Learning Objectives
1. Recognize or write the functions of the musculoskeletal system.
2. Recognize or write the meanings of Chapter 6 word parts and use them to build and analyze medical terms.
3. Write terms for selected structures of the musculoskeletal system or match them with their descriptions.
4. Write the names of the diagnostic terms and pathologies related to the musculoskeletal system when given their descriptions or match terms with their meanings.
5. Spell terms for the musculoskeletal system correctly.

Functions of the Musculoskeletal System
Musculoskeletal means pertaining to the muscles and the skeleton.

- protection (of internal organs)
- support (bones and ligaments)
- movement (muscles moving bones)
- formation of blood cells within bone marrow (hematopoiesis)
- storage of fat in bone marrow
- storage and release of minerals especially calcium

Specialty/ Specialist
- orthopedics- branch of medicine involved in the prevention and correction of deformities or diseases of the musculoskeletal system
  - orthopedist- specialist in disorders of the bones and associated structures (for all ages)
  - ortho/o=straight
  - ped/o=child

Major Bones of the Body
- clavicle clavicul/o, collarbone
- cranium crani/o, skull
- costa cost/o, ribs
- scapula scapul/o, shoulder blade
- sternum stern/o, breastbone
- spine rachi/o, spin/o
- vertebrae spondyl/o, vertebrae backbones

Major Bones of the Body, cont.
Vertebrae

- cervical cervic/o, neck
- thoracic thorac/o, upper back
lumbar = lumb/o, lower back
sacrum = sacr/o, spine connected to pelvic bone
coccyx = coccyg/o, tail bone

8. **Major Bones of the Body, cont.**

*Upper Extremity*
- humerus humer/o upper arm
- radius radi/o forearm (thumb side)
- ulna uln/o forearm (pinky side)
- carpals carp/o wrist
- metacarpals metacarp/o hand
- phalanges phalang/o fingers

9. **Major Bones of the Body, cont.**

*Pelvic Bones*
- pelvis pelv/I

The pelvis is made of three sets of bones that connect to the sacrum: ilium, ischium, pubis

- ilium ili/o
- ischium ischi/o
- pubis pub/o

10. **Quick Quiz!**

A. protection and support
B. hematopoiesis
C. elimination of wastes
D. storage of fats and minerals

11. **Major Bones of the Body, cont.**

*Leg Bones*
- femur femor/o thigh
- patella patell/o kneecap
- tibia tibi/o shin
- fibula fibul/o

12. **Major Bones of the Body, cont.**

*Ankle and Foot Bones*
- tarsals (tars/o): all of the ankle bones
- metatarsals (metatars/o): foot bones (meta- means next in a series)
calcaneus (calcane/o): heel bone

phalanges (phalang/o): toes (also fingers)

Terms Associated with Bones, cont.

cost/o= rib

costal- pertaining to the ribs
intercostal- between the ribs
subcostal- below the ribs
sternocostal-referring to the sternum and ribs
vertebrocostal, costovertebral-referring to a rib and a vertebra
sacral- pertaining to the sacrum

terms associated with bones, cont.
coccygeal
thorax
sternal
substernal
sternoclavicular
clavicular
scapular
pelvic
iliac
ischial
pubic
iliopubic
ischiopubic
ischiococcygeal

Terms Associated with Bones, cont.

humeral
humeroscapular
humero-ulnar
ulnar
radial
carpal
Terms Associated with Bones, cont.

- carpectomy
- carpal tunnel
- metacarpals
- carpophalangeal

- ischiofemoral
- patellofemoral
- tarsus
- metatarsals
- calcaneus
- osteoid
- calcification, decalcification

Additional Word Parts (page 145)

- anky/o  stiff
- arthr/o  articulation, joint
- -asthenia  weakness
- burs/o  bursa
- calc/i  calcium
- cellul/o  little cell or compartment
- de-  down, from, or reversing
- meta-  change or next in a series
- -sarcoma  malignant tumor of connective tissue
- ten/o, tend/o, tendin/o  tendon

Cartilage

- dense connective tissue that covers the articular surfaces of joints
- chondr/o is a combining form meaning cartilage
- chondral means pertaining to cartilage

- exercise 6 (pg 145) : terms using chondr/o

Articulations and Associated Structures

- Articulation (or joint): place of union between two or more bones
- Synovial joints have cavities between articulating bones and are freely movable.
  ex: elbow, knee, ankle, shoulder, hip
- Bursae are sacs of fluid located in areas of friction, especially the joints
- Ligaments are strong connective tissue that connects bones or cartilage.
Quick Quiz!
What is a bursa?
A. a sac of fluid
B. an articulation
C. cartilage
D. an arm bone

Additional Muscle Terms
- Tendons connect muscles to bone
- tend/o
- Fascia covers muscles as a protective “sleeve”
- fasci/o
- fasciitis (notice the double i’s)

Diseases and Disorders
- my/o=muscle
- myolysis- degeneration of muscle tissue
- myopathy- any disease of the muscle
- myalgia –muscle pain

Diseases and Disorders, cont.
spondylitis- inflammation of the vertebrae
- (spondyl/o=vertebrae, itis=inflammation)
  - rachiodynia, rachialgia- painful spine
    - rachi/o=spine, -dynia, -algia=pain
  - myelitis- inflammation of the bone marrow or the spinal cord
    - myel/o=bone marrow or spinal cord, itis=inflammation

Quick Quiz!
Name the three types of muscle in the body.
A. anterior, posterior, facial
B. abductor, adductor, extensor
C. cardiac, smooth, striated
D. cervical, thoracic, lumbar

Diseases and Disorders, cont.
fibromyalgia -affects muscles and soft tissue. It is characterized by widespread nonarticular pain of the torso, extremities and face
- herniated disk - also called “slipped disk” results from rupture of the cartilage between vertebrae. It can press on the spinal cord or on a spinal nerve causing pain

Diseases and Disorders, cont.
paraplegia-paralysis of the lower portion of the body and of both legs
quadriplegia - paralysis of all four extremities

Diseases and Disorders, cont.

osteochondritis - inflammation of bone and cartilage
   ● oste/o = bone
   ● chondr/o = cartilage
   ● -itis = inflammation

Diseases and Disorders, cont.
sarcoma - cancer that arises from connective tissue
   ● chondrosarcoma - composed of masses of cartilage (chondr/o = cartilage)
   ● fibrosarcoma - malignant tumors that contain much fibrous tissue (fibr/o = fiber)
   ●
   ●
   ● multiple myeloma - presence of many tumor masses in the bone

Diseases and Disorders, cont.
osteoporosis - reduction in the amount of bone leading to fractures
   ● (oste/o = bone, -porosis = thinning of bone tissue)
   ●
  osteomalacia - a reversible skeletal disorder in which there is a defect in the mineralization of bone, most commonly caused by vitamin D deficiency.
   ● (oste/o = bone, -malacia = abnormal softening)
   ●

Diseases and Disorders, cont.
spina bifida - congenital abnormality characterized by defective closure of the bones of the spine.

Lupus erythematosus - an autoimmune disease that involves connective tissue

Quick Quiz!
What is osteoporosis?
A. a defect in mineralization of the bone
B. reduction in bone mass
C. chronic bone inflammation
D. humpback
Diseases and Disorders, cont.

Arthritis is any inflammatory condition of the joints characterized by pain, heat, swelling, redness, and limitation of movement.

Types of arthritis:
- osteoarthritis- (D) Degenerative joint disease) - Degenerative changes in joints, & loss of cartilage
- rheumatoid arthritis - Chronic joint deformities
- spondylarthritis - Inflammation of the vertebra
- gout - Hereditary inflammation of the joints especially the foot or knee caused by hyperuricemia.
  (hyper = excessive, uric = uric acid, -emia = blood)

****Note book error in gray box on page 154

Quick Quiz!

What is tenomyoplasty?
A. repair of tendons
B. removal of tendons
C. removal of a rib
D. repair of muscles and tendons