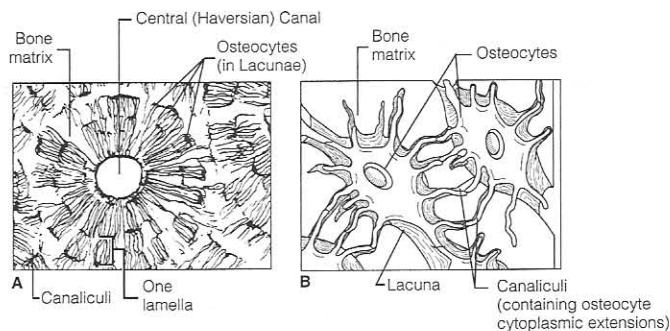


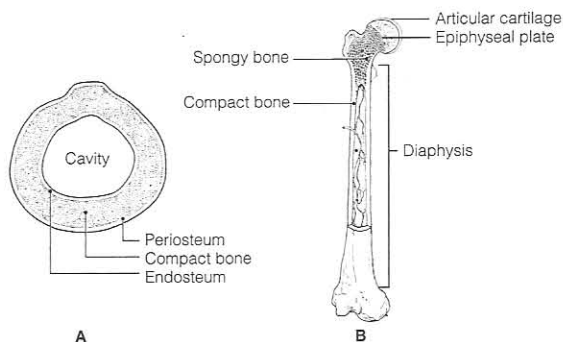
Chapter 5 The Skeletal System

Bones—An Overview

1. P. 2. P. 3. D. 4. D. 5. P. 6. D. 7. P. 8. P. 9. P.
1. S. 2. F. 3. L. 4. L. 5. F. 6. L. 7. L. 8. F. 9. I.
1. C or epiphysis. 2. A or diaphysis. 3. C or epiphysis, D or red marrow. 4. A or diaphysis. 5. E or yellow marrow cavity. 6. B or epiphyseal plate.
1. G or parathyroid hormone. 2. F or osteocytes. 3. A or atrophy. 4. H or stress/tension. 5. D or osteoblasts. 6. B or calcitonin. 7. E or osteoclasts. 8. C or gravity.
- Figure 5-1:** 1. B or concentric lamellae. 2. C or lacunae. 3. A or central (Haversian) canal. 4. E or bone matrix. 5. D or canaliculi.



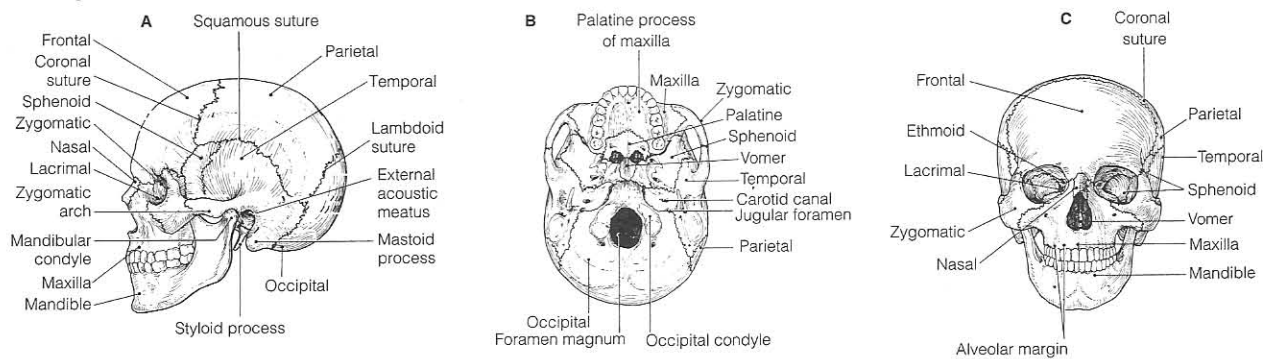
1. Yellow marrow. 2. Osteoblasts. 3. Marrow cavity. 4. Periosteum.
- Figure 5-2:** The epiphyseal plate is the white band shown in the center region of the head; the articular cartilage is the white band on the external surface of the head. Red marrow is found within the spongy bone cavities; yellow marrow is found within the cavity of the diaphysis.



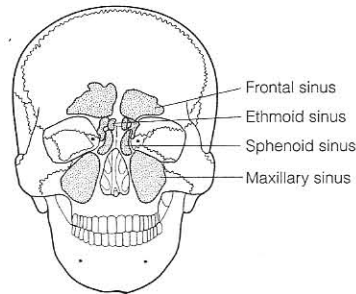
Axial Skeleton

1. B or frontal. 2. N or zygomatic. 3. E or mandible. 4. G or nasals. 5. I or palatines. 6. J or parietals. 7. H or occipital. 8. K or sphenoid. 9. D or lacrimals. 10. F or maxillae. 11. A or ethmoid. 12. L or temporals. 13. K or sphenoid. 14. A or ethmoid. 15. E or mandible. 16. L or temporals. 17-20. A or ethmoid, B or frontal, F or maxillae, and K or sphenoid. 21. H or occipital. 22. H or occipital. 23. L or temporals. 24. M or vomer. 25. A or ethmoid. 26. L or temporals.

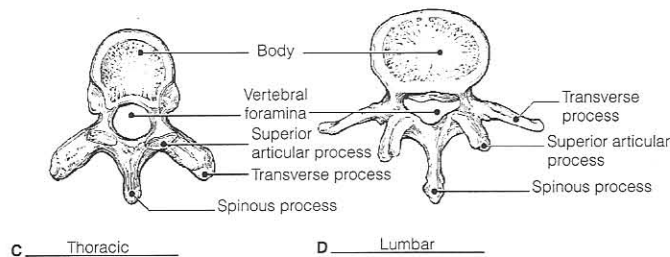
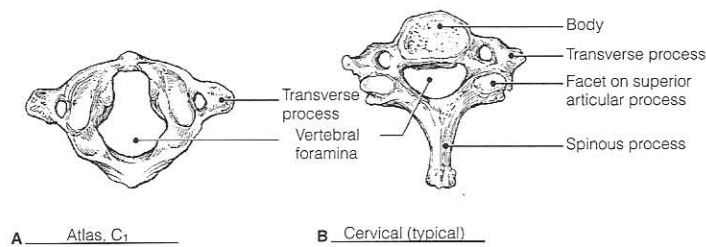
9. Figure 5-3:



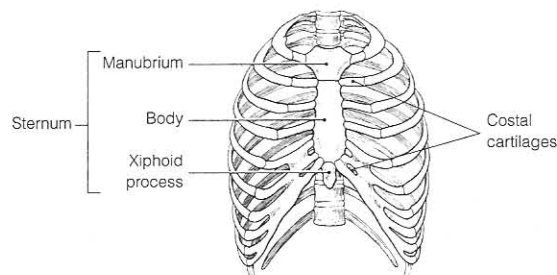
10. **Figure 5-4:** 1. Mucosa-lined air-filled cavities in bone. 2. They lighten the skull and serve as resonance chambers for speech. 3. Their mucosa is continuous with that of the nasal passages into which they drain.



11. 1. F or vertebral arch. 2. A or body. 3. C or spinous process, E or transverse process. 4. A or body, E or transverse process. 5. B or intervertebral foramina.
12. 1. A or atlas, B or axis, C or cervical vertebra—typical. 2. B or axis. 3. G or thoracic vertebra. 4. F or sacrum. 5. E or lumbar vertebra. 6. D or coccyx. 7. A or atlas. 8. A or atlas, B or axis, and C or cervical vertebra—typical. 9. G or thoracic vertebra.
13. 1. Kyphosis. 2. Scoliosis. 3. Fibrocartilage. 4. Springiness or flexibility.
14. **Figure 5-5:** A. Cervical; atlas. B. Cervical. C. Thoracic. D. Lumbar.

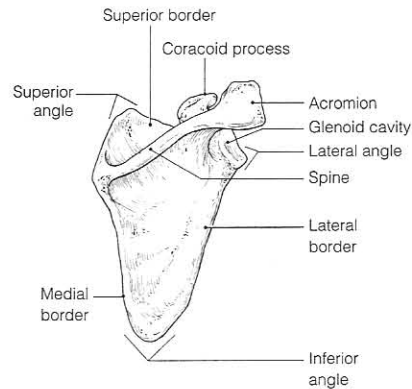


15. **Figure 5-6:** 1. Cervical, C₁-C₇. 2. Thoracic, T₁-T₁₂. 3. Lumbar, L₁-L₅. 4. Sacrum, fused. 5. Coccyx, fused. 6. Atlas, C₁. 7. Axis, C₂.
16. 1. Lungs. 2. Heart. 3. True. 4. False. 5. Floating. 6. Thoracic vertebrae. 7. Sternum. 8. An inverted cone.
17. **Figure 5-7:** Ribs #1-#7 on each side are true ribs; ribs #8-#12 on each side are false ribs.

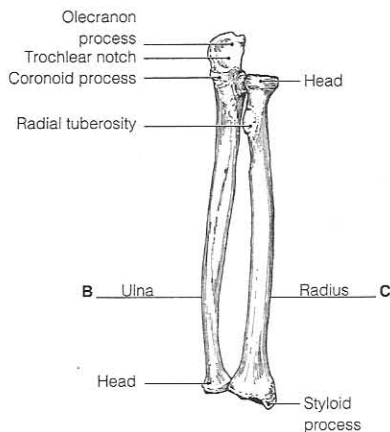
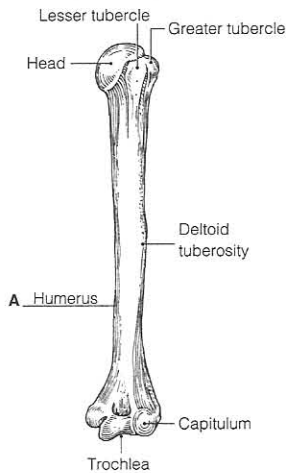


Appendicular Skeleton

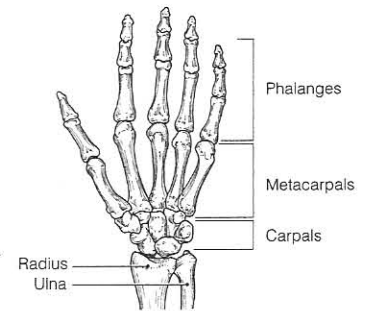
18. Figure 5–8: Scapula.



19. Figure 5–9: A. Humerus. B. Ulna. C. Radius.



20. Figure 5–10:

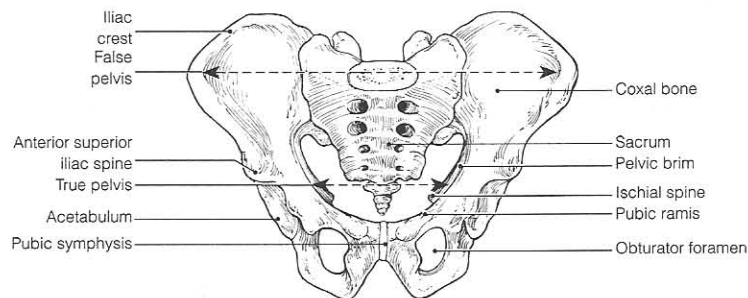


21. Pectoral: A, C, D. Pelvic: B, E, F.

22. 1. G or deltoid tuberosity. 2. I or humerus. 3 and 4. D or clavicle, P or scapula. 5 and 6. O or radius, T or ulna. 7. A or acromion. 8. P or scapula. 9. D or clavicle. 10. H or glenoid cavity. 11. E or coracoid process. 12. D or clavicle. 13. S or trochlea. 14. T or ulna. 15. B or capitulum. 16. F or coronoid fossa. 17. T or ulna. 18 and 19. P or scapula, Q or sternum. 20. C or carpals. 21. M or phalanges. 22. J or metacarpals.

23. 1. Female inlet is larger and more circular. 2. Female sacrum is less curved; pubic arch is rounder. 3. Female ischial spines are shorter; pelvis is shallower/lighter.

Figure 5–11:

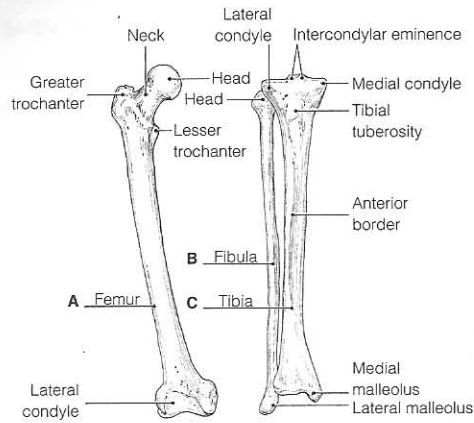


24. 1. Ulna. 2. Pelvis. 3. Scapula. 4. Mandible. 5. Carpals.

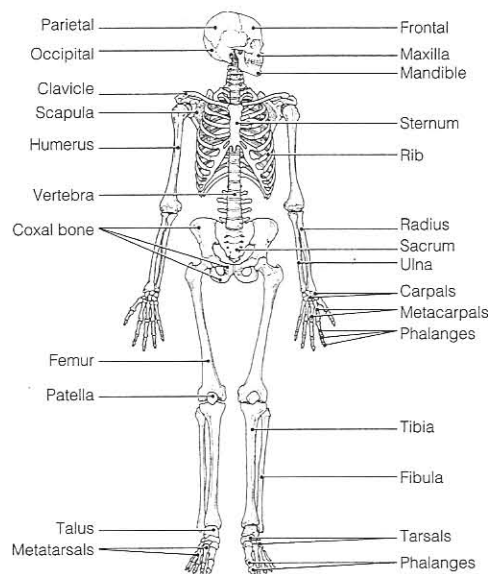
25. 1. I or ilium, K or ischium, S or pubis. 2. J or ischial tuberosity. 3. R or pubic symphysis. 4. H or iliac crest. 5. A or acetabulum. 6. T or sacroiliac joint. 7. C or femur. 8. D or fibula. 9. W or tibia. 10. C or femur, Q or patella, W or tibia. 11. X or tibial tuberosity. 12. Q or patella. 13. W or tibia. 14. N or medial malleolus. 15. L or lateral malleolus. 16. B or calcaneus. 17. V or tarsals. 18. O or metatarsals. 19. P or obturator foramen. 20. G or greater and lesser trochanters, E or gluteal tuberosity. 21. U or talus.

26. 1. Pelvic. 2. Phalanges. 3. *T*. 4. Acetabulum. 5. Sciatic. 6. *T*. 7. Hip bones. 8. *T*. 9. Femur. 10. *T*.

27. **Figure 5-12:**



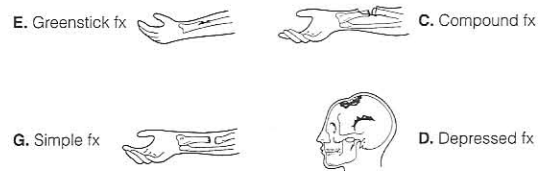
28. **Figure 5-13:** Bones of the skull, vertebral column, and bony thorax are parts of the axial skeleton. All others belong to the appendicular skeleton.



Bone Fractures

29. 1. G or simple fracture. 2. A or closed reduction. 3. E or greenstick fracture. 4. B or compression fracture. 5. C or compound fracture. 6. F or open reduction. 7. H or spiral fracture.

Figure 5-14:

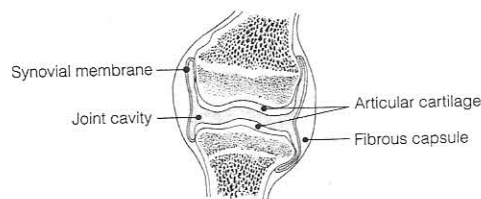


30. 1. *T*. 2. *T*. 3. Phagocytes (macrophages). 4. *T*. 5. Periosteum. 6. *T*. 7. Spongy.

Joints

31. 1. Synovial fluid. 2. Articular cartilage. 3. Ligaments.

Figure 5-15:



32. 1. A or cartilaginous. 2. C or synovial. 3. B or fibrous and 2 or suture. 4. B or fibrous and 2 or suture.
5. C or synovial. 6. C or synovial. 7. C or synovial. 8. A or cartilaginous and 3 or symphysis. 9. C or
synovial. 10. B or fibrous and 2 or suture. 11. C or synovial. 12. A or cartilaginous and 1 or epiphyseal disk.
13. C or synovial. 14. C or synovial. 15. C or synovial.
33. Synovial joints are diarthroses or freely movable joints. The axial skeleton supports and protects internal organs; thus, strength is more important than mobility for joints of the axial skeleton.
34. 1. T. 2. Osteoarthritis. 3. Acute. 4. Vascularized. 5. T. 6. Gouty arthritis or gout. 7. Rickets. 8. T.

Developmental Aspects of the Skeleton

35. 1. D or nervous. 2. F or urinary. 3. A or endocrine. 4. C or muscular. 5. A or endocrine.
6. B or integumentary.
36. 1. Fontanels. 2. Compressed. 3. Growth. 4. Sutures. 5. Thoracic. 6. Sacral. 7. Primary. 8. Cervical.
9. Lumbar.

The Incredible Journey

37. 1. Femur. 2. Spongy. 3. Stress (or tension). 4. RBCs (red blood cells). 5. Red marrow. 6. Nerve.
7. Central or Haversian. 8. Compact. 9. Canaliculi. 10. Lacunae (osteocytes). 11. Matrix. 12. Osteoclast.

At the Clinic

38. Seven bones contribute to the orbit: frontal, sphenoid, zygomatic, maxilla, palatine, lacrimal, and ethmoid bones.
39. Mrs. Brusco has severe osteoporosis in which her bones have become increasingly fragile. The postmenopausal deficit of estrogen has placed her bones at risk. Weight-bearing exercise and supplemental calcium will probably be prescribed.
40. The cribriform plates of the ethmoid bone, which surround the olfactory nerves. These plates are quite fragile and are often crushed by a blow to the front of the skull. This severs the olfactory nerve fibers, which cannot grow back.
41. Rheumatoid arthritis, fairly common in middle-aged women, causes this type of deformity.
42. James has all the classic signs and symptoms of osteoarthritis.
43. Janet will be watched for signs of scoliosis because of injury to thoracic vertebrae (and probably associated muscles) on one side of the body.
44. The serving arm is subjected to much greater physical (mechanical) stress due to the additional requirement to serve the ball. Consequently, the bones grow thicker to respond to the greater stress.

Chapter 6 The Muscular System

Overview of Muscle Tissues

1. 1. A or cardiac, B or smooth. 2. A or cardiac, C or skeletal. 3. B or smooth. 4. C or skeletal. 5. A or cardiac.
6. A or cardiac. 7. C or skeletal. 8. C or skeletal. 9. C or skeletal.
2. A. Smooth muscle. B. Cardiac muscle.
3. 1. Bones. 2. Promotes labor during birth. 3. Contractility. 4. Stretchability. 5. Promotes growth.