

1 2 **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.

3 **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

4 **Specialty/Specialist**

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

5 6 **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, vertebr/o backbones

7 **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/l

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)

13 14 15 16 17 18 19 **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

20 **Terms Associated with Bones, cont.**

- coccygeal
- thorax
- sternal
- substernal
- sternoclavicular
- clavicular
- scapular
- pelvic
- iliac
- ischial
- pubic
- iliopubic
- ischiopubic
- ischiococcygeal
-

21 **Terms Associated with Bones, cont.**

-
- humeral
- humeroscapular
- humeroulnar
- ulnar
- radial
- carpal

- carpectomy
- carpal tunnel
- metacarpals
- carpophalangeal
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22 **Terms Associated with Bones, cont.**

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

23 **Additional Word Parts (page 145)**

- ankyl/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, tendon
- tendin/o
-

24 **Cartilage**

- dense connective tissue that covers the articular surfaces of joints
- chondr/o* is a combining form meaning cartilage
- chondral* means pertaining to cartilage
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- exercise 6 (pg 145) : terms using chondr/o

25 **Articulations and Associated Structures**

- Articulation (or joint): place of union between two or more bones
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- 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.

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29 **Quick Quiz!**

What is a *bursa*?

- A. a sac of fluid
- B. an articulation
- C. cartilage
- D. an arm bone

30 **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)

31 **Diseases and Disorders**

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

32 **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

33 **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

34 **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

35 **Diseases and Disorders, cont.**

paraplegia-paralysis of the lower portion of the body and of both legs

quadriplegia – paralysis of all four extremities



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38 **Diseases and Disorders, cont.**

osteochondritis- inflammation of bone and cartilage

- oste/o=bone
- chondr/o=cartilage
- -itis=inflammation

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40 **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

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42 **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)



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44 **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

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46 **Quick Quiz!**

What is *osteoporosis*?

- a defect in mineralization of the bone
- reduction in bone mass
- chronic bone inflammation
- humpback

47  **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- (DJD-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 cause by hyperuricemia.

(hyper=excessive, uric=uric acid, -emia=blood)

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48 49 50  **Quick Quiz!**

What is *tenomyoplasty*?

- A. repair of tendons
- B. removal of tendons
- C. removal of a rib
- D. repair of muscles and tendons