

PART IV



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ADOLESCENCE

This two-chapter part devoted to adolescence progresses from puberty through the late teens.

Chapter 8—Physical Development in Adolescents covers puberty, that early teenage total body change. It also focuses on two other body-oriented topics: body image (and eating disorders) and adolescent sexuality.

Chapter 9—Cognitive, Emotional, and Social Development in Adolescents examines teenage minds and relationships. How do adolescents reason? Are teenagers more socially sensitive or emotionally disturbed than adults? How do adolescents separate from their parents and connect with peers?

CHAPTER 8



Physical Development in Adolescents

Samantha and her twin brother, Sam, were so similar—in physical features, personalities, and academic skills. Except for the sex difference, they seemed like identical twins. Then, when Samantha was 10, she started to tower over Sam and the rest of the fifth-grade class.

Yes, there were downsides to developing first—needing to hide behind a locker when you dressed for gym; not having friends to talk to when you got your period at age 10; being teased about your bulky, strange body. But what fun! From a neglected, pudgy elementary school child, by sixth grade Samantha had become popular with the eighth-grade boys. At age 12, she was smoking and drinking. By 14, she regularly defied her helpless parents and left the house at 2 A.M.

Samantha's parents were frantic, but their daughter couldn't care less. Everything was irrelevant compared to exploring being adult. It took a life-changing service-learning trip and a pregnancy scare to get Samantha on track. Samantha had abandoned Yudi, her best friend since first grade, for her exciting new "grown-up" friends. But when the girls got close again on that memorable trip, Yudi's rational thinking woke Samantha up. Samantha credits comments like, "Why would you ruin your future by having unprotected sex?" with saving her life. Plus, Samantha's lifelong competition with her twin brother refocused her thoughts. While Sam was also an early developer, when he shot up to 6 feet in the spring of seventh grade, he became a basketball and social star.

Now that Samantha is 32, married, and expecting her first child, it's interesting for the twins and Yudi to get together and talk (for the first time) about their early teens. Sam remembers getting much stronger and his first incredible feelings of love. Samantha recalls being thrilled about her changing body, but obsessively

CHAPTER OUTLINE

Puberty

Setting the Context: Culture, History, and Puberty

The Hormonal Programmers

The Physical Changes

• *How Do We Know . . .* How Puberty Progresses?

Individual Differences in Puberty Timetables

An Insider's View of Puberty

Wrapping Up Puberty

• *Interventions:* Minimizing Puberty Distress

Body Image Issues

The Differing Body Concerns of Girls and Boys

• *Trending in Developmental Science:* Instagram and Body Distress

Eating Disorders

• *Interventions:* Improving Teenagers' Body Image

Sexuality

Exploring Sexual Desire

Who Is Having Intercourse?

Whom Are Teens Having Intercourse With?

• *Trending in Developmental Science:* Is There Still a Sexual Double Standard?

Wrapping Up Sexuality: Contemporary Trends

Final Thoughts: We Need Teen-Friendly Sex Education

worrying about being too fat. Then there is Yudi, who says middle school was no problem because she didn't menstruate until age 14. Everyone goes through puberty, but why does everyone react in different ways?

Why did Samantha have trouble as an early-maturing girl, while Sam and Yudi sailed through puberty? What is this landmark transformation *really* like? This chapter explores these questions, then

tackles body image and sex. As you read the following pages, think back to when you were 10, 12, or 14. How did you feel about your body during puberty? When did you begin fantasizing about having sex?

puberty The hormonal and physical changes that lead children to become sexually mature human beings and reach their adult height.

Puberty

Compare photos of yourself in late elementary school and high school to get a vivid sense of how puberty catapults us into adulthood. From the size of our thighs to the shape of our nose, we become a different-looking person in roughly five years. Today, puberty is a pre-teen and early adolescent change (Alotaibi, 2019; Mendle and others, 2019). Today, as with Samantha, who started menstruating at age 10 and has just gotten pregnant at age 32, the gap between being physically able to have children and having children can be more than twice as long as infancy and childhood combined.

This lack of *person–environment fit* — when our body is passionately saying “have sex” while society is telling teenagers to “say no” to intercourse — explains why adolescent sexuality provokes such anxiety among young people and adults. These concerns are recent. They are a product of living in the contemporary developed world.

Setting the Context: Culture, History, and Puberty

I am considered to be a woman, so I am ready to marry, have children, and assume adult privileges and responsibilities. My name is Telelia ole Mariani. I am 14 years old.

(quoted in Wilson, Ngige, & Trollinger, 2003, p. 95)

Throughout history, and even now in impoverished agrarian nations (as you can see in the quotation above), puberty was a person's signal to get married and give birth (Schlegel, 1995; Schlegel & Barry, 1991). Today, society must downplay these body changes because sexuality (and parenthood) isn't supposed to happen for years. In the past, cultures celebrated children's blossoming bodies in a coming-of-age ceremony called the *puberty rite*.

Learning Outcomes

- Describe the secular trend in puberty.
- List the hormonal and physical changes of puberty.
- Outline gender and individual differences in puberty.
- Contrast the causes and consequences of maturing early in girls and boys.



These photographs of fourth graders and high school juniors offer a vivid visual reminder of the total body transformation of puberty.

A century ago, many girls could not get pregnant until their late teens. Today, many girls can have babies *before* their teenage years.

Because it reflects better nutrition, as you saw with the decline in stunting (discussed in Chapter 3), scientists use the secular trend in puberty as an index of a nation's economic development. In the United States, with our overabundant access to calorie-rich food, the average girl begins to menstruate slightly before age 12 (Martinez, 2020). In the least-developed nations, where periodic bouts of starvation are common, the mean age of menarche is roughly 18 (Worthman, Dockray, & Marceau, 2019)!

Given that nutrition is critical, what *exactly* sets puberty off? For answers, let's focus on the hormonal systems that program the physical changes.

The Hormonal Programmers

Puberty is programmed by two command centers. One system, located in the adrenal glands at the top of the kidneys, begins to release its hormones at about ages 6 to 8, several years before children show signs of puberty. The **adrenal androgens**, whose output increases to reach a peak in the early twenties, eventually produce (among other events) pubic hair development, skin changes, body odor, and, as you will read later in this chapter, our first feelings of sexual desire (Herting & Sowell, 2017).

About two years later, the most important command center kicks in. Called the **HPG axis**—because it involves the hypothalamus (in the brain), the pituitary gland (at the base of the brain), and the **gonads** (the *ovaries* and the *testes*)—this system produces the major body changes.

As you can see in Figure 8.2, puberty is set off by a three-phase chain reaction. At about age 9 or 10, pulsating bursts of the hypothalamic hormones stimulate the pituitary gland to step up production of its hormones. This causes the ovaries and testes to secrete several closely related compounds called estrogens and the familiar hormone called testosterone (Alotaibi, 2019).

When the blood concentrations of estrogens and testosterone float up, these hormones unleash a physical transformation. Estrogens produce girls' changing shape by causing the hips to widen and the uterus and breasts to enlarge. They set in motion the cycle of reproduction, stimulating the ovaries to produce eggs. Testosterone causes the penis to lengthen, promotes the growth of facial and body hair, and is responsible for a dramatic increase in muscle mass and other internal masculine changes.

Boys and girls *both* produce estrogens and testosterone. Testosterone and

adrenal androgens Hormones produced by the adrenal glands that program puberty.

HPG axis The main hormonal system that programs puberty; it involves triggering hypothalamic hormones that cause the pituitary gland to secrete its hormones, which in turn cause the ovaries and testes to develop and secrete the hormones that produce the major body changes.

gonads The sex organs—the ovaries in girls and the testes in boys.

testosterone The hormone responsible for maturation of the male reproductive organs and other signs of puberty in men, and for hair and skin changes and sexual desire in both sexes.

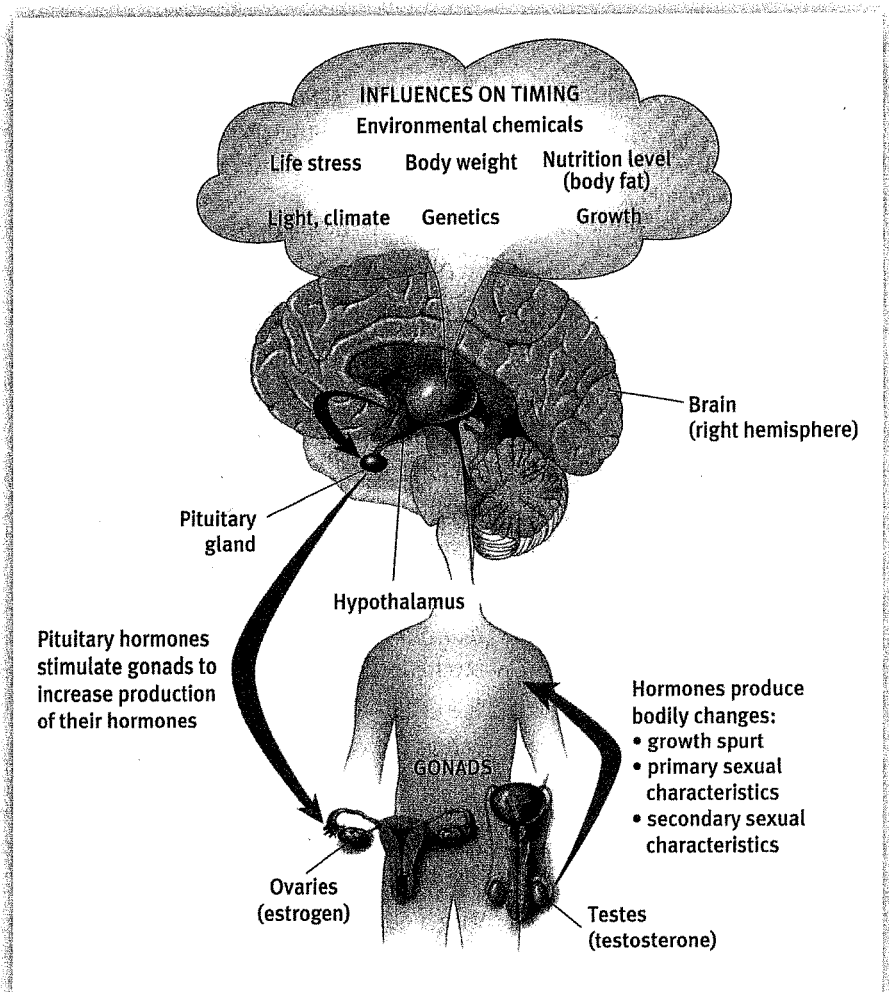


Figure 8.2: The HPG axis: The three-phase hormonal sequence that triggers puberty As you can see here, in response to various genetic and environmental influences, the hypothalamus releases hormones that stimulate the pituitary gland to produce its own hormones, which cause the ovaries in girls and the testes in boys to grow and secrete estrogens and testosterone, producing the physical changes of puberty.

the adrenal androgens cause sexual arousal in both females and males. However, women produce mainly estrogens. The concentration of testosterone is roughly 8 times higher in boys after puberty than in girls; in fact, this classic “male” hormone is responsible for *all* the physical changes in boys.

Now, to return to our earlier question: What primes the triggering hypothalamic hormones? As Figure 8.2 illustrates, many forces help unleash the pulsating hormonal bursts — from genetics to light exposure; from chemicals in our water and food to environmental stress (more about this fascinating force later). A threshold level of a hormone called *leptin*, tied to body fat, is essential (Alotaibi, 2019). This explains why undernutrition delays puberty and why, as you will see later, obesity can push the timer to a younger age. These primers unleash a cascade of body changes.

The Physical Changes

Puberty causes a total *psychological* and physical transformation. As the hormones flood the body, they affect the brain, making teenagers more emotional, sensitive to social cues, and interested in taking risks (as you will read in Chapter 9). Scientists divide the physical changes into three categories:

- **Primary sexual characteristics** refer to the body changes directly involved in reproduction. The growth of the penis and menstruation are examples of primary sexual characteristics.
- **Secondary sexual characteristics** is the label for the myriad other changes that characterize puberty, from breast development to the growth of pubic hair, from voice changes to alterations in the sweat glands.
- The **growth spurt** merits its own category. Puberty — as we know — provokes a dramatic increase in height and weight.

Health-care workers use a standard scale to plot the growth of the secondary sexual characteristics in stages (see the How Do We Know box). Now, let’s offer a motion picture of all of the changes, first in girls and then in boys.

primary sexual characteristics

Physical changes of puberty that directly involve the reproductive organs, such as growth of the penis and menstruation.

secondary sexual characteristics

Physical changes of puberty not directly involved in reproduction, such as female breast development and male facial hair.

growth spurt A dramatic increase in height and weight that occurs during puberty.

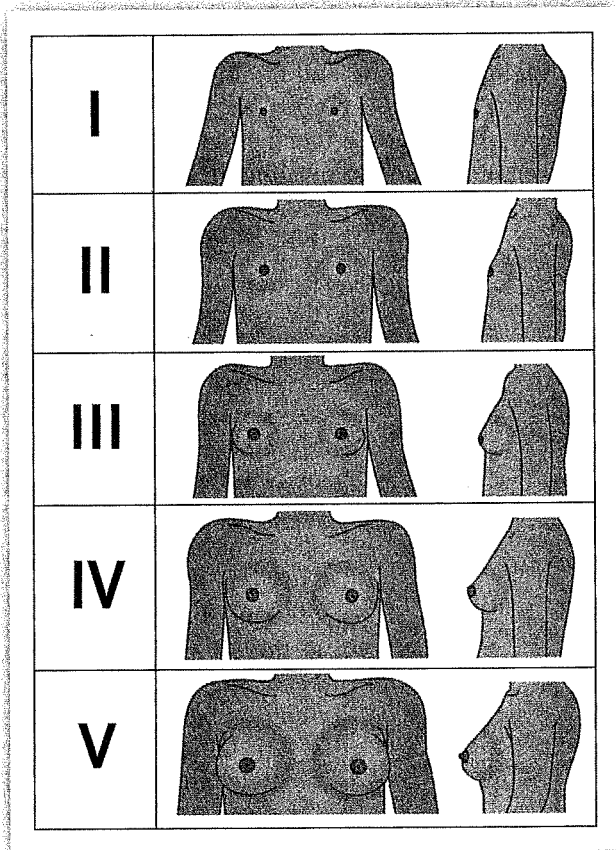
HOW DO WE KNOW . . . how puberty progresses?

Imagine being a parent worried that your 8-year-old daughter is already developing breasts. Your first step would be to visit your pediatrician, who would probably evaluate your child according to Tanner’s five pubertal stages. What are the origins of this classic scale, and what is it like? (See Roberts, 2016.)

During the early twentieth century, as the new science of pediatrics flourished, health-care workers needed benchmarks for evaluating their patients. Was a particular child growing normally? What does growing “normally” mean? During the late 1940s, James Tanner came to the rescue with meticulous research tracking physical development in the flesh.

With a colleague, Tanner entered a London orphanage and began a mammoth study (as I mentioned when discussing Bowlby’s research in Chapter 4, orphanages were common in Britain during this era). The researchers photographed and measured children’s bodies every 3 to 5 years, and then at 3-month intervals during puberty. These 75-year-old assessments remain the gold standard that contemporary health-care workers use to chart pubertal growth (see Deardorff and others, 2019; Dorn and others, 2019; Mendle and others, 2019).

Imagine the ethical problems involved in conducting this research today. Caregivers would need to agree to have their children participate. Permitting strangers to regularly measure (and photograph) pre-teens' private parts would probably be resoundingly rejected by most parents and scientific review boards! Tanner's sample—all White, probably somewhat malnourished, and perhaps subject to abuse—was unrepresentative of the wider world. But his stages are the beacon that allowed adolescent development to blossom as a field. Tanner didn't formulate world-class theories. Still, his dogged scientific work transformed our thinking about teenagers almost as much as Piaget's or Erikson's ideas. Below you can see how health-care workers would classify an 8-year-old girl's breast development, according to Tanner's five stages.



For Girls

The most dramatic early sign of puberty in girls is the growth spurt. Girls' growth accelerates, peaks, and then begins to decrease (Alotaibi, 2019). During a visit to my 11-year-old niece, I got a vivid sense of this "peak velocity" growth. Six months earlier, I towered over her. Now, she insisted on standing back-to-back to demonstrate: "Look, Aunt Janet, I'm taller than you!"

About six months after the growth spurt begins, breasts and pubic hair become visible. On average, girls' breasts take about four years to grow to their adult form (Alotaibi, 2019; Tanner, 1955, 1978).

Menarche typically occurs in the middle to final stages of breast and pubic hair development, when girls' growth is winding down (Alotaibi, 2019). So you can tell your 12-year-old niece, who has just begun to menstruate, that, while her breasts are still "works in progress," she is probably about as tall today as she will be as an adult.

When they reach menarche, can girls get pregnant? Yes, but there is often a window of infertility until the system fully gears up. Does puberty unfold in the same way for every girl?

The answer is no. Because the hormonal signals are complex, in some girls, pubic hair development (programmed by the adrenal androgens) is underway before the breasts begin to enlarge. Occasionally, a girl grows much taller after she begins to menstruate.

The most fascinating variability relates to the *rate* of change. Some children are developmental “tortoises.” Their progression through puberty is slow-paced. Others are “hares.” They speed through the body changes. While breast development takes *an average* of four years, the entire process — from start to finish — can range from less than two to an incredible nine! (See Mendle and others, 2010.)

These external changes are accompanied by internal upheavals. During puberty, the uterus grows, the vagina lengthens, and the hips develop a cushion of fat. The vocal cords get longer, the heart gets bigger, and the red blood cells carry more oxygen. So, after puberty, girls become much stronger. The increases in strength, stamina, height, and weight are most astonishing in boys.

For Boys

In boys, health-care workers also track the growth of the penis, testicles, and pubic hair in five Tanner stages. However, because their organs of reproduction begin developing first, boys still look like children to the outside world for a year or two after their bodies start changing. Voice deepening, body hair growth, and sprouting facial hair all take place after the growth of the testes and penis is underway (Tanner, 1978). Now, let’s pause to look at the most obvious signals that a boy is becoming a man — the mammoth alterations in body size, shape, and strength.

In Chapter 5, I mentioned that elementary school boys and girls are roughly the same size. Then, during the puberty growth spurt, boys shoot up an incredible average 8 inches, compared to 4 inches for girls (Tanner, 1978). Boys also become far stronger than girls.

One cause is a tremendous increase in muscle mass. Another lies in the dramatic cardiovascular changes. At puberty, boys’ hearts increase in weight by more than one-third. In particular, notice in Figure 8.3 that, compared to females, after puberty males have many more red blood cells and a greater capacity for carrying oxygen in their blood. The visible signs of these changes are a big chest, wide shoulders, and a muscular frame. The real-world outcome is that, after puberty, males get a boost in gross motor skills that gives them

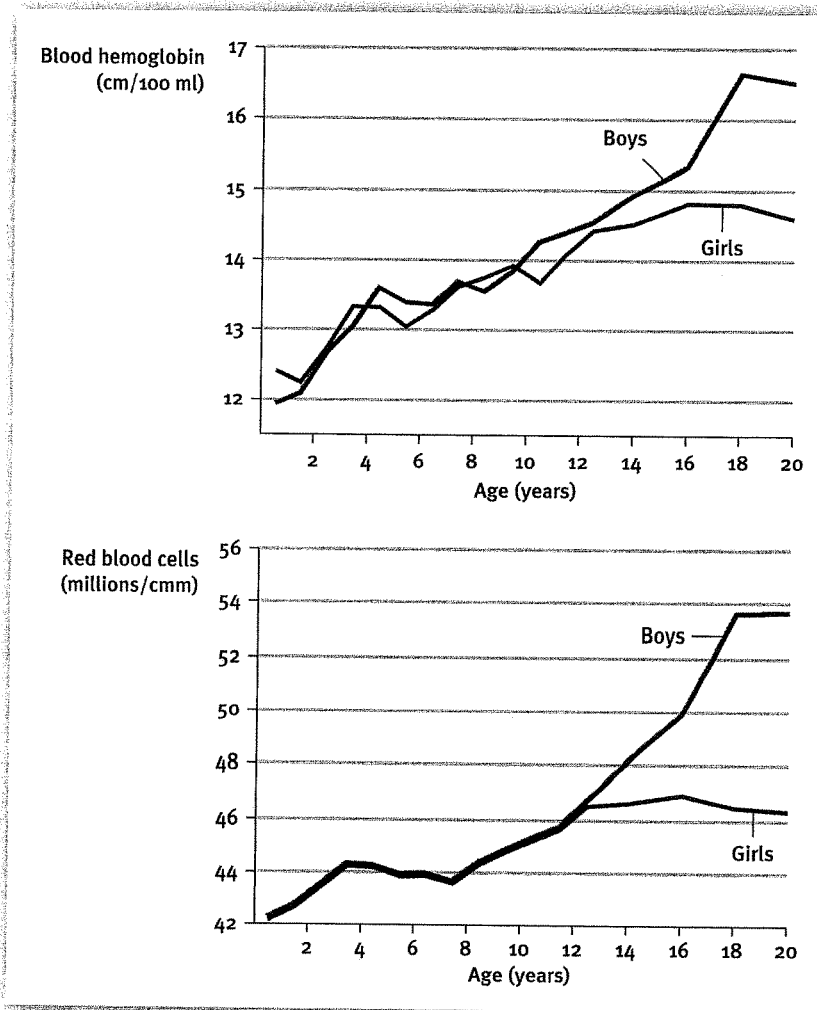


Figure 8.3: Changes in blood hemoglobin and red blood cells during puberty in boys and girls At puberty, increases in hemoglobin and in the number of red blood cells cause all children to get far stronger. But notice that these changes are more pronounced in boys than in girls.

Data from Tanner, 1955, p. 103

an edge in everything from soccer to sprinting, from bike riding to carrying heavy loads.

Do you know a seventh- or eighth-grade boy? If so, you might notice that growth during puberty unfolds in the opposite pattern to earlier in life. Rather than following the *cephalocaudal* and *proximodistal* sequences (from the head downward and from the middle of the body outward), at puberty, the person's hands, feet, and legs grow first. While this happens for all sexes, the changes are especially obvious in boys.

Their long legs and large feet explain why, in their early teens, boys look so gawky. Add to that the crackly voice produced by the growing larynx, the wispy look of beginning facial hair, and the fact that during puberty a boy's nose and ears grow before the rest of his face catches up. Plus, the pubertal hormonal surges cause the change that produces such emotional agony: acne. Although girls also suffer from acne, boys are more vulnerable to this eruption (literally!) because testosterone, which males produce in abundance, provokes changes in the hair and skin.



Because shaving occurs fairly late in the male puberty sequence, we can be sure that a 14-year-old boy has begun a true journey to manhood long before this classic adult activity occurs.

Are Boys on a Later Timetable? A Bit

Visit a middle school and you will be struck by the fact that boys appear to reach puberty two years later than girls. Appearances can be deceiving. In girls, as I mentioned earlier, the externally visible signs of puberty, such as the growth spurt and breast development, take place toward the beginning of the sequence. For boys, the hidden change — growth of the testes — occurs first (Deardorff and others, 2019).

If we look at the *real* signs of fertility, the sex differences are not that far apart. In one late twentieth-century study, boys reported that **spermarche** — or first ejaculation — occurred at roughly age 13, less than a year later than the average age of menarche (Stein & Reiser, 1994).

Figure 8.4 graphically summarizes some of these changes. Now, let's explore the numbers inside the chart. Why do children undergo puberty at such different ages?

spermarche A boy's first ejaculation of live sperm

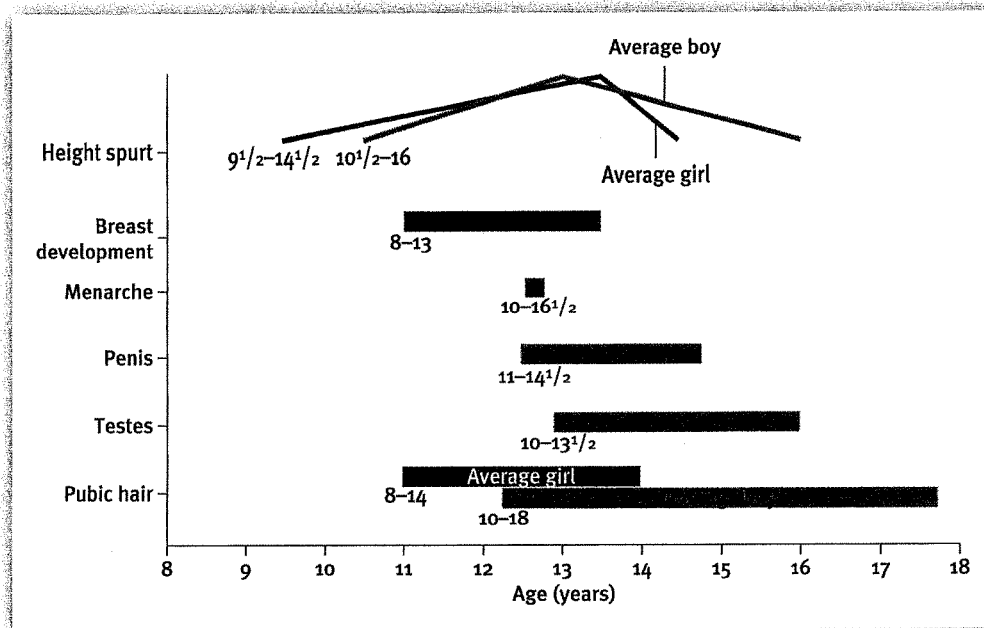


Figure 8.4: The sequence of some major events of puberty This chart shows the ages when some important changes of puberty occur in the average boy and girl. The numbers below each change show the range of ages when each event begins. Notice that girls are on a slightly earlier timetable than boys, that boys' height spurt occurs at a later point in their development, and the dramatic differences from child to child in pubertal timing. Data from Tanner, 1978, pp. 23, 29

Individual Differences in Puberty Timetables

I'm seventeen already. But I still look like a kid. I get teased a lot, especially by the other guys. . . . Girls aren't interested in me, either, because most of them are taller than I am. When *will* I grow up?

(adapted from an online chat room)

The sex difference in puberty timetables can cause anxiety. As an early-maturing girl, I vividly remember slumping to avoid the humiliation of having my partner's head encounter my chest in sixth-grade dancing class! But nature's cruelest blow relates to the dramatic individual differences in timing. Why is there a five-year difference in puberty timetables between children living in the same environment? (See Alotaibi, 2019.)

Not unexpectedly, genetics is important. Identical twins reach puberty at roughly the same ages (Lee & Styne, 2013; Silventoinen and others, 2008). Asian Americans tend to be slightly behind other U.S. children in their puberty timetables. African American and Hispanic boys and girls are ahead of other groups (Deardorff and others, 2019; Mendle and others, 2019).

But remember that in impoverished agrarian nations — where children are often poorly nourished — girls begin to menstruate, on average, as late as age 18. During the late twentieth century, obesity rates in the United States skyrocketed among elementary school girls and boys. Given that body fat is intimately involved, and the secular trend is still taking place, does being overweight predict when a boy or girl physically matures?

Overweight and Early Puberty (It's All About Girls)

The answer is yes — for *females alone*. Controlling for other forces, having a high BMI (body mass index) during elementary school does predict entering puberty earlier for girls (Worthman, Dockray, & Marceau, 2019). More interesting, rapid weight gain in the *first nine months of life* is strongly linked to menstruating at a younger age! (See Walvoord, 2010.)

This finding dovetails with the research in Table 6.3, suggesting that our overweight path is set in motion early in life. Now — in addition to predicting obesity — we know that weight gain during infancy helps program puberty, too.

But for boys, the data are inconsistent. Some studies show overweight boys mature early; others suggest these children develop later than their peers (see Lee & Styne, 2013).

Now let's turn to a more astonishing environmental influence predicting puberty just in girls — family life.

Family Stress and Early Puberty (Again, It's All About Girls)

Drawing on an *evolutionary psychology perspective*, some developmentalists argue that when family stress is intense, a physiological mechanism kicks in to accelerate puberty.

Just as stress in the womb “instructs” the baby to store fat (as the fetal programming hypothesis described in Chapter 2 suggests), an unhappy childhood signals the body to expect a short life and pushes adult fertility to a younger age (Belsky and others, 2015; Worthman, Dockray, & Marceau, 2019).

I must emphasize that genetics is the most important force predicting a child's puberty timetable (the age when that person's parents developed). But, if a girl is temperamentally vulnerable, *controlling for every other influence* (genetics, body



Picture Partners/Alamy Stock Photo

In Chapter 6, I suggested that overfeeding this adorable 8-month-old girl might program lifelong overweight. Now we know that excessive weight gain during infancy can have another negative epigenetic effect—priming this baby to reach puberty at an earlier age.

Table 8.1: Predicting a Girl's Chances of Reaching Puberty at a Younger Age: Some Summary Questions

1. Did this girl's parents reach puberty early?
2. Is this girl African American or Hispanic American?
3. Is this girl overweight? Did she gain weight rapidly during infancy?
4. Has this girl's family life been stressful? Were her caregivers abusive?

weight, and so on), her family life makes its small, tantalizing contribution. Early-maturing girls are more apt to report intense childhood stress (Allison & Hyde, 2013; Dorn and others, 2019; Ellis, 2004). In one longitudinal study, if a girl had been sexually abused, breast development began, on average, eight months earlier than the norm (cited in Dorn and others, 2019).

Why — only in girls — is the hypothalamic timer sensitive to body weight and family stress? We do not know. But these findings highlight the developmental systems message: *Many* influences — from genetics to sex, from physiology to parenting to everything else — affect how children grow.

Table 8.1 summarizes these points by spelling out questions to predict a girl's chance of reaching puberty at a younger-than-average age. If you were an early maturer, how many — if any — of these forces applied to you?

Now that I've described the physical process, let's look at how children feel about three classic signs of puberty — breast development, menstruation, and first ejaculation — and then explore the mental health impact of reaching puberty relatively early or late.

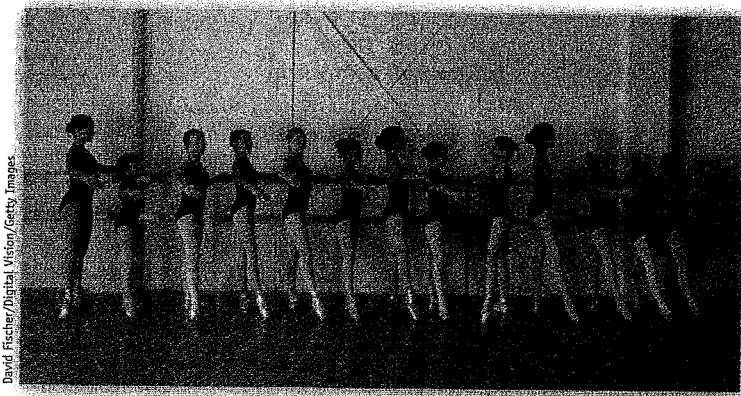
An Insider's View of Puberty

Think back to how you felt about your body during puberty. You probably remember having mixed emotions: fear, pride, embarrassment, excitement. If a researcher asked you to describe your inner state, would you want to talk about how you *really* felt? The reluctance of pre-teens to discuss what is happening (“Yuck! Don't go there!”) explains why, to study reactions to puberty, researchers often ask adults to remember this time of life. Or they may use indirect measures, such as having children tell stories about pictures, to reveal their inner concerns.

The Breasts

In a classic study, developmentalists used this indirect strategy to explore how girls feel in relation to their parents while undergoing that visible sign of becoming a woman — breast development (Brooks-Gunn and others, 1994). They asked girls to tell a story about the characters in a drawing that showed an adult female (the mother) taking a bra out of a shopping bag while an adolescent girl and an adult male (the father) watched. While girls often viewed mothers as being excited and happy, they typically described the teenager as humiliated by her father's presence in the room.

Because U.S. society values this symbol of being a woman (and our mainstream culture *sometimes* sees bigger as better!), late twentieth-century research suggested that U.S. girls feel proud of their developing breasts (Brooks-Gunn & Warren, 1988). However, in nations such as China (Wang and others, 2016), and particularly among girls in ballet schools, where there are strong pressures to look prepubescent, breast development evokes distress (Brooks-Gunn & Warren, 1985). The principle that children's reactions to puberty depend on their messages from the wider world is true for menstruation, too.



Imagine how girls auditioning at a premier ballet academy in New York City will feel when they develop breasts and find that their womanly body shape interrupts their career dreams — and you will understand why children's reactions to puberty depend on their unique environment.

Menstruation

Imagine being a Navajo girl and believing that when you menstruate, you enter a special spiritual state. Compare this with the less-than-glowing portrait most cultures paint about “that time of the month” (Deardorff and others, 2019). From the advertisements for pills strong enough to handle *even* menstrual pain to its classic description as “the curse,” it is no wonder that girls have traditionally approached this milestone with dread (Brooks-Gunn & Ruble, 1982). In poor nations, where girls may reach menarche with *no* information from adults, a child's first

period may evoke total shock (“What is happening to my body?” “I must be seriously ill”) (Coast, Lattof, & Strong, 2019).

Luckily, some twenty-first-century, upper-middle-class U.S. mothers have tried to change the negative Western cultural scripts. When researchers asked 18- to 20-year-old students at Oregon State University to write about their “first period experiences,” 3 out of 4 women recalled their moms as being thrilled (“She treated me like a princess”). One person wrote that after she told her mother, “I saw an expensive box of chocolates and a card addressed to me. It said, ‘Congrats on becoming a woman’” (quoted in Lee, 2008, p. 1332).

Positive responses matter. In one research summary, while low-income women in the United States recalled frequently feeling “gross, smelly, and disgusting” at menarche (Herbert and others, 2016), about half of all middle-class women described getting their period as “no big deal.”

First Ejaculation

Daughters must confide in a (typically female) caregiver about menarche because this change demands specific coping techniques. Spermarche is a totally hidden event. Therefore, as one group of researchers evocatively commented, instead of being “understudied,” male reactions to first ejaculation are virtually “unknown” (Deardorff and others, 2019)! Read this one-of-a-kind memory from an 18-year-old boy:

“My mom, she knew I had them. It was all over my sheets . . . but she didn't . . . tease me. . . . She never asked if I wanted to talk about it — I'm glad. I never could have said anything to my mom.”

(quoted in Stein & Reiser, 1994, p. 377)

Is the fact that children find puberty humiliating around a parent of another sex programmed into evolution to help teenagers emotionally separate from their families? We do not know. We do have massive information, however, on the *emotional* impact of being early or late.

Maturing Early Can Be a Problem for Girls

Imagine being an early-maturing girl. How would you feel if you looked like an adult while everyone else still looked like a child? Now imagine being a late maturer and thinking, “What's wrong with my body? Will I *ever* grow up?”

Actually, the timing of development matters, but again the results differ for boys and girls. Early-maturing boys are more prone to abuse substances, particularly if they are low in impulse control (Castellanos-Ryan and others, 2013). They are at risk of developing depression if they have prior personality problems and

an unhappy family life (Benoit, Lacourse, & Claes, 2013). But, because males become so much taller and stronger during puberty, and being on an early timetable makes boys more in sync with the average girl, maturing early often boosts boys' self-esteem (Deardorff and others, 2019). Imagine your feelings of power if in eighth grade you could, *literally*, look down on everyone else in your class.

Unfortunately, the research is downbeat for the other sex: *Hundreds of studies suggest that early-maturing girls can have widespread difficulties during their adolescent years.*

Early-Maturing Girls Are at Risk of Developing Externalizing Problems

Because we choose friends who are “like us,” early-maturing girls may gravitate toward friendships with older girls and boys. So, they tend to get involved in “adult activities” such as smoking, drinking, and taking drugs at younger ages (Ren, Guo, & Chen, 2015).

The main danger is having unprotected sex. Because they do not have the cognitive abilities to resist this social pressure and may have older boy-friends, early-maturing girls are more likely to have intercourse at a younger age (Graber, Nichols, & Brooks-Gunn, 2010; Pringle and others, 2017). They are less apt to use contraception, making them more vulnerable to becoming pregnant as teens (Allison & Hyde, 2013). Imagine being a sixth- or seventh-grade girl thrilled to be pursued by the high school boys. Would you have the presence of mind to say no?

Early-Maturing Girls Are at Risk of Getting Anxious and Depressed As if this were not enough, early-maturing girls, especially if they are European American, Asian, and/or middle-class, are at high risk of becoming depressed (Copeland and others, 2019; Wang and others, 2016). In fourth grade, early-maturing girls can be bullied because they look so different from the other children in class (Allison & Hyde, 2013). Now, compound this with the shame attached to *generally* having a larger body size. Not only are early-maturing girls apt to be heavier during elementary school, but they also end up shorter and stockier because their height spurt occurs at an earlier point in development (Adair, 2008). Late-maturing girls are more likely to be tall and ultra-slim. Reaching puberty early sets girls up for having a poor body image and low self-esteem.

So far, I've been painting a dismal portrait of early-maturing girls. But, as with any aspect of development, it's important to look at the *whole* context of a person's life. Early maturation may not pose body-image problems in ethnic groups that have a healthier, more inclusive idea about the ideal female shape (more about this later).

Most important, these negative effects happen mainly when there are other risk factors in a child's life. If a girl is exposed to harsh parenting (Deardorff and others, 2019), then, yes, early maturation can be the straw that breaks the camel's back. But if that child has *authoritative* parents (Ren and others, 2015) and strong religious values — and doesn't gravitate to older, “at-risk” friends — her puberty timetable will not matter (Stattin, Magnusson, & Stattin, 2018).

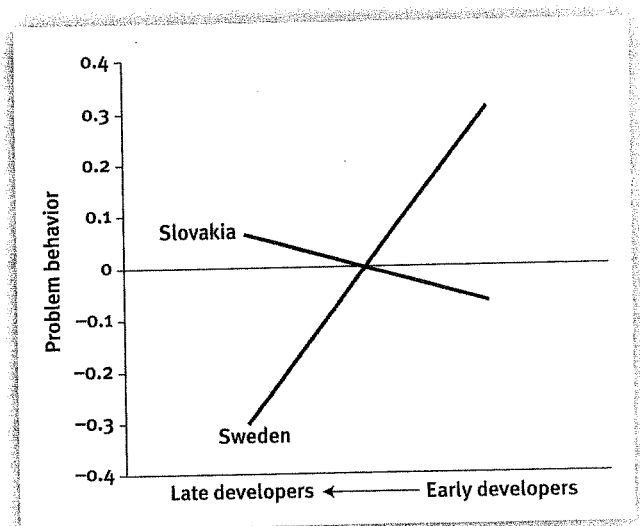
The dangers linked with maturing early are also dependent on the nation in which a girl grows up. In one interesting international comparison, while early-maturing Swedish girls were more prone to take drugs and be sexually active than late maturers, this was not true in Slovakia (see Figure 8.5). The reason, these researchers argue,



While early-maturing girls may be prone to get into trouble, for these manlike seventh-grade boys, maturing early has special emotional perks because they are right on time for the average girl in this class.

Figure 8.5: The interaction between culture and pubertal timing in predicting girls' problem behavior in Sweden (red line) and Slovakia (blue line) Notice that in sexually permissive Sweden, maturing early has a huge impact on a girl's likelihood of getting into trouble (with drugs, ignoring curfews, being truant at school, and so on); but her puberty timetable has comparatively little impact on her behavior if she lives in Slovakia.

Data from Skoog and others, 2013



is that Sweden is a permissive nation that accepts adolescent sex, while Slovakia is a more religious, sexually restrictive society (Skoog and others, 2013). So, living in a religion-based, conservative culture can cushion a girl (or any child) from acting on the behavioral messages a body gives off.

Puberty and Sexual Minority Youth


The contrast between being raised in permissive and conservative cultures brings up the concerns of that special group: sexual minorities. LGBTQ+ teens report that their first awareness of being different — in terms of sexual attractions — occurs during the pubertal transition (Deardorff and others, 2019). How do these children feel about their changing bodies?

As you might imagine, much depends on *where* a person grows up. Are teenagers being raised in a society (or with families) who accept their identities, or do they live in a nation (or family) where being a gay, nonbinary, or transgender person can get you rejected or even killed? Puberty poses unique challenges for sexual minority youth because of the chronic discrimination they face as adults (Deardorff and others, 2019; much more about this topic in Chapter 10).

Developmental Psychology Videos

The Timing of Puberty

In this video, you will receive an overview of puberty and hear from teens about their own puberty experiences.

 Achieve

Wrapping Up Puberty

Now let's summarize all these research messages:

- **Children's reactions to puberty depend on the environment in which they physically mature.** Negative feelings are more likely when society looks down on a given sign of development (as with menstruation), when pubertal bodies are not valued (as with ballerinas), or when reaching puberty evokes discrimination in the wider world (as with LGBTQ+ children).
- **With early-maturing girls, we should take special steps to arrange the right body–environment fit.** Having an adult body at a young age is dangerous for girls, but only when the changes happen in a high-risk milieu. Therefore, when a girl reaches puberty early, it's important for caregivers to closely monitor her well-being (see Ren and others, 2015).
- **Communication about puberty must be improved — especially for boys.** While a few contemporary mothers may be doing a fine job discussing menstruation with their daughters, boys in particular enter puberty clueless, without any adult guidance about what to expect (Natterson, 2020).

Minimizing Puberty Distress

Given these findings, what are the lessons for parents? What changes should society make?

Lessons for Parents It's tempting for parents to avoid discussing puberty because children are so sensitive about their changing bodies (see Elliot, 2012; Hyde and others, 2013). This reluctance is a mistake. Developmentalists urge parents to discuss what is happening with a same-sex child. They advise beginning these discussions when the child is at an age when talking is emotionally easier, before puberty begins (Graber, Nichols, & Brooks-Gunn, 2010). Fathers, in particular, need to make heroic efforts to discuss this difficult topic with their sons (Natterson, 2020).

For sexual minority youth, it's imperative that caregivers present a unified, loving front. Expect puberty to evoke unique challenges, forthrightly discuss these issues, and offer an abundance of love.

Lessons for Society For every child, my implicit message is that we need adequate puberty education. Think back to what you wanted to know about your changing body (“My breasts don’t look right”; “My penis has a strange shape”), and you will realize that offering a few fifth-grade lectures is not enough. The good news is that, in recent years, a few Western nations have developed innovative school sex-education programs (American Teens’ Sources of Sexual Health Education, 2016). But, since discussing sex is controversial (more about this inflammatory issue later), a declining fraction of U.S. middle schools even mention puberty (Lindberg, Maddow-Zimet, & Boonstra, 2016). Even when schools offer “health classes,” early-maturing children — the group at highest risk — have already finished developing (Crockett and others, 2019). (That’s like locking the barn door after the horses have been stolen!)

The good news is that young people can now consult the Internet for answers to their most intimate questions without the shame of personally questioning adults (Crockett and others, 2019). But because the quality of these sources varies, pre-teens may absorb inaccurate information online. School sex education, as I’ll discuss later, can multiply children’s fears by focusing mainly on pubertal damage control: “Don’t have intercourse,” “Avoid STIs.” ■

Suppose our culture *celebrated* puberty, as the Navajo do. Perhaps we might celebrate every body size.

Tying It All Together

1. In contrast to earlier times, give the main reason why our culture can’t celebrate puberty today.
2. You notice that your 11-year-old cousin is starting to look more like an adult. (a) Outline the three-phase hormonal sequence that is setting off the physical changes. (b) Name the three classes of hormones involved in puberty.
3. Kendra has recently begun to menstruate. Apolline has just shot up in height. Carim is developing facial hair. Statistically speaking, which child is at the beginning of puberty?
4. Fiona, an overweight second grader, has harsh, rejecting parents. Based on the information in this chapter, you might predict that Fiona will enter puberty *earlier/ later* than her peers.
5. Based simply on knowing a child’s puberty timetable, spell out who is most at risk of getting into trouble (for example, with drugs or having unprotected sex) as a teen.
6. You are on a committee charged with developing programs to help children cope emotionally with puberty. What recommendations might you make?

Answers to the Tying It All Together questions can be found at the end of this chapter.

Body Image Issues

What do you daydream about?

Being skinny.

— Amanda (quoted in Martin, 1996, p. 36)

Puberty is a time of intense physical preoccupations, and there is hardly a teenager who isn’t concerned about some body part. How important is it for young people to be *generally* satisfied with how they look?

Learning Outcomes

- List several influences promoting teenage body distress.
- Contrast the different eating disorders.
- Evaluate eating disorder treatments.

Consider this finding: Susan Harter (1999) explored how feeling competent in each of her five “self-worth” dimensions — scholastic abilities, conduct, athletic skills, peer likeability, and appearance (discussed in Chapter 6) — related to teenagers’ overall self-esteem. She found that being happy about one’s looks outweighed *anything else* in determining whether adolescents generally felt good about themselves.

This finding is not just true of teenagers in the United States. It appears in surveys conducted in many countries among people at various stages of life. If we are happy with the way we look, we are likely to be happy with who we are as human beings.

Feeling physically appealing is important to everyone. But, in a late-twentieth-century study, Harter found that, beginning in elementary school, girls in particular get increasingly distressed by how they look. One reason for this difference comes as no surprise — the intense cultural pressure for females to be thin.

The Differing Body Concerns of Girls and Boys

The distorting impact of the **thin ideal**, or pressure to be very thin, is apt to take over girls’ lives at puberty because, during early adolescence, social sensitivities reach a peak (more about this in Chapter 9). While gay and transgender males are also vulnerable to this pathology (Nagata, Ganson, & Austin, 2020), cisgender boys typically have another concern: spending hours at the gym to attain the quintessentially male muscular shape (Hoffman & Warschburger, 2019; Nagata and others, 2020; Wei and others, 2021).

Although cultural stereotypes about the ideal body provoke these passions, research suggests that the female drive to be thin has pre-birth *epigenetic* roots. Mothers exposed to intense stress during pregnancy are more likely to have daughters with eating issues (Steigler & Thaler, 2016). In perhaps the most provocative study, scientists found that female twin pairs were more apt to develop unhealthy dieting practices at puberty than fraternal twin girls whose other twin was male. This fascinating finding suggests that testosterone (given off by the male twin’s body) may dampen down a *biological* tendency for girls to become weight obsessed during their pubertal years (Culbert and others, 2013).

Still, even if the signal “be supersensitive to weight” has biological roots, outer-world pressures prime the pump: Pre-teens love to tease one another about weight (“Ha ha, you’re getting fat!”) (Lawler & Nixon, 2011). According to one longitudinal study, *peer* teasing — especially by boys — has an especially powerful effect on female body self-esteem. (Valois and others, 2019).

Still, some children are insulated from these worries. In Albert Bandura’s social learning framework, African American and Latina girls may be less susceptible to the thin ideal because their cultures celebrate bodies of larger sizes. As one young African American woman explained: “I feel like . . . for the woman of color . . . the look is like

thin ideal Media-driven cultural idea that females need to be very thin.

When did Western nations develop the idea that women should be extremely thin? Historians trace this change to the 1970s, when actresses like Audrey Hepburn, shown in the first photo, became our cultural ideal. In more recent decades, as the second photo shows, similar body pressures infected men, causing pubescent boys to struggle for the muscular male shape that is our contemporary cultural ideal.



Mary Evans/AP Archive/AGE Fotostock



Randy Felt/Getty Images

thick thighs, you know, fat butt . . . [men] like, like want you to have meat on your body” (quoted in Hesse-Biber and others, 2010, p. 704).

But, again, this depends on a person’s reference group. Does a girl strongly identify with being Black or Latina? Children of color who are passionate to fit in with the mainstream Western milieu are just as likely to get infected with adolescent dieting mania as anyone else (Blazek & Carter, 2019).

Children’s susceptibility depends on their social media diet, too.

Trending in Developmental Science: Instagram and Body Distress


On our visit to Universal Studios last Christmas, my teenage relative begged to visit the Harry Potter exhibit. But after taking selfies in every possible pose to post on Instagram, I realized that this 17-year-old was using our day at the park as an excuse to showcase her body and face.

Because of its visual content, researchers are exploring the impact that Instagram has on teenagers’ well-being. How does this popular app affect children’s mental health? The good news is that having an Instagram account (Mackson, Brochu, & Schneider, 2019) and posting multiple selfies is a symptom of high body self-esteem (Veldhuis and others, 2020).

But there are serious qualifications. Instagram heightens body dissatisfaction if a girl passively spends time checking photos of strangers (Ryding & Kuss, 2020; Stein, Krause, & Ohler, 2021) and uses this site to make negative comparisons to peers (“These girls are much thinner and prettier than me!” “When I check Instagram and see all those good-looking girls, I feel worse about my looks!”) (Sherlock & Wagstaff, 2019).

A creative eye-tracking study targeted exactly how vulnerable teens use Instagram to become *more* depressed. Girls who worried about specific physical deficiencies focused on these disliked features in viewing their own photos (“When I take selfies, I can’t stop looking at my big nose!”). And then, in scanning posts from other people, they selectively attended to the same disliked body parts (“Everyone on Instagram has smaller noses than me!”). Therefore, due to an *evocative process*, Instagram makes girls who *already* are unhappy about their bodies feel more insecure (Bue, 2020).

A similar process happens with regard to the social media content young people follow. Gravitating to posts displaying the thin ideal (with hashtags featuring ultra-skinny, often artificially edited body shapes) suggests a girl has a pathological focus on dieting. And another type of content is just as poisonous to well-being.

In recent years, #fitspiration posts — photos of toned, athletic men and women — have become popular on social media. We might think that these images extolling health produce healthy eating. We would be wrong. #Fitspiration images also encourage a limited, often unattainable physical ideal (“You must be buff, attractive, and thin”). So, both #thinspiration and #fitspiration posts can provoke disordered eating (Rounds & Stutts, 2021; Tiggemann & Zaccardo, 2018). What are *true* eating disorders like? 

Eating Disorders

In the morning I’ll have a black coffee. At noon I have a mix of shredded lettuce, carrots and cabbage. At around dinnertime I have 9 mini whole-wheat crackers.

On a bad day . . . I may have . . . black coffee and an egg white [for breakfast], . . .

(from Juarascio, Shoaib, & Timko, 2010, p. 402)

Scales are evil! But I’m obsessed with them! I’m on the damn thing like 3 times a day!

(from Gavin, Rodham, & Poyer, 2008, pp. 327–328)




How does taking selfies to post on Instagram affect teens emotionally? You will get answers right now.

Developmental Psychology Videos

The Impact of Media on Adolescent Development

In this video, you will survey the impact of the Internet and social media on adolescence.

 Achieve

eating disorder A pathological obsession with getting and staying thin. The best-known eating disorders are *anorexia nervosa* and *bulimia nervosa*.

anorexia nervosa A potentially life-threatening eating disorder defined by pathological dieting (causing severe weight loss and, in females, loss of menstruation) and a distorted body image.

bulimia nervosa An eating disorder defined by at least biweekly cycles of bingeing and purging in an obsessive attempt to lose weight.

binge eating disorder An eating disorder defined by recurrent, out-of-control bingeing.

As these quotations from “pro-anorexia” social networking sites show, **eating disorders** differ from “typical” dieting. Here, eating becomes a person’s sole focus in life. Imagine waking up and planning each day around eating (or not eating). You monitor every morsel. You are obsessed with checking your weight. Or you have the impulse to gorge every time you approach the refrigerator or buy a box of candy at the store. Let’s now explore three forms these fixations take: anorexia, bulimia, and binge eating disorder (see Treasure, Duarte, & Schmidt, 2020).

Anorexia nervosa, the most serious eating disorder, is defined by self-starvation to the point of reaching 85 percent of one’s ideal body weight or less. (This means that if a girl should weigh 110 pounds, she now weighs less than 95 pounds.) A hallmark of eating disorders is a distorted body image (Glashouwer and others, 2019). Even when people look skeletal, they feel fat. They may compulsively exercise, running for hours and abandoning their other commitments to spend every day at the gym (Holland, Brown, & Keel, 2014).

Anorexia is a life-threatening disease. People who drop to two-thirds of their ideal weight or less need to be hospitalized and fed — intravenously, if necessary — to stave off death (Diamanti and others, 2008). A student who ran a self-help group for people with eating disorders provided a vivid reminder of anorexia’s enduring physical toll. Alicia informed my class that she permanently damaged her heart muscle during her teenaged bout with this devastating disease.

Bulimia nervosa is typically not life threatening because the person’s weight often stays within a normal range. However, because this disorder involves frequent bingeing (at least once weekly eating sprees in which thousands of calories may be consumed in a matter of hours) and either purging (getting rid of the food by vomiting or misusing laxatives and diuretics) or fasting, bulimia can seriously compromise health. In addition to producing deficiencies of basic nutrients, the purging episodes can cause mouth sores, ulcers in the esophagus, and the loss of tooth enamel due to stomach acid.

Binge eating disorder, which first appeared in the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* in 2013, involves recurrent out-of-control eating. The person wolfs down huge quantities of food and then is wracked with disgust, guilt, and shame. This mental disorder was added to the *DSM-5* because (no surprise) it is tied to obesity and so presents a serious threat to health. Binge eating disorder, like anorexia and bulimia, wreaks havoc on a person’s life.

How common are these mainly female teenage and young-adult disorders? In one 8-year-long community survey, binge eating was most prevalent, affecting roughly 3 in 100 young women over that time; bulimia ranked second (at 2.6 per 100). Thankfully, the most serious condition, anorexia, struck only 8 out of 1,000 girls. The bad news is that a remarkable 9 percent of all females worldwide suffer from an eating disorder at *some* point in their lives (National Association of Anorexia and Related Disorders, 2020).

What causes these conditions? Twin studies suggest eating disorders have a hereditary component (O’Connor and others, 2020). Whether due to shared genetic propensities or parents with their own eating issues broadcasting the message (“There is *nothing* worse than being fat!”), eating disorders tend to be passed down from parents to children (Lydecker & Grilo, 2016). One strong risk factor involves *internalizing* issues (Verschueren and others, 2020) — worrying excessively (Sala & Levinson, 2016) and/or experiencing intense ups and downs in mood (Lavender and others, 2016; Munch, Hunger, & Schweitzer, 2016). When temperamentally anxious or depressed children are teased about their weight and internalize the thin

ideal, as you can see in Figure 8.6, eating disorders may flare up (Douglas & Varnado-Sullivan, 2016).

Teens with eating disorders have other symptoms: insecure attachments (Nandrino and others, 2020) and an extreme need for approval (Abbate-Daga and others, 2010). They often want their lives to be “completely perfect” (King, Gerisch, & Schreiber, 2020). At bottom, people with eating disorders have low *self-efficacy* — they feel out of control of their lives.

Table 8.2 offers a summary checklist for determining whether a young person you love is at risk of developing an eating disorder. Still, if you know an adolescent who is struggling with this issue, there is brighter news. Eating disorders are most prevalent among young people and can naturally abate during adult life. Also, contrary to popular opinion, therapy for eating disorders works!

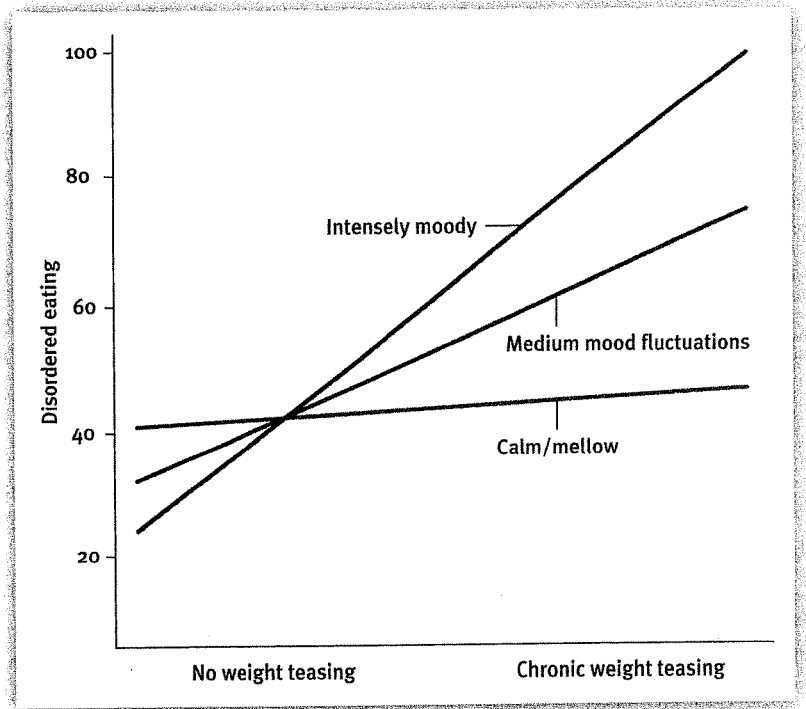


Figure 8.6: The interaction between “mood fluctuations,” weight teasing, and pathological eating among a sample of girls

This study showed that when girls are moody, being teased about weight is likely to escalate into eating disorder symptoms; but for mellow girls, weight-teasing has no impact on problematic eating.

Data from Douglas & Varnado-Sullivan, 2016, p. 171

Table 8.2: Is a Teenager at Risk for an Eating Disorder? A Checklist

(Background influences: Has this child reached puberty? Is this child female?)

1. Does this teen use social media to make negative comparisons to others? Does this adolescent gravitate to #thinspiration and #fitspiration posts?
2. Does this teen have parents with eating issues? Has this girl been teased excessively about weight by boys?
3. Does this teen worry excessively, have insecure attachments, and/or have mood swings? Is this person a perfectionist?
4. Does this teen have very low self-efficacy?

Improving Teenagers' Body Image

The best place to begin to treat young people with eating disorders is to examine how teens who embrace their bodies reason and think. These adolescents do not deny their “imperfections,” but focus on their physical pluses. They tend to be spiritually oriented (Tiggemann & Hage, 2019) and take pleasure in what their bodies can do (Andrew, Tiggemann, & Clark, 2016). They understand what *really* makes people beautiful in life. As one woman named Heather put it: “You have to remind yourself that even though [the thin ideal] is what [the media are all about] . . . promoting, self-esteem really looks the best” (Wood-Barcalow, Tylka, & Augustus-Horvath, 2010, p. 115).

Heather’s remarks explain why an eating-disorder treatment called *dialectic behavior therapy* teaches meditation and strategies to promote self-efficacy (feeling in control of life) (Tanofsky-Kraff and others, 2015). Group exercises to combat the thin ideal are effective (Stice and others, 2020; Wilson and others, 2020). Exposing teens to plus-size models temporarily reduces body shame (Moreno-Domínguez and others, 2019).

This all may explain the emerging use of #bopo (body-positive) Instagram posts, images of women proudly displaying their larger bodies featuring captions like “I love my belly rolls” (Cohen, Fardouly, and others, 2019; Cohen, Irwin, and others, 2019). By offering a more balanced vision of what *should* be beautiful, these brave young people are harnessing our social media, appearance-oriented mania as a force for good. ■

The same creative, efficacious message is typical of much (but not all) of the research relating to our final topic: teenage sex.

Tying It All Together

1. Mirai, an eleventh grader, tells you, “I’m ugly,” but knows she is terrific in sports and academics. According to Harter’s studies, is Mirai likely to have high or low self-esteem?
2. Instagram always provokes body shame — true or false.
3. Amy is on a diet, trying for that Barbie-doll figure. Jaden, who is far below the ideal body weight, is always exercising and eats virtually nothing. Sofia, whose weight is normal, goes on eating sprees followed by purges every few days. Delbee has regular, out-of-control eating sprees, after which she says she feels like a bloated “blimp.” Identify which teens have an eating disorder, and name each person’s specific problem.
4. Pick which three female adolescents may be more protected from developing an eating disorder: *Cotonya, who strongly identifies with Black culture; Caroline, who has high self-efficacy; Cai, who gravitates to #bopo Instagram posts; Carmen, who exercises for hours every day.*

Answers to the Tying It All Together questions can be found at the end of this chapter.



SOMETHING TO CONSIDER: Physical Development in Adolescents: Examining Eating Disorders and Treatment  Achieve

Learning Outcomes

- Outline recent trends in teenage sexuality.
- Explore forces influencing the transition to intercourse.
- Critique the sexual double standard and school-based sex education.

Sexuality

548: Immcculate ros: Sex sex sex that all you think about?

559: Snowbunny: people who have sex at 16 r sick:

560: Twonky: I agree

564: 00o0CaFfEiNnE: no sex until ur happily married — Thtz muh rule

566: Twonky: I agree with that too.

567: Snowbunny: me too caffine!

(quoted in Subrahmanyam, Greenfield, & Tynes, 2004, p. 658)

Sex is the elephant in the room of teenage life. Everyone knows it’s a top-ranking issue, but the adult world often shies away from mentioning it. Celebrated in the media, minimized or ignored by parents (“If I talk about it, I’ll encourage my child to do it”), the issue of when and whether to have sex is left for teenagers to decide on their own as they filter through conflicting messages and — as you can see above — vigorously stake out their positions in texts or chatrooms.

It is a minefield issue that contemporary young people negotiate in different ways. Poll your classmates. Some people, as with the teenagers quoted above, may advocate abstinence, believing that everyone should remain a virgin until marriage. Others probably feel that having sex within a loving relationship is fine. Some students, if they are being honest, will admit, “I want to try out the sexual possibilities, but I promise to use contraception!”

The increasing acceptability (within limits) of carving out our own sexual path was highlighted in sexual surveys polling U.S. high school seniors in 1950, 1972, and 2000 (Caron & Moskey, 2002). Over that half-century, the number of seniors who decided that it’s OK for teenagers to have sex shot up from a minority to more than 70 percent. But most teens agreed that a person could decide to not have sex and still be popular. Most felt confident they would use birth control when they were sexually active.

How are these efficacious attitudes translated into action? Let’s begin our exploration at the sexual starting gate — with desire.

Exploring Sexual Desire

David, age 14: Since a year or so ago, I just think about sex and masturbation ALL THE TIME! I mean I just think about having sex no matter where I am and I’m aroused all the time. Is that normal?

Expert’s reply: Welcome to the raging hormones of adolescence!

(from a teenage sexuality online advice forum)

At what age does sexual desire begin? Although scientists had long assumed that the answer was during puberty, when testosterone pumps through the body, research with sexual minority adults caused them to rethink this idea. When lesbian women and gay men were asked to recall a watershed event in their lives — the age when they first realized that they were physically attracted to a person of the same sex — their responses centered around age 10. At that age, the output of the adrenal androgens is rising but testosterone production has not fully geared up (McClintock & Herdt, 1996). So our first sexual feelings seem programmed by the adrenal androgens and appear before we undergo the visible changes of puberty, by about fourth grade!

How do sex hormones relate to teenagers’ sexual desires? According to researchers, we need a threshold androgen level to prime our initial feelings of desire (Udry, 1990; Udry & Campbell, 1994). Then, signals from the environment feed back to heighten interest in sex. As children see their bodies changing, they think of themselves in a new, sexual way. Reaching puberty evokes a different set of signals from the outside world. A ninth-grade boy finds love notes in his locker. An eighth-grade girl notices men looking at her differently as she walks down the street. The physical changes of puberty and how outsiders react to those changes usher us into our lives as sexual human beings. Which young people act on those desires by having intercourse as teens?

Who Is Having Intercourse?

Today, the average age of first intercourse in the United States is between ages 17 and 18 for both girls and boys (Abma & Martinez, 2017). But about 1 in 8 children make a “sexual debut” by age 15 (see Figure 8.7).

As developmental systems theory suggests, a variety of forces predict what researchers call an earlier *transition to intercourse*. One influence, for both boys and girls, is biological — being on an earlier puberty timetable. Ethnicity and socioeconomic status (SES) matter. African Americans and lower-income males are more apt to be sexually active at younger ages (Abma & Martinez, 2017).

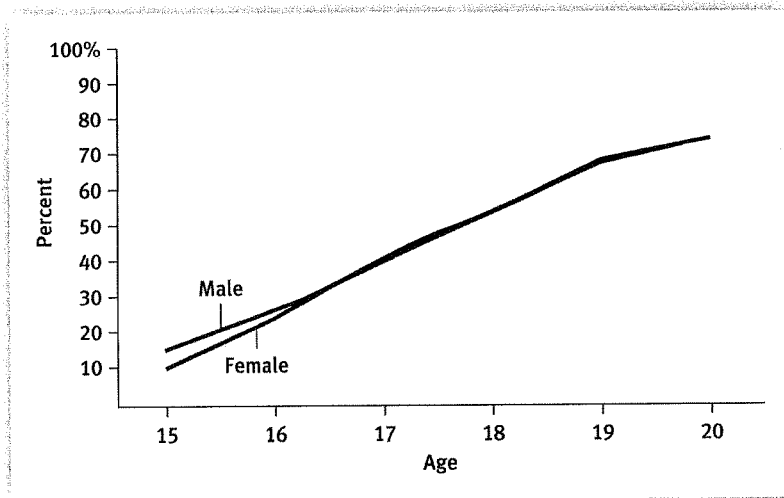


Figure 8.7: Percent of U.S. teenagers who have had intercourse, at different ages This chart pinpoints late adolescence as the tipping point when most U.S. young people have had sex. But it also shows (not unexpectedly) that teen intercourse rates rise dramatically with age.

Data from Abma & Martinez, 2017

can make precise statistical calculations of a teen's intercourse odds based on the number of people in that child's social circle who have gone "all the way" (Ali & Dwyer, 2011). So, just as with other aspects of behavior, to understand whether teens are sexually active, look at the actions of their friends.

Parents also might want to look at the kind of media a teen consumes. Does my child gravitate to sexually suggestive TikTok videos or stick to watching Disney movies?

Should we blame social media influencers who post erotic photos for *causing* teenagers to start having sex? A bidirectional influence is probably in operation here. If a teenager is *already* interested in sex, that boy or girl will gravitate toward media that fit this passion. For me, the tip-off was raiding my parents' library to read the steamy scenes in that forbidden book, D. H. Lawrence's *Lady Chatterley's Lover*. Today, parents know that their pre-teen has entered a different mental space when their child prefers scrolling through arousing images of a favorite band to watching *Bambi* or *Beauty and the Beast*. Swimming in this sea of media sex then further inflames a teenager's desires.

Whom Are Teens Having Intercourse With?

On TV, many intercourse scenarios involve casual, one-night stands (Grube and others, 2008). Are children imitating these models when they start having sex? With most U.S. teens (75 percent of girls and 51 percent of boys) reporting they first had sex with a steady partner, the answer is no (Abma & Martinez, 2017). But, as roughly 1 in 5 teens report having had their "debut" intercourse experience outside of a committed relationship (Guttmacher Institute, 2014), let's pause to look at what these nonromantic encounters are like.

Do adolescents who have sex with a person they are not dating hook up with a stranger or a good friend? For answers, we have an interview study in which researchers asked high schoolers in Ohio about their experiences with "noncommitted" sex (Manning, Giordano, & Longmore, 2006).

Of the teens who admitted to a nonromantic sexual encounter, 3 out of 4 reported that their partner was a person they knew well. As one boy, who lost his virginity with his best friend, described, "I wouldn't really consider dating her . . . but I've known her so long . . . anytime I feel down or she feels down, we just talk to each other" (quoted in Manning, Giordano, & Longmore, 2006, p. 469). Or a teenager might fall into having sex with an ex-boyfriend or girlfriend: "Well, it kind of happened like towards the end when we were both friends" (quoted in Manning, Giordano, & Longmore, 2006, p. 470).



Is my teen having intercourse? Researchers can now offer concerned parents precise odds by looking at how many people in a crowd of best buddies have gone "all the way."

So far, I have painted a benign portrait of teenage sexual relationships. Not true! According to national surveys, nearly 1 in 10 high school students reports having been physically hurt by a romantic partner in the past year (National Domestic Violence Hotline, 2020). More than 1 in 3 middle schoolers say they have witnessed violence among their dating peers (Start Strong: Futures Without Violence, 2012). When we think of who perpetrates these aggressive acts, most people immediately blame boys.

Trending in Developmental Science: Is There Still a Sexual Double Standard?

It's different for boys, it's like . . . if they have sex with somebody and then they are rewarded . . . and all the guys are just like "That's great!" You have sex, and you're a girl and it's like "Slut." That's how it is . . .

(quoted in Martin, 1996, p. 86)

This late-twentieth-century complaint from a teenage girl refers to the well-known **sexual double standard**. Boys are supposed to want sex; girls are supposed to resist. Males get reinforcement for having multiple sexual conquests. Society gets upset when females have sex outside of committed relationships.

In our #MeToo era, does the sexual double standard still exist? *Meta-analyses* suggest the answer is yes (Endendijk, van Baar, & Deković, 2020). Whether it's evaluating people in the abstract, or the activities of close friends (Marks, Young, & Zaikman, 2018), people are more prone to tolerate sexual "playing around" in males. We get uncomfortable when we contemplate sexually assertive females (see also Klein and others, 2019). We denigrate women who practice casual sex (Guo, 2019).

Still, when we look at real-life teenage intercourse attitudes, these gender differences dissipate. Feeling emotionally intimate—the Ohio study I just mentioned showed—is teens' main priority. And when a couple does have sex—often in a close relationship—the decision is frequently as difficult for guys as for girls. Read what a boy named Tim had to say:

"I really wanted to save it for marriage, but I was curious and um she was special enough to me. . . . She felt the same way . . . but we . . . [were] both curious . . . and so it just happened."

(quoted in Giordano, Manning, & Longmore, 2010, p. 1007)

In this study, both male and female teens reported that the decision to have sex was mutual; no one was pressuring anyone else. Or, as another boy named Tim delightfully put it:

"So if a girl says yes and a boy says no; it's a maybe. If a guy doesn't know and a girl says yes, it's yes. . . . If a girl says yes and a guy says yes, it's yes. . . . So I think the women have more control because their opinion matters more in that situation."

(quoted in Giordano, Manning, & Longmore, 2010, p. 1007)

Is it really true, as Tim implies, that teenage girls are the main sexual initiators (aggressors)? Consider this evidence from the online world: When researchers analyzed the profile photo comments on a popular Belgian social networking site, they found that girls' sexually oriented responses to boys' posted photos far outnumbered boys' comments to photos posted by girls.

Here are a few enthusiastic female posts that a boy named Kendeman's photo evoked: "You are **** . . . beautiful!" "I just wanted to say this because I think you are wonderfuuuuuul. Nobody can compete with you!" (quoted from De Ridder & Van Bauwell, 2013, p. 576).

sexual double standard

A cultural code that gives men greater sexual freedom than women. Specifically, society expects men to want to have intercourse and expects women to be virgins until they marry and be more interested in love relationships than in having sex.

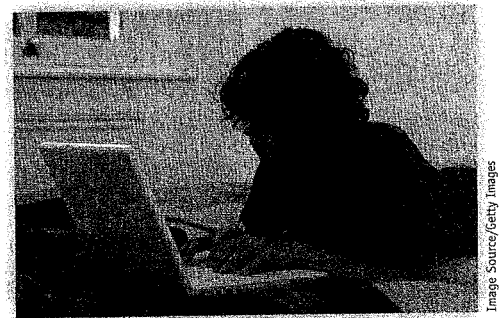


Image Source/Getty Images

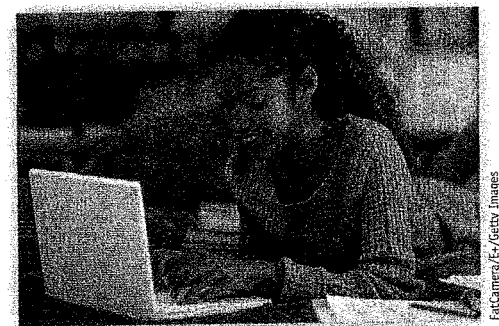


Image Source/Getty Images

What are the teens who avidly scan the photos on a social networking site likely to do? The surprise is that girls may decide to post more assertive, sexually oriented comments than boys.

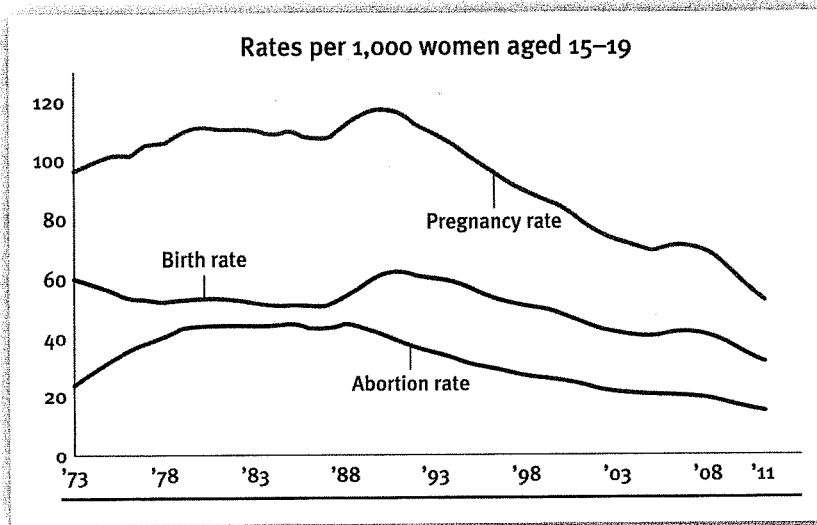


Figure 8.8: Encouraging snapshots of twenty-first-century teenage sexuality in the United States The news about adolescent pregnancy is good! For the past 30 years, abortions, adolescent pregnancies, and births dramatically declined to reach historic lows in 2011.

Data from American Teens' Sources of Sexual Health Education, 2016

intercourse is not typically taken lightly, but in a climate of caring and mutual decision making for both girls and boys. Girls have more control in the sexual arena than we think!

These changes are mirrored in the encouraging statistics in Figure 8.8: lower abortion rates and fewer United States teenage pregnancies and births. In fact, over the decade spanning the late 1990s to the early twenty-first century, teen pregnancy rates in the United States reached historic lows (Abma & Martinez, 2017).

Still, with regard to teenage pregnancy, the United States ranks near the pinnacle of the developed world. While European teens have comparable levels of sexual activity, pregnancy rates for adolescents in France and Germany are less than one-quarter that of U.S. teens (Abma & Martinez, 2017).

Final Thoughts: We Need Teen-Friendly Sex Education

The term 'sending nudes' . . . [is] thrown around so casually at school and online that it doesn't seem like a big deal . . .

. . . knowing all the consequences [of sexting] would help tremendously . . .

(quoted in Metz, 2020, p. 58)

These quotes from Illinois high schoolers highlight one reason why pregnancy rates are higher in the United States. **Sexting**, sending sexually explicit photos or messages online or via phone, is the prelude to becoming sexually active for many teens. Sexting is also dangerous, as these images — easily shared on social media — can never be taken back. But U.S. school-based sex education classes rarely mention those crucial facts!

There are other reasons why U.S. school sex education gets low grades. Some school systems teach only abstinence. Others focus mainly on urging young people to avoid sexually transmitted infections (STIs). Programs may not touch on that vital topic — offering teens the concrete tools to practice safe sex. The reason comes as no surprise: Parents are ambivalent about discussing this mammoth elephant in the room (Elliot, 2012)!

One classic fear is that teaching contraception encourages teens to have intercourse. This we *know* is not true. Comprehensive sex education not only helps prevent pregnancy, it can delay the transition to intercourse (UNFPA, 2015). When Irish researchers compared young people in that nation who had high school sex education versus a group who had received no instruction, girls and boys exposed to the classes became sexually active at an *older age* than their peers (Bourke and others, 2014).

Some of you reading this information might think, "OK, maybe that's true, but having my child's school discuss contraception violates my religious principles because I believe abstinence is the only way to go." Perhaps everyone might agree with this next approach.

So, even though the double standard seems firmly in operation in the abstract, the reality is complex. Teenage boys lust for sex in a loving relationship — just like girls (Ott and others, 2006). In terms of making the first moves, either online or, sometimes, in the flesh — if anything, an anti-double standard can apply! 📺

Wrapping Up Sexuality: Contemporary Trends

In summary, the news about teenage sexuality is mostly good. Teenagers today feel more confident about charting their sexual path. Many sexual encounters occur in committed love relationships. The decision to have

sexting Sending sexually explicit photos or messages online or via text.

For decades, teens have complained that high school sex education is irrelevant to their lives. Adolescents say they are hungering for different information: “How can I develop a relationship?” “What does it mean to fall in love?” (See Martin, 1996.)

Therefore, controversies about whether to teach contraception or warn teens about the perils of sexting are missing the point. To really speak to young people’s passions, sex education should center on more than sex. We need romance education classes!

This imperative is timely because, as the #MeToo movement shows, *adult* sexual violence is far from rare. Moreover, as I just pointed out, while both boys and girls care about having loving relationships, especially in developing nations, first intercourse experiences for girls can occur right after puberty and involve coerced sex (Woog & Kågesten, 2017).

The Start Strong program — sponsored by the Robert Wood Johnson Foundation and Blue Cross of California — helped block the pathway to this dysfunction by teaching U.S. middle schoolers the skills to relate in a loving way. Older teenage peer leaders facilitated workshops devoted to topics like “Dating Violence,” “Healthy Relationships,” and — very importantly — “Engaging in Healthy Breakups.” Start Strong — which, unfortunately, is no longer in operation — embodied the kind of sensitive romance education pre-teens passionately desire.

The strength of Start Strong was its ability to fully capitalize on the unique social sensitivities defining the pre-teen mind, the very topic I will explore in depth as we turn now to Chapter 9.



Because teenagers are passionate to understand how to have loving relationships, this high school couple might adore romance education classes!

Tying It All Together

1. A couple asks you when their son will have his first sexual feelings. You answer: *around age 10, before the physical signs of puberty occur/around age 13 or 14/in the middle of puberty/toward the end of puberty.*
2. A friend suspects her teenager may be sexually active. So she asks for your opinion. All the following questions are relevant for you to ask *except*:
 - a. Are your teen’s friends having sex?
 - b. Is your teen using Instagram?
 - c. Is your teen consuming sexually oriented media?
 - d. Does your teen have an older significant other?
3. Tomas is discussing trends in teenage sex and pregnancy. Which *two* statements should he make?
 - a. Today, sex often happens in a committed relationship.
 - b. Today, the United States has lower teenage pregnancy rates than other Western nations.
 - c. In recent decades, rates of teenage births in the United States have declined.
 - d. Today, boys are always the sexual initiators.
4. Imagine you are designing a “model” sex-education program. According to this section, you should focus on:
 - a. encouraging abstinence.
 - b. providing information about STIs.
 - c. discussing how to have loving relationships.

Answers to the Tying It All Together questions can be found at the end of this chapter.

SUMMARY

Puberty

Today, the physical changes of **puberty** occur during early adolescence, and there can be more than a decade between the time children physically mature and when they enter adult life. Because in agrarian societies a person’s changing body used to be the signal to get married, many cultures devised **puberty rites**

to welcome the physical changes. The **secular trend in puberty**, the fact that **menarche** is occurring at far younger ages, has magnified the separation between puberty and full adulthood.

Two hormonal command centers program puberty. The adrenal glands produce **adrenal androgens** starting in middle childhood. The **HPG axis**, the main system that sets the bodily changes in

motion, involves the hypothalamus, the pituitary gland, and the **gonads** (ovaries and testes), which produce estrogens and **testosterone** (found in both males and females). Leptin levels primed by a variety of environmental influences trigger the initial hypothalamic hormones.

The physical changes of puberty are divided into **primary sexual characteristics**, **secondary sexual characteristics**, and the **growth spurt**. Although in girls puberty begins with the growth spurt and menarche occurs later in the process, the rate and sequence of this total body transformation varies from child to child. Because for boys the externally visible changes of puberty occur later and the organs of reproduction are the first to start developing, the puberty timetables of the sexes are not as different as they appear.

The striking individual differences in pubertal timing are mainly genetically programmed. African American and Hispanic American children tend to reach puberty at younger ages. For girls, being overweight and having stressful family relationships predict reaching puberty earlier. These “environmental events” push up the hypothalamic timer, but, strangely, mainly for girls.

How children feel about their changing bodies varies, depending on the social environment. Breast development can evoke positive emotions in the mainstream U.S. culture. Negative feelings about menstruation are routine worldwide, unless mothers celebrate this change. **Spermarche** is never discussed. Children tend to be embarrassed about their changing bodies around parents of the other sex. LGBTQ+ children face unusual problems during puberty, particularly if they are coming of age in unfriendly environments.

Girls who mature early are at risk of getting into trouble as teens (for example, taking drugs, getting pregnant, or doing poorly in school) if they reach puberty in a stressful environment, live in a permissive culture, and get involved with older friends. Because they often end up heavier and shorter, these girls tend to have a poor body image and are more prone to be anxious and depressed.

Parents should discuss puberty with their children, especially their sons. We need to be alert to potential problems with early-maturing girls. We need to begin puberty education earlier and be especially supportive when LGBTQ+ children undergo this landmark change.

Body Image Issues

How children feel about their looks is closely tied to their overall self-esteem. Girls feel worse about their looks than boys do, partly because society expects women to adhere to the **thin ideal**. Boys feel pressured to build up their muscles. The female impulse to be thin may have biological roots, but peer weight-teasing plays an important role. Instagram may promote body anxiety if teens make negative comparisons to the images they see online. Both #fitspiration and #thinspiration posts can damage susceptible children’s self-esteem.

The three **eating disorders** are **anorexia nervosa** (severe underweight resulting from obsessive dieting), **bulimia nervosa** (chronic binging and often purging), and **binge eating disorder** (binging alone). Family pressures, perfectionistic tendencies, mood swings, and low self-esteem put girls at special risk for these problems. Eating-disorder treatments often do work. Body-positive social media posts are a force for good, because these images bring home the message that beauty comes in many sizes.

Sexuality

Teenagers today feel freer to make their own decisions about whether and when to have intercourse. While sexual desire is triggered by the adrenal androgens and first switches on at around age 10, sexual signals from the outside world feed back to cause children to become interested in sex.

Factors that predict making the transition to intercourse include race, SES, family and peer influences, and gravitating to sex-laden media. Most teens have their first intercourse experience in a romantic relationship. Even though the **sexual double standard** suggests that boys just want sex and girls are interested in relationships, both teenage males and females are mainly interested in love. Still, sexual violence directed against young girls is far from rare, especially in poor regions of the globe.

The good news about U.S. teenage sexuality is that pregnancy rates are declining, although adolescent births are still markedly higher in the United States than in other Western nations. One reason is that sex education classes in the United States leave much to be desired. These programs don’t mention the dangers of **sexting**. Many don’t discuss contraception at all. Most important, we need to provide sex-education classes relevant to young people’s real concerns: relationships and romance.



KEY TERMS

adrenal androgens, p. 227	gonads, p. 227	puberty, p. 225	sexting, p. 246
anorexia nervosa, p. 240	growth spurt, p. 228	puberty rite, p. 226	sexual double standard, p. 245
binge eating disorder, p. 240	HPG axis, p. 227	secondary sexual characteristics, p. 228	spermarche, p. 231
bulimia nervosa, p. 240	menarche, p. 226	secular trend in puberty, p. 226	testosterone, p. 227
eating disorder, p. 240	primary sexual characteristics, p. 228		thin ideal, p. 238

ANSWERS TO Tying It All Together QUIZZES

Puberty

- Today, puberty occurs a decade or more before we can fully reach adult life.
- (a) The initial hypothalamic hormones trigger the pituitary gland to produce its hormones, which cause the ovaries and testes to mature and produce their hormones, which, in turn, produce the body changes.
(b) Estrogens, testosterone, and the adrenal androgens.
- Apolline
- earlier
- an early-maturing girl
- Possible recommendations:* Push for more adequate, “honest” puberty education at a younger age, possibly in a high-quality online format, where children can talk anonymously about their concerns. Institute a public awareness program encouraging parents to talk about puberty with a same-sex child. Encourage mothers to speak positively about menstruation and have dads discuss events such as spermarche with sons. Make everyone alert to the dangers associated with being an early-maturing girl and develop formal interventions targeted to this at-risk group. Institute

sensitive, school-based “respect your body” discussions. Devise puberty interventions specifically addressing the issues facing LGBTQ+ teens.

Body Image Issues

- Unfortunately, low self-esteem.
- False, because body-positive Instagram posts can increase self-esteem.
- Jaden, Sofia, and Delbee have eating disorders. Jaden has the symptoms of anorexia nervosa; Sofia has the symptoms of bulimia nervosa. Delbee has binge eating disorder.
- Cotonya, Caroline, and Cai. (We don’t know about Carmen — but, if she obsessively exercises just to stay thin, she might be at higher risk.)

Sexuality

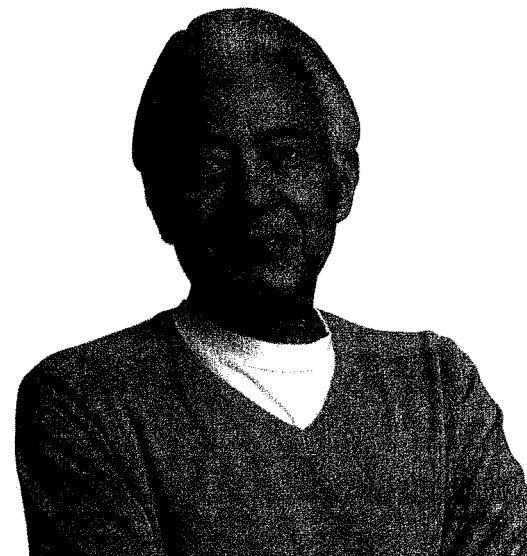
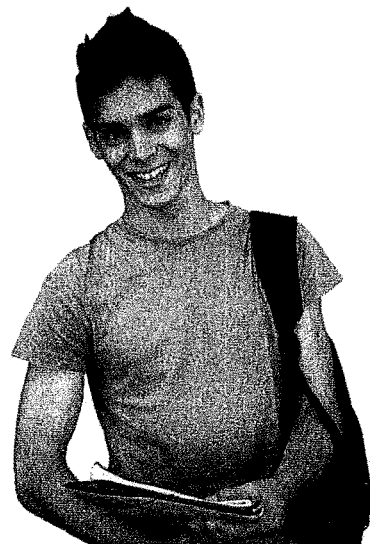
- Around age 10, before the physical signs of puberty occur
- (b)
- (a) and (c)
- (c) Discussing how to have loving relationships

CONNECT ONLINE:

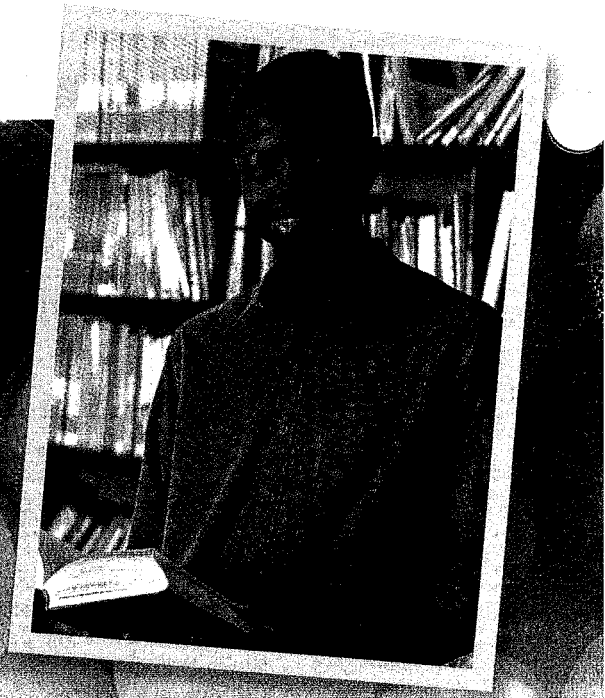
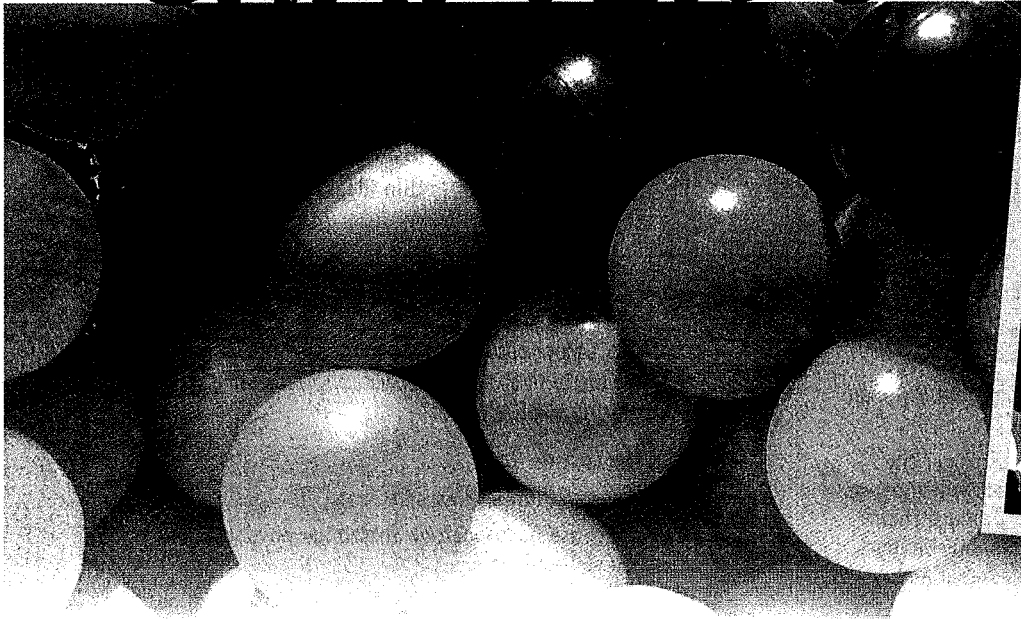


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CHAPTER 9



Cognitive, Emotional, and Social Development in Adolescents

Samantha's father began to worry when his daughter was in sixth grade. Suddenly, his sweet little princess was acting so selfish, so moody, and so rude. She questioned everything, from her 10 o'clock curfew to why poverty exists. She wanted to be an individual, but her clique shaped every decision. She got hysterical if anyone looked at her the wrong way. Worse yet, Samantha was hanging out with the "popular" crowd—smoking, drinking, not doing her homework, cutting class.

Her twin brother, Sam, was different—obedient, an honors student, captain of the basketball team. He calmly sailed into his teenage years. Actually, Sam defied the categories. He was smart and a jock. He effortlessly moved among the nerds, popular kids, and artsy groups at school. Still, this model child was passionate to vigorously test the limits. The most heart-stopping example happened when the police picked up Sam and his buddies for drag racing. Sam's puzzled explanation: "Something just took over and I stopped thinking, Dad."

If you looked beneath the surface, however, both children were great—considerate, caring, capable of having deep debates about many topics, from the pros and cons of gun control to the meaning of god. They just got caught up in the moment and lost their minds when they were with their friends. What goes on in the teenage mind?

CHAPTER OUTLINE

Setting the Context

Cognitive and Emotional Development: The Mysterious Teenage Mind
Three Classic Theories of Teenage Thinking

Studying Three Aspects of Storm and Stress

- *How Do We Know . . . That Adolescents Make Riskier Decisions When They Are with Their Peers?*
- *Trending in Developmental Science: A Pubertal Problem—Popularity*
Which Teens Get Seriously Derailed?
Which Teens Thrive?

Wrapping Things Up: The Blossoming Teenage Brain

- *Interventions: Making the World Fit the Teenage Mind*
- *Experiencing the Lifespan: Innocently Imprisoned at 16*
- *Trending in Developmental Science: Rooting Out School Racism*

Social Development

Separating from Parents

Connecting in Groups

A Note on Non-Adolescence Worldwide

Final Thoughts: So-Called Teenage Emotional Problems in the Pre- and Post-COVID World