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ESSENTIALS OF LIFE-SPAN DEVELOPMENT

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PHYSICAL AND COGNITIVE DEVELOPMENT
IN ADOLESCENCE

9

CHAPTER OUTLINE

- The nature of adolescence
- Physical changes
- Adolescent health
- Adolescent cognition
- Schools

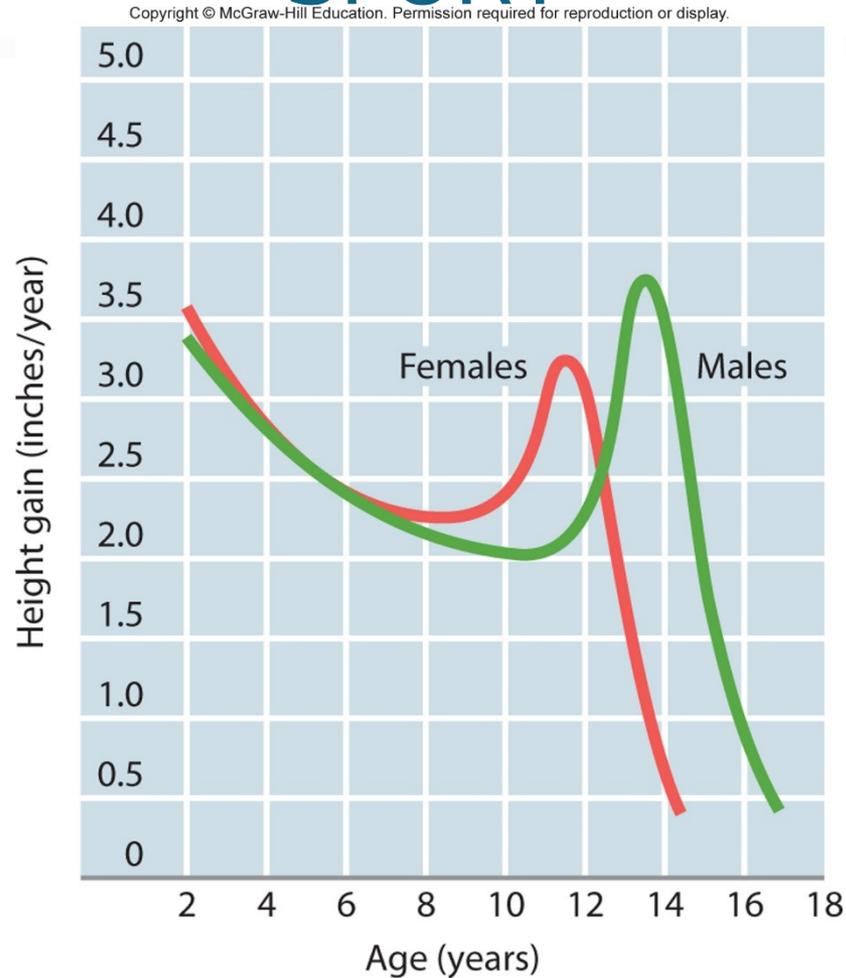
THE NATURE OF ADOLESCENCE

- Influences on the adolescent
 - Cultural
 - Gender
 - Socioeconomic
 - Age
 - Lifestyle differences

PHYSICAL CHANGES

- **Puberty:** A brain-neuroendocrine process that provides stimulation for rapid physical changes that occur in early adolescence
 - Sexual maturation
 - Marked weight and height gains
 - Hormonal changes
 - **Menarche:** Girl's first menstruation

FIGURE 9.1 - PUBERTAL GROWTH SPURT



PHYSICAL CHANGES

- **Hormones:** Chemicals secreted by the endocrine glands and carried throughout the body by the bloodstream
 - Endocrine system's role in puberty involves interaction:
 - **Hypothalamus:** A structure in the brain that monitors eating and sex
 - **Pituitary gland:** An important endocrine gland that controls growth and regulates other glands
 - **Gonads:** The testes in males, the ovaries in females
 - Increases in testosterone and estradiol concentrations in body

PHYSICAL CHANGES

- Timing and variations in puberty
 - Basic genetic program hardwired into species
 - Nutrition, health, stress, other environmental factors affect timing
 - Average age of menarche has declined significantly since mid-19th century
 - Improved nutrition and health
 - Pubertal sequence begins:
 - Boys - 10-13½ years
 - Girls - Between ages of 9 and 15 years

PHYSICAL CHANGES

- Body image
 - Preoccupation with body image is strong throughout adolescence
 - Girls are less happy with their bodies and have more negative body images
 - Both boys' and girls' body images become more positive over time

PHYSICAL CHANGES

- Early and late maturation
 - Early-maturing boys view themselves more positively and have more successful peer relations
 - Late-maturing boys report a stronger sense of identity in their 30s
 - Early-maturing girls show greater satisfaction early but less satisfaction later
 - More likely to smoke, drink, be depressed
 - Have an eating disorder
 - Struggle for earlier independence
 - Have older friends

FIGURE 9.2 - CHANGES IN THE ADOLESCENT BRAIN

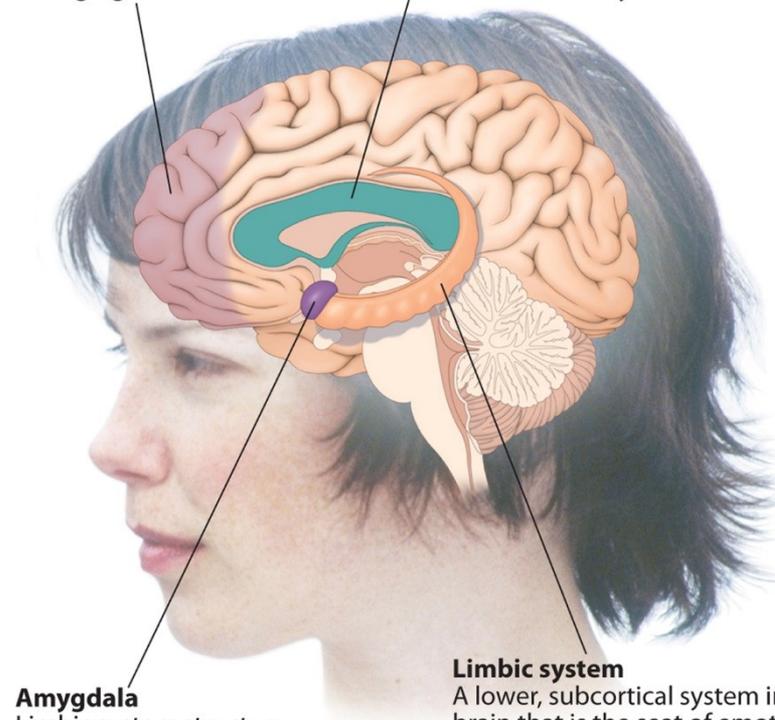
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Prefrontal cortex

This “judgment” region reins in intense emotions but doesn’t finish developing until at least emerging adulthood.

Corpus callosum

These nerve fibers connect the brain’s two hemispheres; they thicken in adolescence to process information more effectively.



Amygdala

Limbic system structure especially involved in emotion.

Limbic system

A lower, subcortical system in the brain that is the seat of emotions and experience of rewards. This system is almost completely developed by early adolescence.

PHYSICAL CHANGES

- Brain
 - Context-induced plasticity
 - Certain brain linkages mature earlier than others
 - Corpus callosum - fibers connecting left and right brain hemispheres
 - Thickens in adolescence, improves information processing
 - Amygdala – seat of emotions
 - Almost completely developed by early adolescence
 - Prefrontal cortex, involved in reasoning, decision-making, and self-control
 - Matures between approximately 18-25 years
 - Has not matured to the point of controlling strong emotions

PHYSICAL CHANGES

- Adolescent sexuality
 - Developing a sexual identity
 - Learning to manage sexual feelings
 - Developing new forms of intimacy
 - Learning skills to regulate sexual behavior
 - Sexual identity includes:
 - Activities
 - Interests
 - Styles of behavior
 - Indication of sexual orientation

PHYSICAL CHANGES

- Different developmental pathways for gay and lesbian adolescents
 - Diverse patterns of initial attractions
 - Some struggle with same-sex attractions in childhood
 - Gradual recognition of same-sex sexual orientation
- Timing of adolescent sexual behaviors
 - Becoming sexually active
 - Role of oral sex
 - Sexual risk-taking
 - Many adolescents are not emotionally equipped to handle sexual experiences
 - Especially in early adolescence

ADOLESCENT SEXUALITY

- Contraceptive use
 - Two kinds of risks
 - Unintended, unwanted pregnancy
 - Sexually transmitted infections
 - Adolescents are increasing their use of contraceptives
- **Sexually transmitted infections (STIs):** Contracted primarily through sexual contact
 - Including oral-genital and anal-genital contact

ADOLESCENT SEXUALITY

- Adolescent pregnancy
 - U.S. has one of the highest rates in the industrialized world
 - Ethnic variations in rates of teenage pregnancy
- Health and social risks
 - Low birth weight, neurological problems, childhood illness
 - Mothers drop out of school and never catch up economically
- Sex education
 - Abstinence-only or contraceptive knowledge programs
 - Contraceptive knowledge programs do not increase incidence of sexual intercourse
 - More likely to reduce adolescent pregnancy and sexually-transmitted infections

ADOLESCENT HEALTH

- Poor health habits linked to early death in adulthood begin during adolescence
 - Early formation of healthy eating patterns and exercise can delay or prevent disability and mortality from many diseases
- Nutrition and exercise
 - Increasing numbers of overweight adolescents in recent decades
 - Individuals become less active as they reach and progress through adolescence
 - Exercise linked to positive physical outcomes

ADOLESCENT HEALTH

- Sleep patterns
 - Only 31% of U.S. adolescents sleep 8 or more hours a night
 - Inadequate sleep on school nights
 - Sleep deficits experienced, try to make up on weekends
- Leading causes of death in adolescence
 - Unintentional injuries
 - Homicide
 - Suicide

ADOLESCENT HEALTH

- Substance use and abuse
 - Illicit drug use has declined in recent decades
 - Marijuana as most widely used drug, use rates on the increase
 - Alcohol and cigarette consumption has declined
 - Special concerns for adolescents who begin to use drugs early in adolescence or even childhood
 - Parents and peers play role in substance use
 - Educational success as a strong buffer for drug problems

ADOLESCENT HEALTH

- Eating disorders
 - **Anorexia nervosa:** Relentless pursuit of thinness through starvation
 - Main characteristics
 - Weight less than 85% of what is considered normal for a person's age and height
 - An intense fear of gaining weight that does not decrease with weight loss
 - Having a distorted image of their body shape
 - Amenorrhea
 - 10 times more likely to occur in females than males

ADOLESCENT HEALTH

- **Bulimia nervosa:** Individual consistently follows a binge-and-purge patterns
 - Preoccupied with food
 - Intense fear of becoming overweight
 - Depressed or anxious
 - Distorted body image
 - Typically fall within a normal weight range

ADOLESCENT COGNITION

- Piaget's Formal Operational stage (ages 11+)
 - More abstract thought
 - Make-believe situations, abstract propositions, hypothetical events
 - Increased verbal problem-solving ability
 - Think about thought itself
 - Thoughts of idealism and possibilities
 - More logical thought
 - **Hypothetical-deductive reasoning:** Creating a hypothesis and deducing its implications

ADOLESCENT COGNITION

- **Adolescent egocentrism:** Heightened self-consciousness of adolescents
 - **Imaginary audience:** Adolescents' belief that others are as interested in them as they themselves are
 - Attention-getting behaviors
 - **Personal fable:** Involves a sense of uniqueness and invincibility

ADOLESCENT COGNITION

- Information processing
 - Executive functioning – managing one’s thoughts to engage in goal-directed behavior and exercise self-control
 - Increased cognitive control
 - Increased decision making

SCHOOLS

- Transition to middle or junior high school
 - Drop in school satisfaction
 - Occurs simultaneously with a host of other developmental changes
 - **Top-dog phenomenon:** Move from the top position in elementary school to the lowest position in middle or junior high school
 - Positive elements of transition:
 - Feeling more grown up
 - More subjects to select from
 - More opportunities to spend with peers and locate compatible friends
 - Increased independence from direct parental monitoring
 - More intellectually challenging work

SCHOOLS

- Effective schools for young adolescents
 - Develop smaller communities that lessen impersonality of middle schools
 - Lower student-counselor ratios to 10-to-1
 - Involve parents and community leaders
 - Integrate several disciplines in a flexible curriculum
 - Boost students' health and fitness with more programs
 - Provide public health care

SCHOOLS

- High schools
 - Critiques include:
 - Low expectations for success
 - Inadequate standards for learning
 - Lack of pathways to create identity
 - Graduating without adequate reading, writing, and mathematical skills
 - Drop out rates

SCHOOLS

- **Service learning**
 - Promotes social responsibility and service to the community
 - Takes education out into the community
 - Linked to higher grades, increased goal setting, higher self-esteem, serving as a volunteer in the future