Chapter 5
Common Aging Changes
General System Changes with Aging

- The number of cells is gradually reduced.
- Total body fat, as a proportion of the body’s composition, increases.
- Lean body mass is reduced; fat tissue increases until 60.
- Cellular solids and bone mass are decreased.
- Extracellular fluid remains fairly constant.
- Intracellular fluid is decreased, resulting in less total body fluid.
Noticeable Effects of the Aging Process

- Hair loss, gray hair, and wrinkles.
- Bony appearance of body’s contours.
- Deepening of the hollows of the intercostal and supraclavicular spaces, orbits, and axillae.
- Elongated ears, a double chin, and baggy eyelids.
- Reduced skin-fold thickness in the forearm and on the back of the hands.
- Decreased stature.
Changes in the Cardiovascular System

- Heart size unchanged in absence of pathology.
- Valves thick and rigid.
- More difficulty managing unusual burdens on heart.
- Reduced elasticity and lumen of vessels; increased peripheral resistance.
Response of Aging Heart to Stress

- Tachycardia in the elderly will last for a longer time.
  - Stroke volume may increase to compensate, which results in elevated blood pressure.
  - The blood pressure can remain stable as tachycardia progresses to heart failure in the elderly.
- The resting heart rate is unchanged.
Changes in the Respiratory System

- Less lung expansion.
- Increased residual capacity; reduced vital capacity.
- High risk for respiratory infection.
Changes in the Gastrointestinal System

- Teeth not normally lost.
- Less acute taste sensations.
- Increased risk of aspiration, indigestion, and constipation.
Changes in the Genitourinary System

- Reduction in renal blood flow and filtration.
- Reduced bladder capacity.
  - Urinary frequency, urgency, and nocturia common with age.
  - Incontinence is not a normal outcome of aging.
- Prostatic enlargement.
- Atrophy of female reproductive organs.
Musculoskeletal System

- Atrophy and reduction in number of muscle fibers.
- Tendons shrink and harden.
- Reduction in bone mineral and mass.
- Increased risk of fractures.
Changes in the Nervous System

- Reduction in nerve cells, cerebral blood flow, and metabolism.
- Slower reflexes, delayed responses, and changes in balance.
- Health of this system affected by status of other systems.
- Stage III and IV are less prominent.
Changes in the Sensory Organs

- Changes in vision:
  - Presbyopia
  - Narrowing of visual field.
  - Less pupil response to light.
  - Hardening of pupil.
  - Reduced pupil size.
  - High prevalence of cataract development.
  - Yellowing of the lens.
Changes in the Sensory Organs (cont.)

- Progressive hearing loss can distort speech.
- Sense of smell is reduced and can affect taste acuity.
- Ability to sense pressure and pain and differentiate temperature is reduced.
Changes in the Endocrine System

- Decreased thyroid gland activity and secretion of hormones.
- Altered release of insulin.
- ACTH secretion decreases with age.
  - Hormones influenced by the adrenal gland are reduced.
- Decreased tissue sensitivity to circulating insulin.
- Reduced ability to metabolize glucose.
Changes in the Immune System

- Depressed immune response.
  - Increased risk for infection.
Changes in Thermoregulation

- Normal body temperature is lower than in younger years.
- Ability to respond to cold temperatures is reduced.
Changes in the Integumentary System

- Skin less elastic, more dry, and more fragile.
- Thinning and graying of hair.
- Reduced sweat gland activity.
Changes in the Mind

- Psychological changes are influenced by general health status, genetic factors, education, and activity.
- Basic personality does not change.
- Retrieval of long-term memory information can be slower.
- Basic intelligence is maintained.
- More factors interfere with ability to learn.
- Older adults are more easily distracted.