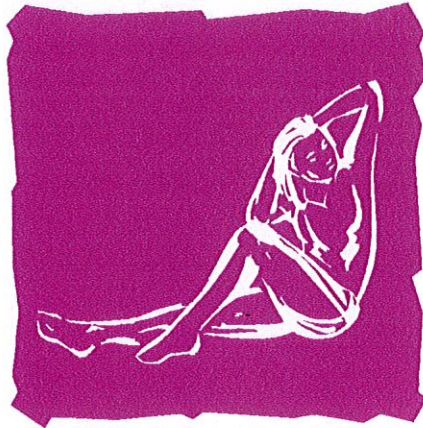


MOVEMENT



Flexion

- Bones together to decrease angle

Extension

- Increase angle between bones

Abduction

- Movement away from midline

Adduction

- Movement toward midline

Circumduction

- Includes all of the above

Rotation

- Allows a bone to move around one central axis

Pronation

- Forearm turns hand so palm is downward or backward

Supination

- Palm is forward or upward

Bonus Questions

1. What type of joint movement is used: (2 points)
 - a. to shut off a light _____
 - b. to comb your hair _____
2. If someone you know has broken the long bone of his leg skiing, what type of treatment will be used: (1 point)
3. You are running and you have “turned your ankle.” Name the bones involved. What is the best way to treat a sprain? (2 points)
4. Your grandmother tells you her bones are stiff. Explain what causes this condition. (2 points)
5. More Americans are living longer, which means more people will be susceptible to a condition called osteoporosis. Define this condition and its treatment. How will this condition affect Medicare costs?

HO 05.02 Analyze the function of the skeletal system

A. Functions of the skeletal system

- a. **Supports** – body structures & provides **shape**
- b. **Protects** – **internal organs**, e.g. cranium-brain, inner ear, & parts of eye; ribs & sternum- heart and lungs; vertebral column-encases & protects spinal cord
- c. **Movement & anchorage**
 - i. **Anchorage** – muscles are attached to skeleton, with contraction, muscle **pulls on a bone**, causes movement, also serves as passively **operated levers**
 - ii. Movement types
 1. **Abduction** – moves extremity away from body/midline
 2. **Adduction** – moves extremity towards the body/midline
 3. **Circumduction** – includes flexion, extension, abduction & adduction
 4. **Rotation** – allows bone to move around one central axis
 5. **Flexion** – bringing two bones closer together, decreases the angle between the bones
 6. **Extension** – act of increasing the angle between two bones
 7. **Pronation** – the forearm turns the hand so the palm is downward or backward
 8. **Supination** – the palm is forward or upward

- d. Mineral Storage - bones are storage for **calcium & phosphorus**, if inadequate nutrition, body will draw the reserves, e.g. blood low in Ca^{++} , bone will release Ca^{++}
- e. Site for Hemopoiesis – **red marrow** of bone is site for blood cell formation, in **long bones, sternum & ilia**

B. Bone Formation

- a. Embryo skeleton starts as **osteoblasts**, then change to **cartilage**
- b. **Ossification** (bone replaces cartilage) starts at **8 weeks** of embryonic development
- c. Infant bones are very **soft and pliable**
- d. Ossification continues through **childhood**
- e. As bones ossify, they become **hard & capable of bearing weight**
- f. **Osteoclasts** – bone cells that secrete enzymes, **digest bone**

C. Vertebral column

- a. Encloses the **spinal cord**
- b. Each vertebrae has cartilage tissue between, **intervertebral disks**
- c. As we age, the disks become **thinner**, accounts for loss of **height**
- d. Divided into **five sections**, for area of body they are located

D. Joints

- a. **Articulations** – two bones come together
- b. Enclosing these two articular surfaces, is **articular capsule**
- c. Lining of capsule is **synovial membrane**

- d. Secretes **synovial fluid**, which **lubricates** the joint, this reduces **friction** in joint
- e. **Bursa sacs** are in clefts of joint, helps to **cushion joint**