Chapter 8:
Late Adulthood

Module 8.1
Physical Development in
Late Adulthood

GERONTOLOGISTS

● *Specialists who study aging*
  – Late adulthood as a period of considerable diversity in which people change
  – Growth in some areas, decline in others
How is old age divided?

- Some researchers divide aging people into three groups:
  - Young old are healthy and active
  - Old old have some health problems and difficulties
  - Oldest old are frail and need care

Demographics of Aging

- Because people are living longer, late adulthood is increasing in length.
  - The fastest growing segment of the population is the oldest old—people who are 85 or older.
  - In the last two decades, the size of this group has nearly doubled.
  - The population explosion among older people is not limited to the United States. In fact, the rate of increase is much higher in developing countries.

- Sheer numbers of elderly are increasing substantially in countries around the globe.
- By 2050, number of adults worldwide over the age 60 will exceed the number of people under age of 15 for first time in history.
Ageism

- *Prejudice and discrimination directed at older people is manifested in several ways*
  - Negative attitudes about older people, especially about competence and attractiveness
  - Job discrimination
Changes in Internal Function

- Brain becomes smaller and lighter with age
  - Reduction of blood flow to the brain
  - Space between the skull and the brain doubles from age 20 to 70
  - Number of neurons, or brain cells, declines

All Systems Go…or Gone?

- 75-year-old's heart pumps less than three-quarters of the blood it pumped during early adulthood
- Efficiency of the respiratory system declines with age
- Digestive system produces less digestive juice and is less efficient in pushing food through the system
Peripheral Slowing Hypothesis

- Older adults’ reaction time slows significantly
  - Suggests that overall processing speed declines in peripheral nervous system (spinal cord and brain)

Generalized Slowing Hypothesis

- Processing in all parts of the nervous system, including the brain, is less efficient
  - Older people have more accidents
  - Decision process is slowed down
Senses

- Old age brings a distinct declining in the sense organs of the body

- Vision
  - Lens becomes less transparent and the pupils shrink
  - Optic nerve becomes less efficient
  - Distant objects become less acute

Age-related eye problems

- Cataracts
  - Cloudy or opaque areas of the lens of eye that interfere with passing light, frequently develop
  - Cataracts can be surgically removed
    - Intraocular lens implants

- Glaucoma
  - It must be detected early enough.
  - The most common cause of blindness in people over the age of 60 is age-related macular degeneration (AMD), which affects the macula, a yellowish area of the eye located near the retina at which visual perception is most acute.
Hearing

- 30 percent of adults between 65 and 74 have some hearing loss; 50 percent of adults over 75 have hearing loss
- High frequencies are the hardest to hear
- Hearing aids would be helpful 75 percent of the time
  - Only 20 percent of people wear them
  - Are imperfect and amplify all sounds so it is difficult to discern conversations
- There is a stigma attached to wearing a hearing aid
- Because they cannot hear, some people withdraw from society because they feel left out and lonely
Taste and Smell

- Both senses become less discriminating in old age
  - Due to decline in taste buds on tongue
  - Olfactory bulbs in the brain shrink and reduce the ability to smell
    - People eat less and get poor nutrition
    - Older people may over-salt their food and develop hypertension, or high blood pressure

Psychological and Mental Disorders

Common Psychological Disorders

- Major depression
- Drug-induced psychological disorders
- Dementia
  - A broad category of serious memory loss accompanied by declines in other mental functioning, which encompasses a number of diseases.
  - Although dementia has many causes, the symptoms are similar: declining memory, lessened intellectual abilities, and impaired judgment.
  - The chances of experiencing dementia increase with age. Less than 2 percent of people between 60 and 65 years are diagnosed with dementia, but the percentages double for every 5-year period past 65.
Alzheimer’s Disease

- Progressive brain disorder
- Produces loss of memory and confusion

Incidence and projection
- Leads to deaths of 100,000 people in U.S. each year
- Nineteen percent of people 75 to 84 have Alzheimer’s
- Nearly half of people over age of 85 are affected by the disease. In fact, unless a cure is found, some 14 million people will be victims of Alzheimer’s by 2050—more than three times more than the current number.

Symptoms of Alzheimer’s Disease

- Develops gradually
  - Start with forgetfulness
  - Affects recent memories first, then older memories fade
- Causes total confusion, inability to speak intelligibly or recognize closest family members
- Loss of voluntary control of muscles occurs in final stages
The Biology of Alzheimer’s Disease

- Production of the protein *beta amyloid precursor protein* goes awry
  - Produces large clumps of cells that trigger inflammation and deterioration of nerve cell
  - Brain shrinks
    - several areas of hippocampus and frontal and temporal lobes show deterioration
  - Neuron death leads to shortage of various neurotransmitters (e.g., acetylcholine)

What about a genetic link?

- Inherited disorder
- Nongenetic factors such as high blood pressure or diet may increase susceptibility
- Cross-cultural influences
  - In one cross-cultural study, poor Black residents in a Nigerian town were less likely to develop Alzheimer’s than a comparable sample of African Americans living in the United States.
  - The researchers speculate that variations in diet between the two groups—the residents of Nigeria ate mainly vegetables—might account for the differences in the Alzheimer’s rates.
Treatment and Cure

- No cure
- Treatment deals only with the symptoms
- Drugs effective in only half of Alzheimer’s patients
  - The most promising drugs are related to the loss of the neurotransmitter acetylcholine (Ach) that occurs in some forms of Alzheimer’s disease. Donepezil (Aricept), galantamine (Razadyne), rivastigmine (Exelon), and tacrine (Cognex) are among the most common drugs prescribed, and they alleviate some of the symptoms of the disease.
- Many end in nursing homes

Becoming an Informed Consumer of Development

Caring for People with Alzheimer’s Disease

- Make patients feel secure
- Provide labels for everyday objects
- Keep clothing simple
- Put bathing on a schedule
- Prevent people with the disease from driving
- Monitor the use of the telephone
- Provide opportunities for exercise
- Take care of caregiver!
Relationship Between Aging and Illness

- Certain diseases, such as cancer and heart disease, have clear genetic component
- Economic well-being also plays role
- Psychological factors play important role in determining people’s susceptibility to illness—and ultimately likelihood of death

Approaches to Aging

- GENETIC PREPROGRAMMING THEORIES OF AGING suggest that our body’s DNA genetic code contains a built-in time limit for the reproduction of human cells.
  - One theory is that genetic material has a "death gene" that is programmed to direct the body to deteriorate and die.
  - Another theory is that genetic instructions for running the body can be read only a certain number of times before they become illegible.

- WEAR-AND-TEAR THEORIES OF AGING argue that the mechanical functions of the body simply wear out with age.
  - Some theories say that the body's constant manufacture of energy to fuel its activities creates by-products, which eventually reach such high levels that they impair the body's normal functioning.
  - Free radicals, electrically charged atoms, are produced in the cells and may cause negative effects on other cells.
  - This is a more optimistic theory, which suggests that longevity can be extended by eliminating the toxins produced by the body.
LIFE EXPECTANCY has been steadily increasing.

- In 1776, the average life expectancy was 35.
- In 1900, the average life expectancy was 47.
- For a person born in 1980 life expectancy is 74.
- By 2050, the average life expectancy is predicted to be 80.
  - Health conditions are better.
  - Many diseases are wiped out or better controlled through medicine.
  - People's working conditions are better.
  - We are working on improving environmental conditions.
  - The maximum human lifespan is believed to hover around 120.
  - To extend the maximum lifespan would probably take genetic alterations.