Chapter 11: Adolescence: Physical and Cognitive Development

Development Across the Lifespan
What physical changes do adolescents experience?

Adolescence is a time of considerable physical and psychological growth and change!

ADOLESCENCE is the developmental stage between childhood and adulthood.

The age at which adolescence begins and ends is imprecise, partly because society is unclear about the roles of people in this stage (no longer children, not yet adults)
The Rapid Pace of Growth During Adolescence

- Extreme changes in height and weight are common
  - Termed “the adolescent growth spurt”—a period of rapid growth changes in height and weight
  - The rate of growth matches the high growth rate of infancy
  - On average, boys grow 4.1 inches in height each year, girls 3.5 inches
  - Girls begin their growth spurts earlier (aprox. 2 years) and complete them earlier
  - By age 13, boys are taller on average
Growth Patterns

Patterns of growth pictured two ways: The first figure shows height at a given age, while the second shows the increase that occurs from birth through the end of the teen years. Notice the differences in growth between boys & girls.

Boys growth spurt around age 12, girls around 10
Puberty: The Start of Sexual Maturation

PUBERTY is the period when sexual organs mature, beginning earlier for girls than for boys.

Girls begin puberty about 11 or 12; boys begin at 13 or 14.
Sexual Maturation

The changes in sexual maturation that occur for males and females during early adulthood.
What triggers puberty?
No one has identified the reason that it begins when it does!

- Environmental & cultural factors play a role in age of puberty.
- **MENARCHE**, the onset of menstruation, varies in different parts of the world and even with affluence levels.
- More affluent, better nourished, healthier girls start menstruation earlier.
- Menarche age in the US has declined since 19th century.
The onset of menstruation occurs earlier in more economically advantaged countries & in more affluent environments. Why is this the case?
The development of **PRIMARY SEX CHARACTERISTICS** involves organs and structures of the body related to reproduction.

**SECONDARY SEX CHARACTERISTICS** involve the visible signs of sexual maturity that do not involve sex organs directly.

Table in text summarizes sexual maturation.
Body Image: Reactions to Physical Changes in Adolescence

Body Image involves an adolescent's own reactions to these physical changes.

Western society's views of menarche have become more positive than they used to be so girls tend to have higher self-esteem and self-awareness when they begin menstruating.

Boys‘ first ejaculation is roughly equivalent to girls‘ menarche, but it is rarely discussed (and less anxiety provoking than menarche).
The Timing of Puberty

The timing of puberty is a key factor for how adolescents react to it.

Early maturation is generally positive for boys.

Early maturing boys tend to be better at athletics, be more popular, have more positive self-esteem, and grow up to be more cooperative and responsible.

On the other hand, these boys also are more likely to have school difficulties and become more involved.
The Timing of Puberty, continued

- Early maturation is often difficult for girls.
- Early maturing girls tend to be more popular but they may not be ready to deal with dating situations.
- Reactions depend on cultural norms (country and community).
Late maturation is difficult for boys. Smaller boys are seen as less attractive and have a disadvantage in sports. These difficulties often lead to declines in self-concept which can extend into adulthood.
The Timing of Puberty, continued

- For late maturing girls the picture is complicated.
- Late maturing girls can be overlooked and have low social status at first.
- However, when they catch up their self-esteem is high.
Nutrition, Food & Eating Disorders During Adolescence

- Food and eating disorders become a focus during adolescence.
- The adolescent growth spurt requires an increase in food (especially key nutrients such as calcium and iron).
- Several key nutrients are essential during this period, especially calcium and iron.
- The major nutritional issue for many teens: eating a balance of appropriate foods.
Obesity is a common concern during adolescence.

The psychological consequences of adolescent obesity are severe since while body image is a key focus.

Potential health consequences of obesity are also of concern.
ANOREXIA NERVOSA is a severe eating disorder in which individuals refuse to eat, while denying that their behavior and appearance, which may become skeletal, are out of the ordinary.

This disorder primarily affects white women.

These women are often intelligent, successful, attractive, and from affluent homes.
(Nutrition, Food & Eating Disorders During Adolescence, continued)

**BULIMIA** is an eating disorder characterized by binges on large quantities of food, followed by purges of the food through vomiting or the use of laxatives.

A chemical imbalance results from constant vomiting or diarrhea.

This can have serious effects, including heart failure.
Eating disorders are products of both biological and environmental causes so treatment involves multiple approaches.

- Psychotherapy
- Cognitive-behavioral techniques
  - Dietary modifications
  - Stress management
Cognitive Development increases markedly during adolescence! Teens begin to use formal operations to solve problems during this period of their growth. Piaget’s approach to cognitive development has had a significant influence on developmental psychologists. FORMAL OPERATIONS PERIOD is the stage during which people develop the ability to think abstractly. Piaget asserted that children enter this stage at the beginning of adolescence.
<table>
<thead>
<tr>
<th>STAGE</th>
<th>AGE</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>Sensorimotor</td>
<td>birth to 18 months or 2 years</td>
<td>knowing by sensing and acting</td>
</tr>
<tr>
<td>Preoperational</td>
<td>approximately 2 to 7 years</td>
<td>concept formation, symbolic reasoning</td>
</tr>
<tr>
<td>Concrete operations</td>
<td>approximately 7 to 11 years</td>
<td>logical operations on concrete objects and events</td>
</tr>
<tr>
<td>Formal operations</td>
<td>beginning at 12 years and beyond</td>
<td>abstracts, analogies, metaphors, hypothetical reasoning</td>
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Piaget’s approach to cognitive development, continued

- Full capabilities of using principles of logic unfold gradually, throughout early adolescence (approximately ages 12 to 15).
- Not everyone achieves formal operational skills (some studies estimate that 25 percent — 50% of college students do not).
- Social values/culture also influence the achievement of these skills
  - Isolation, level of formal education, level of scientific sophistication in the community
Criticisms of Piaget's theory and approach.

- Research finds individual differences in cognitive abilities not universal.
- Some researchers suggest that cognitive development is more continuous, less step-like than Piaget proposed.
- Piaget underestimated the skills of infants and young children.
- Piaget focused only on thinking and knowing, missing other kinds of intelligence.
Information Processing Approaches to Cognitive Development

Unlike Piaget’s view that cognitive advances occur in stage-like spurts, information processing theorists emphasize gradual and continuous growth!

The INFORMATION-PROCESSING PERSPECTIVE sees changes in cognitive abilities as gradual transformations in the way that individuals take in, use, and store information.

From this view, thinking advances during adolescence result from the ways people organize their thinking and develop new strategies.
Information Processing Approaches to Cognitive Development, continued

Information Processing Perspectives assert that one of the key reasons that mental abilities advance during adolescence is the growth of metacognition.

The growth of **METACOGNITION**, the ability to think about one's own thinking process and their ability to monitor their cognition.
Egocentrism in Adolescent Thinking

Developmental Psychologist David Elkind argues that the adolescent period fosters adolescent egocentrism.

- **ADOLESCENT EGOCENTRISM** is a stage of self-absorption where the world is seen only from one's own perspective.
- Thus adolescents are highly critical of authority figures, unwilling to accept criticism, and quick to find fault with others.
- Adolescent egocentrism helps explain why teens often think they’re the focus of everyone’s attention!
Adolescent egocentrism leads to two distortions:

- **IMAGINARY AUDIENCE**, where adolescents think they are the focus of everyone else's attention.
  - Constructing elaborate scenarios about other’s thoughts/intentions
- **PERSONAL FABLES**, the belief that the adolescent is unique and exceptional and shared by no one else
  - No one understands me
  - Risk taking behavior
School Performance in the Adolescent Years

While cognitive abilities increase, school performance tends to decline.

- Reasons not completely clear—more strict grading?

There is a strong relationship between educational achievement and socioeconomic status (SES)

- Poorer children have fewer resources, lower health, more inadequate schools, and less involved parents.
High School Graduation Rates

The U.S. had high graduation rates, but those rates are dropping compared to other industrialized nations.

The reasons for the drop in U.S. rates are likely related to a combination of factors, including the growing diversity of U.S. schools.
A controversial theory (*The Bell Curve*) identifies genetics as the source of this SES-achievement correlation.

The differences in educational achievement start from the beginning of school with the gap widening throughout the years.
There are ethnic and racial differences in school achievement but the reason for them is not clear.

In general, African-American and Hispanic students perform at lower levels than Caucasians and Asians perform at higher levels.

*When socioeconomic levels are taken into account, achievement differences diminish.*

Additional success factors are the cultural value of school success, attributions of school success, and consequences for not doing well.
Drop out rates by Ethnicity
The use of illegal drugs in adolescence is very prevalent and rising. In 1990's drug use rose, after decline in the 1980's. Almost 20% of eighth graders and close to 40% of seniors said they had smoked marijuana at least once in the last year. More than half of high school seniors have used an illegal drug at least once in their lives.
Going to Pot

The graph shows the percentage of marijuana use over the years 1995 to 1999 for 12th, 10th, and 8th graders. The trend indicates a slight decrease in use over time.
Some theories of why adolescents try illegal drugs exist:

- Perceived pleasurable experience
- Escape from daily pressures
- The thrill of doing something illegal
- A number of role-models use drugs
- Peer pressure.
ADDICTIVE DRUGS produce a biological or psychological dependence in users, leading to increasingly powerful cravings for them.

A major danger of drugs as escapism is that adolescent never learns to confront original problem so never learns the problem-solving.
Alcohol Use During Adolescence

Use of alcohol in adolescents and college students is high!

- 76% of high school students reported having consumed an alcoholic drink in the past year in a study by the Center on Addiction and Substance Abuse.
- 75+% of college students report that they have consumed at least one alcoholic drink during the last 30 days.
- 40+% have had 5+ drinks in the last 2 weeks.
- 16% drink 16 or more drinks each week!
Binge drinking is a particularly troubling pattern in college students.

- 5+ drinks in one sitting for men; 4 for women
- 50% of male college students & 39% of females say they’ve participated in binge drinking in the previous 2 weeks

Adolescents drink because they think it is an adult thing to do.
Binge Drinking Among College Students

Men
- Nondrinkers: 20%
- Binge drinkers: 50%
- Drinkers who don't binge: 30%

Women
- Nondrinkers: 18%
- Binge drinkers: 40%
- Drinkers who don't binge: 42%
Alcohol use gets beyond control for a substantial number of teenagers!

**ALCOHOLICS** are persons with alcohol problems who have learned to depend on alcohol and are unable to stop their drinking.

Stress may trigger drinking and alcoholism for some teens

Alcoholism tends to run in families—nature vs. nurture debate (genetic predisposition or environmental stress)

* See table in text for signs of drug/alcohol problems
Tobacco

Smoking among adolescents has declined, but the number of teen smokers is still substantial!

- Smoking is considered hip and sexy.
- Nicotine can produce biological and psychological dependency.
- Smoking produces a pleasant emotional state that smokers seek to maintain.
- Exposure to parents‘ smoking and peer smoking increases the chances that an adolescent will take up the habit.
Tobacco

Smoking is sometimes seen as an adolescent rite of passage, being seen as a sign of growing up.

Less advantaged targeted! ("Pushing Smoking to the Less Advantaged" in text)

People who smoke as few as ten cigarettes early in their lives stand an 80% chance of becoming habitual smokers.

Smoking will prematurely kill some 200 million of the world’s children & teens!
Sexually Transmitted Diseases

AIDS is one of the leading causes of death among young people!

AIDS (ACQUIRED IMMUNODEFICIENCY SYNDROME) a sexually transmitted disease, produced by the HIV virus and has no cure and ultimately causes death.

AIDS is a SEXUALLY TRANSMITTED DISEASE transmitted through the exchange of bodily fluids (usually sexual contact).
The number of people carrying the AIDS virus varies substantially by geographic region.
AIDS, continued

- It has been difficult to motivate adolescents to use safe sex measures and change their sexual behavior.
  - Feelings of invulnerability
  - Embarrassment
  - Sense of privacy
  - Forgetfulness

- It is estimated that by the year 2000, 30 million people will be carrying the AIDS virus.
Other sexually transmitted diseases commonly transmitted include:

- **CHLAMYDIA** is the most common sexually transmitted disease, caused by a parasite.
- **GENITAL HERPES** is a common sexually transmitted disease in which is a virus, and not unlike cold sores that sometimes appear around the mouth.
- Trichomoniasis, is an infection caused by a parasite.
- Gonorrhea and syphilis used to be deadly but can now be treated with antibiotics.
3 million teens, about 1 person in 8 aged 13-19 & about 1 in 4 of those who have had sexual intercourse acquire an STD every year. Among the most common:

- **Chlamydia**: More common among teens than older adults. 10-29% of sexually active teens & 10% of all teen boys.

- **Genital Herpes**: A viral disease that is incurable, often indicated by small blisters /sores around the genitals.

- **Trichomoniasis**: An infection of the vagina or penis, caused by a parasite.

- **Gonorrhea**: Teens aged 15-19 have higher rates than older adults.

- **Syphilis**: Infection rates more than doubled between 1986 & 1990 among women aged 15-19.
Adolescents need to be encouraged to practice safe sex (although only abstinence is the only certain way to avoid AIDS and other sexually transmitted conditions).

- Use condoms
- Avoid high risk behaviors
- Know your partner’s sexual history
- Consider abstinence
  - Table in text
Keep up with your reading!