods, excess calories, refined ingredients, and sodium. Therefore, it is critical that parents and caregivers direct children toward healthy choices.<sup>364</sup>

<sup>363</sup> [Images](#) by the [CDC](#) is in the public domain

<sup>364</sup> [Research on the Benefits of Family Meals](#). Dakota County, Minnesota. . Updated April 30, 2012. Accessed December 4, 2017.

Parents greatly impact their child’s nutritional choices. This time in a child’s life provides an opportunity for parents and other caregivers to reinforce good eating habits and to introduce new foods into the diet, while remaining mindful of a child’s preferences. Parents should also serve as role models for their children, who will often mimic their behavior and eating habits. Parents must continue to help their school-aged child establish healthy eating habits and attitudes toward food. Their primary role is to bring a wide variety of health-promoting foods into the home so that their children can make good choices.<sup>365</sup>



Figure 11.3 – A modern meal.<sup>366</sup>

The American diet has changed drastically as processed foods, which did not exist a century ago, and animal-based foods now account for a large percentage of our calories. Not only has what we eat changed, but the amount of it that we consume has greatly increased as well, as plates and portion sizes have grown much larger. All of these choices impact health, with short- and long-term consequences. Possible effects in the short-term include excess weight gain and constipation. The possible long-term effects, primarily related to obesity, include the risk of cardiovascular disease, diabetes, hypertension, as well as other health and emotional problems for children. (Centers for Disease Control and Prevention. “Overweight and Obesity: Health Consequences”).<sup>367</sup>

During middle childhood, a healthy diet facilitates physical and mental development and helps to maintain health and wellness. School-aged children experience steady, consistent growth, but at a slower rate than they did in early childhood. This slowed growth rate can have lasting a lasting impact if nutritional, caloric, and activity levels aren’t adjusted in middle childhood which can lead to excessive weight gain early in life and can lead to obesity into adolescence and adulthood.<sup>368</sup>

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<sup>365</sup> [Childhood](#) by [University of Hawai’i at Mānoa Food Science and Human Nutrition Program](#) is licensed under [CC BY-NC-SA 4.0](#)

<sup>366</sup> [Image](#) is licensed under [CC0](#)

<sup>367</sup> [An Introduction to Nutrition](#) by [Maureen Zimmerman and Beth Snow](#) is licensed under [CC BY-NC-SA 3.0](#)

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Making sure that children have proper nutrients will allow for optimal growth and development. Look at the figure below to familiarize yourself with food and the place setting for healthy meals.

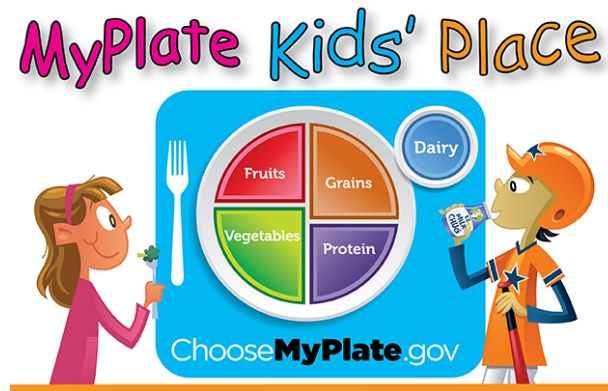


Figure 11.4 – Nutrition guidelines from the USDA.<sup>369</sup>

Ways to encourage children to eat healthy foods is to make meal and snack time fun and interesting. Parents should include children in food planning and preparation, for example selecting items while grocery shopping or helping to prepare part of a meal, such as making a salad. At this time, parents can also educate children about kitchen safety. It might be helpful to cut sandwiches, meats, or pancakes into small or interesting shapes. Parents should offer nutritious desserts, such as fresh fruits, instead of calorie-laden cookies, cakes, salty snacks, and ice cream. Studies show that children who eat family meals frequently consume more nutritious foods.<sup>370</sup>

## Energy

Children's energy needs vary, depending on their growth and level of physical activity. Energy requirements also vary according to gender. Girls require 1,200 to 1,400 calories a day from age 2 to 8 and 1,400-1,800 for age 9 to 13. Boys also need 1,200 to 1,400 calories daily from ages 4 to 8 but their daily caloric needs go up to 1,600-2,000 from ages 9 to 13. This range represents individual differences, including how active the child is.<sup>371</sup>

Recommended intakes of **macronutrients** (protein, carbohydrates, and fats) and most **micronutrients** (vitamins and minerals) are higher relative to body size, compared with nutrient needs during adulthood. Therefore, children should be provided nutrient-dense food at meal- and snack-time. However, it is important not to overfeed children, as this can lead to childhood obesity, which is discussed in the next section.

<sup>369</sup> [Image](#) by the [USDA](#) is in the public domain

<sup>370</sup> [Research on the Benefits of Family Meals](#). Dakota County, Minnesota. . Updated April 30, 2012. Accessed December 4, 2017.

<sup>371</sup> [Parent Tips – Calories Needed Each Day](#) by the [NIH](#) is in the public domain



## Children and Vegetarianism

Another issue that some parents face with school-aged children is the decision to encourage a child to become a vegetarian (who does not eat meat) or a vegan (who does not eat any animal product including meat, dairy, eggs). Some parents and caregivers decide to raise their children as vegetarians for health, cultural, or other reasons. Preteens and teens may make the choice to pursue vegetarianism on their own, due to concerns about animals or the environment. No matter the reason, parents with vegetarian children must take care to ensure vegetarian children get enough protein, iron, calcium, and other necessary nutrients.

## Children and Malnutrition

Many may not know that malnutrition is a problem that many children face, in both developing nations and the developed world. Even with the wealth of food in North America, many children grow up malnourished, or even hungry.

Millions of children grow up in **food-insecure** households that do not have consistent access to adequate, nutritious foods. They may not have enough food, or may have some foods that are not providing all the nutrients they need. Growing up in a food-insecure household can lead to a number of problems. Deficiencies in iron, zinc, protein, and vitamin A can result in stunted growth, illness, and limited development. Federal programs, such as the National School Lunch Program, the School Breakfast Program, and Summer Feeding Programs, work to address the risk of hunger and malnutrition in school-aged children. They help to fill the gaps and provide children living in food-insecure households with greater access to nutritious meals.<sup>372</sup>

### School Lunch Programs<sup>373</sup>

Many school-age children eat breakfast, snacks, and lunch at their schools. Therefore, schools need to provide nutritionally sound meals. In the United States, more than thirty-one million children from low-income families are given meals provided by the National School Lunch Program. This federally funded program offers low-cost or free breakfast, snacks, and lunches to school facilities. School districts that take part receive subsidies from the US Department of Agriculture (USDA) for every meal they serve that must meet the 2015 Dietary Guidelines for Americans.

Knowing that many children in the United States buy or receive free lunches in the school cafeteria, it might be worthwhile to look at the nutritional content of school lunches. You can obtain this information through your local school district's website. An example of a school

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<sup>373</sup> [Lifespan Development - Module 6: Middle Childhood](#) by [Lumen Learning](#) references [Psyc 200 Lifespan Psychology](#) by Laura Overstreet, licensed under [CC BY 4.0](#) (modified by Dawn Rymond) [Childhood](#) by [University of Hawai'i at Mānoa Food Science and Human Nutrition Program](#) is licensed under [CC BY-NC-SA 4.0](#) (modified by Dawn Rymond)

menu from a school district in north-central Texas is a meal consisting of pasta alfredo, breadstick, peach cup, tomato soup, a brownie, and 2% milk which complies with Federal Nutritional Guidelines. Consider another menu from an elementary school in the state of Washington. This sample meal consists of a chicken burger, tater tots, fruit, veggies, and 1% or nonfat milk. This meal is also in compliance with Federal Nutrition Guidelines but has about 300 fewer calories than the menu in Texas. This is a big difference in calories and nutritional value of these prepared lunches that are chosen and approved of by officials on behalf of children in these districts.



Figure 11.5 – Children eating lunch together at school.<sup>374</sup>

Healthy School Lunch Campaigns help to promote children's health. This is done by educating government officials, school officials, food-service workers, and parents and is sponsored by the Physicians Committee for Responsible Medicine. They educate and encourage schools to offer low-fat, cholesterol-free options in school cafeterias and vending machines and work to improve the food served to children at school. Unfortunately, many school districts in the nation allow students to purchase chips, cookies, and ice cream along with their meals. These districts rely on the sale of these items in the lunchrooms to earn additional revenues. Not only are they making money off of children and families with junk food, they are also adding additional empty calories to their daily intake. These districts need to look at the menus and determine the rationale for offering additional snacks and desserts for children at their schools. Whether children receive free lunches, buy their own, or bring their lunch from home, quality nutrition is what is best for these growing bodies and minds.

## Food Allergies and Food Intolerance

Food intolerance and food allergies are an issue for some school-aged children. Recent studies show that three million children under age eighteen are allergic to at least one type of food. Some of the most common **food allergies** come from foods that include peanuts, nuts, milk, eggs, soy, wheat, and shellfish. An allergy occurs when a protein in food triggers an immune response. Possible symptoms include itchy skin, hives, abdominal pain, vomiting, diarrhea, nausea, and most dangerous, **anaphylaxis shock**, which can cause death. Symptoms usually

<sup>374</sup> [Image](#) by the [USDA](#) is in the public domain

develop within minutes to hours after consuming a food allergen. Children can outgrow a food allergy, especially allergies to wheat, milk, eggs, or soy.<sup>375</sup>



Figure 11.6 – An EpiPen.<sup>376</sup>

A dose of the drug epinephrine is often administered via a “pen” to treat a person who goes into anaphylactic shock.<sup>377</sup>

Some children experience a **food intolerance**, which does not involve an immune response. A food intolerance is marked by unpleasant symptoms that occur after consuming certain foods. Lactose intolerance, though rare in very young children, is one example. Children who suffer from this condition experience an adverse reaction to the lactose in milk products. It is a result of the small intestine’s inability to produce enough of the enzyme lactase. Symptoms of lactose intolerance usually affect the gastrointestinal tract and can include bloating, abdominal pain, gas, nausea, and diarrhea. An intolerance is best managed by making dietary changes and avoiding any foods that trigger the reaction.<sup>378</sup>

## Overweight and Obesity in Children



Figure 11.7 – There are certain health risks associated with being overweight.<sup>379</sup>

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<sup>376</sup> [Image](#) by [Sean William](#) is licensed under [CC BY-SA 3.0](#)

<sup>377</sup> [Food Allergy Quick Facts](#). [National Institutes of Health](#), US Department of Health and Human Services. Updated March 27, 2017. Accessed December 10, 2017.

[Childhood](#) by [University of Hawai‘i at Mānoa Food Science and Human Nutrition Program](#) is licensed under [CC BY-NC-SA 4.0](#)

<sup>378</sup> [Lactose Intolerance](#). [National Institute of Diabetes and Digestive and Kidney Diseases](#). Updated June 2014.

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<sup>379</sup> [Image](#) by [Gaulsstin](#) is licensed under [CC BY 2.0](#)

The current measurement for determining excess weight is the **Body Mass Index (BMI)** which expresses the relationship of height to weight. According to the Centers for Disease Control and Prevention (CDC), children whose BMI is at or above the 85<sup>th</sup> percentile for their age are considered **overweight**, while children who are at or above the 95<sup>th</sup> percentile are considered **obese**. About 20% of children are obese. This percentage is even higher in low-income children and Hispanic children (CDC, 2014b).<sup>380</sup>

The percentage of obesity in school-aged children has doubled since the 1980s. This is true in part because of the introduction of a steady diet of television and other sedentary activities. In addition, we have come to emphasize high fat, fast foods as a culture. Pizza, hamburgers, chicken nuggets, and “lunchables” with soda have replaced more nutritious foods as staples. The decreased participation in school physical education and youth sports is just one of many factors that has led to an increase in children being overweight or obese.

### *Being Overweight Can Be a Lifelong Struggle*

A growing concern is the lack of recognition from parents that children are overweight or obese. Katz (2015) referred to this as “**oblivobesity**”. Oude Luttikhuis, Stolk, and Sauer (2010) surveyed 439 parents and found that 75% of parents of overweight children said the child had a normal weight and 50% of parents of obese children said the child had a normal weight. If parents cannot identify if their children are overweight they will not be able to intervene and assist their children with proper weight management.

An added concern is that the children themselves are not accurately identifying if they are overweight. In a United States sample of 8-15-year-olds, more than 80% of overweight boys and 70% of overweight girls misperceived their weight as normal (Sarafrazi, Hughes, & Borrud, 2014). Also noted was that as the socioeconomic status of the children rose, the frequency of these misconceptions decreased. It appeared that families with more resources were more conscious of what defines a healthy weight.

### *Results of Childhood Obesity*

Children who are overweight tend to be rejected, ridiculed, teased, and bullied by others (Stopbullying.gov, 2016). This can certainly be damaging to their self-image and popularity. Obese children run the risk of suffering orthopedic problems such as knee injuries, and they have an increased risk of heart disease and stroke in adulthood (Lu, 2016). It is hard for a child who is obese to become a non-obese adult.

Excess weight and obesity in children are associated with a variety of medical conditions including high blood pressure, Type 2 diabetes, inflammation, depression, and lower academic achievement (Lu, 2016). Being overweight has also been linked to impaired brain functioning, which includes deficits in executive functioning, working memory, mental flexibility, and decision making (Liang, Matheson, Kaye, & Boutelle, 2014). Children who ate more saturated

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fats performed worse on relational memory tasks, while eating a diet high in omega-3 fatty acids promoted relational memory skills (Davidson, 2014). Using animal studies, Davidson et al. (2013) found that large amounts of processed sugars and saturated fat weakened the blood-brain barrier, especially in the hippocampus. This can make the brain more vulnerable to harmful substances that can impair its functioning. Another important executive functioning skill is controlling impulses and delaying gratification. Children who are overweight show less inhibitory control than normal-weight children, which may make it more difficult for them to avoid unhealthy foods (Lu, 2016). Overall, being overweight as a child increases the risk of cognitive decline through time.

Behavioral interventions, including training children to overcome impulsive behavior, are being researched to help overweight children (Lu, 2016). Practicing inhibition has been shown to strengthen the ability to resist unhealthy foods. Parents can help their overweight children the best when they are warm and supportive without using shame or guilt. They can also help them make correct food choices and praising their efforts (Liang, et al., 2014). Research also shows that exercise, especially aerobic exercise, can help improve cognitive functioning in overweight children (Lu, 2016). Parents should take caution against emphasizing diet alone to avoid the development of any obsession about dieting that can lead to eating disorders. Instead, focusing on helping children to make healthy food choices and increase physical activity will help prevent childhood obesity.<sup>381</sup>

## Exercise, Physical Fitness, and Sports

**Recess and Physical Education:** Recess is a time for free play and Physical Education (PE) is a structured program that teaches skills, rules, and games. They are a big part of physical fitness for school-age children. After years of schools cutting back on recess and PE programs, there is growing support to add more back into the school day. Research on obesity as well on the benefits of physical activity on memory and learning are strong arguments for investing in physical education and allowing for more outdoor playtime.

### Organized Sports: Pros and Cons

Middle childhood seems to be a great time to introduce children to organized sports, and in fact, many parents do. Nearly 3 million children play soccer in the United States (United States Youth Soccer, 2012). This activity promises to help children build social skills, improve athletically and learn a sense of competition. However, the emphasis on competition and athletic skills can be counterproductive and lead children to grow tired of the game and want to quit. In many respects, it appears that children's activities are no longer children's activities once adults become involved and approach the games as adults rather than children.

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Figure 11.8 – A girl running on a track field.<sup>382</sup>

Sports are important for children. Children’s participation in sports has been linked to:

- Higher levels of satisfaction with family and overall quality of life in children
- Improved physical and emotional development
- Better academic performance

Yet, a study on children’s sports in the United States (Sabo & Veliz, 2008) has found that gender, poverty, location, ethnicity, and disability can limit opportunities to engage in sports. Girls and minority children are more likely to have never participated in any type of sport.



Figure 11.9 – Community sports.<sup>383</sup>

<sup>382</sup> [Image](#) by [Laughlin Air Force Base](#) is in the public domain

<sup>383</sup> [Image](#) by the [Department of Defense](#) is in the public domain



## Welcome to the World of E-Sports

The recent Sport Policy and Research Collaborative (2016) report on the “State of Play” in the United States highlights a disturbing trend. One in four children between the ages of 5 and 16 rate playing computer games with their friends as a form of exercise. **E-sports**, which as SPARC writes is about as much a sport as poker, involves children watching other children play video games. Over half of males, and about 20% of females, aged 12-19, say they are fans of e-sports. Play is an important part of childhood and physical activity has been proven to help children develop and grow. Adults and caregivers should look at what children are doing within their day to prioritize the activities that should be focused on.<sup>384</sup>



Figure 11.10 – A group of boys playing video sports.<sup>385</sup>

## Physical Health

### Vision and Hearing

The most common vision problem in middle childhood is being nearsighted, otherwise known as Myopia. 25% of children will be diagnosed by the end of middle childhood. Being nearsighted can be corrected by wearing glasses with corrective lenses.



Figure 11.11 – A child receiving an eye exam.<sup>386</sup>

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<sup>385</sup> [Image](#) by [Gamesingear](#) is licensed under [CC BY-SA 3.0](#)

<sup>386</sup> [Image](#) is in the public domain

Children may have many ear infections in early childhood, but it's not as common within the 6-12-year age range. Numerous ear infections during middle childhood may lead to headaches and migraines, and may result in hearing loss.<sup>387</sup>

## Dental Health

Children in middle childhood will start or continue to lose teeth. They experience the loss of deciduous, or “baby” teeth, and the arrival of permanent teeth, which typically begins at age six or seven. Children need to continue seeing a dentist twice a year to be sure that these teeth are healthy.

The foods and nutrients that children consume are also important for dental health. Offer healthy foods and snacks to children and when children do eat sugary or sticky foods, they should brush their teeth afterward.



Figure 11.12 – A boy brushing his teeth.<sup>388</sup>

The best defense against tooth decay is flossing, brushing, and adding fluoride; a mineral found in most tap water. Children should floss daily and brush their teeth at least twice daily: in the morning, at bedtime, and preferably after meals. Younger children need help brushing their teeth properly. Parents are advised to try brushing their teeth first and letting them finish. Using a timer or a favorite song so that the child learns to brush for 2 minutes is also recommended. Parents or caregivers are encouraged to supervise brushing until their child is 7 or 8 years old to avoid tooth decay

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<sup>387</sup> Rathus, Spencer A. (2011). *Childhood & adolescence voyages in development*. Belmont, CA: Wadsworth Cengage Learning.

<sup>388</sup> [Image](#) by [Latrobebohs](#) is licensed under [CC BY-SA 3.0](#)

## Diabetes in Childhood

Until recently diabetes in children and adolescents was thought of almost exclusively as type 1, but that thinking has evolved. Type 1 diabetes is the most common form of diabetes in children and is the result of a lack of production of insulin due to an overactive immune system. Type 2 diabetes is the most common form of diabetes in the U.S. It used to be referred to as adult-onset diabetes as it was not common during childhood. However, with increasing rates of overweight and obesity in children and adolescents, more diagnoses are happening before adulthood. It is also important to note that Type 2 disproportionately affects minority youth.<sup>389</sup>



Figure 11.13 – The finger-prick test.<sup>390</sup>

## Asthma

Unmanaged childhood asthma may make it difficult for children to develop to their fullest potential. Asthma is a chronic lung disease that inflames and narrows the airways. Asthma causes recurring periods of wheezing (a whistling sound when you breathe), chest tightness, shortness of breath, and coughing. The coughing often occurs at night or early in the morning. Asthma affects people of all ages, but it most often starts during childhood. In the United States, more than 25 million people are known to have asthma. About 7 million of these people are children.

To understand asthma, it helps to know how the airways work. The airways are tubes that carry air into and out of your lungs. People who have asthma have inflamed airways. The inflammation makes the airways swollen and very sensitive. The airways tend to react strongly to certain inhaled substances. When the airways react, the muscles around them tighten. This narrows the airways, causing less air to flow into the lungs. The swelling also can worsen, making the airways even narrower. Cells in the airways might make more mucus than usual.

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<sup>389</sup> [Diabetes](#) by the [National Institute of Diabetes and Digestive and Kidney Diseases](#) is in the public domain  
[Preventing Type 2 Diabetes - Steps Toward a Healthier Life](#) by the [National Institutes of Health](#) is in the public domain

<sup>390</sup> [Image](#) by the [U.S. Army](#) is in the public domain

Mucus is a sticky, thick liquid that can further narrow the airways. This chain reaction can result in asthma symptoms. Symptoms can happen each time the airways are inflamed.

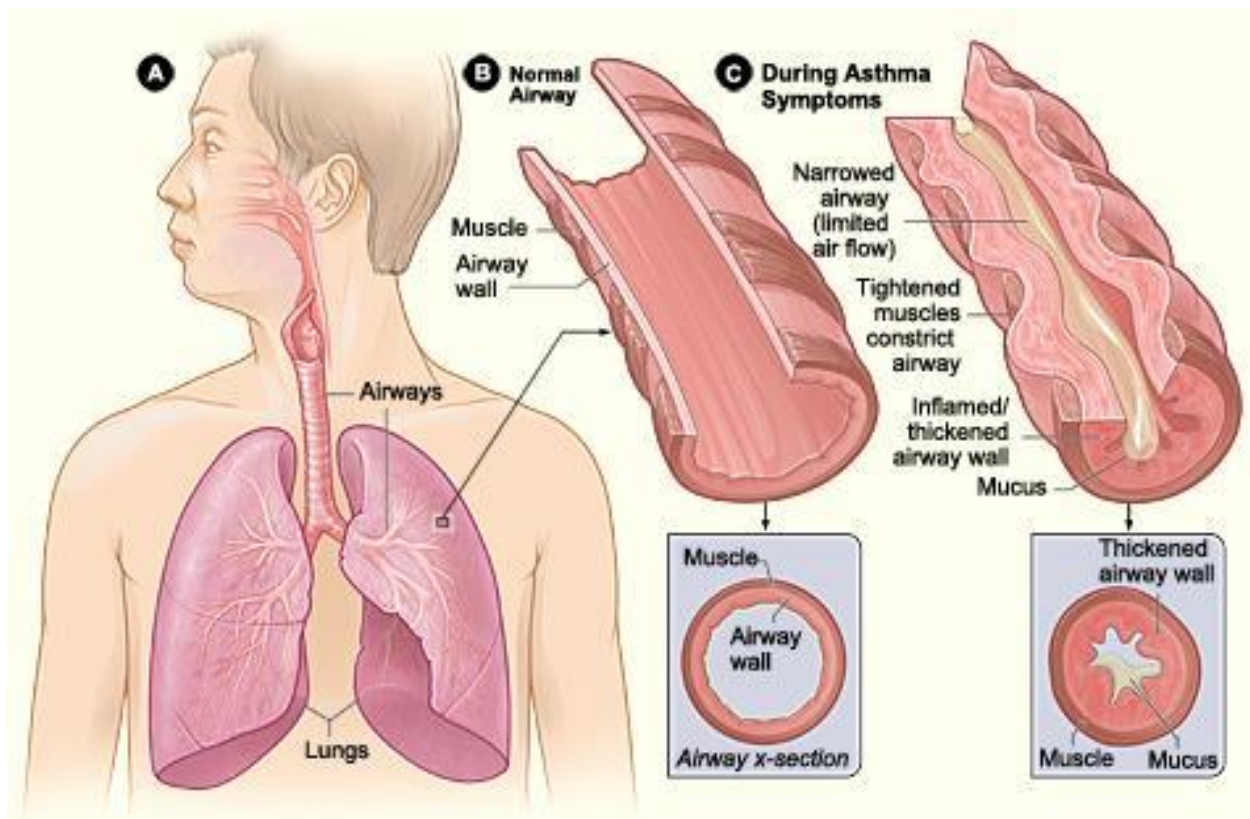


Figure 11.14 - **Figure A** shows the location of the lungs and airways in the body. **Figure B** shows a cross-section of a normal airway. **Figure C** shows a cross-section of an airway during asthma symptoms.<sup>391</sup>

Sometimes asthma symptoms are mild and go away on their own or after minimal treatment with asthma medicine. Other times, symptoms continue to get worse. When symptoms get more intense and/or more symptoms occur, you're having an asthma attack.

<sup>391</sup> [Image](#) by the [National Heart, Lung, and Blood Institute](#) is in the public domain



Figure 11.15 – The different things that can trigger asthma.<sup>392</sup>

Taking symptoms seriously and treating them when they are first noticed is important. This will help prevent the symptoms from worsening and causing a severe asthma attack. Severe asthma attacks may require emergency care, and they can be fatal. Asthma has no cure. Even when a child feels fine, they still have the disease and it can flare up at any time. Weather, environmental toxins, and having a cold can make symptoms worse, and make asthma a common reason for why children miss school.

## Childhood Stress

Take a moment to think about how you deal with and how stress affects you. Now think about what the impact of stress may have on a child and their development?

Children experience stress and different types of stressors differently. Not all stress is bad. Normal, everyday stress can help children and adults be productive, and can provide an opportunity for children to build coping skills. Even more long-lasting stressful events such as changing schools or losing a loved one can be managed fairly well. But children who experience toxic stress or who live in extremely stressful situations of abuse over long periods of time can suffer long-lasting effects. High levels of the stress hormone cortisol can reduce the size of the hippocampus and affect the child's memory abilities. Stress hormones can also reduce immunity to disease. If the brain is exposed to long periods of severe stress it can develop a low threshold making the child hypersensitive to stress in the future. Toxic stress can affect

<sup>392</sup> Image by 7mike5000 is licensed under [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/) (image modified by adding content from a [video](#) by the [CDC](https://www.cdc.gov/), which is in the public domain)



children's ability to pay attention and participate in social and learning activities. Whatever the effects of stress, it can be minimized if a child learns to deal with stressors and develop coping strategies with the support of caring adults. It's easy to know when a child has a fever or other physical symptoms. However, a child's mental health problems may be harder to identify. In the next section, we'll look at childhood Mental Health Disorders.<sup>393</sup>



Figure 11.16 – High, constant levels of stress can negatively impact the brain.<sup>394</sup>

## Childhood Mental Health

**Mental health** problems can disrupt daily life at home, at school or in the community. Without help, mental health problems can lead to school failure, alcohol or other drug abuse, family discord, violence or even suicide. However, help is available. Talk to your health care provider if you have concerns about your child's behavior.

Mental health disorders are diagnosed by a qualified professional using the Diagnostic and Statistical Manual of Mental Disorders (DSM). This is a manual that is used as a standard across the profession for diagnosing and treating mental disorders.<sup>395</sup>

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<sup>394</sup> [Image](#) by [Leroy Skalstad](#) on Pixabay

<sup>395</sup> [Disease Prevention and Healthy Lifestyles](#) by Judy Baker, Ph.D. is licensed under [CC BY-SA](#) (modified by Dawn Rymond)



## **When You Have a Concern About a Child. What's in a Label?<sup>396</sup>**

Children are continually evaluated as they enter and progress through school. If a child is showing a need, they should be assessed by a qualified professional who would make a recommendation or diagnosis of the child and indicate the type of instruction, resources, accommodations, and support that they should receive.

Ideally, a proper diagnosis or label is extremely beneficial for children who have educational, social, emotional, or developmental needs. Once their difficulty, disorder, or disability is labeled then the child may receive the help they need from parents, educators, and any other professionals who will work as a team to meet the student's individual goals and needs.

However, it's important to consider that children who are misdiagnosed or labeled without proper support and accommodations will have negative consequences. A label can influence the child's self-concept. For example, if a child is misdiagnosed as having a learning disability, the child, teachers, and family member interpret their actions through the lens of that label. Labels are powerful and can be good for the child or they can be detrimental all depending on the accuracy of the label and if effective interventions are applied.

A team of people who include parents, teachers, and any other support staff will look at the child's evaluation assessment and develop an Individual Education Plan (IEP). The team will discuss the diagnosis, recommendations, and the accommodations or help and decisions will be made regarding what is best for the child. This is a time when parents or caregivers decide if they would like to follow this plan or they can dispute any part of the process. During an IEP, the team can voice concerns and questions. Most parents feel empowered when they leave these meetings. They feel as if they are a part of the team and that they know what, when, why, and how their child will be helped.

## **Common Childhood Mental Health Disorders**

### **Social and Emotional Disorders**

- Anxiety
- Phobias
- Post-Traumatic Stress Syndrome - PTSD
- Obsessive-Compulsive Disorder –OCD
- Depression

### **Developmental Disorders**

- Autism Spectrum Disorder (ASD)
- Attention Deficit Disorder (ADHD)
- Pervasive Developmental Disorder (PDD)<sup>397</sup>

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## Anxiety

Many children have fears and worries, and will feel sad and hopeless from time to time. Strong fears will appear at different times during development. For example, toddlers are often very distressed about being away from their parents, even if they are safe and cared for. Although fears and worries are typical in children, persistent or extreme forms of fear and sadness feelings could be due to anxiety or depression. Because the symptoms primarily involve thoughts and feelings, they are called **internalizing disorders**.



Figure 11.17 – An anxious child.<sup>398</sup>

When children do not outgrow the fears and worries that are typical in young children, or when there are so many fears and worries that interfere with school, home, or play activities, the child may be diagnosed with an anxiety disorder. Examples of different types of anxiety disorders include:

- Being very afraid when away from parents (separation anxiety)
- Having extreme fear about a specific thing or situation, such as dogs, insects, or going to the doctor (phobias)
- Being very afraid of school and other places where there are people (social anxiety)
- Being very worried about the future and bad things happening (general anxiety)
- Having repeated episodes of sudden, unexpected, intense fear that come with symptoms like heart pounding, having trouble breathing, or feeling dizzy, shaky, or sweaty (panic disorder)

Anxiety may present as fear or worry, but can also make children irritable and angry. Anxiety symptoms can also include trouble sleeping, as well as physical symptoms like fatigue, headaches, or stomachaches. Some anxious children keep their worries to themselves and, thus, the symptoms can be missed.

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## *Phobias*

When a child who has a **phobia** (an extreme or irrational fear of or aversion to something) is exposed to the phobic stimulus (the stimuli varies), it almost invariably provokes an immediate anxiety response, which may take the form of a situational bound or situational predisposed panic attack. Children may react by crying, throwing tantrums, experiencing freezing, or clinging to the parent that they have the most connection with. Related conditions include anxiety.

Related conditions include Obsessive-Compulsive Disorder and Post Traumatic Stress Disorder.

## *Post-Traumatic Stress Syndrome (PTSD)*

Exposure to traumatic events can have major developmental influences on children. While the majority of children will not develop PTSD after a trauma, best estimates from the literature are that around a third of them will, higher than adult estimates. Some reasons for this could include more limited knowledge about the world, differential coping mechanisms employed, and the fact that children's reactions to trauma are often highly influenced by how their parents and caregivers react.

The impact of PTSD on children weeks after a trauma, show that up to 90% of children may experience heightened physiological arousal, diffuse anxiety, survivor guilt, and emotional lability. These are all normal reactions and should be understood as such (similar things are seen in adults. Those children still having these symptoms three or four months after a disaster, however, may need further assessment. For children, warning signs of problematic adjustment include: repetitious play reenacting a part of the disaster; preoccupation with danger or expressed concerns about safety; sleep disturbances and irritability; anger outbursts or aggressiveness; excessive worry about family or friends; school avoidance, particularly involving somatic complaints; behaviors characteristic of younger children; and changes in personality, withdrawal, and loss of interest in activities.<sup>399</sup>

## *Obsessive-Compulsive Disorder (OCD)*

Although a diagnosis of OCD requires only that a person either has obsessions or compulsions, not both, approximately 96% of people experience both. For almost all people with OCD, being exposed to a certain stimulus (internal or external) will then trigger an upsetting or anxiety-causing obsession, which can only be relieved by doing a compulsion. For example, a person touches a doorknob in a public building, which causes an obsessive thought that they will get sick from the germs, which can only be relieved by compulsively washing their hands to an excessive degree.<sup>400</sup> Tourette's syndrome is related strongly to this disorder.

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<sup>399</sup> [Abnormal Psychology](#) by [Lumen Learning](#) references [Abnormal Psychology: An e-text!](#) by Dr. Caleb Lack, licensed under [CC BY-NC-SA](#)

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## Depression

Occasionally being sad or feeling hopeless is a part of every child's life. However, when children lose interest in things they used to enjoy and feel persistent sadness and hopelessness, they may be diagnosed with depression.



Figure 11.18 – Persistent sadness is a symptom of depression.<sup>401</sup>

Symptoms may be slightly different from the typical adult symptoms of depression. Children who are depressed may complain of feeling sick, refuse to go to school, cling to a parent or caregiver, feel unloved, hopelessness about the future, or worry excessively that a parent may die. Older children and teens may sulk, get into trouble at school, be negative or grouchy, are irritable, indecisive, have trouble concentrating, or feel misunderstood.

Because normal behaviors vary from one childhood stage to another, it can be difficult to tell whether a child who shows changes in behavior is just going through a temporary “phase” or is suffering from depression. With medication, psychotherapy, or both, most youth with depression can be effectively treated. Youth are more likely to respond to treatment if they receive it early in the course of their illness.<sup>402</sup>

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## Developmental Disorders

### Autism Spectrum Disorder

As introduced in chapter 9, autism spectrum disorder (ASD) is a developmental disorder that affects communication and behavior. Although autism can be diagnosed at any age, it is said to be a “developmental disorder” because symptoms generally appear in the first two years of life. According to the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, a guide created by the American Psychiatric Association used to diagnose mental disorders, people with ASD have:

- Difficulty with communication and interaction with other people
- Restricted interests and repetitive behaviors
- Symptoms that hurt the person’s ability to function properly in school, work, and other areas of life

Autism is known as a “spectrum” disorder because there is wide variation in the type and severity of symptoms people experience. In earlier editions of the DSM, Autistic disorder, Asperger’s syndrome, and Pervasive developmental disorder not otherwise specified (PDD-NOS) were identified separately, but are now all included under the broader diagnosis of ASD.

ASD occurs in all ethnic, racial, and economic groups. Although ASD can be a lifelong disorder, treatments and services can improve a person’s symptoms and ability to function. Early treatment for ASD is important as proper care can reduce individuals’ difficulties while helping them learn new skills and make the most of their strengths.

The wide range of issues facing people with ASD means that there is no single best treatment for ASD. A doctor may use medication to treat some symptoms that are common with ASD. People with ASD may be referred to doctors who specialize in providing behavioral, psychological, educational, or skill-building interventions. These programs are typically highly structured and intensive and may involve parents, siblings, and other family members.



Figure 11.19 - Rich and Nubia Quick have put their autistic 8-year-old son, Matthew, through therapy to help him open up and relate more to others. The Quicks maintain a structured environment so Matthew can better adjust to the world around him.<sup>403</sup>

<sup>403</sup> [Image](#) and caption by the [U.S. Air Force](#) is in the public domain



### *Attention-Deficit/Hyperactivity Disorder (ADHD)*

ADHD is the most common neurobehavioral disorder that teachers and child care providers will encounter. A meta-analysis of 175 worldwide research studies found a generalized estimate of 7.2% for children 18 years or younger (Thomas et al. 2015). The **2016 National Survey of Children's Health (NSCH)** which interviewed parents in the United States found a prevalence rate of 9.6 percent for school-age children (Danielson et al. 2018). ADHD can cause problems in how well children do in school, in family relationships, in their ability to make and keep friends, and in how they later function in society. The CDC has labeled ADHD a serious public health problem.

ADHD is a complex disorder. While many things contribute to an individual being diagnosed, there is an overwhelming consensus that genetics plays the leading role. It is the result of many interacting genes, and most importantly, the result of genes interacting with the environment. Other risk factors for ADHD include brain injury, low birth weight, and exposure to environmental toxins during pregnancy.

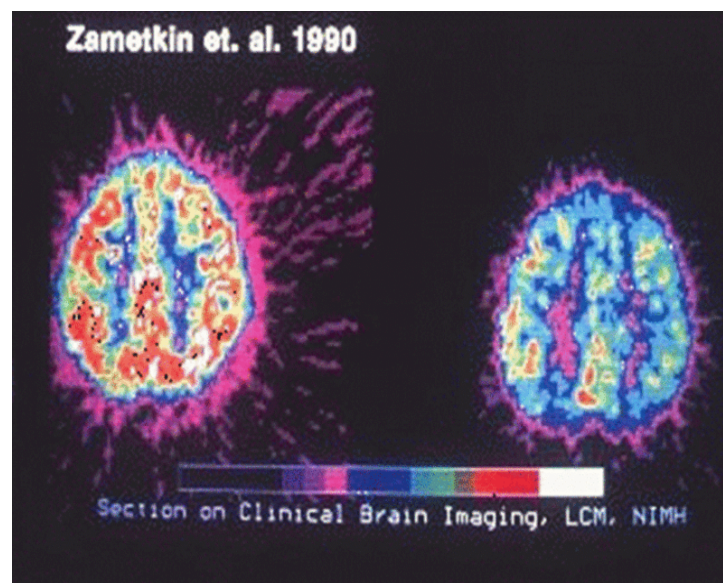


Figure 11.20 – Brain scans of brains with and without ADHD.<sup>404</sup>

Diagnosis can be difficult. The symptoms of ADHD are mostly developmentally normal behaviors that individuals do not grow out of. Professionals use the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* to guide their diagnosis. There has to be clear evidence that the symptoms interfere with, or reduce the quality of, social, school, or work functioning. These symptoms have to be present in at least two settings (such as home, school, peer interactions) and be present before age 12. Below is the diagnostic criteria that must be met:

<sup>404</sup> Image by the [National Institutes of Health](#) is in the public domain



**1. Inattention: Six or more symptoms of inattention for children up to age 16, or five or more for adolescents 17 and older and adults; symptoms of inattention have been present for at least 6 months, and they are inappropriate for developmental level:**

- Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or with other activities.
- Often has trouble holding attention on tasks or play activities.
- Often does not seem to listen when spoken to directly.
- Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., loses focus, side-tracked).
- Often has trouble organizing tasks and activities.
- Often avoids, dislikes, or is reluctant to do tasks that require mental effort over a long period of time (such as schoolwork or homework).
- Often loses things necessary for tasks and activities (e.g. school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
- Is often easily distracted
- Is often forgetful in daily activities.



Figure 11.21 – This child is exhibiting inattention.<sup>405</sup>

**2. Hyperactivity and Impulsivity: Six or more symptoms of hyperactivity-impulsivity for children up to age 16, or five or more for adolescents 17 and older and adults; symptoms of hyperactivity-impulsivity have been present for at least 6 months to an extent that is disruptive and inappropriate for the person's developmental level:**

- Often fidgets with or taps hands or feet, or squirms in seat.
- Often leaves seat in situations when remaining seated is expected.
- Often runs about or climbs in situations where it is not appropriate (adolescents or adults may be limited to feeling restless).
- Often unable to play or take part in leisure activities quietly.
- Is often “on the go” acting as if “driven by a motor”.
- Often talks excessively.
- Often blurts out an answer before a question has been completed.
- Often has trouble waiting his/her turn.
- Often interrupts or intrudes on others (e.g., butts into conversations or games)

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There are three types of ADHD:

- *Combined Presentation*: if enough symptoms of both criteria inattention and hyperactivity-impulsivity were present for 6 months
- *Predominantly Inattentive Presentation*: if enough symptoms of inattention, but not hyperactivity-impulsivity, were present for the past 6 months
- *Predominantly Hyperactive-Impulsive Presentation*: if enough symptoms of hyperactivity-impulsivity, but not inattention, were present for the past 6 months.

Boys are three times more likely to be diagnosed, but many think much of that disparity is because girls are more likely to have the Inattentive type and do not demand as much attention and are underdiagnosed. ADHD frequently occurs along with other learning, behavior, or mood problems such as learning disabilities, oppositional defiant disorder, anxiety disorders, and depression.

A variety of medications and behavioral interventions are used to treat ADHD. Some parents and therapists have tried a variety of nutritional interventions to treat ADHD. No research, however, has shown these to be effective.<sup>406</sup> The most widely used medications are methylphenidate (Ritalin) and other amphetamines. These drugs are stimulants that affect the level of the neurotransmitter dopamine at the synapse. Nine out of 10 children improve while taking one of these drugs, which are safe as confirmed by hundreds of careful studies. Research has also shown that the use of these drugs to treat ADHD helps prevent drug abuse later in life.

## Managing Symptoms: Staying Healthy

Being healthy is important for all children and can be especially important for children with mental health disorders. In addition to getting the right treatment, leading a healthy lifestyle can play a role in managing symptoms. Here are some healthy behaviors that may help:

- Eating a healthful diet centered on fruits, vegetables, whole grains, legumes (for example, beans, peas, and lentils), lean protein sources, and nuts and seeds
- Participating in physical activity for at least 60 minutes each day
- Getting the recommended amount of sleep each night based on age
- Practicing mindfulness or relaxation techniques<sup>407</sup>

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<sup>407</sup> [Anxiety and Depression in Children](#) by the [CDC](#) is in the public domain



Figure 11.22 – Staying healthy is critical for all children, especially those who may have mental health disorders.<sup>408</sup>

## Conclusion

In this chapter we looked at:

- Patterns of growth in the brain and body
- Health and nutrition
- Causes and results of obesity
- Exercise, fitness, and organized sports
- Physical health concerns
- Mental health disorders

In the next chapter, we will be examining cognitive development theories and theorists. We will learn about information processing; attention, memory, and planning in middle childhood. We will also see how school-age children learn language and how intelligence is measured.

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<sup>408</sup> [Image](#) by the [U.S. Marine Corps](#) is in the public domain

# Chapter 12: Middle Childhood

## Cognitive Development

### Chapter Objectives

After this chapter, you should be able to:

1. Describe what cognitive theorists share about children and their thinking
2. Explain how intelligence is measured, the tests used to assess intelligence, the extremes in intelligence, and the concern of bias
3. Describe the Information Processing Theory
4. Explain several theories of language development
5. Compare typical language development with language difficulties

### Introduction

Cognitive skills continue to expand in middle and late childhood. Children in middle childhood have thought processes that become more logical and organized when dealing with concrete information. Children at this age understand concepts such as past, present, and future, giving them the ability to plan and work toward goals. Additionally, they can process complex ideas such as word problems and cause-and-effect relationships.<sup>409</sup>

### Cognitive Theories of Intelligence

Theorists can give different perspectives to the cognitive development of children and psychologists have long debated how to best conceptualize and measure intelligence (Sternberg, 2003). In the next section will look at Piaget's theory of cognitive development, Sternberg's alternative view to intelligence, and Gardener's theory of multiple intelligence. Lastly, you'll learn about the Information Processing Theory that looks at the cognitive function of children in middle childhood.



Figure 12.1 - Jean Piaget.<sup>410</sup>

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## Piaget's Theory of Cognitive Development

### Concrete Operational Thought

As children continue into elementary school, they develop the ability to represent ideas and events more flexibly and logically. Their rules of thinking still seem very basic by adult standards but they allow children to solve problems more systematically than before, and therefore to be successful with many academic tasks. In the concrete operational stage, for example, a child may unconsciously follow the rule: "If nothing is added or taken away, then the amount of something stays the same." This simple principle helps children to understand certain arithmetic tasks, such as in adding or subtracting zero from a number, as well as to do certain classroom science experiments, such as ones involving judgments of the amounts of liquids when mixed. Piaget called this period the concrete operational stage because children mentally "operate" on concrete objects and events.<sup>411</sup>



Figure 12.2 – Children studying.<sup>412</sup>

The concrete operational stage is defined as the third in Piaget's theory of cognitive development. This stage takes place around 7 years old to 11 years of age, and is characterized by the development of organized and rational thinking. Piaget (1954a) considered the concrete stage a major turning point in the child's cognitive development, because it marks the beginning of logical or operational thought. The child is now mature enough to use logical thought or operations (i.e. rules) but can only apply logic to physical objects (hence concrete operational). Children gain the abilities of conservation (number, area, volume, orientation) and reversibility.<sup>413</sup>

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Cognitive skills that children typically master during Piaget's concrete operational stage.<sup>414</sup> :

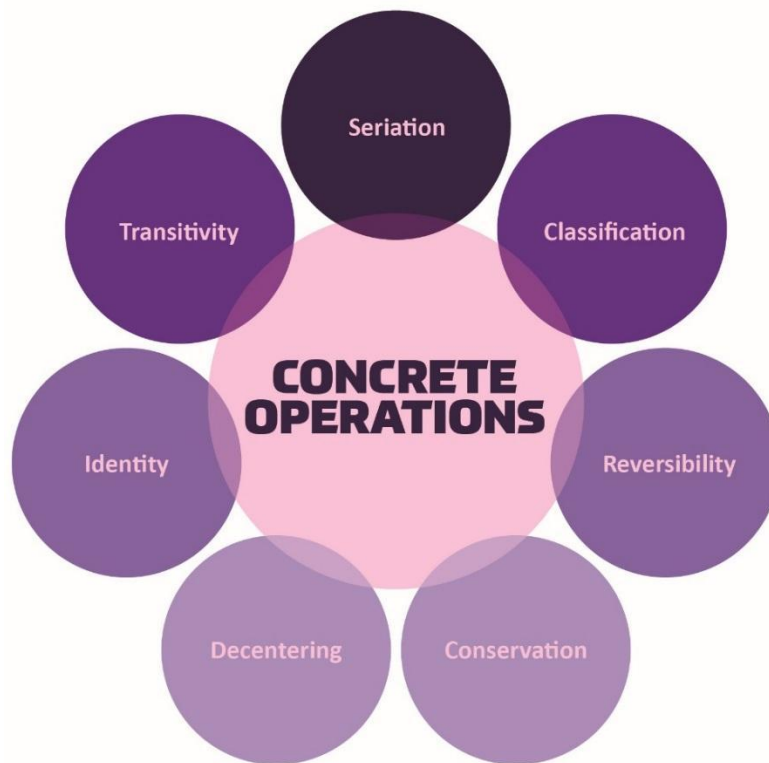


Figure 12.3 – The cognitive skills developed during the concrete operational stage.<sup>415</sup>

**Seriation:** Arranging items along a quantitative dimension, such as length or weight, in a methodical way, is now demonstrated by the concrete operational child. For example, they can methodically arrange a series of different-sized sticks in order by length, while younger children haphazardly approach a similar task.<sup>416</sup>

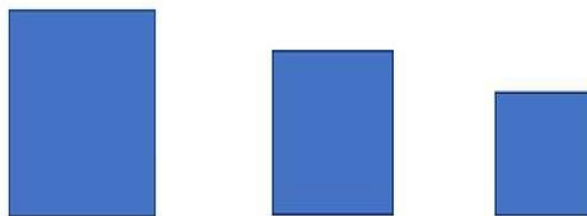


Figure 12.4 - Caption: Putting these rectangles from smallest to largest is seriation.<sup>417</sup>

<sup>414</sup> [Concrete Operational Stage Image](#) by [Simply Psychology](#) is licensed under [CC BY-NC-ND 3.0](#); [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

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**Classification:** As children's experiences and vocabularies grow, they build **schema** and can organize objects in many different ways. They also understand classification hierarchies and can arrange objects into a variety of classes and subclasses.



Figure 12.5 – This child might use classification if she sorts these toys by color.<sup>418</sup>

**Reversibility:** The child learns that some things that have been changed can be returned to their original state. Water can be frozen and then thawed to become liquid again. But eggs cannot be unscrambled. Arithmetic operations are reversible as well:  $2 + 3 = 5$  and  $5 - 3 = 2$ . Many of these cognitive skills are incorporated into the school's curriculum through mathematical problems and in worksheets about which situations are reversible or irreversible.



Figure 12.6 – Understanding that ice cubes melt is an example of reversibility.<sup>419</sup>

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**Conservation:** An example of the preoperational child's thinking; if you were to fill a tall beaker with 8 ounces of water this child would think that it was "more" than a short, wide bowl filled with 8 ounces of water? Concrete operational children can understand the concept of conservation, which means that changing one quality (in this example, height or water level) can be compensated for by changes in another quality (width). Consequently, there is the same amount of water in each container, although one is taller and narrower and the other is shorter and wider.

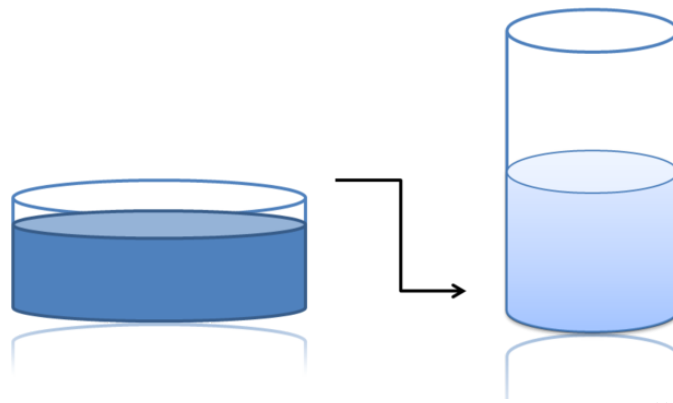


Figure 12.7 – Beakers displaying the idea of conservation.<sup>420</sup>

**Decentration:** Concrete operational children no longer focus on only one dimension of any object (such as the height of the glass) and instead consider the changes in other dimensions too (such as the width of the glass). This allows for conservation to occur.



Figure 12.8 – Children looking at these glasses demonstrate decentration when looking at more than one attribute i.e. tall, short, and wide narrow.<sup>421</sup>

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**Identity:** One feature of concrete operational thought is the understanding that objects have qualities that do not change even if the object is altered in some way. For instance, the mass of an object does not change by rearranging it. A piece of chalk is still chalk even when the piece is broken in two.<sup>422</sup>



Figure 12.9 – A broken egg is still an egg.<sup>423</sup>



Figure 12.10 – A deflated balloon is still a balloon.<sup>424</sup>



Figure 12.11 – Broken chalk is still chalk.<sup>425</sup>

**Transitivity:** Being able to understand how objects are related to one another is referred to as transitivity, or transitive inference. This means that if one understands that a dog is a mammal, and that a boxer is a dog, then a boxer must be a mammal.<sup>426</sup>



Figure 12.12 - Transitivity allows children to understand that this boxer puppy, is a dog *and* a mammal.<sup>427</sup>

### *Looking at Piaget's Theory*

Researchers have obtained findings indicating that cognitive development is considerably more continuous than Piaget claimed. Thus, the debate between those who emphasize discontinuous, stage-like changes in cognitive development, and those who emphasize gradual continuous changes remains a lively one.<sup>428</sup>

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## Sternberg's Triarchic Theory of Intelligence

Robert Sternberg was one of the first to voice concerns about how intelligence was defined and measured. He proposed a three-part theory to more fully explain human intelligence. Sternberg (1985) defined intelligence as "mental activity directed toward purposive adaptation to, selection and shaping of, real-world environments relevant to one's life".

**Analytical intelligence** focuses on academic proficiency, including abilities to analyze, critic, and evaluate information. This is usually the only thing assessed by intelligence tests. **Creative intelligence** encompasses the ability to invent, discover, and create. **Practical intelligence** is the ability to apply, implement and utilize information. It is the ability to successfully fit into one's environment and involves adaptation, shaping (changing the environment to better fit your needs), and selection (the ability to choose a new environment when adaptation or shaping are ineffective).

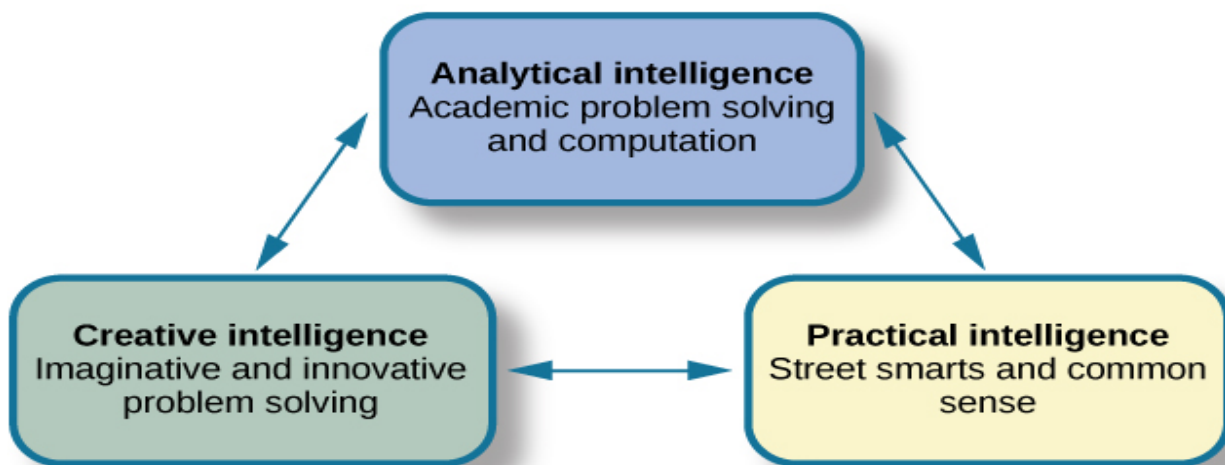


Figure 12.13 The Three components of Sternberg's Theory<sup>429</sup>

## Howard Gardner's Theory of Multiple Intelligences

Psychologist Howard Gardner (1983, 1999) argued that it would be evolutionarily functional for different people to have different talents and skills. Gardner contends that these are also forms of intelligence. A high IQ does not always ensure success in life or necessarily indicate that a person has common sense, good interpersonal skills, or other abilities important for success. Gardner investigated intelligences by focusing on children who were talented in one or more areas. Howard Gardner (1983, 1998, 1999) suggests that there are not one, but nine domains of intelligence. Only the first three are skills that are measured by IQ tests.

<sup>429</sup> Image is in the public domain

**Table 12.1 - Howard Gardner’s Multiple Intelligences<sup>430</sup>**

Intelligence	Description
<b>Linguistic</b>	The ability to speak and write well
<b>Logical-mathematical</b>	The ability to use logic and mathematical skills to solve problems
<b>Spatial</b>	The ability to think and reason about objects in three dimensions
<b>Musical</b>	The ability to perform and enjoy music
<b>Kinesthetic (body)</b>	The ability to move the body in sports, dance, or other physical activities
<b>Interpersonal</b>	The ability to understand and interact effectively with others
<b>Intrapersonal</b>	The ability to have insight into the self
<b>Naturalistic</b>	The ability to recognize, identify, and understand animals, plants, and other living things
<b>Existential</b>	The ability to understand and have concerns about life’s larger questions, the meaning of life, and other spiritual matters

The concept of multiple intelligences has been influential in the field of education, and teachers have used these ideas to try to teach differently for individual students. For instance, to teach math problems to students who have particularly good kinesthetic intelligence, a teacher might encourage the students to move their bodies or hands according to the numbers. On the other hand, some have argued that these “intelligences” sometimes seem more like “abilities” or “talents” rather than real intelligence. There is no clear conclusion about how many intelligences there are. Are a sense of humor, artistic skills, dramatic skills, and so forth also separate intelligences?<sup>431</sup>

## Information Processing: Learning, Memory, and Problem Solving

During middle and late childhood children make strides in several areas of cognitive function including the capacity of working memory, their ability to pay attention, and their use of memory strategies. Both changes in the brain and experience foster these abilities. In this section, we will look at how children process information, think and learn, allowing them to increase their ability to learn and remember due to an improvement in the ways they attend to, store information, and problem solve.<sup>432</sup>

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<sup>430</sup> [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#); Table adapted from Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the 21st century*. New York, NY: Basic Books.

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**Working Memory:** The capacity of working memory expands during middle and late childhood, research has suggested that both an increase in processing speed and the ability to inhibit irrelevant information from entering memory are contributing to the greater efficiency of working memory during this age (de Ribaupierre, 2002). Changes in **myelination** and **synaptic pruning** in the **cortex** are likely behind the increase in processing speed and ability to filter out irrelevant stimuli (Kail, McBride-Chang, Ferrer, Cho, & Shu, 2013).

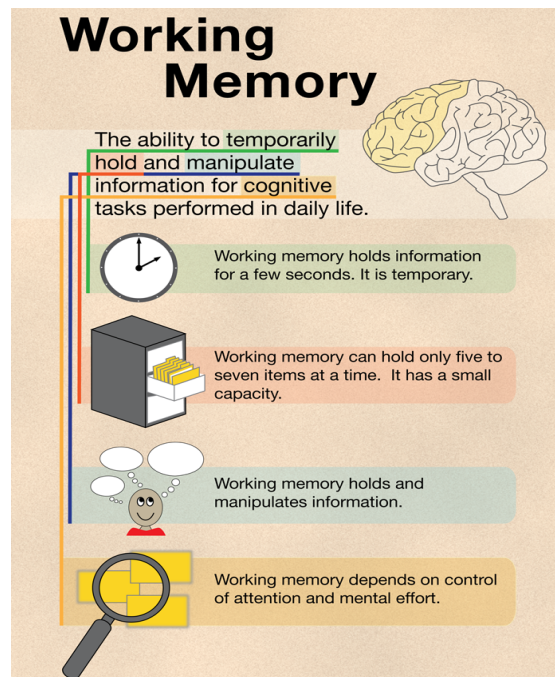


Figure 12.14 – Working memory expands during middle and late childhood.<sup>433</sup>

**Attention:** As noted above, the ability to inhibit irrelevant information improves during this age group, with there being a sharp improvement in selective attention from age six into adolescence (Vakil, Blachstein, Sheinman, & Greenstein, 2009). Children also improve in their ability to shift their attention between tasks or different features of a task (Carlson, Zelazo, & Faja, 2013). A younger child who is asked to sort objects into piles based on the type of object, car versus animal, or color of an object, red versus blue, would likely have no trouble doing so. But if you ask them to switch from sorting based on type to now having them sort based on color, they would struggle because this requires them to suppress the prior sorting rule. An older child has less difficulty making the switch, meaning there is greater flexibility in their intentional skills. These changes in attention and working memory contribute to children having more strategic approaches to challenging tasks.

**Memory Strategies:** Bjorklund (2005) describes a developmental progression in the acquisition and use of memory strategies. Such strategies are often lacking in younger children, but increase in frequency as children progress through elementary school. Examples of memory strategies include rehearsing information you wish to recall, visualizing and organizing

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information, creating rhymes, such as “i” before “e” except after “c”, or inventing acronyms, such as “roygbiv” to remember the colors of the rainbow. Schneider, Kron-Sperl, and Hünnerkopf (2009) reported a steady increase in the use of memory strategies from ages six to ten in their longitudinal study. Moreover, by age ten many children were using two or more memory strategies to help them recall information. Schneider and colleagues found that there were considerable individual differences at each age in the use of strategies, and that children who utilized more strategies had better memory performance than their same-aged peers.

## Cognitive Processes

As children enter school and learn more about the world, they develop more categories for concepts and learn more efficient strategies for storing and retrieving information. One significant reason is that they continue to have more experiences on which to tie new information. In other words, their **knowledge base**, knowledge in particular areas that makes learning new information easier, expands (Berger, 2014).



Figure 12.15 – As children learn more about the world, their knowledge base grows.<sup>434</sup>

**Metacognition:** refers to the knowledge we have about our own thinking and our ability to use this awareness to regulate our own cognitive processes (Bruning, Schraw, Norby, & Ronning, 2004). Children in this developmental stage also have a better understanding of how well they are performing a task, and the level of difficulty of a task. As they become more realistic about their abilities, they can adapt studying strategies to meet those needs. Young children spend as much time on an unimportant aspect of a problem as they do on the main point, while older children start to learn to prioritize and gauge what is significant and what is not. As a result, they develop metacognition.

**Critical thinking,** or a detailed examination of beliefs, courses of action, and evidence, involves teaching children how to think. The purpose of critical thinking is to evaluate information in ways that help us make informed decisions. Critical thinking involves better understanding a problem through gathering, evaluating, and selecting information, and also by considering many possible solutions. Ennis (1987) identified several skills useful in critical thinking. These include: Analyzing arguments, clarifying information, judging the credibility of a source, making

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value judgments, and deciding on an action. Metacognition is essential to critical thinking because it allows us to reflect on the information as we make decisions.

Children differ in their cognitive process and these differences predict both their readiness for school, academic performance, and testing in school. (Prebler, Krajewski, & Hasselhorn, 2013).<sup>435</sup>

## Intelligence Testing: The What, the Why, and the Who

### Measuring Intelligence: Standardization and the Intelligence Quotient

The goal of most intelligence tests is to measure “g”, the general intelligence factor. Good intelligence tests are **reliable**, meaning that they are consistent over time, and also demonstrate **validity**, meaning that they actually measure intelligence rather than something *else*. Because intelligence is such an important part of individual differences, psychologists have invested substantial effort in creating and improving measures of intelligence, and these tests are now considered the most accurate of all psychological tests.

Intelligence changes with age. A 3-year-old who could accurately multiply 183 by 39 would certainly be intelligent, but a 25-year-old who could not do so would be seen as unintelligent. Thus understanding intelligence requires that we know the norms or standards in a given population of people at a given age. The **standardization** of a test involves giving it to a large number of people at different ages and computing the average score on the test at each age level.

Once the standardization has been accomplished, we have a picture of the average abilities of people at different ages and can calculate a person’s **mental age**, which is the age at which a person is performing intellectually. If we compare the mental age of a person to the person’s chronological age, the result is the **Intelligence Quotient (IQ)**, a measure of intelligence that is adjusted for age. A simple way to calculate IQ is by using the following formula:

$$\text{IQ} = \text{mental age} \div \text{chronological age} \times 100.$$

Thus a 10-year-old child who does as well as the average 10-year-old child has an IQ of 100 ( $10 \div 10 \times 100$ ), whereas an 8-year-old child who does as well as the average 10-year-old child would have an IQ of 125 ( $10 \div 8 \times 100$ ). Most modern intelligence tests are based on the relative position of a person’s score among people of the same age, rather than based on this formula, but the idea of intelligence “ratio” or “quotient” provides a good description of the score’s meaning.

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## The Flynn Effect

Intelligence tests need to be standardized on a regular basis, because the overall level of intelligence in a population may change over time. The Flynn effect refers to the observation that scores on intelligence tests worldwide have increased substantially over the past decades (Flynn, 1999). Although the increase varies somewhat from country to country, the average increase is about 3 IQ points every 10 years. There are many explanations for the Flynn effect, including better nutrition, increased access to information, and more familiarity with multiple-choice tests (Neisser, 1998). But whether people are actually getting smarter is debatable (Neisser, 1997).<sup>436</sup>

## The Value of IQ Testing

The value of IQ testing is most evident in educational or clinical settings. Children who seem to be experiencing learning difficulties or severe behavioral problems can be tested to ascertain whether the child's difficulties can be partly attributed to an IQ score that is significantly different from the mean for her age group. Without IQ testing—or another measure of intelligence—children and adults needing extra support might not be identified effectively. People also use IQ testing results to seek disability benefits from the Social Security Administration.

While IQ tests have sometimes been used as arguments in support of insidious purposes, such as the **eugenics movement**, which was the science of improving a human population by controlled breeding to increase desirable heritable characteristics. However, the value of this test is important to help those in need.<sup>437</sup>

## Bias of IQ Testing

Intelligence tests and psychological definitions of intelligence have been heavily criticized since the 1970s for being biased in favor of Anglo-American, middle-class respondents and for being inadequate tools for measuring non-academic types of intelligence or talent. Intelligence changes with experience, and IQ scores do not reflect that ability to change. What is considered smart varies culturally as well, and most intelligence tests do not take this variation into account. For example, in the West, being smart is associated with being quick. A person who answers a question the fastest is seen as the smartest, but in some cultures being smart is associated with considering an idea thoroughly before giving an answer.<sup>438</sup>

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<sup>436</sup> [Introduction to Psychology - Measures of Intelligence](#) references [Psychology](#) by [OpenStax CNX](#), licensed under [CC BY 4.0](#) (modified by Dawn Rymond)

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<sup>438</sup> [Sociology: Brief Edition – Agents of Socialization](#) by Steven E. Barkan is licensed under [CC BY-NC-SA 3.0](#)  
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## A Spectrum of Intellectual Development

The results of studies assessing the measurement of intelligence show that IQ is distributed in the population in the form of a **Normal Distribution (or bell curve)**. Typically, the bulk of the scores fall toward the middle, with many fewer scores falling at the extremes. The normal distribution of intelligence shows that on IQ tests, as well as on most other measures, the majority of people cluster around the average (in this case, where IQ = 100), and fewer are either very smart or very dull (see below).

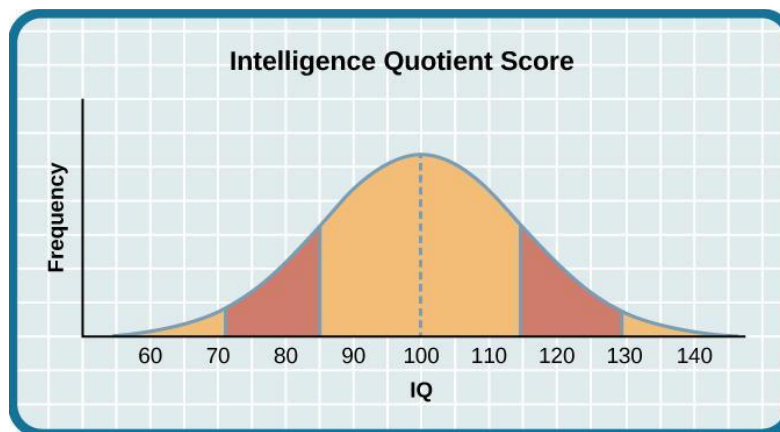


Figure 12.16 - The majority of people have an IQ score between 85 and 115.<sup>439</sup>

## Distribution of IQ Scores in the General Population

This means that about 2% of people score above an IQ of 130, often considered the threshold for giftedness, and about the same percentage score below an IQ of 70, often being considered the threshold for an intellectual disability. The normal distribution of IQ scores in the general population shows that most people have about average intelligence, while very few have extremely high or extremely low intelligence.<sup>440</sup>

### *Intellectual Disabilities*

One end of the distribution of intelligence scores is defined by people with very low IQ.

**Intellectual disability (or intellectual developmental disorder)** is assessed based on cognitive capacity (IQ) and adaptive functioning. The severity of the disability is based on adaptive functioning, or how well the person handles everyday life tasks. About 1% of the United States population, most of them males, fulfill the criteria for intellectual developmental disorder, but some children who are given this diagnosis lose the classification as they get older and better learn to function in society (Greenspan, Loughlin, & Black, 2001).

One example of an intellectual developmental disorder is **Down syndrome**, a chromosomal disorder caused by the presence of all or part of an extra 21st chromosome. The incidence of Down syndrome is estimated at approximately 1 per 700 births, and the prevalence increases

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<sup>440</sup> [Introduction to Psychology - Measures of Intelligence](#) references [Psychology](#) by [OpenStax CNX](#), licensed under CC BY 4.0

as the mother's age increases (CDC, 2014a). People with Down syndrome typically exhibit a distinctive pattern of physical features, including a flat nose, upwardly slanted eye, a protruding tongue, and a short neck.



Figure 12.17 – Down Syndrome is caused by the presence of all or part of an extra 21st chromosome.<sup>441</sup>

Fortunately, societal attitudes toward individuals with intellectual disabilities have changed over the past decades. We no longer use terms such as “retarded,” “moron,” “idiot,” or “imbecile” to describe people with intellectual differences, although these were the official psychological terms used to describe degrees of what was referred to as mental retardation in the past. Laws such as the Americans with Disabilities Act (ADA) have made it illegal to discriminate on the basis of mental and physical disability.

### *Giftedness*

Being **gifted** refers to children who have an IQ of 130 or higher (Lally & Valentine-French, 2015). Having an extremely high IQ is less of a problem than having an extremely low IQ but there may also be challenges to being particularly smart. It is often assumed that school children who are labeled as “gifted” may have adjustment problems that make it more difficult for them to create and maintain social relationships.



Figure 12.18 – Children who get a score on an intelligence test showing an IQ of 130 or higher are labeled as gifted.<sup>442</sup>

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<sup>442</sup> [Image](#) by [Ben Mullins](#) on [Unsplash](#)

There are also different types and areas of intelligence and giftedness. Some children are particularly good at math or science, some at automobile repair or carpentry, some at music or art, some at sports or leadership, and so on. There is a lively debate among scholars about whether it is appropriate or beneficial to label some children as “gifted and talented” in school and to provide them with accelerated special classes and other programs that are not available to everyone. Although doing so may help the gifted kids (Colangelo & Assouline, 2009), it also may isolate them from their peers and make such provisions unavailable to those who are not classified as “gifted.” Testing for high IQ or disabilities needs to be critically looked at so that the good that these tests were created for is not used for undesirable purposes.<sup>443</sup>

## Testing in Schools

How do we know so much about what children learn in schools? Children's academic performance is often measured with the use of standardized tests. Those tests include, but are not limited to Achievement and Aptitude tests.



Figure 12.19 – Standardized tests are used to measure academic performance.<sup>444</sup>

**Achievement tests** are used to measure what a child has already learned. Achievement tests are often used as measures of teaching effectiveness within a school setting and as a method to make schools that receive tax dollars (such as public schools, charter schools, and private schools that receive vouchers) accountable to the government for their performance.

**Aptitude tests** are designed to measure a student’s ability to learn or to determine if a person has potential in a particular program. These are often used at the beginning of a course of study or as part of college entrance requirements. The Scholastic Aptitude Test (SAT) and Preliminary Scholastic Aptitude Test (PSAT) are perhaps the most familiar aptitude tests for students in grades 6 and above. Learning test-taking skills and preparing for SATs has become part of the training that some students in these grades receive as part of their pre-college preparation. Other aptitude tests include the MCAT (Medical College Admission Test), the LSAT (Law School Admission Test), and the GRE (Graduate Record Examination). Intelligence tests are also a form of aptitude tests, which are designed to measure a person’s ability to learn.<sup>445</sup>

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### *What Happened to No Child Left Behind?*

In 2001, President Bush signed into effect Public Law 107-110, better known as the **No Child Left Behind Act** mandating that schools administer achievement tests to students and publish those results so that parents have an idea of their children's performance. Additionally, the government would have information on the gaps in educational achievement between children from various social class, racial, and ethnic groups.

Schools that showed significant gaps in these levels of performance were mandated to work toward narrowing these gaps. Educators criticized the policy for focusing too much on testing as the only indication of student performance. Target goals were considered unrealistic and set by the federal government rather than individual states. Because these requirements became increasingly unworkable for schools, changes to the law were requested.

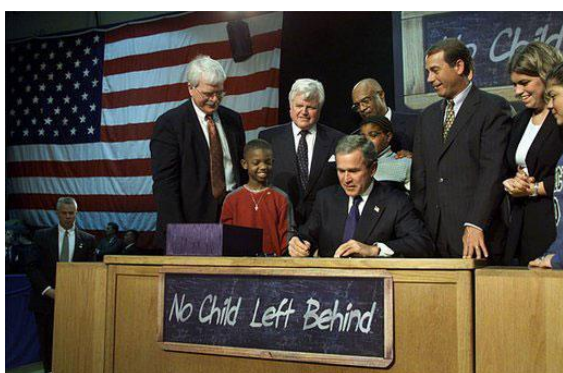


Figure 12.20 – The No Child Left Behind Act was signed into effect in 2001.<sup>446</sup>



Figure 12.21 – The Every Student Succeeds Act was signed into effect in 2015.<sup>447</sup>

On December 12, 2015, President Obama signed into law the **Every Student Succeeds Act** (ESSA). This law is state-driven and focuses on expanding educational opportunities and improving student outcomes, including in the areas of high school graduation, drop-out rates, and college attendance.<sup>448</sup>

### **Language Development in the School-Age Child**

Human language is the most complex behavior on the planet. Language involves both the ability to comprehend (receptive) spoken and written (expressive) words and to create communication in real-time when we speak or write.

Language can be conceptualized in terms of sounds, meaning, and the environmental factors that help us understand it. Phonemes are the elementary sounds of our language, morphemes are the smallest units of meaning in a language, syntax is the set of grammatical rules that

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control how words are put together, and contextual information is the elements of communication that are not part of the content of language but that help us understand its meaning. Understanding how language works means reaching across many branches of psychology—everything from basic **neurological** functioning to high-level **cognitive** processing. Language shapes our social interactions and brings order to our lives. Complex language is one of the defining factors that make us human.<sup>449</sup>

## Cognitive Language and Communication

When learning one or more languages in middle childhood, children are able to understand that there are many complex parts including comprehension, fluency, and meaning when communicating.

### *Grammar*

Because all language obeys a set of combinatory rules, we can communicate an infinite number of concepts. While every language has a different set of rules, all languages do obey rules. These rules are known as grammar. Speakers of a language have internalized the rules and exceptions for that language's grammar. There are rules for every level of language—word formation (for example, native speakers of English have internalized the general rule that -ed is the ending for past-tense verbs, so even when they encounter a brand-new verb, they automatically know how to put it into past tense); phrase formation (for example, knowing that when you use the verb “buy,” it needs a subject and an object; “She buys” is wrong, but “She buys a gift” is okay); and sentence formation.

Older children are also able to learn new rules of grammar with more flexibility. While younger children are likely to be reluctant to give up saying “I goed there”, older children will learn this rather quickly along with other rules of grammar.

### *Vocabulary*

One of the reasons that children can classify objects in so many ways is that they have acquired a vocabulary to do so. By fifth grade, a child's vocabulary has grown to 40,000 words. It grows at a rate that exceeds that of those in early childhood. This language explosion, however, differs from that of younger children because it is facilitated by being able to associate new words with those already known, and because it is accompanied by a more sophisticated understanding of the meanings of a word.

### *Context*

Words do not possess fixed meanings but change their interpretation as a function of the context in which they are spoken. We use **contextual information**—the information surrounding language—to help us interpret it. Context is how everything within language works together to convey a particular meaning. Context includes tone of voice, body language, and the words being used. Depending on how a person says something, holds his or her body,

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or emphasizes certain points of a sentence, a variety of different messages can be conveyed. For example, the word “awesome,” when said with a big smile, means the person is excited about a situation. “Awesome,” said with crossed arms, rolled eyes, and a sarcastic tone, means the person is not thrilled with the situation.<sup>450</sup>



Figure 12.22 – Context helps us understand meaning.<sup>451</sup>

### *New Understanding*

Children in middle and late childhood love words. They are better at categorizing words, understanding the main concepts behind words, phrases, and stories, and they understand that words can have more than one meaning. This sophistication of vocabulary is also evidenced by the fact that older children tell jokes and delight in doing so. They may use jokes that involve puns and plays on words such as “knock-knock” jokes or jokes with punch lines.

## **Bilingualism - also known as Dual Language or English Language Learners**

The majority of children around the world are **bilingual**, (they understand and use two languages). (Meyers- Sutton, 2005). Even in the United States, which is a relatively **monolingual** society, more than 47 million people speak a language other than English at home, and about 10 million of these people are children or youth in public schools (United States Department of Commerce, 2003). The large majority of bilingual students (75%) are Hispanic, but the rest represent more than a hundred different language groups from around the world. In larger communities throughout the United States, it is therefore common for a single classroom to contain students from several language backgrounds at once. In classrooms, as in other social settings, bilingualism exists in different forms and degrees.

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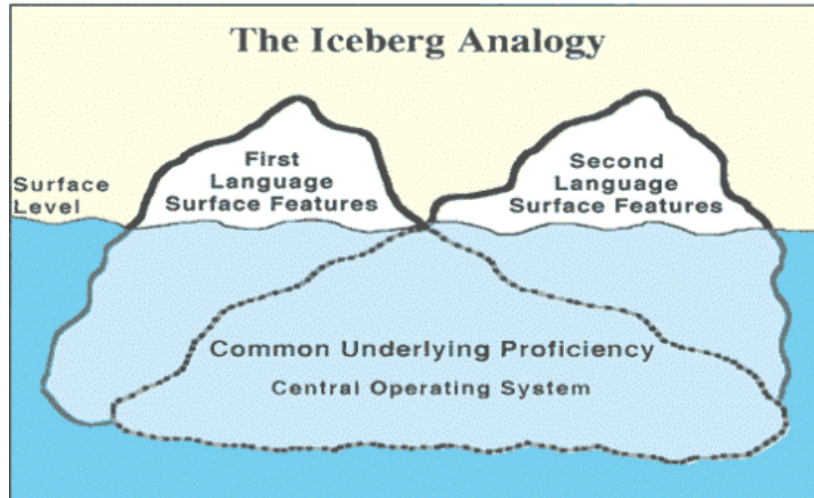


Figure 12.23 – The Iceberg Analogy.<sup>452</sup>

The student who speaks both languages fluently has a definite cognitive advantage. As you might suspect and research confirms, a fully fluent bilingual student is in a better position to express concepts or ideas in more than one way, and to be aware of doing so (Jimenez, Garcia, & Pearson, 1995; Francis, 2006). Having a large vocabulary in a first language has been shown to save time in learning vocabulary in a second language (Hansen, Umeda & McKinney, 2002).<sup>453</sup>

## Theories of Language Development

Humans, especially children, have an amazing ability to learn language. Within the first year of life, children will have learned many of the necessary concepts to have functional language, although it will still take years for their capabilities to develop fully. As we just explained, some people learn two or more languages fluently and are bilingual or multilingual. Here is a recap of the theorists and theories that have been proposed to explain the development of language, and the related brain structures, in children.

### Skinner: Operant Conditioning

B. F. Skinner believed that children learn language through **operant conditioning**; in other words, children receive “rewards” for functionally using language. For example, a child learns to say the word “drink” when she is thirsty; she receives something to drink, which reinforces her use of the word for getting a drink, and thus she will continue to do so. This follows the four-term contingency that Skinner believed was the basis of language development—motivating operations, discriminative stimuli, response, and reinforcing stimuli. Skinner also suggested that children learn language through imitation of others, prompting, and shaping.

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## Chomsky: Language Acquisition Device

Noam Chomsky's work discusses the biological basis for language and claims that children have innate abilities to learn language. Chomsky terms this innate ability the "language acquisition device." He believes children instinctively learn language without any formal instruction. He also believes children have a natural need to use language, and that in the absence of formal language children will develop a system of communication to meet their needs. He has observed that all children make the same type of language errors, regardless of the language they are taught. Chomsky also believes in the existence of a "universal grammar," which posits that there are certain grammatical rules all human languages share. However, his research does not identify areas of the brain or a genetic basis that enables humans' innate ability for language.

## Piaget: Assimilation and Accommodation

Jean Piaget's theory of language development suggests that children use both assimilation and accommodation to learn language. **Assimilation** is the process of changing one's environment to place information into an already-existing schema (or idea). **Accommodation** is the process of changing one's schema to adapt to the new environment. Piaget believed children need to first develop mentally before language acquisition can occur. According to him, children first create mental structures within the mind (schemas) and from these schemas, language development happens.

## Vygotsky: Zone of Proximal Development

Lev Vygotsky's theory of language development focused on social learning and **the zone of proximal development (ZPD)**. The ZPD is a level of development obtained when children engage in social interactions with others; it is the distance between a child's *potential* to learn and the *actual learning* that takes place. Vygotsky's theory also demonstrated that Piaget underestimated the importance of social interactions in the development of language. Piaget's and Vygotsky's theories are often compared with each other, and both have been used successfully in the field of education.



Figure 12.24 – This park ranger is using the ZPD to increase these boys understanding.<sup>454</sup>

<sup>454</sup> Image by the [National Park Service](#) is in the public domain



## Learning to Read

A huge milestone in middle childhood is learning to read and write. While the foundations of this were laid in infancy and early childhood, formal instruction on this process usually happens during the school-age years. There isn't always complete agreement on how children are best taught to read. The following approaches to teaching reading are separated by their methodology, but today, models of reading strive for a balance between the two types of reading methods because they are both recognized as essential for learning to read.

- A **phonics-based approach** teaches reading by making sure children can understand letter-sound correspondences (how letters sound), automatically recognize familiar words, and decode unfamiliar words. This ability to break the code of reading allows children to read words they have never heard spoken before.
- The **whole-language approach** attempts to teach reading as naturally as possible. As the sounds of words don't have meaning, the focus is on reading words and sentences in context (such as real books), rather than learning the sounds and phonemes that makeup words.<sup>455</sup>

## Learning Difficulties

When children don't seem to be developing or learning in the typical pattern one might be assessed for a disorder or disability.

- A **learning disorder** is a classification of disorders in which a person has difficulty learning in a typical manner within one of several domains. Types of learning disorders include difficulties in reading (dyslexia), mathematics (dyscalculia), and writing (dysgraphia). These disorders are diagnosed with certain criteria.
- A **learning disability** has problems in a specific area or with a specific task or type of activity related to education.

The following is an example of the DSM-5 - learning disorders.

### Learning Disorders:

- Dyslexia - Reading
- Dyscalculia – Mathematics
- Dyspraxia - Motor Coordination
- Dysgraphia - Writing
- Auditory Processing Disorder - Hearing
- Visual Processing Disorder - Visual

### Speech and Language Disorders:

- Aphasia - Loss of language - expressive and receptive
- Articulation Disorder - An articulation disorder
- Fluency Disorders - Fluency disorders
- Voice Disorders - Disorders of the voice<sup>456</sup>

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## Learning Disorders or Disabilities

### *Dyslexia*

Dyslexia, sometimes called “reading disorder,” is the most common learning disability; of all students with specific learning disabilities, 70%–80% have deficits in reading. The term “developmental dyslexia” is often used as a catchall term, but researchers assert that dyslexia is just one of several types of reading disabilities. A reading disability can affect any part of the reading process, including word recognition, word decoding, reading speed, prosody (oral reading with expression), and reading comprehension.

### *Dyscalculia*

**Dyscalculia** is a form of math-related disability that involves difficulties with learning math-related concepts (such as quantity, place value, and time), memorizing math-related facts, organizing numbers, and understanding how problems are organized on the page. Dyscalculics are often referred to as having poor “number sense.”

### *Dyspraxia*

Children who have motor skills substantially below what is expected for their age are diagnosed with **dyspraxia** – or developmental coordination disorder (DCD) as it is more formally known. They are not lazy, clumsy, or unintelligent – in fact, their intellectual ability is in line with the general population – but they do struggle with everyday tasks that require coordination.



Figure 12.25 - Children with learning challenges are usually identified in school because this is when their academic abilities are being tested, compared, and measured.<sup>457</sup>

### *Dysgraphia*

The term **dysgraphia** is often used as an overarching term for all disorders of written expression. Individuals with dysgraphia typically show multiple writing-related deficiencies, such as grammatical and punctuation errors within sentences, poor paragraph organization, multiple spelling errors, and excessively poor penmanship.<sup>458</sup>

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<sup>457</sup> Image by [pan xiaozhen](#) on [Unsplash](#)

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### *Auditory Processing Disorder*

A processing deficit in the auditory modality that spans multiple processes is **auditory processing disorder** (APD). To date, APD diagnosis is mostly based on the utilization of speech material. Unfortunately, acceptable non-speech tests that allow differentiation between an actual central hearing disorder and related disorders such as specific language impairments are still not adequately available.

### *Visual Processing Disorder*

Difficulty processing or interpreting visual information is referred to as **visual processing disorder** (VPD). Children with visual processing issues may have difficulty telling the difference between two shapes or finding a specific piece of information on a page.<sup>459</sup>

**Table 12.2 - Summary of Learning Disabilities<sup>460</sup>**

Disability	Difficulties	Effects
<b>Dyslexia</b>	Difficulty with reading	Problems reading, writing, spelling
<b>Dyscalculia</b>	Difficulty with math	Problems doing math problems, understanding time, using money
<b>Dyspraxia (Sensory Integration Disorder)</b>	Difficulty with fine motor skills	Problems with hand-eye coordination, balance manual dexterity
<b>Dysgraphia</b>	Difficulty with writing	Problems with handwriting, spelling, organizing ideas
<b>Auditory Processing Disorder</b>	Difficulty hearing difference between sounds	Problems with reading, comprehension, language
<b>Visual Processing Disorder</b>	Difficulty interpreting visual information	Problems with reading, math, maps, charts, symbols, pictures

<sup>459</sup> Ludwig, A. A., Fuchs, M., Kruse, E., Uhlig, B., Kotz, S. A., & RübSamen, R. (2014). [Auditory processing disorders with and without central auditory discrimination deficits](#). *Journal of the Association for Research in Otolaryngology: JARO*, 15(3), 441-64.

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## Speech and Language Disorders

### *Aphasia*

A loss of the ability to produce or understand language is referred to as **aphasia**. Without the brain, there would be no language. The human brain has a few areas that are specific to language processing and production. When these areas are damaged or injured, capabilities for speaking or understanding can be lost, a disorder known as aphasia. These areas must function together for a person to develop, use, and understand language.

### *Articulation disorder*

**An articulation disorder** refers to the inability to correctly produce speech sounds (phonemes) because of imprecise placement, timing, pressure, speed, or flow of movement of the lips, tongue, or throat (NIDCD, 2016). Sounds can be substituted, left off, added, or changed. These errors may make it hard for people to understand the speaker. They can range from problems with specific sounds, such as lisping to severe impairment in the phonological system. Most children have problems pronouncing words early on while their speech is developing. However, by age three, at least half of what a child says should be understood by a stranger. By age five, a child's speech should be mostly intelligible. Parents should seek help if by age six the child is still having trouble producing certain sounds. It should be noted that accents are not articulation disorders (Medline Plus, 2016a).

### *Fluency disorders*

**Fluency disorders** affect the rate of speech. Speech may be labored and slow, or too fast for listeners to follow. The most common fluency disorder is stuttering.

**Stuttering** is a speech disorder in which sounds, syllables, or words are repeated or last longer than normal. These problems cause a break in the flow of speech, which is called dysfluency (Medline Plus, 2016b). About 5% of young children, aged two-five, will develop some stuttering that may last from several weeks to several years (Medline Plus, 2016c). Approximately 75% of children recover from stuttering. For the remaining 25%, stuttering can persist as a lifelong communication disorder (National Institute on Deafness and other Communication Disorders, NIDCD, 2016). This is called developmental stuttering and is the most common form of stuttering.

Brain injury, and in very rare instances, emotional trauma may be other triggers for developing problems with stuttering. In most cases of developmental stuttering, other family members share the same communication disorder. Researchers have recently identified variants in four genes that are more commonly found in those who stutter (NIDCD, 2016).



Figure 12.26 – Speech therapy.<sup>461</sup>

## Children with Disabilities: Legislation

Since the 1970s political and social attitudes have moved increasingly toward including people with disabilities into a wide variety of “regular” activities. In the United States, the shift is illustrated clearly in the Federal legislation that has made laws where segregation and exclusion of those with disabilities against the law.

### *Individuals with Disabilities Education Act (or IDEA)*

It was first passed in 1975 and has been amended several times since. In its current form, the law guarantees the following rights related to education for anyone with a disability from birth to age 21.

The first two rights influence schooling in general, but the last three affect the work of classroom teachers rather directly:

- **Free, appropriate public education (FAPE):** An individual or an individual's family should not have to pay for education simply because the individual has a disability, and the educational program should be truly educational; i.e., not merely caretaking or babysitting. School districts provide this education from ages 3-21.
- **Due process:** In case of disagreements between an individual with a disability and the schools or other professionals, there must be procedures for resolving the disagreements that are fair and accessible to all parties, including the person himself or herself or the person's representative.
- **Fair evaluation of performance despite disability:** Tests or other evaluations should not assume test-taking skills that a person with a disability cannot reasonably be expected to have, such as holding a pencil, hearing or seeing questions, working quickly, or understanding and speaking orally. Evaluation procedures should be modified to allow for these differences. This provision of the law applies both to evaluations made by teachers and to school-wide or “high-stakes” testing programs.

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- **Education in the “least restrictive environment”:** Education for someone with a disability should provide as many educational opportunities and options for the person as possible, both in the short term and in the long term. In practice, this requirement has meant including students in regular classrooms and school activities as much as possible.
- **An Individualized Educational Plan (IEP):** Given that every disability is unique, instructional planning for a person with a disability should be unique or individualized as well. In practice, this provision has led to classroom teachers planning individualized programs jointly with other professionals (like reading specialists, psychologists, or medical personnel) as part of a team.<sup>462</sup>

### Special Education Process

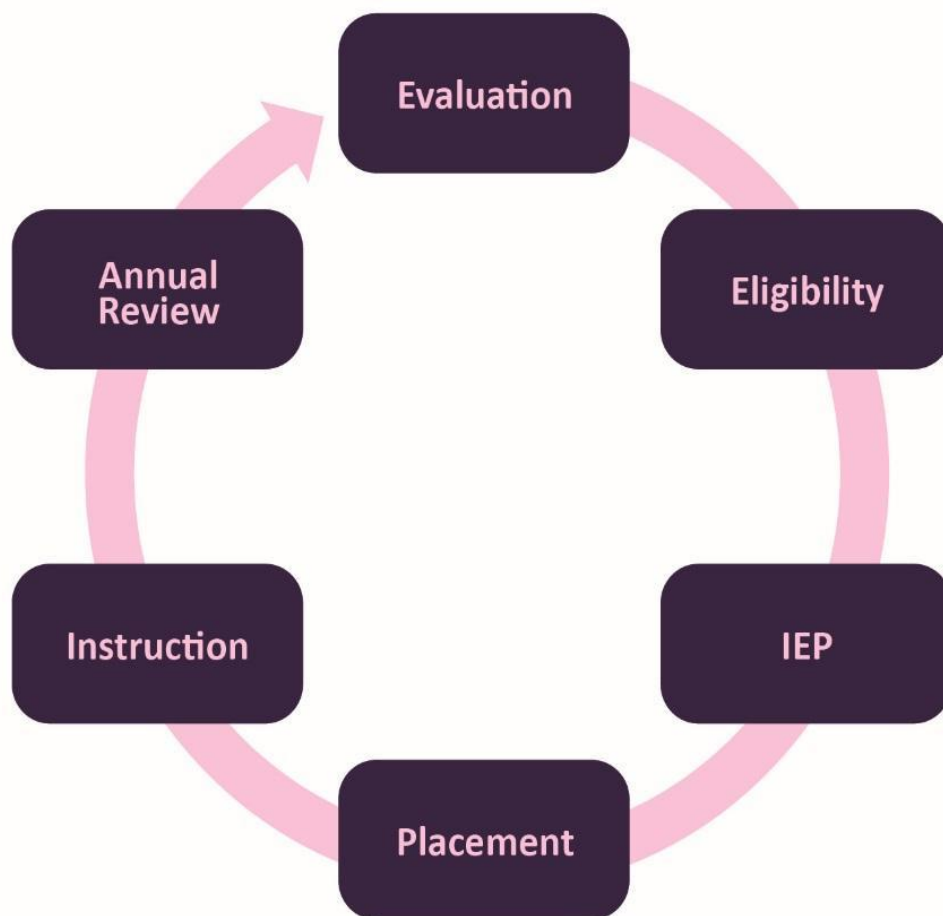


Figure 12.27 – The special education process.<sup>463</sup>

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## Conclusion

In this chapter we looked at:

- Piaget's concrete operational stage of cognitive development.
- Theories of intelligence.
- How children process information.
- Intelligence testing.
- The spectrum of intellectual abilities.
- Language and communication development.
- Learning difficulties.
- Special Education Laws

In the next chapter, we will be examining school-aged children's developing understanding of themselves and the world around them and the widening influences on their social and emotional development.



# Chapter 13: Middle Childhood

## Social-Emotional Development

### Chapter Objectives

After this chapter, you should be able to:

1. Describe the social-emotional theories of development
2. Examine the importance of positive friendships and peer relationships
3. Describe self-understanding in childhood
4. Identify the types of family composition
5. Explain aggression, antisocial behavior, and bullying

### Introduction

As children get older, their experiences allow them to develop a more realistic understanding of themselves, including both their strengths and weaknesses. This developing self-concept is influenced by messages they receive from their peers, their family, and the media.

### Social-Emotional Theories of Development

#### Erik Erikson- Industry vs. Inferiority

Erik Erikson proposed that we are motivated by a need to achieve competence in certain areas of our lives. As we've learned in previous chapters, Erikson's psychosocial theory has eight stages of development over the lifespan, from infancy through late adulthood. At each stage there is a conflict, or task, that we need to resolve. Successful completion of each developmental task results in a sense of competence and a healthy personality. Failure to master these tasks leads to feelings of inadequacy.

During the elementary school stage (ages 6-12), children face the task of *Industry versus Inferiority*. Children begin to compare themselves to their peers to see how they measure up.



Figure 13.1 – The academic award this boy is receiving may contribute to his sense of industry.<sup>464</sup>

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They either develop a sense of pride and accomplishment in their schoolwork, sports, social activities, and family life, or they feel inferior and inadequate when they don't measure up.<sup>465</sup>

According to Erikson, children in middle childhood are very busy or industrious. They are constantly doing, planning, playing, getting together with friends, achieving. This is a very active time and a time when they are gaining a sense of how they measure up when compared with friends. Erikson believed that if these industrious children can be successful in their endeavors, they will get a sense of confidence for future challenges. If not, a sense of inferiority can be particularly haunting during middle childhood.<sup>466</sup>

### Sigmund Freud - Psychoanalytic Theory

The great psychoanalyst Sigmund Freud (1856–1939) focused on unconscious, biological forces that he felt shape individual personality. Freud (1933) thought that the personality consists of three parts: the id, the ego, and the superego. The id is the selfish part of the personality and consists of biological instincts that all babies have, including the need for food and, more generally, the demand for immediate gratification. As babies get older, they learn that not all their needs can be immediately satisfied and thus develop the ego, or the rational part of the personality. As children get older still, they internalize society's norms and values and thus begin to develop their superego, which represents society's conscience. If a child does not develop normally and the superego does not become strong enough, the individual is more at risk for being driven by the id to commit antisocial behavior.<sup>467</sup>



Figure 13.2 – Development of the superego helps children overcome their unconscious desire to behave antisocially.<sup>468</sup>

### Lawrence Kohlberg's Stages of Moral Development

Kohlberg (1963) built on the work of Piaget and was interested in finding out how our moral reasoning changes as we get older. He wanted to find out how people decide what is right and

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what is wrong. Just as Piaget believed that children's cognitive development follows specific patterns, Kohlberg (1984) argued that we learn our moral values through active thinking and reasoning, and that moral development follows a series of stages. Kohlberg's six stages are generally organized into three levels of moral reasons. To study moral development, Kohlberg looked at how children (and adults) respond to moral dilemmas. One of Kohlberg's best known moral dilemmas is the Heinz dilemma:

In Europe, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make but the druggist was charging ten times what the drug cost him to make. He paid \$200 for the radium and charged \$2,000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money but he could only get together about \$1,000, about half of what the drug cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later. But the druggist said: "No, I discovered the drug and I'm going to make money from it." Heinz got desperate and broke into the man's store to steal the drug for his wife. Should the husband have done that? (Kohlberg, 1969, p. 379)<sup>469</sup>

### *Level One - Preconventional Morality*

In stage one, moral reasoning is based on concepts of punishment. The child believes that if the consequence for an action is punishment, then the action was wrong. In the second stage, the child bases his or her thinking on self-interest and reward ("You scratch my back, I'll scratch yours"). The youngest subjects seemed to answer based on what would happen to the man as a result of the act. For example, they might say the man should not break into the pharmacy because the pharmacist might find him and beat him. Or they might say that the man should break in and steal the drug and his wife will give him a big kiss. Right or wrong, both decisions were based on what would physically happen to the man as a result of the act. This is a self-centered approach to moral decision-making. He called this most superficial understanding of right and wrong **preconventional morality**. Preconventional morality focuses on self-interest. Punishment is avoided and rewards are sought. Adults can also fall into these stages, particularly when they are under pressure.

### *Level Two - Conventional Morality*

Those tested who based their answers on what other people would think of the man as a result of his act, were placed in Level Two. For instance, they might say he should break into the store, then everyone would think he was a good husband, or he should not because it is against the law. In either case, right and wrong is determined by what other people think. In stage three, the person wants to please others. At stage four, the person acknowledges the importance of social norms or laws and wants to be a good member of the group or society. A good decision is one that gains the approval of others or one that complies with the law. This he called

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**conventional morality**, *people care about the effect of their actions on others*. Some older children, adolescents, and adults use this reasoning.

Level Three, post conventional morality, is not included because it focuses on adolescence and adulthood. However, it is in the table below if you'd like an overview of Level Three - Stages 5 and 6.

**Table 13.1 - Lawrence Kohlberg's Levels of Moral Reasoning**

**Preconventional Morality (young children)**

Stage	Description
<b>Stage 1</b>	Focus is on self-interest and punishment is avoided. The man shouldn't steal the drug, as he may get caught and go to jail.
<b>Stage 2</b>	Rewards are sought. A person at this level will argue that the man should steal the drug because he does not want to lose his wife who takes care of him.

**Conventional Morality (older children, adolescents, most adults)**

Stage	Description
<b>Stage 3</b>	Focus is on how situational outcomes impact others and wanting to please and be accepted. The man should steal the drug because that is what good husbands do.
<b>Stage 4</b>	People make decisions based on laws or formalized rules. The man should obey the law because stealing is a crime.

**Post Conventional Morality (rare in adolescents, a few adults)**

Stage	Description
<b>Stage 5</b>	Individuals employ abstract reasoning to justify behaviors. The man should steal the drug because laws can be unjust and you have to consider the whole situation.
<b>Stage 6</b>	Moral behavior is based on self-chosen ethical principles. The man should steal the drug because life is more important than property.

Although research has supported Kohlberg's idea that moral reasoning changes from an early emphasis on punishment and social rules and regulations to an emphasis on more general ethical principles, as with Piaget's approach, Kohlberg's stage model is probably too simple. For one, people may use higher levels of reasoning for some types of problems but revert to lower levels in situations where doing so is more consistent with their goals or beliefs (Rest, 1979). Second, it has been argued that the stage model is particularly appropriate for Western, rather than non-Western, samples in which allegiance to social norms, such as respect for authority, may be particularly important (Haidt, 2001). In addition, there is frequently little correlation

between how we score on the moral stages and how we behave in real life. Perhaps the most important critique of Kohlberg's theory is that it may describe the moral development of males better than it describes that of females (Jaffee & Hyde, 2000).<sup>470</sup>

## Self-Understanding

### Self-Concept and Self-Esteem

**Self-concept** refers to beliefs about general personal identity (Seiffert, 2011). These beliefs include personal attributes, such as one's age, physical characteristics, behaviors, and competencies. Children in middle childhood have a more realistic sense of self than do those in early childhood. That exaggerated sense of self as "biggest" or "smartest" or "tallest" gives way to an understanding of one's strengths and weaknesses. This can be attributed to greater experience in comparing one's own performance with that of others and to greater cognitive flexibility.

A child's self-concept can be influenced by peers and family and the messages they send about a child's worth. Contemporary children also receive messages from the media about how they should look and act. Movies, music videos, the internet, and advertisers can all create cultural images of what is desirable or undesirable and this too can influence a child's self-concept.



Figure 13.3 – Interactions with the media children's perception of themselves.<sup>471</sup>

Internalizing others' appraisals and creating social comparison affect children's **self-esteem**, which is defined as an evaluation of one's identity. Children can have individual assessments of how well they perform a variety of activities and also develop an overall, global self-assessment. If there is a discrepancy between how children view themselves and what they consider to be their ideal selves, their self-esteem can be negatively affected.<sup>472</sup>

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## Motivation

Motivation refers to a desire, need, or drive that contributes to and explains behavioral changes. In general, motivators provide some sort of incentive for completing a task. One definition of a motivator explains it as a force “acting either on or within a person to initiate behavior.” In addition to biological motives, motivations can be either intrinsic (arising from internal factors) or extrinsic (arising from external factors).

### *Extrinsic vs. Intrinsic Motivation*

**Intrinsically** motivated behaviors are performed because of the sense of personal satisfaction that they bring. According to Deci (1971), these behaviors are defined as ones for which the reward is the satisfaction of performing the activity itself. Intrinsic motivation thus represents engagement in an activity for its own sake. For example, if comforting a friend makes a child feel good, they are intrinsically motivated to respond to their friend’s distress.

**Extrinsically** motivated behaviors, on the other hand, are performed to receive something from others or avoid certain negative outcomes. The extrinsic motivator is outside of, and acts on, the individual. Rewards—such as a sticker, or candy—are good examples of extrinsic motivators. Social and emotional incentives like praise and attention are also extrinsic motivators since they are bestowed on the individual by another person.



Figure 13.4 – A lollipop can be an extrinsic motivator.<sup>473</sup>

## Motivation as Self-Efficacy

Another important development in self-understanding is **self-efficacy**, which is the belief that you are capable of carrying out a specific task or of reaching a specific goal (Bandura, 1977, 1986, 1997). In addition to being influenced by their goals, interests, and attributions, students’ motives are affected by specific beliefs about their capacities. In **self-efficacy theory** the beliefs become a primary, explicit explanation for motivation (Bandura, 1977, 1986, 1997). As mentioned previously, the optimal level seems to be either at or slightly above true capacity (Bandura, 1997).

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<sup>473</sup> [Image](#) by [strausadolf](#) on [Pixabay](#)



Large discrepancies between self-efficacy and ability can create motivational problems for the individual (Seifert, 2011). If a student believes that he or she can solve mathematical problems, then the student is more likely to attempt the mathematics homework that the teacher assigns.

Unfortunately, the converse is also true. If a student believes that he or she is incapable of math, then the student is less likely to attempt the math homework regardless of the student's actual ability in math. Since self-efficacy is self-constructed, students can miscalculate or misperceive their true skill, and these misperceptions can have complex effects on students' motivations. It is possible to have either too much or too little self-efficacy, and according to Bandura (1997), the optimal level seems to be either at, or slightly above, true ability.<sup>474</sup>

### Learned Helplessness and Self-Efficacy

If a person's sense of self-efficacy is very low, he or she can develop **learned helplessness**, a perception of complete lack of control in mastering a task. The attitude is similar to depression, a pervasive feeling of apathy, and a belief that effort makes no difference and does not lead to success. Learned helplessness was originally studied from the behaviorist perspective of classical and operant conditioning by the psychologist Martin Seligman (1995). In people, learned helplessness leads to characteristic ways of dealing with problems. They tend to attribute the source of a problem to themselves, to generalize the problem to many aspects of life, and to see the problem as lasting or permanent. More optimistic individuals, in contrast, are more likely to attribute a problem to outside sources, to see it as specific to a particular situation or activity, and to see it as temporary or time-limited. Consider, for example, two students who each fail a test. The one with a lot of learned helplessness is more likely to explain the failure by saying something like: "I'm stupid; I never perform well on any schoolwork, and I never will perform well at it." The other, more optimistic student is more likely to say something like: "The teacher made the test too hard this time, so the test doesn't prove anything about how I will do next time or in other subjects."



Figure 13.5 – If this girl thinks that studying won't help her do well on the test, her low self-efficacy may develop into learned helplessness.<sup>475</sup>

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What is noteworthy about these differences in perception is how much the more optimistic of these perspectives resembles high self-efficacy and how much learned helplessness seems to contradict or differ from it. As already noted, high self-efficacy is a strong belief in one's capacity to carry out a specific task successfully. By definition, therefore, self-efficacy focuses attention on a temporary or time-limited activity (the task), even though the cause of successful completion (oneself) is "internal."<sup>476</sup>

## Child and the Family

Children's experience of relationships at home and the peer group contributes to an expanding repertoire of social and emotional skills and also to broadened social understanding. In these relationships, children develop expectations for specific people (leading, for example, to secure or insecure attachments to parents), understanding of how to interact with adults and peers, and self-concept based on how others respond to them. These relationships are also significant forums for emotional development.<sup>477</sup>



Figure 13.6 – Families can support children's social and emotional skills.<sup>478</sup>

The reason we turn out much like our parents, for better or worse, is that our families are such an important part of our socialization process. When we are born, our primary caregivers are almost always one or both of our parents. For several years we have more contact with them than with any other adults. Because this contact occurs in our most formative years, our parents' interaction with us and the messages they teach us can have a profound impact throughout our lives. During middle childhood, children spend less time with parents and more time with their peers. Parents may have to modify their approach to parenting to accommodate the child's growing independence. Using reason and engaging in joint decision-making whenever possible may be the most effective approach (Berk, 2007).<sup>479</sup>

<sup>476</sup> [Child Development – Unit 5: Theories \(Part II\)](#) by [Lumen Learning](#) references [Educational Psychology](#) by Kelvin Seifert and Rosemary Sutton, licensed under [CC BY 4.0](#)

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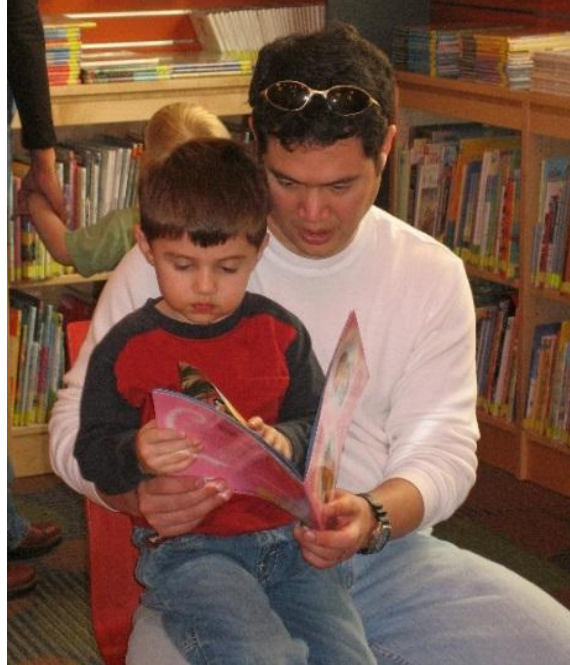


Figure 13.7 - When children grow up to love reading, that may have been influenced by the positive experiences of being read to in their families. <sup>480</sup>

## Family Atmosphere

One of the ways to assess the quality of family life is to consider the tasks of families. Berger (2005) lists five family functions:

1. Providing food, clothing and shelter
2. Encouraging learning
3. Developing self-esteem
4. Nurturing friendships with peers
5. Providing harmony and stability

Notice that in addition to providing food, shelter, and clothing, families are responsible for helping the child learn, relate to others, and have a confident sense of self. One of the functions of a family is to provide a harmonious and stable environment for living. A good home environment is one in which the child's physical, cognitive, emotional, and social needs are adequately met. Sometimes families emphasize physical needs but ignore cognitive or emotional needs. Other times, families pay close attention to physical needs and academic requirement, but may fail to nurture the child's friendships with peers or guide the child toward developing healthy relationships. Parents might want to consider how it feels to live in the household. Is it stressful and conflict-ridden? Is it a place where family members enjoy being?<sup>481</sup>

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Figure 13.8 – This mother is helping her son navigate using a tablet.<sup>482</sup>

## Family Stress

Family relationships are significantly affected by conditions outside the home. For instance, the **Family Stress Model** describes how financial difficulties are associated with parents' depressed moods, which in turn lead to marital problems and poor parenting that contributes to poorer child adjustment (Conger, Conger, & Martin, 2010). Within the home, parental marital difficulty or divorce affects more than half the children growing up today in the United States. Divorce is typically associated with economic stresses for children and parents, the renegotiation of parent-child relationships (with one parent typically as primary custodian and the other assuming a visiting relationship), and many other significant adjustments for children. Divorce is often regarded by children as a sad turning point in their lives, although for most it is not associated with long-term problems of adjustment (Emery, 1999).

## *Stress & Race/Ethnicity*

As discussed above, one of the biggest causes of stress is economic instability. According to the Pew Research Center (2016), black families are twice as likely as white families to be living in poverty, with a median household income of \$43,300 compared to \$71,300 for whites. Hispanic household income was 61% of that for white households. This is just one outcome that illustrates the differences that children and families of color experience. As discussed in Chapter 4, ongoing racial discrimination creates chronic stress that impacts families of color and has many health consequences. As could be seen during the COVID-19 pandemic, the number of deaths were disproportionately high among people of color. This is yet another example of the consequences of racial inequity that is present throughout American society and affects all children.

## Family Forms

As discussed previously in chapter 10, sociology examines the family as an institution and a unit of socialization. Sociological studies of the family look at demographic characteristics of the family members: family size, age, ethnicity and gender of its members, social class of the family,

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the economic level and mobility of the family, professions of its members, and the education levels of the family members.

Currently, one of the biggest issues that sociologists study is the changing roles of family members. Historically, each member has been restricted by the gender roles of the traditional family. These roles, such as the father as the breadwinner and the mother as the homemaker, are declining. Now, the mother is often the supplementary provider while retaining the responsibilities of child-rearing. In this scenario, females' role in the labor force is "compatible with the demands of the traditional family." Sociology studies have examined the adaptation of males' roles to caregivers as well as providers. The gender roles are becoming increasingly interwoven and various other family forms are becoming more common.

### What Families Look Like



Figure 13.9 – a childless family<sup>483</sup>



Figure 13.10 – a single parent (father) family<sup>484</sup>



Figure 13.11 – an extended family<sup>485</sup>



Figure 13.12 – a same-sex family<sup>486</sup>

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Figure 13.13 – a single parent (mother) family<sup>487</sup>



Figure 13.14 – a two-parent (nuclear) family<sup>488</sup>

Throughout this textbook and in the preceding images, you can see a variety of types of families.

### *Families with One Parent*

A **single-parent family** usually refers to a parent who has most of the day-to-day responsibilities in the raising of the child or children and who is not living with a spouse or partner. The **dominant caregiver** is the parent with whom the children reside for the majority of the time. If the parents are separated or divorced, children usually live with their custodial parent and have visitation with their noncustodial parent. In rare cases, both parents share equal responsibility in raising their children.

**Single parent by choice families** refer to a family that a single person builds by deliberately deciding to have a child without a partner. These families can be built with the use of assisted reproductive technology and donor gametes (sperm and/or egg) or embryos, surrogacy, foster or kinship care, and adoption.

### *Two-Parent Families*

The **nuclear family** is often referred to as the traditional family structure. It includes two married parents and children. While common in industrialized cultures (such as the U.S.), it is not the most common type of family worldwide.<sup>489</sup>

**Cohabitation** is an arrangement where two people who are not married live together in an intimate relationship, particularly an emotionally and/or sexually intimate one, on a long-term or permanent basis. Today, cohabitation is a common pattern among people in the Western world. More than two-thirds of married couples in the U.S. say that they lived together before getting married.

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Gay and lesbian couples with children have **same-sex families**. While now recognized legally in the United States, discrimination against same-sex families is not uncommon. According to the American Academy of Pediatrics, there is “ample evidence to show that children raised by same-gender parents fare as well as those raised by heterosexual parents. More than 25 years of research have documented that there is no relationship between parents' sexual orientation and any measure of a child's emotional, psychosocial, and behavioral adjustment. Conscientious and nurturing adults, whether they are men or women, heterosexual or homosexual, can be excellent parents. The rights, benefits, and protections of civil marriage can further strengthen these families.”<sup>490</sup>

**Blended families** describe families with mixed parents: one or both parents remarried, bringing children of the former family into the new family<sup>491</sup>. Blended families are complex in a number of ways that can pose unique challenges to those who seek to form successful stepfamily relationships (Visser & Visser, 1985). These families are also referred to as stepfamilies.

### *Families That Include Additional Adults*

**Extended families** include three generations, grandparents, parents, and children. This is the most common type of family worldwide.<sup>492</sup>

**Families by choice** are relatively newly recognized. Popularized by the LGBTQ community to describe a family not recognized by the legal system. It may include adopted children, live-in partners, kin of each member of the household, and close friends. Increasingly family by choice is being practiced by those who see the benefit of including people beyond blood relatives in their families.<sup>493</sup>

While most families in the U.S. are **monogamous**, some families have more than two married parents. These families are **polygamous**.<sup>494</sup> Polygamy is illegal in all 50 states, but it is legal in other parts of the world.<sup>495</sup>

### *Additional Forms of Families*

**Kinship families** are those in which the full-time care, nurturing, and protection of a child is provided by relatives, members of their tribe or clan, godparents, stepparents, or other adults who have a family relationship to a child. When children cannot be cared for by their parents, research finds benefits to kinship care.<sup>496</sup>

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<sup>490</sup> [Same-sex marriage](#) by [Wikipedia](#) is licensed under [CC BY-SA 3.0](#)

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When a person assumes the parenting of another, usually a child, from that person's biological or legal parent or parents this creates **adoptive families**. Legal adoption permanently transfers all rights and responsibilities and is intended to affect a permanent change in status and as such requires societal recognition, either through legal or religious sanction. As introduced in Chapter 2, adoption can be done privately, through an agency, or through foster care and in the U.S. or from abroad. Adoptions can be closed (no contact with birth/biological families or open, with different degrees of contact with birth/biological families). Couples, both opposite and same-sex, and single parents can adopt (although not all agencies and foreign countries will work with unmarried, single, or same-sex intended parents).<sup>497</sup>

When parents are not of the same ethnicity, they build **interracial families**. Until the decision in *Loving v Virginia* in 1969, this was not legal in the U.S. There are other parts of the world where marrying someone outside of your race (or social class) has legal and social ramifications.<sup>498</sup> These families may experience issues unique to each individual family's culture.

### Changes in Families - Divorce

The tasks of families listed above are functions that can be fulfilled in a variety of family types—not just intact, two-parent households. Harmony and stability can be achieved in many family forms and when it is disrupted, either through divorce, or efforts to blend families, or any other circumstances, the child suffers (Hetherington & Kelly, 2002). Changes continue to happen, but for children, they are especially vulnerable. Divorce and how it impacts children depends on how the caregivers handle the divorce as well as how they support the emotional needs of the child.



Figure 13.15 – How divorce impacts children largely depends on how parents handle it.<sup>499</sup>

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## Divorce

A lot of attention has been given to the impact of divorce on the life of children. The assumption has been that divorce has a strong, negative impact on the child and that single-parent families are deficient in some way. However, 75-80 percent of children and adults who experience divorce suffer no long-term effects (Hetherington & Kelly, 2002). An objective view of divorce, re-partnering, and remarriage indicates that divorce, remarriage, and life in stepfamilies can have a variety of effects.<sup>500</sup>

### *Factors Affecting the Impact of Divorce*

As you look at the consequences (both pro and con) of divorce and remarriage on children, keep these family functions in mind. Some negative consequences are a result of financial hardship rather than divorce per se (Drexler, 2005). Some positive consequences reflect improvements in meeting these functions. For instance, we have learned that positive self-esteem comes in part from a belief in the self and one's abilities rather than merely being complemented by others. In single-parent homes, children may be given more opportunity to discover their own abilities and gain independence that fosters self-esteem. If divorce leads to fighting between the parents and the child is included in these arguments, their self-esteem may suffer.

The impact of divorce on children depends on a number of factors. The degree of conflict before the divorce plays a role. If the divorce means a reduction in tensions, the child may feel relief. If the parents have kept their conflicts hidden, the announcement of a divorce can come as a shock and be met with enormous resentment. Another factor that has a great impact on the child concerns financial hardships they may suffer, especially if financial support is inadequate. Another difficult situation for children of divorce is the position they are put into if the parents continue to argue and fight—especially if they bring the children into those arguments.

**Short-term consequences:** In roughly the first year following divorce, children may exhibit some of these short-term effects:

1. **Grief over losses suffered.** The child will grieve the loss of the parent they no longer see as frequently. The child may also grieve about other family members that are no longer available. Grief sometimes comes in the form of sadness but it can also be experienced as anger or withdrawal. Older children may feel depressed.

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2. **Reduced Standard of Living.** Very often, divorce means a change in the amount of money coming into the household. Children experience new constraints on spending or entertainment. School-aged children, especially, may notice that they can no longer have toys, clothing, or other items to which they've grown accustomed. Or it may mean that there is less eating out or being able to afford cable television, and so on. The custodial parent may experience stress at not being able to rely on child support payments or having the same level of income as before. This can affect decisions regarding healthcare, vacations, rents, mortgages, and other expenditures. And the stress can result in less happiness and relaxation in the home. The parent who has to take on more work may also be less available to the children.
3. **Adjusting to Transitions.** Children may also have to adjust to other changes accompanying a divorce. The divorce might mean moving to a new home and changing schools or friends. It might mean leaving a neighborhood that has meant a lot to them as well.

**Long-Term consequences:** Here are some effects that go beyond just the first year following divorce.

1. **Economic/Occupational Status.** One of the most commonly cited long-term effects of divorce is that children of divorce may have lower levels of education or occupational status. This may be a consequence of lower income and resources for funding education rather than to divorce per se. In those households where economic hardship does not occur, there may be no impact on economic status (Drexler, 2005).
2. **Improved Relationships with the Custodial Parent** (usually the mother): Most children of divorce lead happy, well-adjusted lives and develop stronger, positive relationships with their custodial parent (Seccombe and Warner, 2004). Others have also found that relationships between mothers and children become closer and stronger (Guttman, 1993) and suggest that greater equality and less rigid parenting is beneficial after divorce (Steward, Copeland, Chester, Malley, and Barenbaum, 1997).
3. **Greater emotional independence in sons.** Drexler (2005) notes that sons who are raised by mothers only develop an emotional sensitivity to others that is beneficial in relationships.
4. **Feeling more anxious in their own love relationships.** Children of divorce may feel more anxious about their own relationships as adults. This may reflect a fear of divorce if things go wrong, or it may be a result of setting higher expectations for their own relationships.
5. **Adjustment of the custodial parent.** Furstenberg and Cherlin (1991) believe that the primary factor influencing the way that children adjust to divorce is the way the custodial parent adjusts to the divorce. If that parent is adjusting well, the children will benefit. This may explain a good deal of the variation we find in children of divorce.<sup>501</sup>

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Figure 13.16 - Jeanette Wilinski is the mother of Elizabeth, Logan and Alexis. As a single mom, she has to find a balance between taking care of the Air Force mission and taking care of her children.<sup>502</sup>

Families are the most important part of the 6 to 11-year-old life. However, peers and friendships become more and more important to the child in middle childhood.

### Sibling Relationships

Siblings spend a considerable amount of time with each other and offer a unique relationship that is not found with same-age peers or with adults. Siblings play an important role in the development of social skills. Cooperative and pretend play interactions between younger and older siblings can teach empathy, sharing, and cooperation (Pike, Coldwell, & Dunn, 2005) as well as negotiation and conflict resolution (Abuhatoum & Howe, 2013). However, the quality of sibling relationships is often mediated by the quality of the parent-child relationship and the psychological adjustment of the child (Pike et al., 2005). For instance, more negative interactions between siblings have been reported in families where parents had poor patterns of communication with their children (Brody, Stoneman, & McCoy, 1994). Children who have emotional and behavioral problems are also more likely to have negative interactions with their siblings. However, the psychological adjustment of the child can sometimes be a reflection of the parent-child relationship. Thus, when examining the quality of sibling interactions, it is often difficult to tease out the separate effect of adjustment from the effect of the parent-child relationship.

While parents want positive interactions between their children, conflicts are going to arise, and some confrontations can be the driving force for growth in children's social and cognitive skills. The sources of conflict between siblings often depend on their respective ages. Dunn and Munn (1987) revealed that over half of all sibling conflicts in early childhood were disputes about property rights. By middle childhood this starts shifting toward control over social situations, such as what games to play, disagreements about facts or opinions, or rude behavior (Howe, Rinaldi, Jennings, & Petrakos, 2002). Researchers have also found that the strategies children use to deal with conflict change with age, but that this is also tempered by the nature of the conflict.

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Abuhatoum and Howe (2013) found that coercive strategies (e.g., threats) were preferred when the dispute centered on property rights, while reasoning was more likely to be used by older siblings and in disputes regarding control over the social situation. However, younger siblings also use reasoning, frequently bringing up the concern of legitimacy (e.g., “You’re not the boss”) when in conflict with an older sibling. This is a very common strategy used by younger siblings and is possibly an adaptive strategy for younger siblings to assert their autonomy (Abuhatoum & Howe, 2013). A number of researchers have found that children who can use non-coercive strategies are more likely to have a successful resolution, whereby a compromise is reached and neither child feels slighted (Ram & Ross, 2008; Abuhatoum & Howe, 2013).

Not surprisingly, friendly relationships with siblings often lead to more positive interactions with peers. Positive interactions with peers may also help a child get along better with siblings.

## Friendships, Peers, and Peer Groups

Parent-child relationships are not the only significant relationships in a child’s life. Peers take on new importance as judges of one’s worth, competence, and attractiveness. Friendships provide the opportunity for learning social skills such as how to communicate with others and how to negotiate differences. Children get ideas from one another about how to perform certain tasks, how to gain popularity, what to wear, say, and listen to, and how to act. This society of children marks a transition from a life focused on the family to a life concerned with peers. Peers play a key role in a child’s self-esteem at this age as any parent who has tried to console a rejected child will tell you. No matter how complimentary and encouraging the parent may be, being rejected by friends can only be remedied by renewed acceptance.<sup>503</sup>



Figure 13.17 – Peers influence a child’s self-esteem.<sup>504</sup>

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Children’s conceptualization of what makes someone a “friend” changes from a more egocentric understanding to one based on mutual trust and commitment. Both Bigelow (1977) and Selman (1980) believe that these changes are linked to advances in cognitive development. Bigelow and La Gaipa (1975) outline three stages to children’s conceptualization of friendship<sup>505</sup>.

**Table 13.2 - Three Stages to Children’s Conceptualization of Friendship**<sup>506</sup>

Stage	Descriptions
<b>Stage One</b>	<b>In stage one, reward-cost</b> , friendship focuses on mutual activities. Children in early, middle, and late childhood all emphasize similar interests as the main characteristics of a good friend.
<b>Stage Two</b>	<b>In stage two, normative expectation</b> , focuses on conventional morality; that is, the emphasis is on a friend as someone who is kind and shares with you. Clark and Bittle (1992) found that fifth-graders emphasized this in a friend more than third or eighth graders.
<b>Stage Three</b>	<b>In stage three, empathy and understanding</b> , friends are people who are loyal, committed to the relationship, and share intimate information. Clark and Bittle (1992) reported eighth-graders emphasized this more in a friend. They also found that as early as fifth grade, girls were starting to include the sharing of secrets and not betraying confidences as crucial to someone who is a friend.

Friendships are very important for children. The social interaction with another child who is similar in age, skills, and knowledge provokes the development of many social skills that are valuable for the rest of life (Bukowski, Buhrmester, & Underwood, 2011). In these relationships, children learn how to initiate and maintain social interactions with other children. They learn skills for managing conflict, such as turn-taking, compromise, and bargaining. Play also involves the mutual, sometimes complex, coordination of goals, actions, and understanding. Through these experiences, children develop friendships that provide additional sources of security and support to those provided by their parents.<sup>507</sup>

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## Five Stages of Friendship from Early Childhood through Adulthood<sup>508</sup>

Selman (1980) outlines five stages of friendship from early childhood through to adulthood.

- In stage 0, **momentary physical interaction**, *a friend is someone who you are playing with at this point in time*. Selman notes that this is typical of children between the ages of three and six. These early friendships are based more on circumstances (e.g., a neighbor) than on genuine similarities.
- In stage 1, **one-way assistance**, *a friend is someone who does nice things for you*, such as saving you a seat on the school bus or sharing a toy. However, children in this stage, do not always think about what they are contributing to the relationships. Nonetheless, having a friend is important and children will sometimes put up with a not so nice friend, just to have a friend. Children as young as five and as old as nine may be in this stage.
- In stage 2, **fair-weather cooperation**, children are very concerned with fairness and reciprocity, and thus, *a friend is someone who returns a favor*. In this stage, if a child does something nice for a friend there is an expectation that the friend will do something nice for them at the first available opportunity. When this fails to happen, a child may break off the friendship. Selman found that some children as young as seven and as old as twelve are in this stage.
- In stage 3, **intimate and mutual sharing**, typically between the ages of eight and fifteen, *a friend is someone who you can tell them things you would tell no one else*. Children and teens in this stage no longer “keep score,” and do things for a friend because they genuinely care for the person. If a friendship dissolves in this stage it is usually due to a violation of trust. However, children in this stage do expect their friend to share similar interests and viewpoints and may take it as a betrayal if a friend likes someone that they do not.
- In stage 4, **autonomous interdependence**, *a friend is someone who accepts you and that you accept as they are*. In this stage children, teens, and adults accept and even appreciate differences between themselves and their friends. They are also not as possessive, so they are less likely to feel threatened if their friends have other relationships or interests. Children are typically twelve or older in this stage.

### Peer Groups

However, peer relationships can be challenging as well as supportive (Rubin, Coplan, Chen, Bowker, & McDonald, 2011). Being accepted by other children is an important source of affirmation and self-esteem, but peer rejection can foreshadow later behavior problems (especially when children are rejected due to aggressive behavior). With increasing age, children confront the challenges of bullying, peer victimization, and managing conformity pressures. Social comparison with peers is an important means by which children evaluate their

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skills, knowledge, and personal qualities, but it may cause them to feel that they do not measure up well against others. For example, a boy who is not athletic may feel unworthy of his football-playing peers and revert to shy behavior, isolating himself and avoiding conversation. Conversely, an athlete who doesn't "get" Shakespeare may feel embarrassed and avoid reading altogether.

Also, with the approach of adolescence, peer relationships become focused on psychological intimacy, involving personal disclosure, vulnerability, and loyalty (or its betrayal)—which significantly affect a child's outlook on the world. Each of these aspects of peer relationships requires developing very different social and emotional skills than those that emerge in parent-child relationships. They also illustrate the many ways that peer relationships influence the growth of personality and self-concept.<sup>509</sup>



Figure 13.18 - Social comparison with peers is an important means by which children evaluate their value.<sup>510</sup>

## Peer Relationships

Most children want to be liked and accepted by their friends. Some popular children are nice and have good social skills. These popular-prosocial children tend to do well in school and are cooperative and friendly. Popular-antisocial children may gain popularity by acting tough or spreading rumors about others (Cillessen & Mayeux, 2004). Rejected children are sometimes excluded because they are shy and withdrawn. The withdrawn-rejected children are easy targets for bullies because they are unlikely to retaliate when belittled (Boulton, 1999). Other rejected children are ostracized because they are aggressive, loud, and confrontational. The aggressive-rejected children may be acting out of a feeling of

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insecurity. Unfortunately for rejected children, their fear of rejection only leads to behavior that brings further rejection from other children. Children who are not accepted are more likely to experience conflict, lack confidence, and have trouble adjusting. (Klima & Repetti, 2008; Schwartz, Lansford, Dodge, Pettit, & Bates, 2014).<sup>511</sup>



Figure 13.19 - Peer relationships are particularly important for children. They can be supportive but also challenging. Peer rejection may lead to behavioral problems later in life.<sup>512</sup>

Peer Relationships are studied using **sociometric assessment** (which measures attraction between members of a group). Children are asked to mention the three children they like to play with the most, and those they do not like to play with. The number of times a child is nominated for each of the two categories (like and do not like) is tabulated. Based on those tabulations, children are categorized into the following:

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**Table 13.3 - Categories in Peer Relationships<sup>513</sup>**

Category	Description
<b>Popular Children</b>	Receive many votes in the “like” category, and very few in the “do not like” category.
<b>Rejected children</b>	Receive more unfavorable votes, and few favorable ones.
<b>Controversial children</b>	Mentioned frequently in each category, with several children liking them and several children placing them in the do not like category.
<b>Neglected children</b>	Rarely mentioned in either category.
<b>Average children</b>	Have a few positive votes with very few negative ones.
<b>Popular-prosocial children</b>	Are nice and have good social skills; tend to do well in school and are cooperative and friendly.
<b>Popular-antisocial children</b>	May gain popularity by acting tough or spreading rumors about others.
<b>Rejected-withdrawn children</b>	Are shy and withdrawn and are easy targets for bullies because they are unlikely to retaliate when belittled.
<b>Rejected-aggressive children</b>	Are ostracized because they are aggressive, loud, and confrontational. They may be acting out of a feeling of insecurity.

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## Aggression, Antisocial Behavior, Bullies, & Victims

### Aggression and Antisocial Behavior

Aggression may be physical or verbal/emotional. Aggression is activated in large part by the amygdala and regulated by the prefrontal cortex.

Testosterone is associated with increased aggression in both males and females. Aggression is also caused by negative experiences and emotions, including frustration, pain, and heat. As predicted by principles of observational learning, research evidence makes it very clear that, on average, people who watch violent behavior become more aggressive. Early, antisocial behavior leads to befriending others who also engage in antisocial behavior, which only perpetuates the downward cycle of aggression and wrongful acts.<sup>514</sup>



Figure 13.20 – This boy is threatening physical aggression.<sup>515</sup>

### Bullying and Victims

According to Stopbullying.gov (2016), a federal government website managed by the U.S. Department of Health & Human Services, **bullying** is defined as unwanted, aggressive behavior among school-aged children that involves a real or perceived power imbalance. Further, the aggressive behavior happens more than once or has the potential to be repeated. There are different types of bullying, including verbal bullying, which is saying or writing mean things, teasing, name-calling, taunting, threatening, or making inappropriate sexual comments. Social bullying, also referred to as relational bullying, involves spreading rumors, purposefully excluding someone from a group, or embarrassing someone on purpose. Physical bullying involves hurting a person's body or possessions.

A more recent form of bullying is **cyberbullying**, which involves electronic technology. Examples of cyberbullying include sending mean text messages or emails, creating fake profiles, and posting embarrassing pictures, videos, or rumors on social networking sites. Children who

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experience cyberbullying have a harder time getting away from the behavior because it can occur at any time of day and without being in the presence of others (Stopbullying.gov, 2016).<sup>516</sup>



Figure 13.21 – Cyberbullying can be devastating for children.<sup>517</sup>

### *Those Who are More Likely to Bully*

Bullies are often thought of as having low self-esteem, and then bully others to feel better about themselves. Although this can occur, many bullies have high levels of self-esteem. They possess considerable popularity and social power and have well-connected peer relationships. They do not lack self-esteem, and instead lack empathy for others. They like to dominate or be in charge of others.

### *Those at Risk for Bullying*

Bullying can happen to anyone but some students are at an increased risk for being bullied, including lesbian, gay, bisexual, transgendered (LGBT) youth, those with disabilities, and those who are socially isolated. Additionally, those who are perceived as different, weak, less popular, overweight, or having low self-esteem, have a higher likelihood of being bullied.

Unfortunately, most children do not let adults know that they are being bullied. Some fear retaliation from the bully, while others are too embarrassed to ask for help. Those who are socially isolated may not know who to ask for help or believe that no one would care or assist them if they did ask for assistance. Consequently, parents and teachers need to know the warning signs that may indicate a child is being bullied. These include unexplainable injuries, lost or destroyed possessions, changes in eating or sleeping patterns, declining school grades, not wanting to go to school, loss of friends, decreased self-esteem, and/or self-destructive behaviors.

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## Conclusion

In this chapter we looked at:

- Erikson's fourth stage of industry vs. inferiority
- Kohlberg's stages of moral development
- How school-age children continue to develop their self-understanding
- Motivation
- The role of the family and different forms of families
- Divorce and how it changes the family
- The importance of peers and friendships
- Children in peer groups and types of friendships
- Consequences of peer acceptance or rejection

In the next chapter, we will be moving on to our last period of development and examining physical development in adolescence.

# Chapter 14: Adolescence

## Physical Development

### Chapter Objectives

After this chapter, you should be able to:

1. Explain the changes in physical growth and brain growth during adolescence
2. Compare and contrast different male and female changes that occur during puberty
3. Discuss teenage pregnancy, birth control, and sexual health
4. Summarize adolescent health: sleep, diet, and exercise
5. Discuss drug and substance abuse
6. Explain the prevalence, risk factors, and consequences of adolescent pregnancy and sexual health
7. Describe several mental health issues for teens

### Introduction

Adolescence is often defined as the period that begins with puberty and ends with the transition to adulthood. The commonly accepted beginning age for this period of development is age 12. When adolescence ends is harder to pin down. In the past, most people would have said age 18. However, the latest brain research shows that the brain continues to mature until about age 25.

Adolescence physical development has evolved historically, with evidence indicating that this stage is lengthening as individuals start puberty earlier and transition to adulthood later than in the past. Puberty today begins, on average, at age 10–11 years for girls (with a range across cultures of 9 to 14 years), and 11–12 years for boys (with a range of 10 to 17 years). This average age of onset has decreased gradually over time since the 19th century by 3–4 months per decade, which has been attributed to a range of factors including better nutrition, obesity, increased father absence, and other environmental factors (Steinberg, 2013; Marshall & Tanner, 1986). Completion of formal education, financial independence from parents, marriage, and parenthood have all been markers of the end of adolescence and beginning of adulthood, and all of these transitions happen, on average, later now than in the past.

### Physical Growth

The physical growth and the changes of puberty mark the onset of adolescence (Lerner & Steinberg, 2009). For both boys and girls, these changes include a growth spurt in height, growth of pubic and underarm hair, and skin changes (e.g., oilier skin, and pimples). Hormones drive these pubescent changes, particularly the increase in testosterone for boys and estrogen for girls.<sup>518</sup>

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The **adolescent growth spurt** is a rapid increase in an individual's height and weight during puberty resulting from the simultaneous release of growth hormones, thyroid hormones, and androgens. Males experience their growth spurt about two years later than females. The accelerated growth in various body parts happens at different times, but for all adolescents, it has a fairly regular sequence. The first places to grow are the extremities (head, hands, and feet), followed by the arms and legs, and later the torso and shoulders. This non-uniform growth is one reason why an adolescent body may seem out of proportion. During puberty, bones become harder and more brittle.

Before puberty, there are nearly no differences between males and females in the distribution of fat and muscle. During puberty, males grow muscle much faster than females, and females experience a higher increase in body fat. An adolescent's heart and lungs increase in both size and capacity during puberty; these changes contribute to increased strength and tolerance for exercise.



Figure 14.1 – An adolescent boy<sup>519</sup>



Figure 14.2 – An adolescent girl<sup>520</sup>

## Brain Growth

Brain Growth continues into the early 20s. The development of the frontal lobe, in particular, is important during this stage. Adolescents often engage in increased risk-taking behaviors and experience heightened emotions during puberty; this may be because the frontal lobes of their brains—which are responsible for judgment, impulse control, and planning—are still maturing until early adulthood (Casey, Tottenham, Liston, & Durston, 2005)

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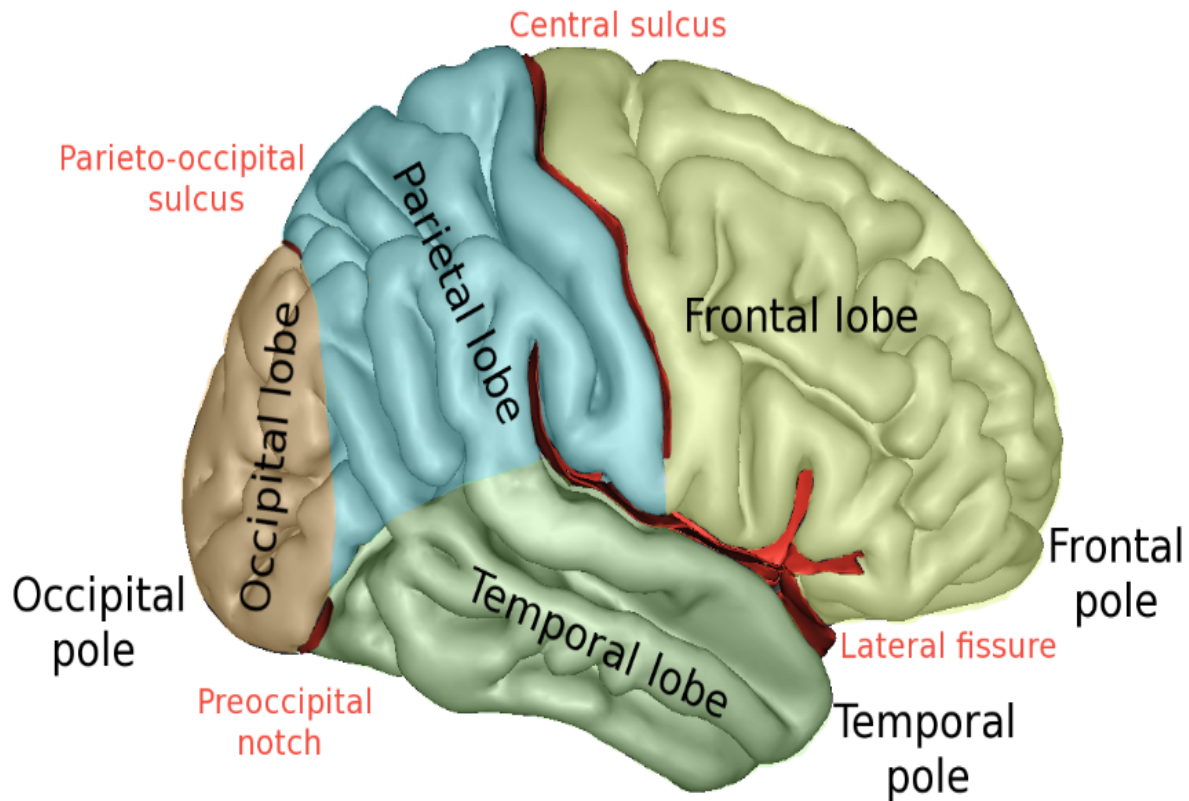


Figure 14.3 – The brain continues developing into early adulthood.<sup>521</sup>

The brain undergoes dramatic changes during adolescence. Although it does not get larger, it matures by becoming more interconnected and specialized (Giedd, 2015). The myelination and development of connections between neurons continues. This increases the white matter of the brain and allows the adolescent to make significant improvements in their thinking and processing skills. Different brain areas become myelinated at different times. For example, the brain's language areas undergo myelination during the first 13 years. Completed insulation of the axons consolidates these language skills but makes it more difficult to learn a second language. With greater myelination, however, comes diminished plasticity as a myelin coating inhibits the growth of new connections (Dobbs, 2012).

Even as the connections between neurons are strengthened, synaptic pruning occurs more than during childhood as the brain adapts to changes in the environment. This **synaptic pruning** causes the gray matter of the brain, or the cortex, to become thinner but more efficient (Dobbs, 2012). The corpus callosum, which connects the two hemispheres, continues to thicken, allowing for stronger connections between brain areas. Additionally, the hippocampus becomes more strongly connected to the frontal lobes, allowing for greater integration of memory and experiences into our decision-making.<sup>522</sup>

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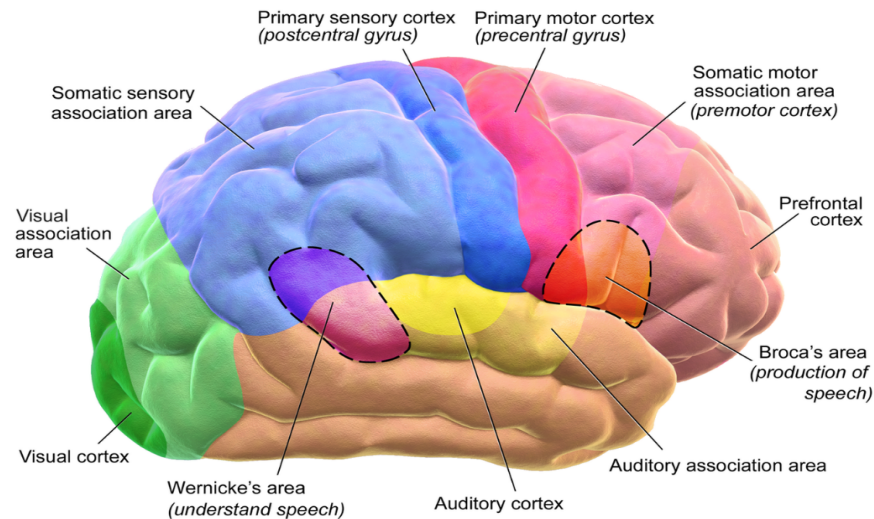


Figure 14.4 – During adolescence, the brain becomes more interconnected and specialized.<sup>523</sup>

The **limbic system**, which regulates emotion and reward, is linked to the hormonal changes that occur at puberty. The limbic system is also related to novelty seeking and a shift toward interacting with peers. In contrast, the **prefrontal cortex**, which is involved in the control of impulses, organization, planning, and making good decisions, does not fully develop until the mid-20s. According to Giedd (2015), the significant aspect of the later developing prefrontal cortex and early development of the limbic system is the “mismatch” in timing between the two. The approximately ten years that separates the development of these two brain areas can result in risky behavior, poor decision-making, and weak emotional control for the adolescent. When puberty begins earlier, this mismatch extends even further.

Teens often take more risks than adults and, according to research, it is because they weigh risks and rewards differently than adults do (Dobbs, 2012). For adolescents, the brain’s sensitivity to the neurotransmitter dopamine peaks, and **dopamine** is involved in reward circuits so the possible rewards outweigh the risks. Adolescents respond especially strongly to social rewards during activities, and they prefer the company of others their same age. In addition to dopamine, the adolescent brain is affected by **oxytocin**, which facilitates bonding and makes social connections more rewarding. With both dopamine and oxytocin engaged, it is no wonder that adolescents seek peers and excitement in their lives that could end up harming them.

Because of all the changes that occur in the adolescent brain, the chances for abnormal development can occur, including mental illness. In fact, 50% of mental illness occurs by the age of 14 and 75% occurs by age 24 (Giedd, 2015). Additionally, during this period of development, the adolescent brain is especially vulnerable to damage from drug exposure. For example, repeated exposure to marijuana can affect cellular activity in the endocannabinoid system. Consequently, adolescents are more sensitive to the effects of repeated marijuana exposure (Weir, 2015).

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However, researchers have also focused on the highly adaptive qualities of the adolescent brain, which allow the adolescent to move away from the family towards the outside world (Dobbs, 2012; Giedd, 2015). Novelty seeking and risk-taking can generate positive outcomes including meeting new people and seeking out new situations. Separating from the family and moving into new relationships and different experiences are actually quite adaptive for society.<sup>524</sup>

## Physical Changes in Adolescence

Adolescence begins with the onset of **puberty**, a developmental period in which hormonal changes cause rapid physical alterations in the body, culminating in sexual maturity. This period of physical development of the adolescent age 9-13 is divided into two phases.<sup>525</sup>

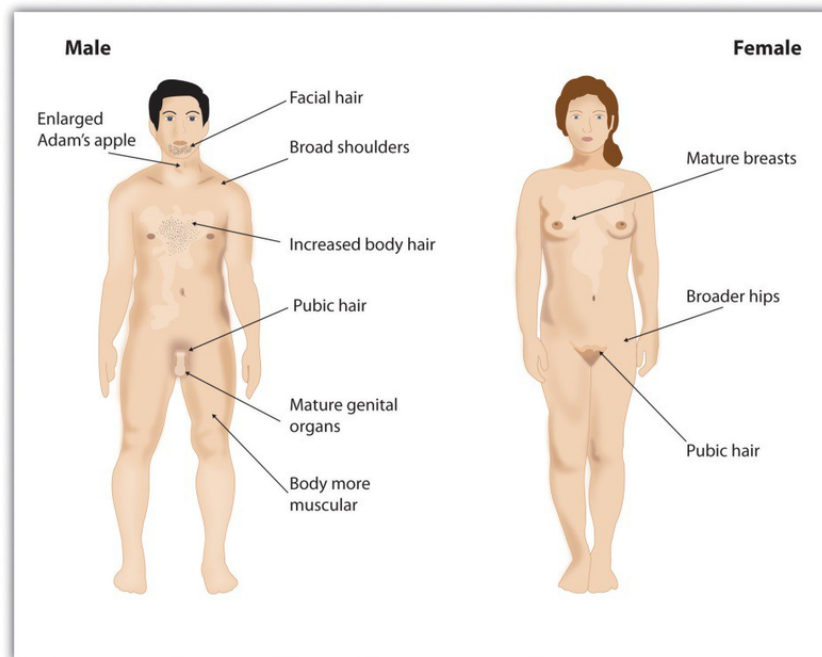


Figure 14.5 - Puberty brings dramatic changes in the body, including the development of primary and secondary sex characteristics.<sup>526</sup>

The first phase of puberty begins when the pituitary gland begins to stimulate the production of the male sex hormone **testosterone** in boys and the female sex hormones **estrogen** and **progesterone** in girls. The release of these sex hormones triggers the development of the **primary sex characteristics**, the sex organs concerned with reproduction. It also involves height increases from 20 to 25 percent. Puberty is second to the prenatal period in terms of

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rapid growth as the long bones stretch to their final, adult size. Girls grow 2–8 inches (5–20 centimeters) taller, while boys grow 4–12 inches (10–30 centimeters) taller.

**Secondary sexual characteristics** are visible physical changes not directly linked to reproduction but signal sexual maturity. The growth spurt for girls usually occurs earlier than that for boys, with some boys continuing to grow into their 20s. For males, this includes broader shoulders, an enlarged Adam’s apple, and a lower voice as the **larynx** grows. Boys typically begin to grow facial hair between ages 14 and 16, which becomes coarser and darker, and hair growth occurs in the pubic area, under the arms, as well as the face.

For females, the enlargement of breasts is usually the first sign of puberty and, on average, occurs between ages 10 and 12 (Marshall & Tanner, 1986). Girl’s hips broaden and pubic and underarm hair develops and becomes darker and coarser. Both boys and girls experience a rapid growth spurt during this stage. Males and females may begin shaving during this time as well as showing signs of acne on their faces and bodies.



Figure 14.6 – Males often start shaving during puberty.<sup>527</sup>

**Acne** is an unpleasant consequence of the hormonal changes in puberty. **Acne** is defined as pimples on the skin due to overactive sebaceous (oil-producing) glands (Dolgin, 2011). These glands develop at a greater speed than the skin ducts that discharge the oil. Consequently, the ducts can become blocked with dead skin and acne will develop. According to the University of California at Los Angeles Medical Center (2000), approximately 85% of adolescents develop acne, and boys develop acne more than girls because of greater levels of testosterone in their systems (Dolgin, 2011). Hormones that are also responsible for sexual development can also wreak havoc on the teenage skin.<sup>528</sup>

A major milestone in puberty for girls is **menarche**, the first menstrual period, typically experienced at around 12 or 13 years of age (Anderson, Danna, & Must, 2003). The age of

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menarche varies substantially and is determined by genetics, as well as by diet and lifestyle, since a certain amount of body fat is needed to attain menarche. Girls who are very slim, who engage in strenuous athletic activities, or who are malnourished may begin to menstruate later. Even after menstruation begins, girls whose level of body fat drops below the critical level may stop having their periods. The sequence of events for puberty is more predictable than the age at which they occur. Some girls may begin to grow pubic hair at age 10 but not attain menarche until age 15.<sup>529</sup>

## Male Anatomy

Males have both internal and external genitalia that are responsible for procreation and sexual intercourse. Males produce their sperm on a cycle, and unlike the female's ovulation cycle, the male sperm production cycle is constantly producing millions of sperm daily. The male sex organs are the penis and the testicles, the latter of which produce semen and sperm. The semen and sperm, as a result of sexual intercourse, can fertilize an ovum in the female's body; the fertilized ovum (zygote) develops into a fetus, which is later born as a child.

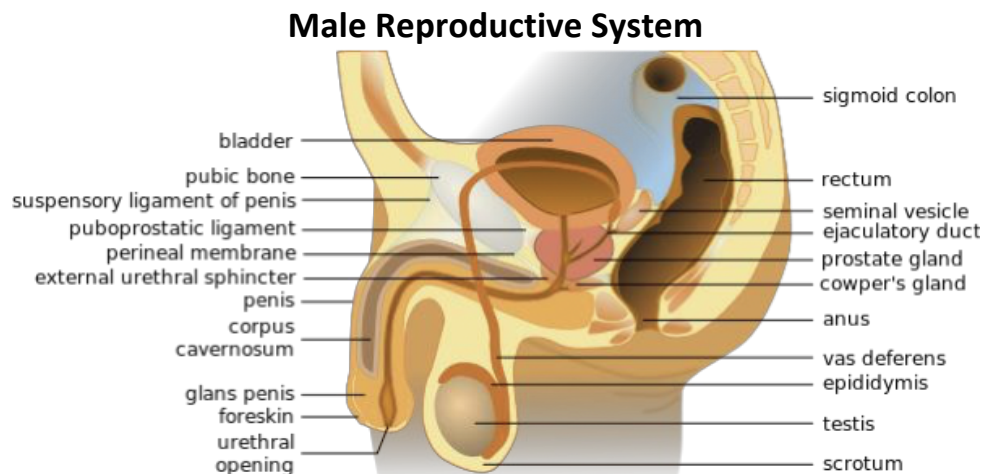


Figure 14.7<sup>530</sup>

## Female Anatomy

Female external genitalia is collectively known as the vulva, which includes the mons veneris, labia majora, labia minora, clitoris, vaginal opening, and urethral opening. Female internal reproductive organs consist of the vagina, uterus, fallopian tubes, and ovaries. The uterus hosts the developing fetus, produces vaginal and uterine secretions, and passes the male's sperm through to the fallopian tubes while the ovaries release the eggs. A female is born with all her eggs already produced. The vagina is attached to the uterus through the cervix, while the uterus is attached to the ovaries via the fallopian tubes. Females have a monthly reproductive cycle; at certain intervals, the ovaries release an egg, which passes through the fallopian tube into the uterus. If, in this transit, it meets with sperm, the sperm might penetrate and merge

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with the egg, fertilizing it. If not fertilized, the egg and the tissue that was lining the uterus is flushed out of the system through **menstruation** (around every 28 days).

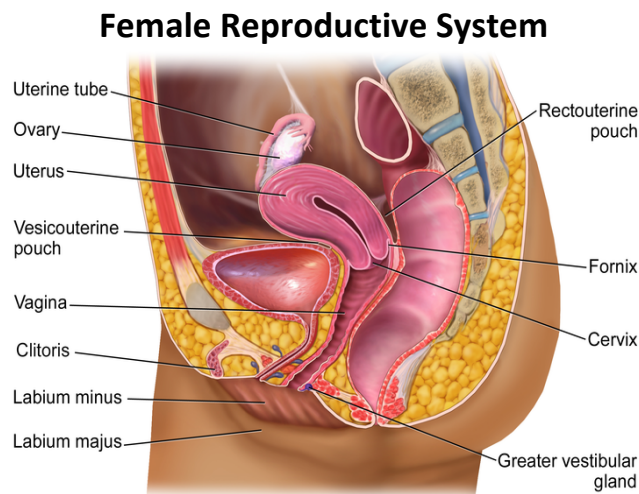


Figure 14.8<sup>531</sup>

## Effects of Puberty on Development

The age of puberty is getting younger for children throughout the world. A century ago the average age of a girl's first period in the United States and Europe was 16, while today it is around 13. Because there is no clear marker of puberty for boys, it is harder to determine if boys are maturing earlier, too. In addition to better nutrition, less positive reasons associated with early puberty for girls include increased stress, obesity, and endocrine-disrupting.

Because rates of physical development vary so widely among teenagers, puberty can be a source of pride or embarrassment. Girls and boys who develop more slowly than their peers may feel self-conscious about their lack of physical development; some research has found that negative feelings are particularly a problem for late maturing boys, who are at a higher risk for depression and conflict with parents (Graber et al., 1997) and more likely to be bullied (Pollack & Shuster, 2000). Additionally, problems are more likely to occur when the child is among the first in his or her peer group to develop. Because the preadolescent time is one of not wanting to appear different, early developing children stand out among their peer group and gravitate toward those who are older (Weir, 2016).

Early maturing boys tend to be physically stronger, taller, and more athletic than their later maturing peers; this can contribute to differences in popularity among peers, which can in turn influence the teenager's confidence. Some studies show that boys who mature earlier tend to be more popular and independent but are also at a greater risk for substance abuse and early sexual activity (Flannery, Rowe, & Gulley, 1993; Kaltiala-Heino, Rimpela, Rissanen, & Rantanen, 2001).

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Early maturing girls may face increased teasing and sexual harassment related to their developing bodies, which can contribute to self-consciousness and place them at a higher risk for anxiety, depression, substance abuse, and eating disorders (Ge, Conger, & Elder, 2001; Graber, Lewinsohn, Seeley, & Brooks-Gunn, 1997; Striegel-Moore & Cachelin, 1999).<sup>532</sup>

## The Brain and Sex Desires

The brain is the structure that translates the nerve impulses from the skin into pleasurable sensations. It controls the nerves and muscles used during sexual behavior. The brain regulates the release of hormones, which are believed to be the physiological origin of sexual desire. The cerebral cortex, which is the outer layer of the brain that allows for thinking and reasoning, is believed to be the origin of sexual thoughts and fantasies. Beneath the cortex is the limbic system, which consists of the amygdala, hippocampus, cingulate gyrus, and septal area. These structures are where emotions and feelings are believed to originate and are important for sexual behavior.

The **hypothalamus** is the most important part of the brain for sexual functioning. This is the small area at the base of the brain consisting of several groups of nerve-cell bodies that receives input from the limbic system. Studies with lab animals have shown that destruction of certain areas of the hypothalamus causes complete elimination of sexual behavior. One of the reasons for the importance of the hypothalamus is that it controls the pituitary gland, which secretes hormones that control the other glands of the body.



Figure 14.9 - Hypothalamus controls the pituitary gland.<sup>533</sup>

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<sup>532</sup> [Adolescence Physical Growth](#) by Boundless.com is licensed under [CC BY-SA 4.0](#); [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

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## Hormones

Several important sexual hormones are secreted by the pituitary gland. Oxytocin, also known as the hormone of love, is released during sexual intercourse when an orgasm is achieved.

Oxytocin is also released in females when they give birth or are breastfeeding; it is believed that oxytocin is involved with maintaining close relationships. Both prolactin and oxytocin stimulate milk production in females. Follicle-stimulating hormone (FSH) is responsible for ovulation in females by triggering egg maturity; it also stimulates sperm production in males. Luteinizing hormone (LH) triggers the release of a mature egg in females during the process of ovulation.

In males, testosterone appears to be a major contributing factor to sexual motivation. Vasopressin is involved in the male arousal phase, and the increase of vasopressin during erectile response may be directly associated with increased motivation to engage in sexual behavior.

The relationship between hormones and female sexual motivation is not as well understood, largely due to the overemphasis on male sexuality in Western research. Estrogen and progesterone typically regulate motivation to engage in sexual behavior for females, with estrogen increasing motivation and progesterone decreasing it. The levels of these hormones rise and fall throughout a woman's menstrual cycle. Research suggests that testosterone, oxytocin, and vasopressin are also implicated in female sexual motivation in similar ways as they are in males, but more research is needed to understand these relationships.



Figure 14.10 - By the end of high school, more than half of boys and girls report engaging in sexual behaviors.<sup>534</sup>

Sexuality will be discussed in Chapter 15, Adolescence Social-Emotional Development. The following section will look at the reasons and the consequences of teenage pregnancy, forms of birth control, and sexually transmitted diseases.

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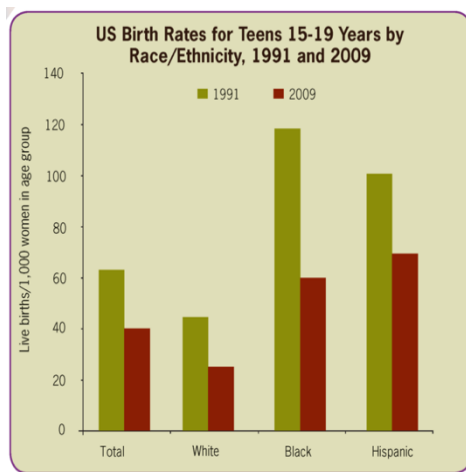


## Adolescent Pregnancy and Sexually Transmitted Infections

By the end of high school, more than half of boys and girls report having experienced sexual intercourse at least once, though it is hard to be certain of the proportion because of the sensitivity and privacy of the information. (Center for Disease Control, 2004; Rosenbaum, 2006).

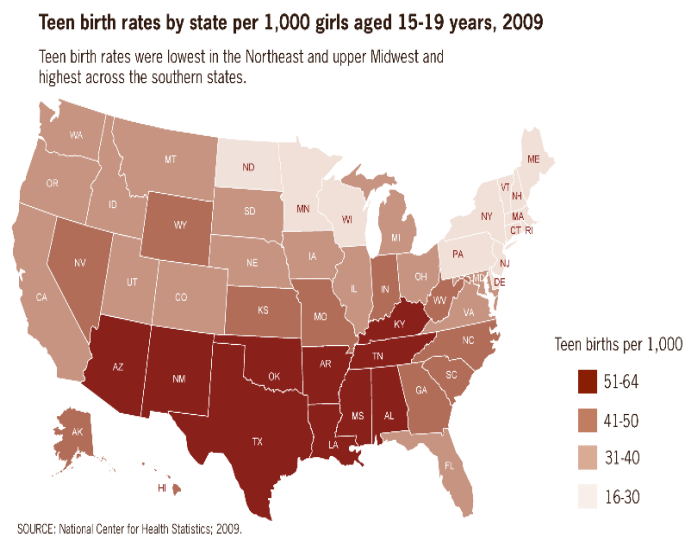
### Teen Pregnancy

Although adolescent pregnancy rates have declined since 1991, teenage birth rates in the United States are higher than most industrialized countries. In 2014, females aged 15–19 years experienced a birth rate of 24.2 per 1,000 women. This is a drop of 9% from 2013. Birth rates fell 11% for those aged 15–17 years and 7% for 18–19 year-olds. It appears that adolescents seem to be less sexually active than in previous years, and those who are sexually active seem to be using birth control (CDC, 2016).



SOURCE: National Center for Health Statistics; 2010.

Figure 14.11 – Birth rates for American teenagers.<sup>535</sup>



SOURCE: National Center for Health Statistics; 2009.

Figure 14.12 – Birth rates by state.<sup>536</sup>

### Risk Factors for Adolescent Pregnancy

Miller, Benson, and Galbraith (2001) found that parent/child closeness, parental supervision, and parents' values against teen intercourse (or unprotected intercourse) decreased the risk of adolescent pregnancy. In contrast, residing in disorganized/dangerous neighborhoods, living in a lower SES family, living with a single parent, having older sexually active siblings or pregnant/parenting teenage sisters, early puberty, and being a victim of sexual abuse place adolescents at an increased risk of adolescent pregnancy.

<sup>535</sup> [Image](#) is in the public domain

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### *Consequences of Adolescent Pregnancy*

After a child is born life can be difficult for a teenage mother. Only 40% of teenagers who have children before age 18 graduate from high school. Without a high school degree, her job prospects are limited and economic independence is difficult. Teen mothers are more likely to live in poverty and more than 75% of all unmarried teen mothers receive public assistance within 5 years of the birth of their first child. Approximately, 64% of children born to an unmarried teenage high-school dropout live in poverty. Further, a child born to a teenage mother is 50% more likely to repeat a grade in school and is more likely to perform poorly on standardized tests and drop out before finishing high school (March of Dimes, 2012).<sup>537</sup>

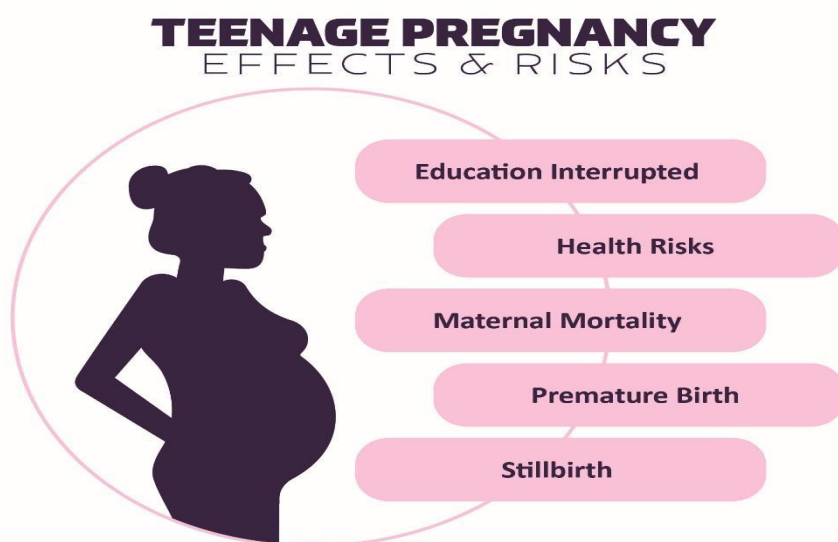


Figure 14.13 – Effects and risks of teenage pregnancy.<sup>538</sup>

### *Sexually Transmitted Infections*

**Sexually transmitted infections (STIs)**, also referred to as sexually transmitted diseases (STDs) or venereal diseases (VDs), are illnesses that have a significant probability of transmission through sexual behavior, including vaginal intercourse, anal sex, and oral sex. It's important to mention that some STIs can also be contracted by sharing intravenous drug needles with an infected person, through childbirth, or breastfeeding. Common STIs include:

- chlamydia;
- herpes (HSV-1 and HSV-2);
- human papillomavirus (HPV);
- gonorrhea;
- syphilis;
- trichomoniasis;
- HIV (human immunodeficiency virus) and AIDS (acquired immunodeficiency syndrome).

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According to the Centers for Disease Control and Prevention (CDC) (2014), there was an increase in the three most common types of STDs in 2014. Those most affected by STDs include younger, gay/bisexual males, and females. The most effective way to prevent transmission of STIs is to practice **abstinence**, (not participating in sexual intercourse), safe sex, and to avoid direct contact of skin or fluids which can lead to transfer with an infected partner. Proper use of safe-sex supplies (such as male condoms, female condoms, gloves, or dental dams) reduces contact and risk and can be effective in limiting exposure; however, some disease transmission may occur even with these barriers.<sup>539</sup>

Practicing safe sex is important to one's physical health. In the following section, we'll look at elements of adolescent health, including sleep, diet, and exercise.

## Adolescent Health: Sleep, Diet, and Exercise

### Sleep Health

According to the National Sleep Foundation (NSF) (2016), adolescents need about 8 to 10 hours of sleep each night to function best. The most recent Sleep in America poll in 2006 indicated that adolescents between sixth and twelfth grade were not getting the recommended amount of sleep. For older adolescents, only about one in ten (9%) get an optimal amount of sleep, and they are more likely to experience negative consequences the following day. These include feeling too tired or sleepy, being cranky or irritable, falling asleep in school, having a depressed mood, and drinking caffeinated beverages (NSF, 2016). Additionally, they are at risk for substance abuse, car crashes, poor academic performance, obesity, and a weakened immune system (Weintraub, 2016).



Figure 14.14 – Most teenagers aren't sleeping enough.<sup>540</sup>

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<sup>540</sup> [Image](#) by the [CDC](#) is in the public domain

Why don't adolescents get adequate sleep? In addition to known environmental and social factors, including work, homework, media, technology, and socializing, the adolescent brain is also a factor. As adolescents go through puberty, their circadian rhythms change and push back their sleep time until later in the evening (Weintraub, 2016). This biological change not only keeps adolescents awake at night; it makes it difficult for them to get up in the morning. When they are awake too early, their brains do not function optimally. Impairments are noted in attention, behavior, and academic achievement, while increases in tardiness and absenteeism are also demonstrated. Psychologists and other professionals have been advocating for later school times, and they have produced research demonstrating better student outcomes for later start times. More middle and high schools have changed their start times to better reflect the sleep research.<sup>541</sup>



Figure 14.15 – If adolescents get too little sleep, their brain doesn't function optimally.<sup>542</sup>

### Eating: Healthy Habits = Healthy Lives

The **Dietary Guidelines** define late adolescence, as the period from ages fourteen to eighteen. After puberty, the rate of physical growth slows down. Girls stop growing taller around age sixteen, while boys continue to grow taller until ages eighteen to twenty. One of the psychological and emotional changes that take place during this life stage includes the desire for independence as adolescents develop individual identities apart from their families. As teenagers make more of their dietary decisions, parents, caregivers, and authority figures should guide them toward appropriate, nutritious choices.

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<sup>542</sup> [Image](#) by [John-Mark Smith](#) on [Pexels](#)



Figure 14.16 - Adolescent food choices may not be healthy.<sup>543</sup>

Some adolescents don't have all the food necessary for proper development and may be food insecure. Most people have access to fresh water in all except the most extreme situations; the need for food is the most fundamental and important human need. More than 1 in 10 U.S. households contain people who live without enough nourishing food and this lack of proper nourishment has profound effects on their abilities to lead lives that will allow them to develop to their fullest potential. (Hunger Notes, n.d.).

When people are extremely hungry, their motivation to attain food completely changes their behavior. Hungry people become listless and apathetic to save energy and then become completely obsessed with food. Ancel Keys and his colleagues (Keys, Brožek, Henschel, Mickelsen, & Taylor, 1950) found that volunteers who were placed on severely reduced-calorie diets lost all interest in sex and social activities, becoming preoccupied with food. According to Maslow, meeting one's basic needs is vital for proper growth and development.<sup>544</sup>

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<sup>544</sup> [Nutrition through the Life Cycle: From Pregnancy to the Toddler Years](#) by Maureen Zimmerman and Beth Snow is licensed under [CC BY-NC-SA 3.0](#) (modified by Dawn Rymond)



## Abraham Maslow's Hierarchy of Needs

Maslow's theory is based on a simple premise: human beings have needs that are hierarchically ranked. Some needs are basic to all human beings, and in their absence, nothing else matters. We are ruled by these needs until they are satisfied. After we satisfy our basic needs, they no longer serve as motivators and we can begin to satisfy higher-order needs.

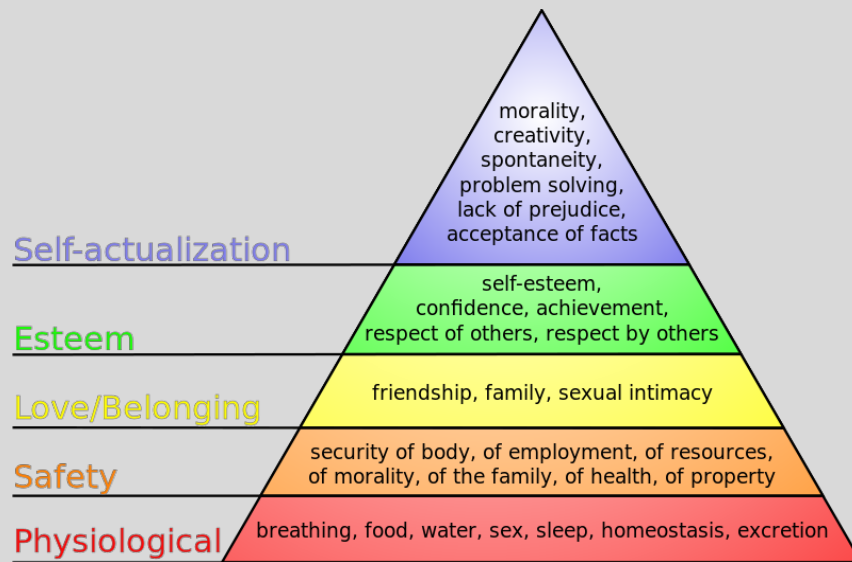


Figure 14.17 – Maslow's Hierarchy of Needs.<sup>545</sup>

Maslow organized human needs into a pyramid that includes (from lowest-level to highest-level) physiological, safety, love/belonging, esteem, and self-actualization needs. According to Maslow, one must satisfy lower-level needs before addressing needs that occur higher in the pyramid. For example, if someone is starving, it is quite unlikely that he will spend a lot of time, or any time at all, wondering whether other people think he is a good person. Instead, all of his energies are geared toward finding something to eat.<sup>546</sup>

## Weight Management

Forming good eating habits and engaging in fitness or exercise programs will help maintain a healthy weight and develop lifelong habits. Research says that the best way to control weight is: eat less (consume fewer calories) and exercise (burn more calories). To maintain a healthy weight, restricting your diet alone is difficult and can be substantially improved when it is accompanied by increased physical activity.

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<sup>546</sup> [Education, Society, & the K-12 Learner](#) by [Lumen Learning](#) references [Maslow's Hierarchy of Needs](#) by Boundless, which is licensed under [CC BY-SA 4.0](#)



The energy (calorie) requirements for preteens differ according to gender, growth, and activity level. For ages nine to thirteen, girls should consume about 1,400 to 2,200 calories per day and boys should consume 1,600 to 2,600 calories per day. Physically active preteens who regularly participate in sports or exercise need to eat a greater number of calories to account for increased energy expenditures.<sup>547</sup>

People who exercise regularly, and in particular those who combine exercise with dieting, are less likely to be obese (Borer, 2008). Exercise not only improves our waistline, but also improves our overall mental health by lowering stress and improving feelings of well-being. Exercise also increases cardiovascular capacity, lowers blood pressure, and helps improve diabetes, joint flexibility, and muscle strength (American Heart Association, 1998).

For long-lasting change, it's important to plan healthy meals, limit snacking, and to schedule exercise into our daily lives.<sup>548</sup>

### *Diet Extremes - Obesity to Starvation*

#### *Obesity*

Children need adequate caloric intake for growth, and it is important not to impose highly restrictive diets. However, exceeding caloric requirements regularly can lead to childhood obesity, which has become a major problem in North America. Nearly one of three US children and adolescents are overweight or obese. (Let's Move. "Learn the Facts." Accessed March 5, 2012. <http://www.letsmove.gov/learn-facts/epidemic-childhood-obesity>.)



Figure 14.18 - Obesity can affect self-esteem, energy, and activity level.<sup>549</sup>

<sup>547</sup> [Beginning Psychology - Two Fundamental Human Motivations: Eating and Mating](#) by [Charles Stangor](#) is licensed under [CC BY-NC-SA 3.0](#)

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<sup>549</sup> [Image](#) by the [59th Medical Wing](#) is in the public domain

There are a number of reasons behind the problem of obesity, including:

- larger portion sizes
- limited access to nutrient-rich foods
- increased access to fast foods and vending machines
- lack of breastfeeding support
- declining physical education programs in schools
- insufficient physical activity and a sedentary lifestyle
- media messages encouraging the consumption of unhealthy foods

Obesity has a profound effect on self-esteem, energy, and activity level. Even more importantly, it is a major risk factor for diseases later in life, including cardiovascular disease, Type 2 diabetes, stroke, hypertension, and certain cancers.

A percentile for body mass index (BMI) specific to age and sex is used to determine if a child is overweight or obese. If a child gains weight inappropriate to growth, parents and caregivers should limit energy-dense, nutrient-poor snack foods. It is also extremely beneficial to increase a child's physical activity and limit sedentary activities, such as watching television, playing video games, or surfing the Internet. Programs to address childhood obesity can include behavior modification, exercise counseling, psychological support or therapy, family counseling, and family meal-planning advice.<sup>550</sup>

### *Eating Disorders*

Although eating disorders can occur in children and adults, they frequently appear during the teen years or young adulthood (National Institute of Mental Health (NIMH), 2016). Eating disorders affect both genders, although rates among women are 2 1/2 times greater than among men. Similar to women who have eating disorders, men also have a distorted sense of body image, including body dysmorphia or an extreme concern with becoming more muscular. (Hudson, Hiripi, Pope, & Kessler, 2007; Wade, Keski-Rahkonen, & Hudson, 2011).



Figure 14.19 –This image portrays anorexia. No matter how thin she is, she will see herself being heavier.<sup>551</sup>

<sup>550</sup> [An Introduction to Nutrition- Puberty and Nutrition](#) by [Maureen Zimmerman and Beth Snow](#) is licensed under [CC BY-NC-SA 3.0](#)

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### *Risk Factors for Eating Disorders*

Researchers are finding that eating disorders are caused by a complex interaction of genetic, biological, behavioral, psychological, and social factors (NIMH, 2016). Eating disorders appear to run in families, and researchers are working to identify DNA variations that are linked to the increased risk of developing eating disorders. Researchers have also found differences in patterns of brain activity in women with eating disorders in comparison with healthy women.

The main criteria for the most common eating disorders: **Anorexia nervosa**, **bulimia nervosa**, and **binge-eating disorder** are described in the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5)(American Psychiatric Association, 2013) and listed in Table 6.1.<sup>552</sup>

**Table 14.1 - DSM-5 Eating Disorders**

Eating Disorder	Description
<b>Anorexia Nervosa</b>	<ul style="list-style-type: none"><li>• Restriction of energy intake leading to a significantly low body weight</li><li>• Intense fear of gaining weight</li><li>• Disturbance in one's self-evaluation regarding body weight</li></ul>
<b>Bulimia Nervosa</b>	<ul style="list-style-type: none"><li>• Recurrent episodes of binge eating</li><li>• Recurrent inappropriate compensatory behaviors to prevent weight gain, including purging, laxatives, fasting or excessive exercise</li><li>• Self-evaluation is unduly affected by body shape and weight</li></ul>
<b>Binge-Eating Disorder</b>	<ul style="list-style-type: none"><li>• Recurrent episodes of binge eating</li><li>• Marked distress regarding binge eating</li><li>• The binge eating is not associated with the recurrent use of inappropriate compensatory behavior</li></ul>

### *Health Consequences of Eating Disorders*

For those suffering from anorexia, health consequences include an abnormally slow heart rate and low blood pressure, which increases the risk for heart failure. Additionally, there is a reduction in bone density (osteoporosis), muscle loss and weakness, severe dehydration, fainting, fatigue, and overall weakness. Individuals with this disorder may die from complications associated with Anorexia nervosa, which has the highest mortality rate of any psychiatric disorder.

The binge and purging cycle of bulimia can affect the digestive system and lead to electrolyte and chemical imbalances that can affect the heart and other major organs. Frequent vomiting can cause inflammation and possible rupture of the esophagus, as well as tooth decay and staining from stomach acids. Lastly, binge eating disorder results in similar health risks to

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obesity, including high blood pressure, high cholesterol levels, heart disease, Type II diabetes, and gall bladder disease (National Eating Disorders Association, 2016).

### *Eating Disorders Treatment*

The foundations of treatment for eating disorders include adequate nutrition and discontinuing destructive behaviors, such as purging. Treatment plans are tailored to individual needs and include medical care, nutritional counseling, medications (such as antidepressants), and individual, group, and/or family psychotherapy (NIMH, 2016).<sup>553</sup>



Figure 14.20 – Counseling is often a form of treatment for eating disorders.<sup>554</sup>

### **Drug and Substance Abuse**

Drug use and the possibility of abuse and addiction primarily manifest as physical problems. However, the effects of these substances are not only physical, but also have long-lasting consequences on cognitive development as well as affect social-emotional development in a variety of ways. In the next section, we'll learn about what drugs are, the different kinds of drugs, and what the effects are of each.

### *Drug Experimentation*

Drug use is, in part, the result of socialization. Adolescents may try drugs when their friends convince them to, and these decisions are based on social norms about the risks and benefits of various drugs. Although young people have experimented with cigarettes, alcohol, and other dangerous drugs for many generations, it would be better if they did not. All recreational drug use is associated with at least some risks, and those who begin using drugs earlier are also more likely to use more dangerous drugs. They may develop an addiction or substance abuse problem later on.<sup>555</sup>

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<sup>553</sup> [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

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Figure 14.21 – Social norms and peers influence adolescents' drug use.<sup>556</sup>

### *What Are Drugs?*

A **psychoactive drug** is a chemical that changes our states of consciousness, and particularly our perceptions and moods. These drugs are commonly found in everyday foods and beverages, including chocolate, coffee, and soft drinks, as well as in alcohol and over-the-counter drugs, such as aspirin, Tylenol, and cold and cough medication. Psychoactive drugs are also frequently prescribed as sleeping pills, tranquilizers, and antianxiety medications, and they may be taken, illegally, for recreational purposes. The four primary classes of psychoactive drugs are stimulants, depressants, opioids, and hallucinogens.

#### A Closer Look at the Danger of Adolescence Use of Nicotine

**Nicotine** is a psychoactive drug found in the nightshade family of plants, where it acts as a natural pesticide. Nicotine is the main cause for the dependence-forming properties of tobacco use, and tobacco use is a major health threat. Nicotine creates both psychological and physical addiction and it is one of the hardest addictions to break. Nicotine content in cigarettes has slowly increased over the years, making quitting smoking more and more difficult. Nicotine is also found in smokeless (chewing) tobacco and electronic cigarettes (vaping).

<sup>556</sup> Image by Find Rehab Centers is licensed under [CC BY 2.0](#)

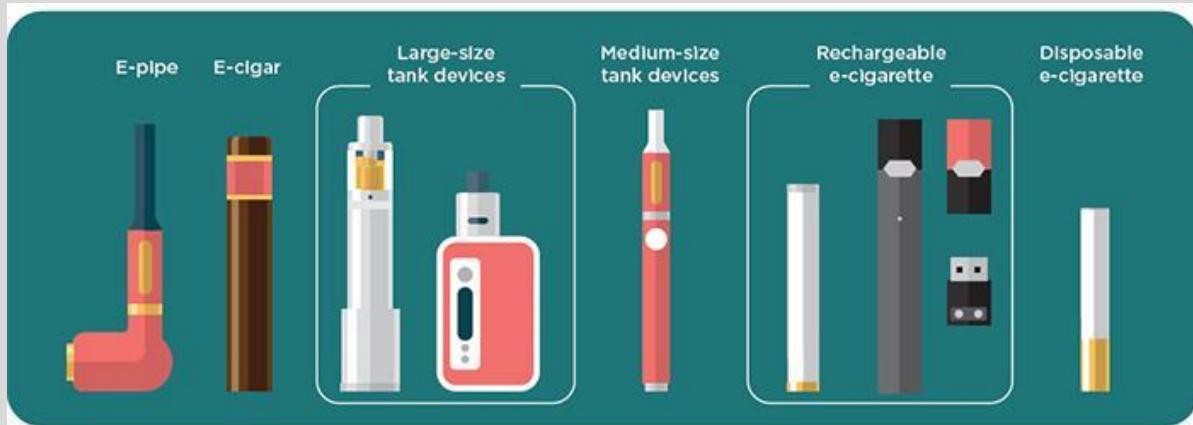


Figure 14.22 – Electronic devices are now common ways to consume nicotine.<sup>557</sup>

Nicotine exposure can harm adolescent brain development by changing the way synapses form, which continues into the early to mid-20s. Using nicotine in adolescence may also increase the risk of future addictions to other drugs. E-cigarette aerosol and cigarettes contain chemicals that are harmful to the lungs and chewing tobacco.

In many cases, people can get past the physical dependence, allowing them to quit using nicotine-containing products at least temporarily. In the long run, however, the psychological enjoyment of smoking may lead to relapse.<sup>558</sup>

### A Closer Look at the Danger of Adolescent Alcohol Use

**Alcohol** is the most commonly used of the depressants and is a colorless liquid, produced by the fermentation of sugar or starch that is the intoxicating agent in fermented drinks. Alcohol is the oldest and most widely used drug of abuse in the world. In low to moderate doses, alcohol first acts to remove social inhibitions by slowing activity in the sympathetic nervous system. In higher doses, alcohol acts on the cerebellum to interfere with coordination and balance, producing the staggering gait of drunkenness. At high blood levels, further CNS depression leads to dizziness, nausea, and eventually a loss of consciousness. High enough blood levels such as those produced by “guzzling” large amounts of hard liquor at parties can be fatal. Alcohol is not a “safe” drug by any means.<sup>559</sup>

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[About Electronic Cigarettes \(E-Cigarettes\)](#) by the [CDC](#) is in the public domain

[Quick Facts on the Risks of E-cigarettes for Kids, Teens, and Young Adults](#) by the [CDC](#) is in the public domain

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### Short-Term Health Risks

Excessive alcohol use has immediate effects that increase the risk of many harmful health conditions. These are most often the result of **binge drinking** (drinking 4-5 drinks during a single occasion) and include the following:

- Injuries, such as motor vehicle crashes (1 in 5 teen drivers involved in fatal crashes had some alcohol in their system in 2010), falls, drownings, and burns.
- Violence, including homicide, suicide, sexual assault, and intimate partner violence.
- Alcohol poisoning, a medical emergency that results from high blood alcohol levels.
- Risky sexual behaviors, including unprotected sex or sex with multiple partners. These behaviors can result in unintended pregnancy or sexually transmitted diseases, including HIV.
- Miscarriage and stillbirth or fetal alcohol spectrum disorders (FASDs) among pregnant women.

### Long-Term Health Risks

Over time, excessive alcohol use can lead to the development of chronic diseases and other serious problems including:

- High blood pressure, heart disease, stroke, liver disease, and digestive problems.
- Cancer of the breast, mouth, throat, esophagus, liver, and colon.
- Learning and memory problems, including dementia and poor school performance.
- Mental health problems, including depression and anxiety.
- Social problems, including lost productivity, family problems, and unemployment.
- Alcohol dependence, or alcoholism.<sup>560</sup>



Figure 14.23 – Adolescent alcohol use poses many health risks.<sup>561</sup>

<sup>560</sup> [Teen Drinking and Driving](#) by the [CDC](#) is in the public domain

[Fact Sheets - Alcohol Use and Your Health](#) by the [CDC](#) is in the public domain

<sup>561</sup> [Image](#) by [Scott Air Force Base](#) is in the public domain

## A Closer Look at the Danger of Adolescent Marijuana Use<sup>562</sup>

**Marijuana** (cannabis) is the most widely used hallucinogen. Until it was banned in the United States under the Marijuana Tax Act of 1938, it was widely used for medical purposes. While medical and recreational marijuana is now legal in several American states, it is still banned under federal law, putting those states in conflict with the federal government. Marijuana also acts as a stimulant, producing giggling, laughing, and mild intoxication. It acts to enhance perception of sights, sounds, and smells, and may produce a sensation of time slowing down, and is much less likely to lead to antisocial acts than that other popular intoxicant, alcohol.

Using marijuana—can have harmful and long-lasting effects on an adolescent's health and well-being.

### Marijuana and the teen brain

Unlike adults, the teen brain is actively developing and often will not be fully developed until the mid-20s. Marijuana use during this period may harm the developing teen brain.

Negative effects include:

- Difficulty thinking and problem-solving.
- Problems with memory and learning.
- Impaired coordination.
- Difficulty maintaining attention.



Figure 14.24 – Marijuana is a commonly used hallucinogen.<sup>563</sup>

### Negative effects on school and social life

Marijuana use in adolescence or early adulthood can have a serious impact on an adolescent's life.

- **Decline in school performance.** Students who smoke marijuana may get lower grades and may be more likely to drop out of high school than their peers who do not use it.

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[What You Need to Know About Marijuana Use in Teens](#) by the [CDC](#) is in the public domain

<sup>563</sup> [Image](#) by [Cannabis Culture](#) is licensed under [CC BY 2.0](#)

- **Increased risk of mental health issues.** Marijuana use has been linked to a range of mental health problems in teens such as depression or anxiety. Psychosis has also been seen in teens at higher risk like those with a family history.
- **Impaired driving.** Driving while impaired by any substance, including marijuana, is dangerous. Marijuana negatively affects a number of skills required for safe driving, such as reaction time, coordination, and concentration.
- **Potential for addiction.** Research shows that about 1 in 6 teens who repeatedly use marijuana can become addicted, which means that they may make unsuccessful efforts to quit using marijuana or may give up important activities with friends and family in favor of using marijuana.

### *Substance Abuse*

Many drugs create **tolerance**: an increase in the dose required to produce the same effect, which makes it necessary for the user to increase the dosage or the number of times per day that the drug is taken. As the use of the drug increases, the user may develop a **dependence**, defined as a need to use a drug or other substance regularly. Dependence can be psychological, in which the drug is desired and has become part of the everyday life of the user, but no serious physical effects result if the drug is not obtained; or physical, in which serious physical and mental effects appear when the drug is withdrawn. Cigarette smokers who try to quit, for example, experience physical withdrawal symptoms, such as becoming tired and irritable, as well as extreme psychological cravings to enjoy a cigarette in particular situations, such as after a meal or when they are with friends. Users may wish to stop using the drug, but when they reduce their dosage they experience **withdrawal**—negative experiences that accompany reducing or stopping drug use, including physical pain and other symptoms. When the user powerfully craves the drug and is driven to seek it out, over and over again, no matter what the physical, social, financial, and legal cost, we say that he or she has developed an **addiction** to the drug.

It is a common belief that addiction is an overwhelming, irresistibly powerful force, and that withdrawal from drugs is always an unbearably painful experience. But the reality is more complicated and in many cases less extreme. For one, even drugs that we do not generally think of as being addictive, such as caffeine, nicotine, and alcohol, can be very difficult to quit using, at least for some people. On the other hand, drugs that are normally associated with addiction, including amphetamines, cocaine, and heroin, do not immediately create addiction in their users. Even for a highly addictive drug like cocaine, only about 15% of users become addicted (Robinson & Berridge, 2003; Wagner & Anthony, 2002). Furthermore, the rate of addiction is lower for those who are taking drugs for medical reasons than for those who are using drugs recreationally. Patients who have become physically dependent on morphine administered during medical treatment for a painful injury or disease can be rapidly weaned off the drug afterward, without becoming addicts.<sup>564</sup>

<sup>564</sup> [Altering Consciousness With Psychoactive Drugs](#) by [The Open University of Hong Kong](#) is licensed under [CC BY-NC-SA 4.0](#)

People have used, and often abused, psychoactive drugs for thousands of years. Perhaps this should not be surprising, because many people find using drugs to be enjoyable. Even when we know the potential costs of using drugs, we may engage in them anyway because the pleasures of using the drugs are occurring right now, whereas the potential costs are abstract and occur in the future.<sup>565</sup>

Learning about and supporting others seeking help when they have a substance abuse problem is just as important as seeking help when one is experiencing negative physical and mental health problems. In the next section, we will be looking at various psychological disorders.

## Maintaining Emotional Health

**Emotional regulation** is the ability to successfully control our emotions, which takes effort, but the ability to do so can have important positive health outcomes. Emotional responses such as the stress reaction are useful in warning us about potential danger and in mobilizing our response to it, so it is a good thing that we have them. However, we also need to learn how to control and regulate our emotions, to prevent them from letting our behavior get out of control.<sup>566</sup>

**Stress** may not be a disorder, but if it continues and becomes more intense and debilitating, it may lead to a disorder. We experience stress in our everyday lives, including daily hassles. People who experience strong negative emotions as a result of these hassles, exhibit negative stress responses. Stress can be managed by using coping strategies and by becoming better at emotional regulation. The best antidote for stress is to think positively, have fun, and enjoy the company of others. People who express optimism, self-efficacy, and grit tend to cope better with stress and experience better health overall.<sup>567</sup>

## Disorders and Syndromes

A psychological disorder is an unusual, distressing, and dysfunctional pattern of thought, emotion, or behavior. Psychological disorders are often **co-occurring** or **comorbid**, meaning that a given person suffers from more than one disorder. Psychologists diagnose a disorder using the *Diagnostic and Statistical Manual of Mental Disorders (DSM)*. When diagnosed, people feel that a mental disorder is a stigma, but mental illness is not a “fault,” and it is important to work to help overcome the stigma associated with any disorder. The following are various disorders that may affect children, adolescence, and adults.

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<sup>566</sup> [Beginning Psychology - Stress: The Unseen Killer](#) by [Charles Stangor](#) is licensed under [CC BY-NC-SA 3.0](#)

<sup>567</sup> [Beginning Psychology - Chapter Summary](#) by [Charles Stangor](#) is licensed under [CC BY-NC-SA 3.0](#)

**Table 14.2 – Disorders and Syndromes<sup>568</sup> and their Descriptions**

Disorder/Syndrome	Description
<b>Anxiety Disorders</b>	Psychological disturbances marked by irrational fears, often of everyday objects and situations. They include generalized anxiety disorder (GAD), panic disorder, phobia, obsessive-compulsive disorder (OCD), and posttraumatic stress disorder (PTSD). Anxiety disorders affect about 57 million Americans every year.
<b>Dissociative Disorders</b>	Conditions that involve disruptions or breakdowns of memory, awareness, and identity. They include dissociative amnesia, dissociative fugue, and dissociative identity disorder.
<b>Mood Disorders</b>	Psychological disorders in which the person’s mood negatively influences his or her physical, perceptual, social, and cognitive processes. They include dysthymia, major depressive disorder, and bipolar disorder. Mood disorders affect about 30 million Americans every year.
<b>Schizophrenia</b>	A serious psychological disorder marked by delusions, hallucinations, loss of contact with reality, inappropriate affect, disorganized speech, social withdrawal, and deterioration of adaptive behavior. About 3 million Americans have schizophrenia.
<b>Personality Disorder</b>	A long-lasting but frequently less severe disorder characterized by inflexible patterns of thinking, feeling, or relating to others that cause problems in personal, social, and work situations. They are characterized by odd or eccentric behavior, by dramatic or erratic behavior, or by anxious or inhibited behavior. Two of the most important personality disorders are borderline personality disorder (BPD) and antisocial personality disorder (APD).
<b>Somatization Disorder</b>	A psychological disorder in which a person experiences numerous long-lasting but seemingly unrelated physical ailments that have no identifiable physical cause. Somatization disorders include conversion disorder, body dysmorphic disorder (BDD), and hypochondriasis.
<b>Factitious Disorder</b>	When patients fake physical symptoms in large part because they enjoy the attention and treatment that they receive in the hospital.
<b>Sexual Disorders</b>	A variety of problems revolving around performing or enjoying sex. Sexual dysfunctions include problems relating to loss of sexual desire, sexual response or orgasm, and pain during sex.

<sup>568</sup> [Disease Prevention and Healthy Lifestyles – Mental Illness in Children and Adolescents](#) by [Lumen Learning](#) references [Contemporary Health Issues](#) by: Judy Baker, Ph.D., which is licensed under [CC BY-SA 4.0](#)

## The Importance of Maintaining Mental Health and Wellness

Most people don't think twice before going to a doctor if they have an illness such as bronchitis, asthma, diabetes, or heart disease. However, many people who have a mental illness don't get the treatment that would alleviate their suffering. Studies estimate that two-thirds of all young people with mental health problems are not receiving the help they need and that less than one-third of the children under age 18 who have a serious mental health problem receive any mental health services. Mental illness in adults often goes untreated, too.

### *Consequences of Mental Illness*

The consequences of mental illness in children and adolescents can be substantial. Mental illness can impair a student's ability to learn. Adolescents whose mental illness is not treated rapidly and aggressively tend to fall further and further behind in school. They are more likely to drop out of school and are less likely to be fully functional members of society when they reach adulthood.

Depressive disorders in young people confer a higher risk for illness and interpersonal and psychosocial difficulties that persist after the depressive episode is over. About 11 percent of adolescents have a depressive disorder by age 18 according to the National Comorbidity Survey-Adolescent Supplement (NCS-A). Teens with depression were often dismissed as being moody or difficult. With medication, psychotherapy, or combined treatment, most youth with depression can be effectively treated. Youth are more likely to respond to treatment if they receive it early in the course of their illness.

Furthermore, many adults who suffer from mental disorders have problems that originated in childhood. Depression in youth may predict more severe illness in adult life. Appropriate treatment at the time of onset can prevent many problems in the future.

### *Self-Harm or Self-Injury*

Adolescents struggling with their mental health may think about or engage in **self-harm**. They may be distressed and have difficult feelings which can result in the urge to hurt themselves. Unhealthy ways people may try to relieve emotional pain include cutting, burning, or hitting themselves. These self-harm behaviors can be difficult to detect and are usually kept a secret by covering the wounds with clothing or jewelry. Self-injury is a sign that someone is struggling. People who are anxious, depressed, or have an eating disorder are also more likely to turn to self-injuring behaviors.

Indicators of self-harm include:

- frequent unexplained injuries
- clues like bandages in trash cans.
- clothing inappropriate for the weather (long pants or sleeves when it's hot)



It's important when someone confides their self-harm to try to be as nonreactive and nonjudgmental as possible. At this time there are no medications for treating self-injuring behaviors. But some medications can help treat mental disorders that the person may be dealing with, like depression or anxiety. Mental health counseling or therapy can also help.<sup>569</sup>

### *Suicidal Behavior*

Adolescence who feel like there is no possible resolution to their mental health struggles may consider, attempt, or commit suicide. **Suicidal behavior** causes immeasurable pain, suffering, and loss to individuals, families, and communities nationwide. On average, 112 Americans die by suicide each day. Suicide is the second leading cause of death among 15-24-year-olds. More than 9.4 million adults in the United States had serious thoughts of suicide within the past 12 months. But suicide is preventable.

### **Warning Signs of Suicide**

If someone is showing one or more of the following behaviors, he or she may be thinking about suicide. The following warning signs should not be ignored. Help should be sought immediately.

- Talking about wanting to die or to kill oneself
- Looking for a way to kill oneself
- Talking about feeling hopeless or having no reason to live
- Talking about feeling trapped or in unbearable pain
- Talking about being a burden to others
- Increasing the use of alcohol or drugs
- Acting anxious or agitated
- Behaving recklessly
- Sleeping too little or too much
- Withdrawing or feeling isolated
- Showing rage or talking about seeking revenge
- Displaying extreme mood swings<sup>570</sup>

### **GET HELP**

If you or someone you know needs help, call the [National Suicide Prevention Lifeline](#) at 1-800-273-TALK (8255). Trained crisis workers are available to talk 24 hours a day, 7 days a week.

## **Conclusion**

In this chapter we looked at:

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<sup>569</sup> [Hurtful Emotions](#) by the [NIH](#) is in the public domain

<sup>570</sup> [Suicidal Behavior](#) by [MentalHealth.gov](#) is in the public domain

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- Physical growth and the changes in the body during puberty
- Weight management, obesity, and eating disorders
- Risk factors, and consequences of adolescent pregnancy and sexual health
- Substance and drug abuse
- Mental health issues for teens

In the next chapter, we will look at adolescent cognitive development.

# Chapter 15: Adolescence

## Cognitive Development

### Chapter Objectives

After this chapter, you should be able to:

- Describe Piaget’s formal operational stage and characteristics of formal operational thought
- Compare Theories - Lawrence’s Kohlberg’s Moral Development and Carol Gilligan’s Morality of Care
- Explain an adolescent’s immaturities in cognitive development
- Describe the strategies for memory storage
- Explain the areas of transition for adolescence

### Introduction

During adolescence, more complex thinking abilities emerge. Researchers suggest this is due to increases in processing speed and efficiency rather than as the result of an increase in mental capacity—in other words, due to improvements in existing skills rather than the development of new ones (Bjorkland, 1987; Case, 1985). Let’s explore these improvements.

### Cognitive Development in Adolescence

During adolescence, teenagers move beyond concrete thinking and become capable of abstract thought. Teen thinking is also characterized by the ability to consider multiple points of view, imagine hypothetical situations, debate ideas and opinions (e.g., politics, religion, and justice), and form new ideas. In addition, it’s not uncommon for adolescents to question authority or challenge established societal norms.

**Cognitive empathy**, or **theory-of-mind**, (the ability to take the perspective of others and feel concern for others) begins to increase in adolescence and is an important component of social problem solving and conflict avoidance (Shamay-Tsoory, Tomer, & Aharon-Peretz, 2005).

According to one longitudinal study, levels of cognitive empathy begin rising in girls around 13 years of age, and around 15 years in boys (Van der Graaff et al., 2013).<sup>571</sup>

### Cognitive Changes in the Brain

Early in adolescence, changes in the brain elevate the desire to increase the amount of **Dopamine**, one of the brain’s many chemicals that serves as a neurotransmitter. The brain has several dopamine pathways, one of which plays a major role in motivating reward-motivated behavior. Anticipating most kinds of rewards increases dopamine levels as do many addictive

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<sup>571</sup> [Psychology – 9.3 Stages of Development](#) by [CNX Psychology](#) is licensed under [CC BY 4.0](#)

drugs, producing feelings of pleasure. During adolescence, people tend to do whatever activities produce the most dopamine without fully considering the consequences of such actions.

Later in adolescence, the **prefrontal cortex**, the area of the brain responsible for outcomes, forming judgments, controlling impulses and emotions, becomes more developed (Goldberg, 2001). The difference in timing of the development of these different regions of the brain contributes to more risk-taking during middle adolescence because adolescents are motivated to seek thrills without the prefrontal cortex's ability to appropriately control. One of the world's leading experts on adolescent development, Laurence Steinberg (2008), likens this to engaging a powerful engine before the braking system is in place. The result is that adolescents are prone to risky behaviors more often than children or adults.



Figure 15.1 - A simulation of the risky behavior of drinking and driving.<sup>572</sup>

Although the most rapid cognitive changes occur during childhood, the brain continues to develop throughout adolescence, and even into the 20s (Weinberger, Elvevåg, & Giedd, 2005). The brain continues to form new neural connections and becomes faster and more efficient because it **prunes**, or casts off unused neurons and connections (Blakemore, 2008), and produces **myelin**, the fatty tissue that forms around axons and neurons, which helps speed transmissions between different regions of the brain (Rapoport et al., 1999). During this time of rapid cognitive growth for teens, they become more aware of their potential and capabilities, causes a great amount of disequilibrium for them. Theorists have researched cognitive changes and functions and have formed theories based on this developmental period.<sup>573</sup>

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## Cognitive Theorists: Piaget, Elkind, Kohlberg, and Gilligan

### Jean Piaget: Formal Operational Stage of Cognitive Development

Cognition refers to thinking and memory processes, and **cognitive development** refers to long-term changes in these processes. One of the most widely known perspectives about cognitive development is the cognitive stage theory of the Swiss psychologist **Jean Piaget**. Piaget studied and created a theory about how children and youth gradually become able to think logically and scientifically. Because his theory is especially popular among educators, we focus on it in this chapter.

Piaget was a **psychological constructivist**: in his view, learning was proceeded by the interplay of assimilation (adjusting new experiences to fit prior concepts) and accommodation (adjusting concepts to fit new experiences). The to-and-fro of these two processes leads not only to short-term learning, but also to long-term **developmental change**. The long-term developments are really the main focus of Piaget's cognitive theory.

Piaget proposed that cognition developed through distinct stages from birth through the end of adolescence. By stages he meant a sequence of thinking patterns with four key features:

1. They always happen in the same order.
2. No stage is ever skipped.
3. Each stage is a significant transformation of the stage before it.
4. Each later stage incorporated the earlier stages into itself.

This is a clear example of the “staircase” model of development. Piaget proposed four major stages of cognitive development, and called them (1) sensorimotor intelligence, (2) preoperational thinking, (3) concrete operational thinking, and (4) formal operational thinking. Each stage is correlated with an age period of childhood, but only approximately. Formal operational thinking appears in adolescence.<sup>574</sup>

During the formal operational stage, adolescents are able to understand abstract principles. They are no longer limited by what can be directly seen or heard, and are able to contemplate such constructs as beauty, love, freedom, and morality. Additionally, while younger children solve problems through trial and error, adolescents demonstrate **hypothetical-deductive reasoning**, which is developing hypotheses based on what might logically occur. They are able to think about all the possibilities in a situation beforehand, and then test them systematically, (Crain, 2005). They are able to engage in true scientific thinking.

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<sup>574</sup> [Educational Psychology – Cognitive Development: The Theory of Jean Piaget](#) by Kelvin Seifert and Rosemary Sutton is licensed under [CC BY](#)



Figure 15.2 - Teenage thinking is characterized by the ability to reason logically and solve hypothetical problems such as how to design, plan, and build a structure.<sup>575</sup>

### *Does everyone reach formal operations?*

According to Piaget, most people attain some degree of formal operational thinking, but use formal operations primarily in the areas of their strongest interest (Crain, 2005). In fact, most adults do not regularly demonstrate formal operational thought. A possible explanation is that an individual's thinking has not been sufficiently challenged to demonstrate formal operational thought in all areas.

### *Adolescent Egocentrism*

Once adolescents can understand abstract thoughts, they enter a world of hypothetical possibilities and demonstrate **egocentrism**, a heightened self-focus. The egocentricity comes from attributing unlimited power to their own thoughts (Crain, 2005). Piaget believed it was not until adolescents took on adult roles that they would be able to learn the limits to their own thoughts.

### **David Elkind: On Piaget's Theory**

David Elkind (1967) expanded on the concept of Piaget's adolescent egocentricity. Elkind theorized that the physiological changes that occur during adolescence result in adolescents being primarily concerned with themselves. Additionally, since adolescents fail to differentiate between what others are thinking and their own thoughts, they believe that others are just as fascinated with their behavior and appearance. This belief results in the adolescent anticipating the reactions of others, and consequently constructing an imaginary audience. The **imaginary audience** is the adolescent's belief that those around them are as concerned and focused on their appearance as they are themselves (Schwartz, Maynard, & Uzelac, 2008, p. 441). Elkind thought that the imaginary audience contributed to the self-consciousness that occurs during early adolescence. The desire for privacy and the reluctance to share personal information may be a further reaction to feeling under constant observation by others.

<sup>575</sup> Image by the U.S. Army CCDC is licensed under CC BY 2.0





Figure 15.3 - This teen is likely thinking, “they must be whispering about me.”<sup>576</sup>

Another important consequence of adolescent egocentrism is the **personal fable** or belief that one is unique, special, and invulnerable to harm. Elkind (1967) explains that because adolescents feel so important to others (imaginary audience) they regard themselves and their feelings as being special and unique. Adolescents believe that only they have experienced strong and diverse emotions, and therefore others could never understand how they feel. This belief in the uniqueness of one’s emotional experiences reinforces the adolescent’s belief of invulnerability, especially to death. Adolescents will engage in risky behaviors, such as drinking and driving or unprotected sex, and feel they will not suffer any negative consequences. Elkind believed that adolescent egocentricity emerged in early adolescence and declined in middle adolescence, however, recent research has also identified egocentricity in late adolescence (Schwartz, et al., 2008).

### *Consequences of Formal Operational Thought*

As adolescents are now able to think abstractly and hypothetically, they exhibit many new ways of reflecting on information (Dolgin, 2011). For example, they demonstrate greater **introspection** or thinking about one’s thoughts and feelings. They begin to imagine how the world could be, which leads them to become **idealistic** or insisting upon high standards of behavior. Because of their idealism, they may become critical of others, especially adults in their life. Additionally, adolescents can demonstrate **hypocrisy**, or pretend to be what they are not. Since they are able to recognize what others expect of them, they will conform to those expectations for their emotions and behavior seemingly hypocritical to themselves. Lastly, adolescents can exhibit **pseudostupidity**, which is when they approach problems at a level that is too complex and they fail because the tasks are too simple. Their new ability to consider alternatives is not completely under control and they appear “stupid” when they are in fact bright, just inexperienced.<sup>577</sup>

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## Lawrence Kohlberg: Moral Development

Kohlberg (1963) built on the work of Piaget and was interested in finding out how our moral reasoning changes as we get older. He wanted to find out how people decide what is right and what is wrong (moral justice). Kohlberg argued that we learn our moral values through active thinking and reasoning, and that moral development follows a series of stages. Kohlberg's six stages are generally organized into three levels of moral reasons. To study moral development, Kohlberg posed moral dilemmas to children, teenagers, and adults. He used the Heinz dilemma:

A woman was on her deathbed. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging ten times what the drug cost him to produce. He paid \$200 for the radium and charged \$2,000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money, but he could only get together about \$1,000 which is half of what it cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later. But the druggist said: "No, I discovered the drug and I'm going to make money from it." So Heinz got desperate and broke into the man's laboratory to steal the drug for his wife. Should Heinz have broken into the laboratory to steal the drug for his wife? Why or why not?<sup>578</sup>

Based on their reasoning behind their responses (not whether they thought Heinz made the right choice or not), Kohlberg placed each person in one of the 6 stages:

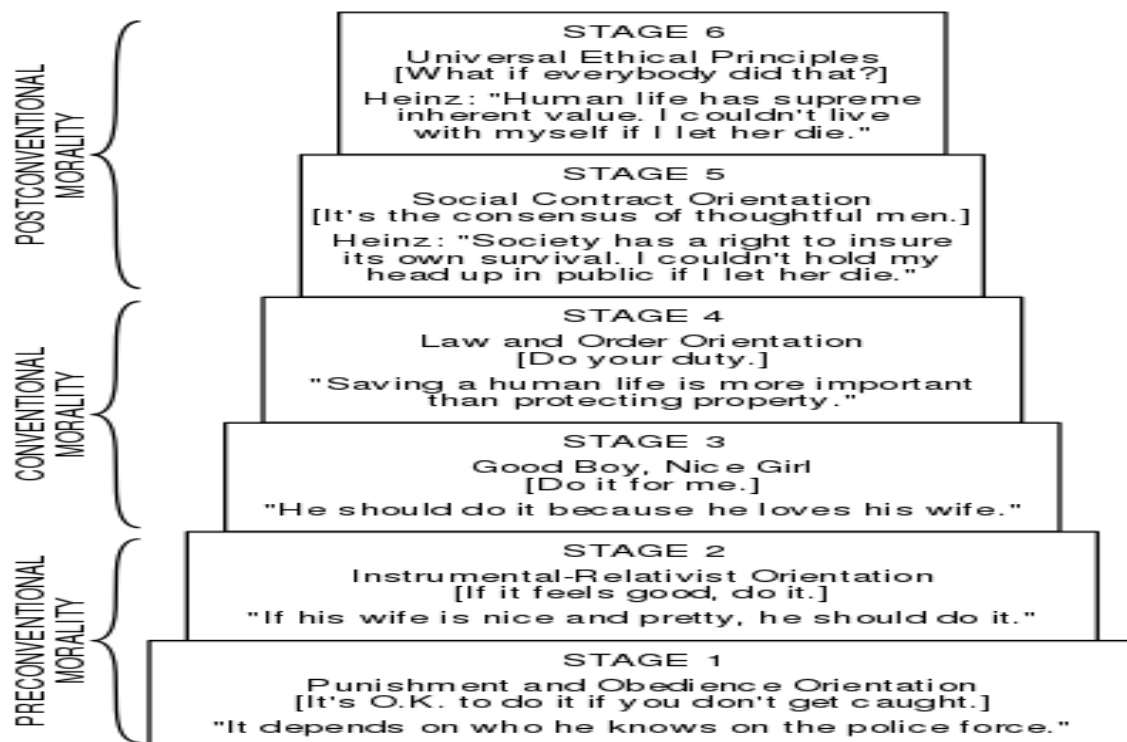


Figure 15.4 - Kohlberg's six stages of moral development.<sup>579</sup>

<sup>578</sup> [Heinz Dilemma](#) by [Wikipedia](#) is licensed under [CC BY 3.0](#)

<sup>579</sup> [Image](#) by Lawrence Kohlberg, Em Griffin, and cmglee is licensed under [CC BY-SA 4.0](#)

## Carol Gilligan: Morality of Care

Carol Gilligan has argued that, because of differences in their socialization, males tend to value principles of justice and rights, whereas females value caring for and helping others. Although there is little evidence that boys and girls score differently on Kohlberg's stages of moral development (Turiel, 1998), it is true that girls and women tend to focus more on issues of caring, helping, and connecting with others than do boys and men (Jaffee & Hyde, 2000).<sup>580</sup> Gilligan, whose ideas center on a **morality of care**, or system of beliefs about human responsibilities, care, and consideration for others, proposed three moral positions that represent different extents or breadth of ethical care. Unlike Kohlberg, or Piaget, she does not claim that the positions form a strictly developmental sequence, but only that they can be ranked hierarchically according to their depth or subtlety. In this respect her theory is "semi-developmental" in a way similar to Maslow's theory of motivation (Brown & Gilligan, 1992; Taylor, Gilligan, & Sullivan, 1995). The following table summarizes the three moral positions from Gilligan's theory:

**Table 15.1 - Positions of Moral Development According to Gilligan**

Moral Positions	Definition of What is Morally Good
<b>Position 1: Survival Orientation</b>	Action that considers one's personal needs only. One is concerned with their own welfare.
<b>Position 2: Conventional Care</b>	Action that considers others' needs or preferences but not one's own
<b>Position 3: Integrated Care</b>	Action that attempts to coordinate one's own personal needs with those of others

We've learned that major changes in the structure and functioning of the brain occur during adolescence. These changes include improvements in cognitive functions in areas such as memory, encoding, and storage as well as the ability to think about thinking, therefore becoming better at information processing functions.<sup>581</sup>

## Information Processing Theory: Memory, Encoding, and Storage

### Memory

Memory is the set of processes used to encode, store, and retrieve information over different periods of time. It is an information processing system that we often compare to a computer.

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<sup>580</sup> [Beginning Psychology – Chapter 6: Growing and Developing](#) by Charles Stangor is licensed under [CC BY-NC-SA 3.0](#)

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Figure 15.5 – The memory process.<sup>582</sup>

Encoding involves the input of information into the memory system. Storage is the retention of the encoded information. Retrieval, or getting the information out of memory and back into awareness, is the third function.

## Adolescent Transitions and Independence

Cognitive growth and a new-found sense of freedom and independence make it both easier and more difficult for teens when making choices and coping with upcoming transitions and life decisions.

As Adolescents grow older, they encounter age-related transition points that require them to progress into a new role, such as go to college, take a year off or Gap Year, or start to work towards a career. Educational expectations vary not only from culture to culture, but also from class to class. While middle- or upper-class families may expect their daughter or son to attend a four-year university after graduating from high school, other families may expect their child to immediately begin working full-time, as many within their families have done before.<sup>583</sup>

## Academic Achievement

Adolescents spend more waking time in school than in any other context (Eccles & Roeser, 2011). Academic achievement during adolescence is predicted by interpersonal (e.g., parental engagement in adolescents' education), intrapersonal (e.g., intrinsic motivation), and institutional (e.g., school quality) factors. Academic achievement is important in its own right as a marker of positive adjustment during adolescence but also because academic achievement sets the stage for future educational and occupational opportunities. The most serious consequence of school failure, particularly dropping out of school, is the high risk of unemployment or underemployment in adulthood that follows. High achievement can set the stage for college or future vocational training and opportunities.<sup>584</sup>

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## High School Dropouts

The **status dropout rate** refers to the percentage of 16 to 24 year-olds who are not enrolled in school and do not have high school credentials (either a diploma or an equivalency credential such as a General Educational Development [GED] certificate). The dropout rate is based on sample surveys of the civilian, non- institutionalized population, which excludes persons in prisons, persons in the military, and other persons not living in households.<sup>585</sup> The dropout rate among high school students has declined from a rate of 9.7% in 2006 to 5.4% in 2017.<sup>586</sup>

## Gap Year: How: different Societies Socialize Young Adults

Age transition points require socialization into new roles that can vary widely between societies. For example, in the United Kingdom, when teens finish their secondary schooling (aka high school in the United States), they often take a year “off” before entering college. Frequently, they might take a job, travel, or find other ways to experience another culture. Prince William, the Duke of Cambridge, spent his gap year practicing survival skills in Belize, teaching English in Chile, and working on a dairy farm in the United Kingdom (Prince of Wales 2012a). His brother, Prince Harry, advocated for AIDS orphans in Africa and worked as a jackaroo (a novice ranch hand) in Australia (Prince of Wales 2012b).



Figure 15.6 – Prince William.<sup>587</sup>



Figure 15.7 – Prince Harry.<sup>588</sup>

In the United States, this life transition point is socialized quite differently, and taking a year off is generally frowned upon. Instead, U.S. youth are encouraged to pick career paths by their mid-teens, to select a college and a major by their late teens, and to have completed all collegiate schooling or technical training for their career by their early twenties.

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<sup>585</sup> U.S. Department of Education, National Center for Education Statistics. (2015). *The Condition of Education 2015* (NCES 2015-144), Status Dropout Rates.; [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#)

<sup>586</sup> [The Condition of Education](#) by the [National Center for Education Statistics](#) is in the public domain

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In other nations, this phase of the life course is tied into **conscription**, a term that describes compulsory military service. Egypt, Switzerland, Turkey, and Singapore all have this system in place. Youth in these nations (often only the males) are expected to undergo a number of months or years of military training and service.<sup>589</sup>

### Adolescents in the Workforce

Many adolescents work either summer jobs, or during the school year, or may work instead of attending college. Holding a job may offer teenagers extra funds, provide the opportunity to learn new skills, foster ideas about future careers, and perhaps shed light on the true value of money. However, there are numerous concerns about teenagers working, especially during the school year. Several studies have found that working more than 20 hours per week can lead to declines in grades, a general disengagement from school (Staff, Schulenberg, & Bachman, 2010; Lee & Staff, 2007; Marsh & Kleitman, 2005), an increase in substance abuse (Longest & Shanahan, 2007), engaging in earlier sexual behavior, and pregnancy (Staff et al., 2011). Like many employee groups, teens have seen a drop in the number of jobs available. The summer jobs of previous generations have been on a steady decline, according to the United States Department of Labor, Bureau of Labor Statistics (2016).



Figure 15.8 – The effects of a job on a teen's life depends on the number of hours and the reasons they work.<sup>590</sup>

### The Working Poor

A major concern in the United States is the rising number of young people who choose to work rather than continue their education and are growing up or continuing to grow up in poverty. Growing up poor or entering the workforce too soon, can cut off access to the education and services people need to move out of poverty and into stable employment. Research states that

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education was often a key to stability, and those raised in poverty are the ones least able to find well-paying work, perpetuating a cycle. Those who work only part-time, may it be teens or whomever, are more likely to be classified as working poor than are those with full-time employment; higher levels of education lead to less likelihood of being among the working poor.<sup>591</sup> In 2017, the working poor included 6.9 million Americans, down from 7.6 million in 2011 (U.S. Bureau of Labor Statistics, 2019).<sup>592</sup>

## Teenage Drivers

The National Highway Traffic Safety Administration (NHTSA) reports that in 2014 young drivers (15 to 20 year-olds) accounted for 5.5% (11.7 million) of the total number of drivers (214 million) in the US (National Center for Statistics and Analysis (NCSA), 2016). However, almost 9% of all drivers involved in fatal crashes that year were young drivers (NCSA, 2016), and according to the National Center for Health Statistics (2014), motor vehicle accidents are the leading cause of death for 15 to 20 year-olds. “In all motorized jurisdictions around the world, young, inexperienced drivers have much higher crash rates than older, more experienced drivers” (NCSA, 2016, p. 1).

The rate of fatal crashes is higher for young males than for young females, although for both genders the rate was highest for the 15-20 year-old age group. For young males, the rate for fatal crashes was double that for young female drivers. The NHTSA (NCSA, 2016) reported that of the young drivers who were killed and who had alcohol in their system, 81% had a blood alcohol count past what was considered the legal limit. Fatal crashes involving alcohol use were higher among young men than young women. The NHTSA also found that teens were less likely to use seat belt restraints if they were driving under the influence of alcohol, and that restraint use decreased as the level of alcohol intoxication increased.

AAA completed a study in 2014 that showed that the following are risk factors for accidents for teen drivers:

- Following cars too closely
- Driving too fast for weather and road conditions
- Distraction from fellow passengers
- Distraction from cell phones

According to the NHTSA, 10% of drivers aged 15 to 19 years involved in fatal crashes were reported to be distracted at the time of the crash; the highest figure for any age group (NCSA, 2016). Distraction coupled with inexperience has been found to greatly increase the risk of an accident (Klauer et al., 2014).

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<sup>592</sup> [A profile of the working poor, 2017](#) by the [BLS](#) is in the public domain

The NHTSA did find that the number of accidents has been on a decline since 2005. They attribute this to greater driver training, more social awareness to the challenges of driving for teenagers, and to changes in laws restricting the drinking age. The NHTSA estimates that the raising of the legal drinking age to 21 in all 50 states and the District of Columbia has saved 30,323 lives since 1975.<sup>593</sup>



Figure 15.9 – This teen needs to have solid driver training and awareness of driving challenges.<sup>594</sup>

## Wisdom and Risk-Taking

Whether it is a sense heightened of ability (we've learned a lot about the egocentrism, personal fable, imaginary audience, or the lack of development of prefrontal cortex), or just poor decision making, many teens tend to take unnecessary risks. **Wisdom**, or the capacity for insight and judgment that is developed through experience, increases between the ages of 14 and 25, and increases with maturity, life experiences, and cognitive development. Wisdom increases gradually and is not the same as intelligence, and adolescents do not improve substantially on IQ tests since their scores are relative to others in their age group, as everyone matures at approximately the same rate. Adolescents must be monitored because they are more likely to take dangerous risks than adults. The behavioral decision-making theory proposes that adolescents and adults both weigh the potential rewards and consequences of an action. However, adolescents seem to give more weight to rewards, particularly social rewards, than do adults. Scaffolding adolescents until they show consistent and appropriate judgment will likely allow for fewer negative consequences.<sup>595</sup>

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## Conclusion

In this chapter we looked at:

- Piaget's formal operational stage
- Moral Development and Morality of Care theories
- Imaginary Audience and Personal Fable
- Information Processing Theory
- Adolescent transitions and independence

In the next chapter, we will be examining adolescent social-emotional development.

# Chapter 16: Adolescence

## Social Emotional-Development

### Chapter Objectives

After this chapter, you should be able to:

1. Compare Erikson and Marcia's Theories
2. Explain Identity and Self-concept
3. Summarize the Stages of Ethnic Identity Development
4. Explain the Development of Gender Identity
5. Summarize Sexuality Identity and Orientation
6. Describe Antisocial Behaviors
7. Explain the Developmental Stage of Emerging Adulthood

### Introduction

Adolescents continue to refine their sense of self as they relate to others. Adolescent's main questions are "Who am I?" and "Who do I want to be?" Some adolescents adopt the values and roles that their parents expect of them. Other teens develop identities that align more with the peer groups rather than their parents' expectations. This is common as adolescents work to form their identities. They pull away from their parents and the peer group becomes very important (Shanahan, McHale, Osgood, & Crouter, 2007). Despite spending less time with their parents, most teens report positive feelings toward them (Moore, Guzman, Hair, Lippman, & Garrett, 2004). Warm and healthy parent-child relationships have been associated with positive outcomes for the adolescent, such as better grades and fewer school behavior problems, in the United States as well as in other countries (Hair et al., 2005).<sup>596</sup>



Figure 16.1 –The relationships between this teen and his mom will have positive outcomes for him.<sup>597</sup>

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## Erik Erikson – Theory of Psychosocial Development

Erikson proposed that each period of life has a unique challenge or crisis that a person must face. This is referred to as a **psychosocial development**. According to Erikson, successful development involves dealing with and resolving the goals and demands of each of these crises in a positive way. These crises are usually called stages, although that is not the term Erikson used. If a person does not resolve a crisis successfully, it may hinder their ability to deal with later crises. For example, an individual who does not develop a clear sense of purpose and identity (Erikson's fifth crisis - Identity vs. Role Confusion) may become self-absorbed and stagnate rather than working toward the betterment of others (Erikson's seventh crisis - Generativity vs. Stagnation). However, most individuals are able to successfully complete the eight crises of his theory.<sup>598</sup>

### Identity vs. Role Confusion

**Identity vs. Role Confusion** is a major stage of development where the child has to learn the roles he will occupy as an adult. In adolescence, children (ages 12–18) face the task of *identity vs. role confusion*. Success in this stage will lead to the virtue of **fidelity**. **Fidelity** involves being able to commit one's self to others on the basis of accepting others, even when there may be ideological differences. According to Erikson, an adolescent's main task is developing a sense of self. Adolescents struggle with questions such as "Who am I?" and "What do I want to do with my life?" Along the way, most adolescents try on many different selves to see which ones fit; they explore various roles and ideas, set goals, and attempt to discover their "adult" selves. Adolescents who are successful at this stage have a strong sense of identity and are able to remain true to their beliefs and values in the face of problems and other people's perspectives. When adolescents are apathetic, do not make a conscious search for identity, or are pressured to conform to their parents' ideas for the future, they may develop a weak sense of self and experience role confusion. They will be unsure of their identity and confused about the future. Teenagers who struggle to adopt a positive role will likely struggle to "find" themselves as adults.<sup>599</sup>

Erikson saw this as a period of confusion and experimentation regarding identity and how one navigates along life's path. During adolescence, we experience **psychological moratorium**, where teens put their current identity on hold while they explore their options for identity. The culmination of this exploration is a more coherent view of oneself. Those who are unsuccessful at resolving this stage may either withdraw further into social isolation or become lost in the crowd. However, more recent research suggests, that few leave this age period with identity achievement and that most identity formation occurs during young adulthood (Côté, 2006).<sup>600</sup>

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<sup>599</sup> [Education, Society, & the K-12 Learner – Part II: Educational Psychology](#) references [Modification of Erickson's Stages of Psychosocial Development](#) by Boundless, which is licensed under [CC BY-SA 4.0](#)

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## James Marcia – Theory of Identity Development

One approach to assessing identity development was proposed by James Marcia. In his approach, adolescents are asking questions regarding their exploration of and commitment to issues related to occupation, politics, religion, and sexual behavior. Studies assessing how teens pass through Marcia's stages show that although most teens eventually succeed in developing a stable identity, the path to it is not always easy and there are many routes that can be taken. Some teens may simply adopt the beliefs of their parents or the first role that is offered to them, perhaps at the expense of searching for other more promising possibilities (foreclosure status). Other teens may spend years trying on different possible identities (moratorium status) before finally choosing one.<sup>601</sup>

**Table 16.1 Identity Status**

Identity Status	Description <sup>602</sup>
<b>Identity-Diffusion status</b> is a status that characterizes those who have neither explored the options, nor made a commitment to an identity.	The individual does not have firm commitments regarding the issues in question and is not making progress toward them. Those who persist in this identity may drift aimlessly with little connection to those around them or have little sense of purpose in life.
<b>Identity-Foreclosure status</b> is the status of those who have made a commitment to an identity without having explored the options.	The individual has not engaged in any identity experimentation and has established an identity based on the choices or values of others. Some parents may make these decisions for their children and do not grant the teen the opportunity to make choices. In other instances, teens may strongly identify with parents and others in their life and wish to follow in their footsteps.
<b>Identity-Moratorium status</b> is a status that describes those who are exploring in an attempt to establish an identity but have yet to have made any commitment.	The individual is exploring various choices but has not yet made a clear commitment to any of them. This can be an anxious and emotionally tense time period as the adolescent experiments with different roles and explores various beliefs. Nothing is certain and there are many questions, but few answers.
<b>Identity-Achievement status</b> refers to the status for those who, after exploration, have made a commitment.	The individual has attained a coherent and committed identity based on personal decisions. This is a long process and is not often achieved by the end of adolescence.

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The least mature status, and one common in many children, is identity diffusion. During high school and college years, teens and young adults move from identity diffusion and foreclosure toward moratorium and achievement. The biggest gains in the development of identity are in college, as college students are exposed to a greater variety of career choices, lifestyles, and beliefs. This is likely to spur on questions regarding identity. A great deal of the identity work we do in adolescence and young adulthood is about values and goals, as we strive to articulate a personal vision or dream for what we hope to accomplish in the future (McAdams, 2013).<sup>603</sup>

To help them work through the process of developing an identity, teenagers may try out different identities in different social situations. They may maintain one identity at home and a different type of persona when they are with their peers. Eventually, most teenagers do integrate the different possibilities into a single self-concept and a comfortable sense of identity (identity-achievement status). For teenagers, the peer group provides valuable information about the self-concept. For instance, in response to the question “What were you like as a teenager? (e.g., cool, nerdy, awkward?),” posed on the website Answerbag, one teenager replied in this way:

I’m still a teenager now, but from 8<sup>th</sup>-9<sup>th</sup> grade, I didn’t really know what I wanted at all. I was smart, so I hung out with the nerdy kids. I still do; my friends mean the world to me. But in the middle of 8<sup>th</sup> grade, I started hanging out with which you may call the “cool” kids...and I also hung out with some stoners, just for variety. I pierced various parts of my body and kept my grades up. Now, I’m just trying to find who I am. I’m even doing my sophomore year in China so I can get a better view of what I want. (Answerbag, 2007). What were you like as a teenager? (e.g., cool, nerdy, awkward?). (Quoted from [dojokills](http://www.dojokills.com) on [http://www.answerbag.com/q\\_view/171753](http://www.answerbag.com/q_view/171753))

A big part of what the adolescent is learning is **social identity**, the part of the self-concept that is derived from one’s group memberships. Adolescents define their social identities according to how they are similar to and different from others, finding meaning in the sports, religious, school, gender, and ethnic categories they belong to.<sup>604</sup>

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<sup>603</sup> [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#); Table adapted from Marcia, J. (1980). Identity in adolescence. *Handbook of adolescent psychology*, 5, 145

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Figure 16.2<sup>605</sup>



Figure 16.3<sup>606</sup>



Figure 16.3<sup>607</sup>



Figure 16.4<sup>608</sup>

Adolescents search for stable attachments through the development of social identities.

## Development of Identity and Self Concept: Who am I?

Developmental psychologists have researched several different areas of identity development for adolescence and some of the main areas include:

### Religious Identity

The religious views of teens are often similar to that of their families (Kim- Spoon, Longo, & McCullough, 2012). Most teens may question specific customs, practices, or ideas in the faith of their parents, but few completely reject the religion of their families.



Figure 16.5 – A Muslim teen<sup>609</sup>



Figure 16.6 – A Jewish teen<sup>610</sup>



Figure 16.7 – A Catholic teen<sup>611</sup>



Figure 16.8 – A Buddhist teen<sup>612</sup>

### Political Identity

The political ideology of teens is also influenced by their parents' political beliefs. A new trend in the 21st century is a decrease in party affiliation among adults. Many adults do not align themselves with either the democratic or republican party, but view themselves as more of an "independent". Their teenage children are often following suit or becoming more apolitical (Côté, 2006).

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## Vocational Identity

While adolescents in earlier generations envisioned themselves as working in a particular job, and often worked as an apprentice or part-time, this is rarely the case today. Vocational identity takes longer to develop, as most of today's occupations require specific skills and knowledge that will require additional education or are acquired on the job itself. In addition, many of the jobs held by teens are not in professions that most teens will seek as adults.

## Gender Identity

This is also becoming an increasingly prolonged task as attitudes and norms regarding gender keep changing. The roles appropriate for males and females are evolving. Some teens may foreclose on a gender identity as a way of dealing with this uncertainty, and they may adopt more stereotypic male or female roles (Sinclair & Carlsson, 2013). We will be looking more closely at gender identity later in the chapter.<sup>613</sup>

## Self-Concept and Self-Esteem

In adolescence, teens continue to develop their self-concept. Their ability to think of the possibilities and to reason more abstractly may explain the further differentiation of the self during adolescence. However, the teen's understanding of self is often full of contradictions. Young teens may see themselves as outgoing but also withdrawn, happy yet often moody, and both smart and completely clueless (Harter, 2012). These contradictions, along with the teen's growing recognition that their personality and behavior seem to change depending on who they are with or where they are, can lead the young teen to feel like a fraud. With their parents, they may seem angrier and sullen, with their friends they are more outgoing and goofy, and at work, they are quiet and cautious. "Which one is really me?" may be the refrain of the young teenager. Harter (2012) found that adolescents emphasize traits such as being friendly and considerate more than do children, highlighting their increasing concern about how others may see them. Harter also found that older teens add values and moral standards to their self-descriptions.

As self-concept develops, so does self-esteem. In addition to the academic, social, appearance, and physical/athletic dimensions of self-esteem in middle and late childhood, teens also add perceptions of their competency in romantic relationships, on the job, and in close friendships (Harter, 2006). Self-esteem often decreases when children transition from one school setting to another, such as shifting from elementary to middle school, or junior high to high school (Ryan, Shim, & Makara, 2013). These decreases are usually temporary, unless there are additional stressors such as parental conflict, or other family disruptions (De Wit, Karioja, Rye, & Shain, 2011). Self-esteem rises from mid to late adolescence for most teenagers, especially if they feel confident in their peer relationships, their appearance, and athletic abilities (Birkeland, Melkivik, Holsen, & Wold, 2012).

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Figure 16.9 – An adolescent’s understanding of their self is often full of contradictions.<sup>614</sup>



Figure 16.10 – Adolescents are more likely to emphasize values in their self-descriptions.<sup>615</sup>

## Development of Gender Identity

From birth, children are assigned a gender and are socialized to conform to certain gender roles based on their biological sex. “**Sex**,” refers to physical or physiological differences between males, females, and intersex persons, including both their primary and secondary sex characteristics. “**Gender**,” on the other hand, refers to social or cultural distinctions associated with a given sex.

When babies are born, they are assigned a gender based on their biological sex—male babies are assigned as boys, female babies are assigned as girls, and **intersex** babies are born with sex characteristics that do not fit the typical definitions for male or female bodies, and are usually relegated into one gender category or another. Scholars generally regard gender as a **social construct**, meaning that it doesn’t exist naturally but is instead a concept that is created by cultural and societal norms. From birth, children are socialized to conform to certain gender roles based on their biological sex and the gender to which they are assigned.<sup>616</sup>

A person’s subjective experience of their own gender and how it develops, or **gender identity**, is a topic of much debate. It is the extent to which one identifies with a particular gender; it is a person’s individual sense and subjective experience of being a man, a woman, or other gender. It is often shaped early in life and consists primarily of the acceptance (or non-acceptance) of one’s membership into a gender category. In most societies, there is a basic division between gender attributes assigned to males and females. In all societies, however, some individuals do not identify with some (or all) of the aspects of gender that are assigned to their biological sex.

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In many Western cultures, individuals who identify with a gender that is different from their biological sex (for example, they are assigned female at birth but feel inwardly that they are a boy or a gender other than a girl) are called **transgender**. Some transgender individuals, if they have access to resources and medical care, choose to alter their bodies through medical interventions such as surgery and hormonal therapy so that their physical being is better aligned with their gender identity.

### The Genderbread Person

Sam Killerman created the Genderbread Person as an infographic to break down gender identity, gender expression, biological sex, and sexual orientation.<sup>617</sup> I

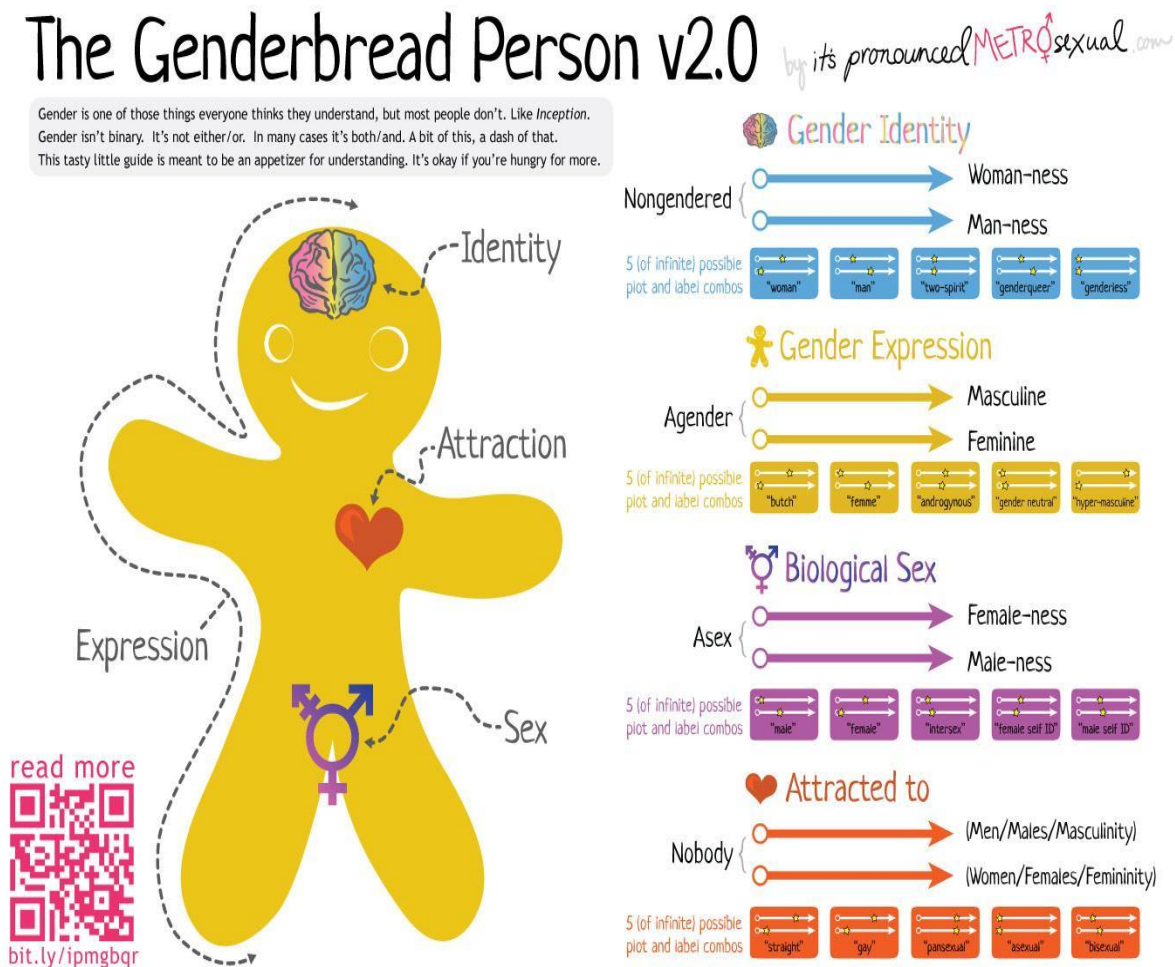


Figure 16.12 – The Genderbread Person explains gender identity, gender expression, biological sex, and sexual orientation.<sup>618</sup>

<sup>617</sup> [The Genderbread Person](#) by Sam Killermann is in the public domain

<sup>618</sup> [Image](#) by [it's pronounced METROsexual](#)





Figure 16.11 - This person identifies as genderqueer.<sup>619</sup>

## Factors that Influence Gender Identity

Although the formation of gender identity is not completely understood, many factors have been suggested as influencing its development. Biological factors that may influence gender identity include pre- and post-natal hormone levels and genetic makeup. Social factors include ideas regarding gender roles conveyed by family, authority figures, mass media, and other influential people in a child's life. According to social-learning theory, children develop their gender identity through observing and imitating the gender-linked behaviors of others; they are then “rewarded” for imitating the behaviors of people of the same gender and “punished” for imitating the behaviors of another gender. For example, male children will often be rewarded for imitating their father's love of baseball but punished or redirected in some way if they imitate their older sister's love of dolls. Children are shaped and molded by the people surrounding them, who they try to imitate and follow.

## Gender Roles

The term “gender role” refers to society's concept of how men and women are expected to act. As we grow, we learn how to behave from those around us. In this socialization process, children are introduced to certain roles that are typically linked to their biological sex. Gender roles are based on norms, or standards, created by society. In American culture, masculine roles have traditionally been associated with strength, aggression, and dominance, while feminine roles have traditionally been associated with passivity, nurturing, and subordination.

## Gender Socialization

The socialization process in which children learn these gender roles begins at birth. Today, our society is quick to outfit male infants in blue and girls in pink, even applying these color-coded gender labels while a baby is in the womb. It is interesting to note that these color associations with gender have not always been what they are today. Up until the beginning of the 20th

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<sup>619</sup> Image by [Franziska Neumeister](#) is licensed under [CC BY 2.0](#)



century, pink was actually more associated with boys, while blue was more associated with girls—illustrating how socially constructed these associations really are.

Gender socialization occurs through four major agents: family, education, peer groups, and mass media. Each agent reinforces gender roles by creating and maintaining normative expectations for gender-specific behavior. Exposure also occurs through secondary agents, such as religion and the workplace. Repeated exposure to these agents over time leads people into a false sense that they are acting naturally based on their gender rather than following a socially constructed role.

### *Gender Stereotypes, Sexism, and Gender-Role Enforcement*

The attitudes and expectations surrounding gender roles are not typically based on any inherent or natural gender differences, but on **gender stereotypes**, or oversimplified notions about the attitudes, traits, and behavior patterns of males and females. We engage in gender stereotyping when we do things like making the assumption that a teenage babysitter is female.

While it is somewhat acceptable for women to take on a narrow range of masculine characteristics without repercussions (such as dressing in traditionally male clothing), men are rarely able to take on more feminine characteristics (such as wearing skirts) without the risk of harassment or violence. This threat of punishment for stepping outside of gender norms is especially true for those who do not identify as male or female.



Figure 16.13 – Would girls likely pose this way for an image? What does this say about gender stereotypes?<sup>620</sup>

Gender stereotypes form the basis of sexism, or the prejudiced beliefs that value males over females. Common forms of sexism in modern society include gender-role expectations, such as expecting women to be the caretakers of the household. Sexism also includes people's expectations of how members of a gender group should behave. For example, girls and women are expected to be friendly, passive, and nurturing; when she behaves in an unfriendly or

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<sup>620</sup> [Image](#) on [Pixabay](#)

assertive manner, she may be disliked or perceived as aggressive because she has violated a gender role (Rudman, 1998). In contrast, a boy or man behaving in a similarly unfriendly or assertive way might be perceived as strong or even gain respect in some circumstances.<sup>621</sup>

## Socialization Agents During Adolescence

Adolescence is a crucial period in social development, research shows there are four main types of relationships that influence an adolescent: parents, peers, community, and society.

### Parents and Teens: Autonomy and Attachment

While most adolescents get along with their parents, they do spend less time with them (Smetana, 2011). This decrease in the time spent with families may be a reflection of a teenager's greater desire for independence or **autonomy**. It can be difficult for many parents to deal with this desire for autonomy. However, it is normal for teenagers to increasingly distance themselves and establish relationships outside of their families in preparation for adulthood.

Children in middle and late childhood are increasingly given greater freedom regarding basic decision making. This continues in adolescence, as teens demand more and more control over the decisions that affect their daily lives. Teens believe they should manage the areas that parents previously had considerable control over, which can increase tension between parents and their teenagers. Their arguments often center on issues of a power struggle or conflict in areas such as chores, homework, curfew, dating, personal appearance, and the right to privacy.



Figure 16.14 – Teenagers report more conflicts with their mothers.<sup>622</sup>

As teens grow older, more compromise is reached between parents and teenagers (Smetana, 2011). Teens report more conflict with their mothers, as many mothers believe they should still have some control over many of these areas, yet often report their mothers to be more encouraging and supportive (Costigan, Cauce, & Etchison, 2007). Parents are more controlling of daughters, especially early-maturing girls, than they are sons (Caspi, Lynam, Moffitt, & Silva,

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<sup>622</sup> [Image](#) by [Wikivisual](#) is licensed under [CC BY-NC-SA 3.0](#)

1993). In addition, culture and ethnicity also play a role in how restrictive parents are with the daily lives of their children (Chen, Vansteenkiste, Beyers, Soenens, & Van Petegem, 2013).<sup>623</sup>

Having a supportive, less conflict-ridden relationships with parents also benefits teenagers. Research on attachment in adolescence finds that teens who are still securely attached to their parents have less emotional problems (Rawatlal, Kliewer & Pillay, 2015), are less likely to engage in drug abuse and other criminal behaviors (Meeus, Branje & Overbeek, 2004), and have more positive peer relationships (Shomaker & Furman, 2009). This means that both parents and teenagers need to strike a balance between autonomy, while still maintaining close and caring familial relationships.<sup>624</sup>

## The Parent-Child Relationship

The relationship with parents may be a mitigating factor of the negative influence of peers. Communicating family rules and a positive parental style has been inversely associated with substance, alcohol, and tobacco consumption during adolescence. This influence is essential for adolescents' development up to adulthood. Communication between parents and adolescents emerges as a protective factor for alcohol, tobacco, and substance use (Newman, Harrison & Dashiff, 2008).

Sen (2010) observed that family meals could lead to creating a closer relationship between parents and adolescents. Although girls may attribute greater importance to family activities, boys are indifferent to them. While there are some gender differences in behaviors that are mitigated by close relationships with parents, Huebner and Howell (2003) verified that parental communication and monitoring protected adolescents of both genders from being involved in risk behaviors.



Figure 16.15 – if this father monitors and communicates with his son, he can reduce the teen's risky behaviors.<sup>625</sup>

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<sup>625</sup> [Image](#) by [moodboard](#) is licensed under [CC BY 2.0](#)

Parental monitoring can be defined as parents' knowledge about their children's activities, who they hang out with, and what they do. It has been associated with protection from various risk behaviors throughout adolescence, such as substance use or sexual behaviors. The greater the parental monitoring, the lower the adolescents' involvement in risk behavior. It may vary according to age, gender, or ethnicity and it generally decreases with age (Westling, Andrews, Hampson & Peterson, 2008).<sup>626</sup>

## Relationships with Peers and Peer Groups

### *Peer Relationships*

Peers serve as an important source of social support and companionship during adolescence. As children become adolescents, they usually begin spending more time with their peers and less time with their families, and these peer interactions are increasingly unsupervised by adults. The level of influence that peers can have over an adolescent makes these relationships particularly important in their personal development. Adolescents with positive peer relationships are happier and better adjusted than those who are socially isolated or have conflictual peer relationships.

Adolescents' notions of friendship increasingly focus on intimate exchanges of thoughts and feelings, which are important to forming friendships; these high-quality friendships may enhance a child's development regardless of the particular characteristics of those friends. In addition, peers also serve as an important source of social support and companionship during adolescence.

Peers can serve both positive and negative functions during adolescence. Relationships with peers are valuable opportunities for adolescents to practice their social and conflict resolution skills. But negative peer pressure can lead adolescents to make riskier decisions or engage in more problematic behavior than they would alone or in the presence of their family. One of the most widely studied aspects of adolescent peer influence is known as **deviant peer contagion** (Dishion & Tipsord, 2011), which is the process by which peers reinforce problem behavior by laughing or showing other signs of approval that then increase the likelihood of future problem behavior.<sup>627</sup>

Peers may strongly determine preference in the way of dressing, speaking, using illicit substances, sexual behavior, adopting and accepting violence, adopting criminal and anti-social behaviors, and in many other areas of the adolescent's life (Padilla, Walker & Bean, 2009; Tomé, Matos & Diniz, 2008). An example of this is that the main motives for alcohol consumption given by adolescents are related to social events, which usually take place in the company of friends, namely: drinking makes holidays more fun, it facilitates approaching others, it helps relaxing or facilitates sharing experiences and feelings (Kuntsche, Knibbe, Gmel

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<sup>626</sup> [How Can Peer Group Influence the Behavior of Adolescents: Explanatory Model](#) by Gina Tomé, Margarida Matos, Celeste Simões, José Diniz, and Inês Camacho is licensed under [CC BY 4.0](#)

<sup>627</sup> [Boundless Psychology - Adolescence](#) references Curation and Revision by Boundless Psychology, which is licensed under [CC BY-SA 4.0](#)

& Engels, 2005). Also, mimicking risk behaviors may be greater when consumption begins in the context of a social event (Larsen, Engels, Souren, Granic & Overbeek, 2010).



Figure 16.16 - Adolescent boys drinking at a party.<sup>628</sup>

On the other hand, having friends allows individuals to share experiences and feelings and to learn how to solve conflicts. Not having friends, on the other hand, leads to social isolation and limited social contacts, with fewer opportunities to develop new relations and social interactional skills.

Friendship is also positively associated with psychological well-being (Ueno, 2004). Stronger friendships may provide adolescents with an appropriate environment to develop in a healthy way and to achieve good academic results. Adolescents with reciprocal friendships mention high levels of feelings of belonging in school; at the same time, reciprocity and feelings of belonging have positive effects in academic results (Vaquera & Kao, 2008).

School is a setting where interpersonal relations are promoted, which are important for youngsters' personal and social development (Ruini et al., 2009); it is responsible for the transmission of behavioral norms and standards and it represents an essential role in the adolescent's socialization process. The school is able to gather different peer communities and to promote self-esteem and a harmonious development between adolescents, which makes it a privileged space for meetings and interactions (Baptista, Tomé, Matos, Gaspar & Cruz, 2008). Adolescents spend a great part of their time at school, which also makes it a privileged context for involvement in or protection from risk behaviors (Piko & Kovács, 2010). Camacho, Tomé, Matos, Gamito and Diniz (2010) confirmed that adolescents who like school were those that more often were part of a peer group without involvement in risk behaviors; while those that mentioned they did not have any friends reported that they liked school less and those in conflict with their peers had more negative health outcomes.

<sup>628</sup> Image by [theopie](#) is licensed under [CC BY 2.0](#)





Figure 16.17 - These teens are at a concert together.<sup>629</sup>

### *Peers in Groups*

During adolescence, it is common to have friends of the opposite sex much more than in childhood, peer groups evolve from primarily single-sex to mixed-sex. Teens within a peer group tend to be similar to one another in behavior and attitudes. Adolescents who spend time together also shape each other's behavior.

Peer groups can have both positive and negative effects on adolescents. The group may serve as a model and influence behaviors and attitudes and also provide easy access, encouragement, and an appropriate social setting for the consumption of illegal substances (Glaser, Shelton & Bree, 2010). Social Learning Theory suggests that it is not necessary for adolescents to observe a given behavior and adopt it; it is sufficient to perceive that the peer group accepts it, to be able to opt for similar behaviors (Petratis, Flay & Miller, 1995).<sup>630</sup>

A factor that may be found in the influence of the peer group is the type of friendship, which adolescents maintain with their peer group; if friends are close they have a greater influence on the other's behaviors (Glaser, Shelton & Bree, 2010). When the friendship is perceived as reciprocal and of quality, it exerts greater influence (Mercken, Snijders, Steglich, Vartiainen & Vries, 2010). Another factor, which has been identified as a possible way of decreasing peer influence, is assertive refusal. Adolescents who can maintain an assertive refusal are less susceptible to the group's influence (Glaser, Shelton & Bree, 2010). These are only some variables identified as possible factors decreasing peer influence.<sup>631</sup>

Despite the positive influence of the peer group during adolescence, the higher the adolescent's autonomy from the peer group, the higher their resilience against its influence. This resilience seems to increase with age, which may mean that it is associated with youngsters' maturity; girls emerge in several studies as more resilient than boys (Sumter, Bokhorst, Steinberg & Westenberg, 2009).

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<sup>630</sup> [How Can Peer Group Influence the Behavior of Adolescents: Explanatory Model](#) by Gina Tomé, Margarida Matos, Celeste Simões, José Diniz, and Inês Camacho is licensed under [CC BY 4.0](#)

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## Community, Society, and Culture

There are certain characteristics of adolescent development that are more rooted in culture than in human biology or cognitive structures. Culture is learned and socially shared, and it affects all aspects of an individual's life. Social responsibilities, sexual expression, and belief system development, for instance, are all likely to vary based on culture. Furthermore, many distinguishing characteristics of an individual (such as dress, employment, recreation, and language) are all products of culture.



Figure 16.18 – Culture is learned and socially shared.<sup>632</sup>

Many factors that shape adolescent development vary by culture. For instance, the degree to which adolescents are perceived as autonomous, or independent beings varies widely in different cultures, as do the behaviors that represent this emerging autonomy. The lifestyle of an adolescent in a given culture is also profoundly shaped by the roles and responsibilities he or she is expected to assume. The extent to which an adolescent is expected to share family responsibilities, for example, is one large determining factor in normative adolescent behavior. Adolescents in certain cultures are expected to contribute significantly to household chores and responsibilities, while others are given more freedom or come from families with more privilege where responsibilities are fewer. Differences between families in the distribution of financial responsibilities or provision of allowance may reflect various socioeconomic backgrounds, which are further influenced by cultural norms and values.

Adolescents begin to develop unique belief systems through their interaction with social, familial, and cultural environments. These belief systems encompass everything from religion and spirituality to gender, sexuality, work ethics, and politics. The range of attitudes that a culture embraces on a particular topic affects the beliefs, lifestyles, and perceptions of its adolescents, and can have both positive and negative impacts on their development.

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<sup>632</sup> [Image](#) by Sgt. Matthew Coleman-Foster is in the public domain

## Development of Ethnic Identity

Adolescent development does not necessarily follow the same pathway for all individuals. Certain features of adolescence, particularly with respect to biological changes associated with puberty and cognitive changes associated with brain development, are relatively universal. But other features of adolescence depend largely on circumstances that are more environmentally variable. For example, adolescents growing up in one country might have different opportunities for risk-taking than adolescents in a different country, and supports and sanctions for different behaviors in adolescence depend on laws and values that might be specific to where adolescents live.



Figure 16.19 – These values of these adolescent girls’ families and communities will influence their development.<sup>633</sup>

Different cultural norms regarding family and peer relationships shape adolescents’ experiences in these domains. For example, in some countries, adolescents’ parents are expected to remain in control over major decisions, whereas in other countries, adolescents are expected to begin sharing in or taking control of decision making. Even within the same country, adolescents’ gender, ethnicity, immigrant status, religion, sexual orientation, socioeconomic status, and personality can shape both how adolescents behave and how others respond to them, creating diverse developmental contexts for different adolescents.<sup>634</sup>

**Ethnic Identity** refers to how people come to terms with who they are based on their ethnic or racial ancestry. “The task of ethnic identity formation involves sorting out and resolving positive and negative feelings and attitudes about one’s own ethnic group and about other groups and identifying one’s place in relation to both” (Phinney, 2006, p. 119). When groups differ in status in a culture—those from the non-dominant group have to be cognizant of the customs and values of those from the dominant culture. The reverse is rarely the case. This makes ethnic identity far less important for members of the dominant culture.

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In the United States, those of European ancestry engage in less exploration of ethnic identity, than do those of non-European ancestry (Phinney, 1989). However, according to the U.S. Census (2012), more than 40% of Americans under the age of 18 are from ethnic minorities. For many ethnic minority teens, discovering one's ethnic identity is an important part of identity formation. Phinney's model of ethnic identity formation is based on Erikson and Marcia's model of identity formation (Phinney, 1990; Syed & Juang, 2014). Through the process of exploration and commitment, individuals come to understand and create an ethnic identity.

The development of ethnic identity takes time, with about 25% of tenth graders from ethnic minority backgrounds having explored and resolved the issues (Phinney, 1989). Ethnic minorities must also wrestle with the question of how, and to what extent, they will identify with the culture of their surroundings, thus society and with the culture of their family. Phinney (2006) suggests that people may handle it in different ways. Some may keep the identities separate, others may combine them in some way, while others may reject some of them.

**Bicultural identity** means individuals see themselves as part of both the ethnic minority group and the larger society. Those who are **multiracial**, that is whose parents come from two or more ethnic or racial groups, have a more challenging task. In some cases, their appearance may be ambiguous. This can lead to others constantly asking them to categorize themselves. Phinney (2006) notes that the process of identity formation may start earlier and take longer to accomplish in those who are not **monoracial** or a single ethnicity.<sup>635</sup>

The amount of identity exploration and achievement varies in different settings. The more ethnically **homogeneous** the high school, the less identity exploration and achievement (Umaña-Taylor, 2003). Moreover, even in more ethnically diverse high schools, teens tend to spend more time with their own group, reducing exposure to other ethnicities. This may explain why, for many, college becomes the time of ethnic identity exploration. "[The] transition to college may serve as a consciousness-raising experience that triggers exploration" (Syed & Azmitia, 2009, p. 618).

It is also important to note that those who do achieve ethnic identity may periodically reexamine the issues of ethnicity. This cycling between exploration and achievement is common not only for ethnic identity formation, but in other aspects of identity development (Grotevant, 1987) and is referred to (from Marcia's Theory: Stages of Identity) as **MAMA cycling** or moving back and forth between moratorium and achievement.<sup>636</sup>

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Figure 16.20 – A bicultural family.<sup>637</sup>

## Media: Influences on Teens

Media is another agent of socialization that influences our political views; our tastes in popular culture; our views of women, people of color, and the LGBTQ+ community; and many other beliefs and practices. In an ongoing controversy, the media is often blamed for youth violence and many other of society's ills. The average child sees hundreds of thousands of acts of violence on television and in the movies before reaching young adulthood. Rap lyrics often seemingly extol ugly violence, including violence against women. Commercials can greatly influence our choice of soda, shoes, and countless other products. The mass media also reinforces racial and gender stereotypes, including the belief that women are sex objects and suitable targets of male violence. In the General Social Survey (GSS), about 28% of respondents said that they watch four or more hours of television every day, while another 46% watch 2-3 hours daily (see "Average Number of Hours of Television Watched Daily"). The media certainly are an important source of socialization that was unimaginable a half-century ago.

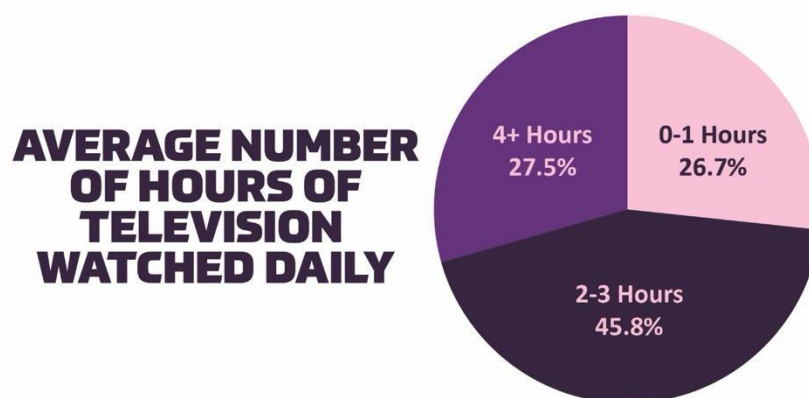


Figure 16.21 – Daily television viewing time.<sup>638</sup>

<sup>637</sup> [Image](#) (taken from video) by [ISSH](#) is licensed under [CC BY 3.0](#)

<sup>638</sup> Data from General Social Survey, 2008. Image by [Jan Joslin](#) is licensed under [CC BY 4.0](#)

As the media socializes children, adolescents, and even adults, a key question is the extent to which media violence causes violence in our society. Studies consistently uncover a strong correlation between watching violent television shows and movies and committing violence. However, this does not necessarily mean that watching the violence actually causes violent behavior. Scholars continue to debate the effect of media violence on youth violence. In a free society, this question is especially important, as the belief in this effect has prompted calls for monitoring the media and the banning of certain acts of violence. Civil libertarians argue that such calls smack of censorship that violates the First Amendment to the Constitution, while others argue that they fall within the First Amendment and would make for a safer society. Certainly, the concern and debate over mass media violence will continue for years to come.<sup>639</sup>

## Development of Sexual Identity

### Dating and Romantic Relationships

Adolescence is the developmental period during which romantic relationships typically first emerge. By the end of adolescence, most American teens have dated others and have had at least one romantic relationship (Dolgin, 2011). However, culture does play a role as Asian Americans and Latinas are less likely to date than other ethnic groups (Connolly, Craig, Goldberg, & Pepler, 2004). Dating serves many purposes for teens, including having fun, companionship, status, socialization, intimacy, sexual experimentation, and partner selection for those in late adolescence (Dolgin, 2011). There are several stages in the dating process, beginning with engaging in mixed-sex group activities in early adolescence (Dolgin, 2011).

**Table 16.2 - Romantic Relationships in Adolescence**

Age	Relationship
<b>Early Adolescence</b>	Romantic relationships often form in the context of these mixed-sex peer groups (Connolly, Furman, & Konarski, 2000). Interacting in mixed-sex groups is easier for teens as they are among a supportive group of friends, can observe others interacting, and are kept safe from becoming intimate too soon.
<b>Middle Adolescence</b>	By middle adolescence, teens are engaging in brief, casual dating, or in group dating with other couples (Dolgin, 2011).
<b>Late Adolescence</b>	In late adolescence, dating involves exclusive, intense relationships that are short-lived or are long-term committed partnerships, either way, their importance should not be minimized. Adolescents spend a great deal of time focused on romantic relationships or lack thereof. Their positive and negative emotions are tied to this intense interest more than they are to friendships, family relationships, or school (Furman & Shaffer, 2003).

<sup>639</sup> [Sociology: Brief Edition – Agents of Socialization](#) by Steven E. Barkan is licensed under [CC BY-NC-SA 3.0](#)



Furthermore, romantic relationships are centrally connected to adolescents' emerging sexuality. Parents, policymakers, and researchers have devoted a great deal of attention to adolescents' sexuality, in large part because of concerns related to sexual intercourse, contraception, and preventing teen pregnancies. However, sexuality involves more than this narrow focus, for example, adolescence is often when individuals who are lesbian, gay, bisexual, or transgender come to understand and define what their sexual identity is (Russell, Clarke, & Clary, 2009). Thus, romantic relationships are a domain in which adolescents experiment with new behaviors and identities.<sup>640</sup>



Figure 16.22 – Romantic relationships emerge in adolescence.<sup>641</sup>

### Violence by Someone You Know

Violence can be committed against someone that the victim knows well, referred to as an intimate, in many ways: an intimate can hit with their fists, slap with an open hand, throw an object, push or shove, or use or threaten to use a weapon. While we can never be certain of the exact number of intimates that are attacked, the U.S. Department of Justice estimates from its National Crime Victimization Survey that almost 600,000 acts of violence (2008 data) are committed annually by one intimate against another intimate.<sup>642</sup>

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According to a fact sheet from the National Coalition Against Domestic Violence that compiled the results of several studies:

- In 2013, 35% of 10<sup>th</sup> graders reported that they had been physically or verbally abused and 31% reported having perpetrated such abuse
- In 2014, 10% of teenage students in dating relationships reported being coerced into sexual intercourse in the previous year
- In 2015, 20.9% of female and 13.4% of male high school students reported being physically or sexually assaulted by a dating partner
- But only 33% of teenage dating abuse victims reported having ever told anyone about it (according to a 2005 study)<sup>643</sup>

A 2010 report by the CDC shows the larger pictures of intimate partner violence

- 1 in 3 women and 1 in 4 men have been victims of some form of physical violence by an intimate partner in their lifetime
- 1 in 7 women and 1 in 18 men have been stalked by an intimate partner to the point that they were fearful for their safety<sup>644</sup>

This topic is an important one because “domestic violence is prevalent in every community, and affects all people regardless of age, socio-economic status, sexual orientation, gender, race, religion, or nationality. Physical violence is often accompanied by emotionally abusive and controlling behavior as part of a much larger, systematic pattern of dominance and control. Domestic violence can result in physical injury, psychological trauma, and even death. The devastating consequences of domestic violence can cross generations and last a lifetime.”<sup>645</sup>

## Sexual Orientation

A person's **sexual orientation** is their emotional and sexual attraction to a particular sex or gender, a continuing pattern of romantic or sexual attraction (or a combination of these) to persons of a given sex or gender. According to the American Psychological Association (APA) (2016), sexual orientation also refers to a person's sense of identity based on those attractions, related behaviors, and membership in a community of others who share those attractions.

According to current scientific understanding, individuals are usually aware of their sexual orientation between middle childhood and early adolescence. However, this is not always the case, and some do not become aware of their sexual orientation until much later in life. It is not

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<sup>643</sup> Dating Abuse and Teen Violence (n.d.). Retrieved from [https://www.speakcdn.com/assets/2497/dating\\_abuse\\_and\\_teen\\_violence\\_ncadv.pdf](https://www.speakcdn.com/assets/2497/dating_abuse_and_teen_violence_ncadv.pdf)

<sup>644</sup> Who is Doing What to Whom? Determining the Core Aggressor in Relationships Where Domestic Violence Exists. (n.d.). Retrieved from [https://www.speakcdn.com/assets/2497/who\\_is\\_doing\\_what\\_to\\_whom.pdf](https://www.speakcdn.com/assets/2497/who_is_doing_what_to_whom.pdf)

<sup>645</sup> National Child Traumatic Stress Network. (n.d.). *National Domestic Violence Awareness Month*. Retrieved from <https://www.nctsn.org/resources/public-awareness/national-domestic-violence-awareness-month>

necessary to participate in sexual activity to be aware of these emotional, romantic, and physical attractions; people can be celibate and still recognize their sexual orientation. Some researchers argue that sexual orientation is not static and inborn, but is instead fluid and changeable throughout the lifespan.



Figure 16.24 – This teen couple is at an LGBTQIA pride event.<sup>646</sup>

There is no scientific consensus regarding the exact reasons why an individual holds a particular sexual orientation. Research has examined possible biological, developmental, social, and cultural influences on sexual orientation, but there has been no evidence that links sexual orientation to one factor (APA, 2016). Biological explanations, that include genetics, hormones, and birth order, will be explored further. Excess or deficient exposure to hormones during prenatal development has also been theorized as an explanation for sexual orientation. One-third of females exposed to abnormal amounts of prenatal androgens, a condition called congenital adrenal hyperplasia (CAH), identify as bisexual or lesbian (Cohen-Bendahan, van de Beek, & Berenbaum, 2005). In contrast, too little exposure to prenatal androgens may affect male sexual orientation (Carlson, 2011).

### Understanding the Acronyms: LGBT, LGBTQ, LGBTQ+

The letters LGBT refer to a group of individuals that identify as Lesbian, Gay, Bisexual, and Transgender. This community includes a diverse group of people from all backgrounds, races, ethnicities, ages, and socioeconomic statuses.

#### A Little History

LGB was used to replace the term, “Gay,” in the mid-1980s, but the acronym LGBT became common in the 1990s. However, recently the term has evolved with the preferred acronym to LGBTQ. The added “Q” means Questioning or Queer. The addition of “Q” as a term of

<sup>646</sup> [Image](#) by [Beatrice Murch](#) is licensed under [CC BY 2.0](#)

questioning includes people that are in the process of exploring their gender or sexual orientation.

Additionally, the term, “Queer,” can be used as an umbrella term, as the community has accepted this word to represent anything outside of the dominant narrative. Queer is not specific to sexual orientation or gender identity and can be used to refer to the community as a whole. While Queer was used as a derogatory term for decades, it was reclaimed by the LGBTQ community in the 1990s with the rise of an organization called Queer Nation. As an activist group out of New York, Queer Nation opposed discrimination of the LGBTQ community and rejected the heteronormative ideals of society.

### **What does the plus sign mean?**

Recently LGBTQ is also used as **LGBTQ+**. The plus sign, “+” accounts for many additional identifications in the community, including transsexual, two-spirit, intersex, asexual, pansexual, and gender queer. Gender Queer is an umbrella term that can be used for all gender identities not exclusive to masculine or feminine, including gender fluid, agender, bigender, pangender, gender free, genderless, gender variant, and gender non-conforming. The plus also includes allies or people in support of the LGBTQ community.

While LGBTQ+ or Queer are currently the most common terms, additionally the term, Rainbow Community, may be used. The important takeaway is that the community will **continue to evolve, and the terminology will evolve with it.**<sup>647</sup>

Gay, lesbian, and bisexual people regularly experience stigma, harassment, discrimination, and violence based on their sexual orientation (Carroll, 2016). Research has shown that gay, lesbian, and bisexual teenagers are at a higher risk of depression and suicide due to exclusion from social groups, rejection from peers and family, and negative media portrayals of homosexuals (Bauermeister et al., 2010). Discrimination can occur in the workplace, in housing, at schools, and in numerous public settings. Much of this discrimination is based on stereotypes and misinformation. Major policies to prevent discrimination based on sexual orientation have only come into effect in the United States in the last few years.<sup>648</sup>

## **Adolescent Sexuality**

**Human sexuality** refers to people's sexual interest in and attraction to others, as well as their capacity to have erotic experiences and responses. Sexuality may be experienced and expressed in a variety of ways, including thoughts, fantasies, desires, beliefs, attitudes, values,

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<sup>647</sup> Understanding the Acronyms: LGBT, LGBTQ, LGBTQ+. (2019). Retrieved from <https://www.horizon-health.org/blog/2019/01/understanding-the-acronym-lgbtq/>.

<sup>648</sup> [Lifespan Development: A Psychological Perspective](#) by Martha Lally and Suzanne Valentine-French is licensed under [CC BY-NC-SA 3.0](#). [Boundless Psychology - Gender and Sexuality](#) references Curation and Revision by Boundless Psychology, which is licensed under [CC BY-SA 4.0](#).

behaviors, practices, roles, and relationships. These may manifest themselves in biological, physical, emotional, social, or spiritual aspects. The biological and physical aspects of sexuality largely concern the human reproductive functions, including the human sexual response cycle and the basic biological drive that exists in all species. Emotional aspects of sexuality include bonds between individuals that are expressed through profound feelings or physical manifestations of love, trust, and care. Social aspects deal with the effects of human society on one's sexuality, while spirituality concerns an individual's spiritual connection with others through sexuality. Sexuality also impacts, and is impacted by cultural, political, legal, philosophical, moral, ethical, and religious aspects of life.

**Societal Views on Sexuality:** Society's views on sexuality are influenced by everything from religion to philosophy, and they have changed throughout history and are continuously evolving. Historically, religion has been the greatest influence on sexual behavior in the United States; however, in more recent years, peers and the media have emerged as two of the strongest influences, particularly among American teens (Potard, Courtois, & Rusch, 2008).

**Media Influences on Sexuality:** Media in the form of television, magazines, movies, music, online, etc., continues to shape what is deemed appropriate or normal sexuality, targeting everything from body image to products meant to enhance sex appeal. Media serves to perpetuate a number of social scripts about sexual relationships and the sexual roles of men and women, many of which have been shown to have both empowering and problematic effects on people's (especially women's) developing sexual identities and sexual attitudes.

**Cultural Differences with Sexuality:** In the West, premarital sex is normative by the late teens, more than a decade before most people enter marriage. In the United States and Canada, and in Northern and Eastern Europe, cohabitation is also normative; most people have at least one cohabiting partnership before marriage. In southern Europe, cohabiting is still taboo, but premarital sex is tolerated in emerging adulthood. In contrast, both premarital sex and cohabitation remain rare and forbidden throughout Asia. Even dating is discouraged until the late twenties, when it would be a prelude to a serious relationship leading to marriage. In cross-cultural comparisons, about three-fourths of emerging adults in the United States and Europe report having had premarital sexual relations by age 20, versus less than one fifth in Japan and South Korea (Hatfield & Rapson, 2006).<sup>649</sup>

## Antisocial Behavior in Adolescence

### Bullying

**Bullying** is defined as unwanted, aggressive behavior that involves a real or perceived power imbalance. Further, the aggressive behavior happens more than once or has the potential to be repeated. There are different types of bullying. They are detailed in the table below.

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## 16.3 - Types of Bullying

Type of Bullying	Description
<b>Verbal Bullying</b>	Includes saying or writing mean things, teasing, name-calling, taunting, threatening, or making inappropriate sexual comments.
<b>Social bullying (also referred to as relational bullying)</b>	Includes spreading rumors, purposefully excluding someone from a group, or embarrassing someone on purpose.
<b>Physical Bullying</b>	Includes hurting a person's body or possessions.
<b>Cyberbullying</b>	Involves electronic technology. Examples of cyberbullying include sending mean text messages or emails, creating fake profiles, and posting embarrassing pictures, videos, or rumors on social networking sites.



Figure 16.25 – Cyberbullying.<sup>650</sup>

### The Bystander Effect

The discussion of bullying highlights the problem of witnesses not intervening to help a victim. Researchers Latané and Darley (1968) described a phenomenon called the bystander effect. The bystander effect is a phenomenon in which a witness or bystander does not volunteer to help a victim or person in distress. Instead, they just watch what is happening. Social psychologists hold that we make these decisions based on the social situation, not our own personality variables. Why do you think bystanders don't get help? What are the benefits of helping? What are the risks? It is very likely you listed more costs than benefits to helping. In many situations, bystanders likely feared for their own lives—if they went to help, the attacker might harm them. However, how difficult would it be to make a phone call to the police? Social psychologists claim that diffusion of responsibility is the likely explanation. Diffusion of responsibility is the tendency for no one in a group to help because the responsibility to help is spread throughout the group (Bandura, 1999). Have you ever passed an accident on the

<sup>650</sup> Image by [Vivianlee2005](#) is licensed under CC BY-SA 3.0

freeway and assumed that a victim or certainly another motorist has already reported the accident? In general, the greater the number of bystanders, the less likely any one person will help.<sup>651</sup>

## Antisocial Behaviors

According to the American Academy of Psychiatry (2018),

Most children will act up or become disruptive or defiant sometimes. Disruptive behavior disorders (DBDs), however, involve much more severe and longer-lasting behaviors than typical, short-lived episodes. These disorders include oppositional defiant disorder, conduct disorder, intermittent explosive disorder, kleptomania, and pyromania. These disorders can cause people to behave angrily or aggressively toward people or property. Those diagnosed may have difficulty controlling their emotions and behavior and may break rules or laws. An estimated 6 percent of children are affected by oppositional defiant disorder or conduct disorder.<sup>652</sup>

**Oppositional Defiant Disorder (ODD):** There is a recurrent pattern of negative, defiant, disobedient, and hostile behavior toward authority figures. It is important to remember that this is toward authority figures and not their peers. This occurs outside of normal developmental levels and leads to impairment in functioning (Lack, 2010).<sup>653</sup>

**Conduct Disorder (CD):** Individuals with Conduct Disorder (CD) show acts of aggression towards others and animals. They usually show little to no compassion or concern for others or their feelings. Concern for the well-being of others is at a minimum. Those with CD also perceive the actions and intentions of others as more harmful and threatening than they actually are and respond with what they feel is reasonable and justified aggression. They may lack feelings of guilt or remorse. Since these individuals learn that expressing guilt or remorse may help in avoiding or lessening punishment, it may be difficult to evaluate when their guilt or remorse is genuine. Individuals will also try and place blame on others for the wrongdoings that they had committed.

Individuals with conduct disorders (CD) tend to have lower levels of self-esteem. Those diagnosed with this disorder are typically characterized as being easily irritable and often reckless, as well as having many temper tantrums despite their projected “tough” image

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<sup>651</sup> [Psychology – 12.6 Aggression](#) by [OpenStax](#) is licensed under [CC BY 4.0](#)

<sup>652</sup> What Are Disruptive, Impulse-Control and Conduct Disorders? (n.d.). Retrieved from <https://www.psychiatry.org/patients-families/disruptive-impulse-control-and-conduct-disorders/what-are-disruptive-impulse-control-and-conduct-disorders>.

<sup>653</sup> [Abnormal Psychology – Child Psychology](#) references [Abnormal Psychology: An e-text!](#) by Caleb Lack, which is licensed under [CC BY-NC-SA 4.0](#)  
[Beginning Psychology](#) by Charles Stangor is licensed under [CC BY-NC-SA 3.0](#)



portrayed to society. Conduct Disorder (CD) often accompanies early onset of sexual behavior, drinking, smoking, use of illegal drugs, and reckless acts. Illegal drug use may increase the risk of the disorder persisting. The disorder may lead to school suspension or expulsion, problems at work, legal difficulties, STD's, unplanned pregnancy, and injury from fights or accidents. Suicidal ideation and attempts occur at a higher rate than expected.<sup>654</sup>

## Emerging Adulthood: The Bridge Between Adolescence and Adulthood

The next stage of development is **emerging adulthood** and is characterized as an in-between time where identity exploration is focused on work and love, which occurs from approximately 18 years of age to the mid to late 20s.

When does a person become an adult? There are many ways to answer this question. In the United States, you are legally considered an adult at 18 years old, but other definitions of adulthood vary widely; in sociology, for example, a person may be considered an adult when they become self-supporting, choose a career, get married, or start a family. The age at which we achieve this milestone varies from person to person as well as from culture to culture. For example, 50 years ago, a young adult with a high school diploma could immediately enter the workforce and climb the corporate ladder. That is no longer the case, a Bachelor's and even graduate degrees are required more and more often—even for entry-level jobs (Arnett, 2000). Also, many students are taking longer (five or six years) to complete a college degree as a result of working and going to school at the same time. After graduation, many young adults return to the family home because they have difficulty finding a job.



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<sup>654</sup> [Abnormal Psychology – Child Psychology](#) references [Abnormal Psychology: An e-text!](#) by Caleb Lack, which is licensed under [CC BY-NC-SA 4.0](#)

Figure 16.27 – Emerging adulthood.<sup>655</sup>

This is a relatively newly defined period of lifespan development. Jeffrey Arnett (2000) explains that emerging adulthood is neither adolescence nor is it young adulthood. Individuals in this age period have left behind the relative dependency of childhood and adolescence, but have not yet taken on the responsibilities of adulthood. “Emerging adulthood is a time of life when many different directions remain possible, when little about the future is decided for certain, when the scope of independent exploration of life’s possibilities is greater for most people than it will be at any other period of the life course” (Arnett, 2000, p. 469).<sup>656</sup>

## Conclusion

In this chapter we finished our exploration of childhood and adolescence having looked at:

- Theories from Erikson and Marcia
- Self-concept and identity
- Gender identity
- Ethnic identity
- Sexuality
- Parent and adolescent relationships
- Peers and peer groups
- Antisocial behaviors
- Emerging adulthood

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