Growth and Development During Adolescence

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Student Learning Outcomes

Upon completion of this chapter, the reader should be able to:

1. Describe the physical growth and development of adolescents.
2. Explain variations between early, middle, and late adolescence.
3. Discuss common risk behaviors and developmental red flags.

INTRODUCTION

Adolescence generally covers the age from 11 to 21 years, and is a period of enhanced development and rapid changes. This stage emulates infancy in terms of the amount of physiologic growth and development. Parents often struggle to know what is “normal” and what is “abnormal.” The adolescent generally feels confused and misunderstood. Reassurance for parents and the adolescent is an essential component of annual well-child appointments during this time. The pace of adolescent development may vary from child to child, yet remains sequential. Monitoring for appropriate growth and development over this wide age range is important. This chapter highlights the normal growth and development of adolescents and presents healthcare providers with strategies for interaction with the adolescent patient. It is important to note that adolescent growth patterns are greatly influenced by genetics. The healthcare provider is encouraged to show interest in the adolescent and their concerns during the health assessment.

The adolescent should always be interviewed by the healthcare provider both with and without the caregiver present.

The content in this chapter maps to the following areas on the Pediatric Nursing Certification Board (PNCB) Pediatric Nurse Practitioner—Primary Care certification examination:

CONTENT AREAS:

I. Health Promotion and Maintenance

- A. Partner with patients/caregivers to support growth and development from infancy to young adulthood
- B. Provide patients/caregivers with age/developmentally appropriate anticipatory guidance
- F. Counsel about age-appropriate social, behavioral, and mental health concerns

II. Assessment and Diagnosis

A. Growth and Development

1. Evaluate and interpret growth parameters

IV. Professional Role Responsibilities

A. Leadership and Evidence-based Practice

1. Serve as a clinical resource for other health care professionals
2. Critically evaluate and synthesize research and apply findings to clinical practice

GROWTH

During early adolescence growth is rapid due to the hormonal changes of puberty, but it decreases in middle and late adolescence. Girls and boys experience changes not only in size, but also in appearance.

WEIGHT

The average weight increase in adolescent boys is 7 to 30 kg (15–65 lb). Female adolescents will demonstrate a weight increase of 7 to 25 kg (15–55 lb) over the course of this period.

HEIGHT

The growth trend may be characterized by a period of rapid growth (the growth spurt), then slow growth, then another period of rapid growth. Girls experience a rapid increase in height before menarche and full height is usually reached 2 to 2½ years after menarche. The average increase in height for girls is 5 to 20 cm (2–8 in). Boys start their growth spurt between the ages of 10½ and 16 years and it ends between the ages of 13½ and 17½ years. The average increase in height for boys is 10 to 30 cm (4–12 in).

BODY MASS INDEX

Throughout adolescence, body mass index (BMI) is calculated based on the person's weight and height. The BMI is then evaluated on the gender-appropriate growth chart to determine if it falls within the normal range of the 5th to the 85th percentile for age. If BMI is less than the 5th percentile the adolescent is considered underweight, between the 85th and 95th is considered overweight, and obesity is defined by a BMI greater than the 95th percentile for age (Hagan et al., 2017).

PHYSICAL CHANGES

During adolescence, all organ systems reach full adult maturation. The head, neck, and hands reach adult proportions, and the percentage of body fat is increased. The brain's size does not increase further, but faster neural processing occurs in response to myelination of the neurons. The heart rate decreases, systolic blood pressure increases, and the respiratory rate decreases, all reaching adult norms by the end of the adolescent period. During the adolescent's growth

spurt, strength and muscle mass increase in both boys and girls. Additionally, the adolescent's skin becomes tougher and thicker, and the sweat glands function at adult levels.

Puberty

Puberty generally refers to the biological process of developing adult-like hormonal regulatory systems. There are five stages that define puberty. Although all adolescents move through each stage in order, the progression rate varies per individual adolescent. The sexual maturity ratings (SMR) also known as Tanner stages are used to stage (assess) adolescent development from prepubertal to adult. The SMR are based on sexual characteristics. It is helpful to have a picture diagram during the health supervision visit so that the adolescent can visualize what changes to expect.

Female Sexual Maturity Ratings

Female adolescents typically begin pubertal changes a year or two earlier than boys. Over the past 10 years, the age of onset of puberty has decreased from age 11 to 9 and it varies with ethnicity. Most girls will complete physical pubertal changes by the age of 15. The pattern of development is as follows:

- *Ovaries:* During puberty, the ovaries enlarge in size and produce estrogen and progesterone. Estrogen is the hormone responsible for breast growth as well as the development of the vagina, uterus, and fallopian tubes.
- *Breast development:* Breast budding begins to occur around age eight for most females. Breast development is complete between ages 12 and 18. See Table 11.1. Soreness and tenderness of the breast specifically around the nipple are common complaints during puberty by boys and girls.
- *Linear growth:* Females usually see their body get curvier during puberty. There is an increase in fat production especially around the breast and hip, which is a normal process.
- *Pubic hair:* Pubic hair begin to develop prior to adolescence but reaches adult patterns by age 18 years. The pubic hair typically develops in a triangular pattern. See Table 11.1.
- *Menarche:* The first menstrual period typically begins during the time of linear growth deceleration (11–12 years of age). Breast budding is often noted about 2 years prior to menarche. The average age of menarche in the United States is 12 years.

TABLE 11.1 Sexual Maturity Rating

Breast Development	Female Pubic Hair Development	Male Genitalia Development
<p>Stage 1: Prepubertal Nipple elevation begins.</p>	<p>Stage 1: Prepubertal No pubic hair</p>	<p>Stage 1: Preadolescent No pubic hair; penis and testes are same size and proportion as in childhood</p>
<p>Stage 2: Breast budding Breast and nipple elevation appears as a small mound with areolar enlargement.</p>	<p>Stage 2: Sparse, long, straight hair</p>	<p>Stage 2: Sparse pubic hair; slight enlargement of penis and testes</p>
<p>Stage 3: Continued enlargement The breast and areola enlarge without distinct evidence of separation between them.</p>	<p>Stage 3: Darker, coarser, curly, sparse hair over the mons pubis</p>	<p>Stage 3: Darker, coarser pubic hair; further enlargement of penis and testes</p>
<p>Stage 4: Secondary mound A secondary mound forms beyond the original breast mound as the areola and nipple project.</p>	<p>Stage 4: Darker, curly, abundant hair over the mons pubis</p>	<p>Stage 4: Coarse and curly pubic hair covering more area; further enlargement of penis and testes</p>
<p>Stage 5: Breast maturity The nipple projects and the areola becomes part of the breast contour</p>	<p>Stage 5: Adult triangle pattern with hair growth on medial thighs</p>	<p>Stage 5: Hair spread to medial surface of the thighs and adult in quality and quantity; penis and testes reach adult size and proportion</p>

Source: From Chiocca, E. M. (2019). *Advanced pediatric health assessment* (3rd ed., pp. 437–438, Figures 20.7 and 20.8). Springer Publishing Company.

Male Sexual Maturity Ratings

Male adolescents typically enter into puberty between age 10 and 14 years, with the majority reaching completion by age 16 years. Musculature and the brain will continue to grow and develop. The adolescent male pattern of development is as follows:

- **Testicular enlargement:** The enlargement of testicles and the scrotal sac is the first sign of puberty in males. The color of the scrotum gets darker, the skin begins to thin, and tiny bumps (hair follicles) appear as the testicles enlarge. Most males will have one testicle (commonly the left) hanging lower than the other does. The penis (shaft and glans) also increase in size.
- **Pubic hair:** The second sign of puberty in males is the development of pubic hair, which appears shortly

after the increased testicular size. Hair development first appears near the base of the penis in a diamond shape. As the hair grows, it becomes coarse in texture, curly, and turns darker. Over the next few years, the hair covers the entire pubic area and begins to extend to the thigh area on both sides. The appearance of hair on the face, legs, arms, and chest starts to occur about 2 years after pubic hair development.

- **Length and width of penis:** The penis grows in length, then in width. It is not uncommon for a 13-year-old to have genitals the size of an adult. The average range for penile maturation is 13 to 18 years of age. At this point in sexual development, it is common for boys to frequently assess their penis and compare their size with others in their developmental age group (Table 11.1).
- **Fertility/Spermarche:** About one year after the testicles begin to enlarge, boys are able to reproduce. The

testicles are now able to produce sperm as well as testosterone. The Cowper's glands and the prostate (two seminal vesicles) combine with the sperm to produce semen during ejaculation. Each ejaculation has approximately 200 million to 500 million sperm. It is common for the first ejaculation to occur during masturbation. Nocturnal emissions, also known as wet dreams, are not uncommon with the development of sexual maturation.

- **Vocal changes:** The larynx and vocal cords enlarge shortly after the growth spurt. The first noticeable sign is the voice cracking, which later turns into a deeper voice. The Adam's apple gets larger.

DEVELOPMENTAL MILESTONES

GROSS MOTOR SKILLS

By adolescence, coordination, general motor ability, physical endurance, and strength increase. Adolescents can participate in the following activities to facilitate strengthening of motor skills: bowling, walking or climbing, swimming, riding a bike, dancing, and playing on wobble bridges and rope ladders. Adolescent males typically make significant gains in their gross motor skills before age 14 years, whereas most adolescent females only make minimal gains until age 14 years. Gross motor skill development continues until the early 20s.

FINE MOTOR SKILLS

Fine motor skills develop at the same pace as gross motor skills. During adolescence, increased coordination of small movements of the hands occurs. Adolescents are more equipped to move with precision. Specific activities may assist the adolescent with building fine motor skills. Such activities include cooking (e.g., chopping vegetables or kneading pizza dough), playing a musical instrument (woodwind and guitar), juggling, blocks, handiwork, crafts, artistic endeavors, and solving 3D puzzles.

LANGUAGE SKILLS

Most adolescents are able to read on an adult level unless there are developmental delays. During adolescence, language begins to include a higher use of words, in part because of more abstract thinking. Adolescents are more inclined to analyze the function of words and their meaning. The ability to compare

and contrast two concepts and understand the use of metaphor increases during adolescence. They begin to mature in their use of irony, wit, and humor.

COGNITIVE DEVELOPMENT

Cognitive development during adolescence is often referenced as the time one moves from childlike thinking to adult thinking. Adolescents begin to think and reason in a more complex manner. They are able to think about different possibilities and consider the thoughts of others, indicating a maturation of skills in empathy and caring. Overall, cognitive development generally occurs between ages 12 to 18; however, the rate varies with each adolescent. During this period of growth, adolescents form their own worldview and it directly affects and is affected by their cognitive development. Early adolescence is characterized by an increase in challenging of societal rules and standards. Adolescents may be highly idealistic and see the value of changing the status quo and challenging "how things are." They may be influenced by both positive and negative role models, affirming the need for parental monitoring of daily activities and contacts. Life issues and experiences also influence how the adolescent moves from concrete thinking to formal operations. This includes being able to think logically through situations and become less self-centered. By late adolescence, there are more thoughts on issues that affect the world, the situations of others, and the future as an adult.

Healthy cognitive development may occur with positive reinforcement and targeted strategies by caregivers and healthcare providers. Adolescents should be included in discussions about various issues, topics, and events affecting the world. Caregivers should be encouraged to allow the adolescent to share their thoughts and opinions as well as participate in goal setting with the adolescent. Adolescents need to make decisions and have space to self-evaluate good and bad decisions without harsh punishment.

PSYCHOSOCIAL DEVELOPMENT

Adolescents experience rapid physical changes, which may lead to more self-awareness and self-judgment of external characteristics. In contrast, it may engender uncomfortable thoughts of self-criticism and comparing personal status with others. During the period of rapid

growth, adolescents assume that everyone is looking at them and internally wonder if they are “normal.” One of the main goals of an adolescent well-child examination is assurance that the adolescent is normal. It is imperative to include that growth occurs in a sequence. However, the timing is very individualized. The major tasks related to psychosocial development during this period are attainment of independence, body image awareness and acceptance, the ability to build healthy peer relationships, and identity development. See Table 11.2 for a list of developmental red flags.

Freud characterizes the adolescent period as the genital stage. This stage lasts throughout adulthood. During the genital stage, adolescents begin to venture into romantic relationships. Adolescents begin to explore sexual interests. The overall goal is to learn how to balance the various areas of life that affect relationships.

Adolescents progress through the fifth and sixth stages of psychosocial development according to Erikson’s stages of development: identity vs. role confusion (12–18) and intimacy vs. isolation (18–40). During the fifth stage, adolescents are attempting to identify their own personal values, morals, and goals. The main objective is to answer the question “Who am I?” The adolescent begins to develop a sense of self.

Early Adolescence (11–14 years of age)

The first stage of puberty begins in early adolescence with a period of rapid physical changes. The changes often cause increased anxiety related to what is normal. At this age, the adolescent has concrete thinking, which means they think more in terms of black and white (e.g., right or wrong). See chapter 18 for more information related to health promotion.

Middle Adolescence (15–17 years of age)

Physical growth is usually complete by middle adolescence, but the brain continues to grow and develop. During middle adolescence, boys are generally better at physical activities than girls. This is a period when adolescents establish their own personal identity and seek autonomy. See chapter 18 for more information on health promotion.

Late Adolescence (18–21 years of age)

Late adolescence is a period known for frequent life changes that involve home, school, work, and personal identity. At this point males and females are gaining a sense of self and acceptance of their physical

TABLE 11.2 Adolescent Developmental Red Flags

Age	Physical	Cognitive	Social/Emotional
Early Adolescence (11–14)	Puberty beginning in females before age 8; in males before age 9 Delayed puberty (boy 14 years or older or girl 13 years or older with no signs of puberty) Delayed/decreased rate of growth Sudden weight loss or gain Accelerated growth/tall for family	Abnormal headaches Failing classes Problems paying attention in class	High-risk behaviors Increased anxiety Abnormal HEADSSS screening ^a Positive screening from modified PHQ-9 questionnaire for depression ^a
Middle Adolescence (15–17)	Girls who have not progressed with menarche within 5 years of breast buds Males who are not at Tanner 5 within 4.5 years of start of puberty Sudden weight loss or gain Delayed/decreased rate of growth Report of unsafe sex	Abnormal headaches Failing classes Problems paying attention in class	High-risk behaviors Abnormal HEADSSS screening ^a Positive screening from modified PHQ-9 questionnaire for depression ^a
Late Adolescence (18–21)	Delayed/decreased rate of growth Sudden weight loss or gain Reports of unsafe sex	Abnormal headaches Unable/unwilling to plan for the future Problems paying attention in class	High-risk behaviors Abnormal HEADSSS screening ^a Positive screening from modified PHQ-9 questionnaire for depression ^a

^a Refer to Chapter 18 for additional information.

HEADSSS, home, education/employment, activities, drugs, sexuality, suicide/depression/self-image, safety; PHQ-9, Patient Health Questionnaire.

appearance. Males may continue to develop physically until the age of 21. See chapter 18 for more information on health promotion.

MORAL DEVELOPMENT

Adolescents are better able to understand that there may not be a definite answer to every question. As they develop, adolescents are increasingly able to understand why some people make one choice while another group of people makes a different choice. Adolescents have a greater appreciation for logical thinking and value conversation around various topics with the adults they trust. Adolescents can better understand rules once those rules are explained and they are allowed to ask questions. The rule, then, is clear from their perspective.

SLEEP/REST

The National Sleep Foundation (NSF) recommends that an adolescent get at least 8 to 10 hours of sleep per night (NSF, 2020). Adolescents are known to skip sleeping to attend social activities, e.g., school sports, social media participation, and video game playing. Physiological changes during the adolescent stage, including further brain development, require that the adolescent get sufficient sleep. The lack of a sufficient amount of sleep can contribute to illness, acne, short temper, aggressive behavior, and a limitation in the ability to concentrate and solve problems.

Sleep hygiene is essential for the adolescent population. This includes going to sleep and waking up at the same time every day, keeping a relaxing bedtime routine each night, and avoiding any screen time within one hour of bedtime. In fact, it is best to encourage parents to provide a *technology-free* bedroom for their child, with no electronics of any kind allowed in the room at night (NSF, 2020). Bedtime routines can involve reading a book, taking a bath or shower, listening to calm music, or journaling. Poor sleep hygiene not only results in a tired adolescent, but also can affect brain development. Telzer et al. (2015) found that changes in sleep duration could have long-term consequences on the development of the adolescent brain.

Increased screen time during the day can also affect the sleep patterns of teenagers. Screen time is linked to insomnia and even symptoms of depression in the adolescent population (NSF, 2020). The blue light that is

emitted from electronic devices suppresses the release of melatonin, thus disturbing the sleep-wake cycle (NSF, 2020). This can cause issues in adolescents not being able to fall asleep and can make it more difficult for them to stay asleep. With a shortened sleep duration, this can result in depressive symptoms (NSF, 2020).

Additionally, adolescents with shortened sleep duration are at increased risk for lower insulin sensitivity, hyperglycemia, poor diet, and obesity (Gohil & Hannon, 2018). When adolescents are sleeping for a shorter amount of time, they spend less time in rapid-eye movement (REM) sleep, which is also linked to increased weight gain. Part of the hormonal link to sleep involves leptin and ghrelin. In patients with shorter sleep duration, ghrelin levels are increased and leptin levels decrease, which causes an increase in hunger (Gohil & Hannon, 2018).

One important aspect to keep in mind while discussing sleep patterns of the adolescent is to assess for sleep apnea. Consider sleep apnea as a diagnosis when an adolescent not only snores at night, but also gasps, wakes up, chokes, moves around in bed, or has labored breathing. Additional signs and symptoms might include troubling behavior at school, falling asleep in classes, and bedwetting. Children who are obese are at higher risk as well (NSF, 2020).

NUTRITION

During adolescence, the body demands more energy and protein (2,200–3,000 calories/day) due to rapid growth and development. On average, boys require 2,800 calories per day while girls require 2,200 calories per day. Adolescents who participate in sports will need more calories per day due to increased energy needs. To begin a nutritional assessment, the health-care provider is encouraged to obtain a 24-hour diet recall and question the adolescent about foods eaten in various food groups. The 24-hour diet recall provides a typical day's food intake overall when assessing the nutritional status.

Healthy eating is essential to growth and development of the adolescent population. It also prevents several health conditions. Adolescents should use a healthy eating pattern that includes a variety of fruits, vegetables, whole grains, fat-free or low-fat dairy products, protein foods, and oils. Adolescents should also limit calories from solid fats as well as added sugars. They should also reduce their sodium intake (Centers for Disease Control and Prevention [CDC], 2019a).

Furthermore, adolescents need to eat a healthy breakfast each morning. This can improve cognitive

function, including memory, and reduce absenteeism (CDC, 2019a). Eating a healthy breakfast is also positively associated with improved mood. Adequate hydration is important as well, as it is also associated with improved cognitive function (CDC, 2019a). Encouraging water consumption is a critical health promotion and development strategy.

According to Lassi et al. (2017), micronutrient supplementation, especially with iron, can decrease the prevalence of anemia in the adolescent population. In pregnant adolescents, improvement in nutrition can decrease low birth weight and preterm birth. In addition, because of the increased rate of growth during this extended period of puberty, the nutritional resources needed can be greater than at any other point in life (Das et al., 2017).

Another important aspect of nutrition to consider is metabolism. The components of metabolism are energy cost of growth, basal metabolic rate, and activity energy expenditure. Issues arise when the caloric intake of adolescents is greater than the energy cost of growth and activity energy expenditure. This leads to increased weight gain and obesity. When caloric intake decreases to become less than the basal metabolic rate, then this can cause issues as well. The energy cost of growth and activity energy expenditure are affected, causing decreased growth rate, delay in puberty, amenorrhea, and issues with bone mass (Das et al., 2017).

Male adolescents will need higher caloric intake than female adolescents, due to the larger increases in height, weight, and lean body mass. This intake should include 50% or more from carbohydrates, and less than 10–25% from sugar sources. Females ages 11 to 14 should have increased protein intake, and males ages 15 to 18 should increase their protein intake, due to faster velocities of growth (Das et al., 2017).

COMMON DEVELOPMENTAL ISSUES

RISK-TAKING BEHAVIORS

As adolescents begin to self-identify and create a life outside of their family unit, they begin to participate in more risky behavior. Adolescents are known to experiment by testing the limits and breaking parental and societal rules. Independence displayed by the adolescent is a natural occurrence and a positive growth factor, but requires self-management. Parents begin to feel conflicted about when to intervene and how to address their cautions and concerns with the

adolescent. The healthcare provider becomes a parental and adolescent resource.

Tobacco Use

The use of tobacco typically starts during adolescence. There has been an increased usage of tobacco products with the emergence of vaping and e-cigarettes. Current data indicates that 67% of adolescents in high school and 49% of adolescents in middle school have used flavored tobacco (within the past 30 days; CDC, 2019b).

Alcohol Use

Alcohol is the most widely used substance among adolescents and is a nationwide concern.

According to the CDC (2020), alcohol is the drug used and abused most often by adolescents. In a 2019 survey, 8% of eighth-graders reported drinking within the past 30 days, with the percentage increasing to 29% in 12th-graders (Johnston et al., 2020). Everyone feels the effects of behaviors and consequences that occur because of underage drinking. Underage drinking is known to cause physical and mental injuries, personal damage, violence, and death.

Opioid and Illicit Substance Use

While adolescent alcohol use is a significant concern, adolescents are also involved in the use of opioids and illicit substances. The adolescent's brain is maturing and is particularly vulnerable to substance use, placing the adolescent at increased risk for substance misuse and addiction (Inman et al., 2020). One-third of adolescents report having access to opioids, two-thirds report access to stimulants, and 13% to 26% of adolescents use marijuana (Garofoli, 2020; Inman et al., 2020). Of particular concern is that 5% to 9% of adolescents report using synthetic cannabinoids, which exert a more toxic and potent effect than natural marijuana, in an unpredictable fashion (Inman et al., 2020). An additional concern is the potential contamination of illicit drugs such as heroin with substances such as fentanyl in toxic quantities. A large percentage (65%) of adolescents report wanting to discuss their substance use with a healthcare provider, although only 35% report having done so (Garofoli, 2020).

ACNE

Several hormonal changes occur during the adolescent period for males and females. The body grows rapidly and produces hormonal stimulation that prompts the sebaceous glands to produce more sebum. The

extra sebum creates an overproduction of dead cells, which leads to acne on the face, neck, chest, and upper back. Acne is an issue that affects the majority of adolescents. It is not a serious health issue; however, severe cases can cause significant scarring and have a negative effect on self-esteem. See chapter 19 for more information on acne.

DATING AND SEXUALITY

During middle adolescence, adolescents begin to become intrigued with dating. However, it is common for some adolescents not to date until late adolescence. Adolescents begin to identify with their sexual identities, which allows for the formation of adult relationships. The word *dating* is not used as often as it was in the past. The new terminology is now “going out” (with someone, possibly romantically involved) or “hanging out” (typically with friends). Most experiences begin with “going out” with a group and advance to couples-only outings toward the end of late adolescence. Although adolescents are going out, the age of sexual intercourse initiation has decreased. In 2011, 47% of adolescents reported having sexual intercourse while in high school as compared with 54% in the early 1900s (Wildsmith et al., 2013).

Health Issues Related to Sexuality

Selected health issues related to sexuality include pregnancy and contraception (covered in chapter 29), and sexually transmitted infections (STIs) and human immunodeficiency virus (HIV; covered in chapter 31). Conversations about sexuality may be difficult for some providers and for adolescents, but the provider must always place the adolescent’s safety first. Discuss with the adolescent that consent is always required for any type of sexual activity. The following are selected healthcare provider principles of care for the preceding health issues related to sexuality:

- Sex education
- Confidentiality
- Emotional support
- Normalization
- Respect the patient’s preference
- Direct questioning—Conversations on sexual behavior are often avoided by healthcare providers but are imperative to providing holistic care to the adolescent. Asking specific questions will help improve patient participation in the discussion.

SUICIDE PREVENTION

Suicide prevention is a topic that is essential to address at every adolescent visit, whether for a well-child check or a sick visit.

The first aspect to assess is the availability of firearms in the household. It is important to ensure that if there are firearms in the home, they are unloaded *and* in a locked safe that is inaccessible to children. Access to firearms increases the risk of suicides and accidental deaths associated with firearms (Zalsman et al., 2016). Access to large amounts of analgesics, pesticides, and other toxic substances should also be limited. The adolescent should not have unlimited access to these substances, as this can also increase the risk of suicide (Zalsman et al., 2016).

Healthcare providers in primary care should refer patients with mental health issues to a specialist who can provide pharmacologic treatment. The treatment of these conditions can also decrease the risk of suicide (Zalsman et al., 2016). Lithium can decrease the risk of suicide in patients with mood disorders, and clozapine can reduce the risk of suicide in patients in psychosis (Zalsman et al., 2016). Adolescents with depression may have increased suicide ideation when taking antidepressants, but the risk of suicide attempts due to having untreated depression is higher; thus pharmacologic treatment is recommended. Adding cognitive behavioral therapy (CBT) can decrease this side effect (Zalsman et al., 2016). Selective serotonin reuptake inhibitors (SSRIs), specifically fluoxetine, are the first-line recommended pharmacologic treatments. Additionally, multisystemic therapy can help reduce suicide attempts. This therapy includes the improvement of parenting skills, community involvement, school involvement, peer support, and encouragement of social activities (Zalsman et al., 2016).

The education of primary care providers regarding recognition of depression and treatment is extremely helpful in decreasing suicide rates and the morbidity associated with depression. Screening for depression and suicide ideation in adolescents in the primary care setting can help to identify those at risk (Zalsman et al., 2016). The modified Patient Health Questionnaire (PHQ-9) is ideal for this screening technique (<https://www.uspreventiveservicestaskforce.org/Home/GetFileByID/218>).

SOCIAL MEDIA USE

Social media use in the adolescent population continues to be an area of concern among healthcare providers. However, adolescents use social media as a way

to increase their social connections and learn technical skills. Adolescents have also reported that social media is used to strength peer relationships, allows them to support others their age on specific issues, and provides them with a different viewpoint on various social issues. According to the Pew Research report, adolescents report that social media makes them feel self-confident and included rather than excluded (Anderson & Jiang, 2018). Social media has a tremendous effect on the mental status on the developing brain of the adolescent. The increased use has been linked to low self-esteem as well as increased anxiety. Adolescents struggle with self-regulation of screen time. They often spend a significant amount of time online, which increases their exposure to peer pressure, cyberbullying, and sexting. There are pertinent health issues that can develop through the use of social media, such as depression, anxiety, communication issues, envy, and oppositional defiant disorder (see Chapter 18).

KEY POINTS

- Early adolescence marks a period of rapid growth, due to the hormonal changes of puberty, followed by slower growth in middle and late adolescence.
- The average weight increase in adolescent males is 7 to 30 kg. Female adolescents increase in weight by approximately 7 to 25 kg.
- Pubertal development in females typically follows the pattern of breast bud formation, rapid linear growth, pubic hair, and then menarche.
- Pubertal development in males typically begins with testicular enlargement, pubic hair development, spermarche, elongation and widening of the penis, rapid linear growth, vocal changes, and facial hair development.
- Cognitive development of the adolescent should include thinking and reasoning in a more complex manner.
- Psychosocial development includes attainment of independence, body image awareness and acceptance, the ability to build healthy peer relationships, and identity development.
- Adolescents need 8–10 hours of sleep per night and need to maintain good sleep hygiene.
- Adolescent males require 2,800 calories per day; females require 2,200 calories per day.
- Suicide prevention is a topic that is essential to address at every adolescent visit, whether for a well-child check or a sick visit.

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