Chapter 14
ADOLESCIENCE: BIOSOCIAL DEVELOPMENT

I. Puberty begins

A. Hormones
1. Biochemical signal from hypothalamus sent to pituitary gland, pituitary gland send hormones to adrenal glands
2. Pituitary activates the gonads (ovaries and testicles)
3. GnRH causes gonads to increase production of estrogen and testosterone
4. Testosterone increases 18x in boys, estrogen increases 8x in girls
5. Both levels increase in both sexes

B. When do changes begin
1. Sex differences – boys tend to start puberty somewhat later than girls
2. Genes and Ethnicity
   - Genetic links are more easily traced in girls, primarily because menarche (first menstrual period) is easier to date than spermarche (production of live sperm)
   - Genes are the most powerful reason for difference (twin studies used to document this—monozygotic twins start within 2.8 months from each other if living together; or 9 months if living apart)
   - A daughter’s are of menarche is related to her mother’s age of menarche
   - Also, ethnic variation – onset age varies form nation to nation and between ethnic groups; in the US African Americans often begin early and Asian Americans later that Americans of Hispanic descent and other European decent
3. Body fat
   - In general stocky individuals begin puberty first
   - Chronic malnutrition reduces body fat and thus delays puberty
4. Stress In families
   - Abused children have either very high or very low levels of key stress hormones
   - Those under extreme stress grow more slowly causing deprivation dwarfism
   - Likely causes irregular period in young women
   - Can cause production of hormones that cause puberty
   - Ex. Girls in New Zealand whose parents are divorced experience early puberty than girls with married parents
   - Girls from India raised by adoptive parents in Sweden experience earlier puberty than Swedish girls or girls in Indian raised by biological parents
   - Polish children of both sexes in Urban areas experiences earlier puberty
   - Another study found two factors that affect puberty: conflicted relationships with an unrelated man living in the house --- the longer a mother’s boyfriend lived in the house the earlier the onset of puberty
II. Biological Changes

A. Growth Spurt -- relatively sudden rapid physical growth of every part of the body that occurs during puberty

1. Wider Taller Than Stronger
   - Increase in appetite
   - Become noticeably heavier
   - Females gain more weight over all so that about ¼ of their total weight is fat, this is about double what it is for boys
   - Height spurt follows soon after weight spurt
   - Boys increase muscle strength about 150x, particularly in arm strength which doubles

2. Proper Proportions
   - Growth is distal – proximal
   - The head is the last thing to finish growing – facial feature grow first

3. Organ Growth
   - Lungs triple in weight
   - Heart doubles in size and heart rate decreases
   - Increases endurance
   - Visible signs of height and weight occur about a year before organ growth -- weight training and athletic programs should be based on previous years size
   - Sports injuries are the most common school accident since coaches do not take into account the lag time
   - These changes increase the child’s need for sleep
   - Because of hormonal shifts they crave sleep in the morning and want to stay up late
   - If schedules were designed to body rhythms school would start at 10am and end at 5pm
   - The lymphoid system decreases in size, resulting in fewer respiratory infections, disappearance of childhood asthma
   - Oils, sweat, and order glands increase productivity
   - 90% of boys and 80% of girls develop acne

B. Sexual Characteristics

1. Reproductive Changes
   - Primary sexual characteristics – directly involved in reproduction (vagina, penis, uterus, ovaries, testicles)
   - IN girls the ovaries and uterus grow first and the vaginal wall thickens before the outward signs begin
   - In boys the testes begin to grow and about a year later the penis lengthens and the scrotum enlarges and becomes pendulous
   - Menarche is usually seen as the onset of fertility
First menstrual cycles are usually anovulatory

2. Sexual Appearance
   - Secondary sex characteristics – not directly involved in reproduction but indicate sexual maturity
   - Boys grow taller and develop broader shoulders than girls
   - Girls put on more fat all over and become wider in the hips
   - Breast bud growth is taken as the first observable sign of puberty
   - Since breast size in our culture is seen as an indication of ‘womanhood’, many girls with small breasts feel cheated
   - About 65% of boys experience some breast growth, this usually disappears by age 16
   - Voice becomes lower as the larynx grows—most noticeable in boys
   - The ‘Adam’s apple’ becomes noticeably bigger in boys
   - Existing hair on the body grows darker
   - Boys grow new hair grows on the arms, face and groin area
   - Visible facial hair is seen as a sign of manliness in American society
   - Girls develop light facial hair, more noticeable hair on legs and arms with the specific of color being more genetic than hormonal

III. Emotional Responses to Physical Growth

A. Storm and Stress
   1. Raging Hormones – ‘On One Hand’
      - Rapid hormones causes more rapid arousal of emotions
      - Hormones cause a quick shift from feeling great to feeling awful
      - For boys – hormonal increases lead to increased thoughts of sex, as well as more masturbation
      - For girls – the menstrual cycle can lead to mood swings form happy at mid-cycle to anger a day or two before
   2. Social Context – ‘On the Other Hand’
      - Detailed studies show that hormones make a relative small contribution to the emotional outburst of puberty
      - Adults and teenagers react to their biological changes trigger adolescent moods and reactions
      - Quantitative studies showed that among contemporary adolescents sexual activity levels are quite similar in boys and girls (about ¼ of both sexes have had sex by age 14; half by age 17; and 90% by age 20)
      - Sexual double standard is shifting

B. Body Image – a person’s concept about how his/her body appears
   1. Facets
      - Developing a healthy body image is an important part of becoming an adult
      - Few adolescents are satisfied with their bodies
      - The opinions of self and peers are more important than parents
      - A teenager’s assessment of personal appearance is the most important determinant of self-esteem
• Consequently they are preoccupied with their appearance

2. Sex Differences in Body Image
• Concern with body image is more extreme for girls since the norms for attractiveness are punishing and narrow
• Boys tend to be glad to have more body hair since it is seen as manly
• Girls tend to be upset because of the cultural value to not have body hair
• Feelings of depression correlate highly with a negative body image
• Concern over body image should not be taken lightly.

3. Too Early Too Late
• Girls have most difficulty with early maturation because of the added pressures that accompany it
• Boys find late maturation most difficult because of correlation between peer status and maturity levels
• Girls who date early suffer a lower self esteem, feel scrutinized by parents and girl friends, and pressured by dates to premature sex activity
• Boys who are not athletic, or who appear weak, unattractive, and slow to become sexually involved tend to have lower self esteem regardless of timing

C. Reactions to Sexual Impulses
1. Sexually Transmitted Diseases (STDs)
• Sexually active teenagers have higher rates of gonorrhea, syphilis, and Chlamydia than any other age group
• At risk for HIV infection, which increases if is already infected with another STD, has more than one partner a year, doesn’t use a condom
• By senior year 22% of teenagers have already had 4 or more sexual partners
• Only half of sexual active seniors had used a condom during their last act of sexual intercourse (This is higher than the younger groups)
• The younger teens age when they contract an STD the less likely they are to seek treatment or tell their partners
• Teenagers are not more sexually active than adults, but they have more partners and poor or no medical care

2. Unwanted Pregnancies
• If a girl becomes pregnant within a year or two of menarche she at increased risk for every complication
• Woman who have their first baby by 16 tend to be shorter and sicker later on, and die younger
• Induced abortion rate is highest for girls under 15
• 80% of teenage mothers are unmarried
• The father is typically several years older but still not ready or willing to take on the responsibility
• Teenage motherhood slows educational and vocational achievement, restricts social and personal growth
• Teenage girls have a decreased chance of marriage and employment
• If the girl marries as a result of the pregnancy, it increase her chance of being abused, abandoned, or divorced
Children of teenage mothers are more likely to become drug abusers, delinquents, dropouts, and parents themselves as teenagers.

**D. Sexual Abuse**

1. Facets

   - Sexual Abuse – use of an unconsenting person for one’s own sexual purpose (or if the person feels obligated)
   - Child Sexual abuse – and erotic activity that excites or arouses an adult and excites, shames, or confuses a young person whether or not the child protests and whether or not their in genital contact
   - Ongoing sexual abuse by a parent damages the victim’s ability as an adult to form a trusting and intimate relationship with another adult
   - Fathers and step fathers are the typical abusers; mothers contribute by not recognizing the abuse and by not protecting the child
   - Sexual victimization often begins in childhood with fondling, nudity, sexually suggestive comments
   - Blatant sexual abuse begins in puberty
   - The age at which sexual activity is considered abuse depends on the ‘age of consent’
   - In the early 19th century in the US the age was 10
   - Now in the US it is between 14 & 18 depending on local law
   - Intercourse below the age of consent, even if consensual, is considered statutory rape
   - One study in the US with 4 ethnic groups (African-, Native-, Mexican-, and European-) 1/3 reported sexual abuse and 1/5 reported having been rape
   - Adolescents react to maltreatment with self-destructive behaviors (suicide, drug abuse, or running away) or with counter attack (vandalism, or violence aimed at society or the perpetrator)
   - In addition, a molested boy is likely to feel shame for being weak and worry that he is gay
   - 20% of sexual abusers are women
   - An estimated 10 – 50% of child molesters are adolescent boys who had been abused themselves
   - Every problem of adolescence is more common in victims of sexual abuse than in other teenagers
   - Most abuse is committed by family or close family friends

**IV. Health and Hazards**

**A. Nutrition**

1. Adolescents have a higher caloric need, and a 50% increase in their need for calcium, iron, and zinc
2. Fewer than ¼ get enough vegetables and fruits each day
3. Eat too much fat, sugar and preservatives
4. Females between 15 and 17 are more likely to suffer from iron–deficiency anemia than any other subgroup
B. Dieting as a Disease

1. Anorexia Nervosa – self starvation
   - 5-20% of the victims die
   - Social context disease – the culture supports it
   - Virtually unknown before 1950
   - On the rise in developing countries and in urban areas
   - At one time African Americans, Citizens of Asia and Africa, Latinas in South or North America did not have eating disorders
   - This is no longer true
   - 1% of women develop anorexia at some point in their lives with rates higher among athletes (particularly runners), gymnast, dancers, and among men wrestlers
   - High achieving girls in affluent families were the first diagnosed and at the most risk

2. Bulimia Nervosa -- binge eating followed by purging
   - 3x as common as anorexia
   - Some research finds that ½ of all college women have binged and purged
   - 1-3% of all women suffer form bulimia
   - Usually normal in weight
   - Experience serious health problems, such as damage to the digestive tract and cardiac arrest from electrolyte imbalance

3. Theories of eating disorders
   - Bulimia tends to emerge in early adulthood
   - 12 yr olds who eat till painfully stuffed at more likely to be bulimic by age 19
   - The stresses, weight gain and changing body shape, in a culture obsessed with thinness, make women more vulnerable
   - Most do not develop a disorder because they have already learned a habit of restraint, or because their mothers are not demanding and intrusive
   - Psychoanalytic – women develop eating disorders because of a conflict with their mothers
   - Behaviorism – some people with low self-esteem find binging, purging, and fasting effective since it has immediate release of tension and distress
   - Cognitive – One perspective is that women compete with men in the business world and want to project a strong, self-controlled, masculine image
   - Sociocultural – cultural pressure to be slim and ‘model-like’
   - Epigenetic systems – when girls stop eating they decrease their chance of reproduction (physically), and their appearance and obsession prevent young men from romantic interest. A powerful defense for girls frightened by the physical impulses of puberty

V. Drug Use and Alcohol

A. Gateway Drugs – a drug (marijuana, tobacco, alcohol) whose use increases the risk that a person will use harder drugs.

1. Adolescents who use gateway drugs tend to be more violent
2. The connection between gateway drugs and polydrug use, violence, sexual activity, and school failure is repeatedly shown in research
3. Drug use is both a cause and a symptom
4. Tobacco
   - Decreases food consumption and nutrient absorption
   - Only forbidden drug that girls use as much as boys
   - Girls who smoke are less developed and shorten women
   - Smoking reduces fertility
   - Nicotine is probably the most addictive drug
   - Research show that smoking reduces life span by 10 years because of cancer, stroke, heart disease
   - 40% of eighth grades believe their is ‘no great risk’

5. Alcohol
   - Drinking is more harmful in adolescents than in adulthood
   - It impairs judgments and loosens inhibitions
   - Correlates with abnormal brain development and impairs memory and self control by damaging the prefrontal cortex

6. Marijuana
   - Slows down thinking processes, particularly related to memory and abstract thinking
   - Children who become marijuana users experienced a developmental slowdown – later than their peers to graduate from college, obtain steady employment, and to marry

7. Patterns of Drug Use
   - Almost every teenager has tried a gateway drug
   - 80% have drank alcohol; 67% have smoked at least 1 cigarette; 54% have tried an illegal drug usually marijuana
   - Adolescents tend not to listen to drug warnings from older people
   - One longitudinal study in Calif. Found that teenagers who had never tried any drugs were troubled psychologically
   - An in-depth East Coast study found that drinking and smoking marijuana helped adolescents bond with peers
   - Whether a teenager uses or doesn’t use drugs depends largely on their peers
   - Drug use among younger adolescents is increasing
   - In a New Zealand study children that were allowed to drink early were alcoholics 10 years later