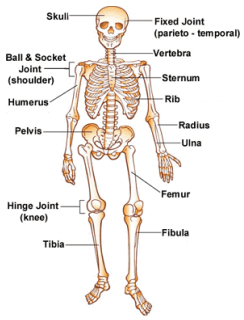
The Skeletal System

Skeletal Diagram



Basic Facts

- Skeleton comes from the Greek word “dried-up body”
- There are 206 bones in the adult body
- Babies are born with 300 bones
- Bones make up 20% of the body mass
- The skeletal structure is made up of bones, cartilage, joints, and ligaments

Basic Facts

- Smallest Bone = Stirrup (carries sound from eardrum to inner ear. located in the ear)
- Largest Bone = Femur
- The only bone in the human body not connected to another is the hyoid. (V-shaped bone at the base of the tongue between the mandible and the voice box. function is to support the tongue and its muscles)

Function of the Skeleton

- Support
- Protection
- Movement
- Storage of Minerals
- Storage of Chemical Energy
- Production of Blood Cells

Types of Bones

- Long Bones - femur, tibia, fibula, humerus, ulna and radius
- Short Bones - roughly cube-shaped and have approximately equal length and width. Wrist and ankle

Types of Bones continued

- Flat Bones - have a thin shape/structure and provide considerable mechanical protection and extensive surfaces for muscle attachments.
- include cranial bones (protectin the brain), the sternum and ribs (protecting the organs in the thorax), and the scapulae (shoulder blades).

Types of Bones continued

- Irregular Bones - have complicated shapes. Vertebrae and some facial bones
- Sesamoid Bones - develop in some tendons in locations where there is considerable friction, tension, and physical stress. Palms, soles of feet, knee caps

Types of Bones continued

- Sutural Bones - are classified by their location rather than by their shape. They are very small bones located within the sutural joints between the cranial bones

Development of the Skeleton

- At birth the baby's cranium is huge and unfused
- At 3 months the cervical curvature in the spin is present (when the baby lifts its head)
- At 9 months the cranium is half its adult size (volume)

Development of the Skeleton

- At 12 months the lumbar curvature develops (begins to walk)
- During puberty:

  ~ the female pelvis broadens in preparation for childbearing

  ~the male skeleton becomes more robust

Development of the Skeleton

- With old age:

  ~loss of centimeters in the spine

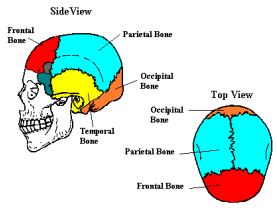
  ~the thorax becomes more rigid

  ~loss of bone mass

The Axial Skeleton

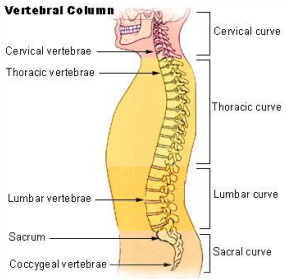
- Consists of 80 bones
  3 Major Regions:
  ~The Skull
  ~The Vertebral Column
  ~The Bony Thorax

Structure of the Skull



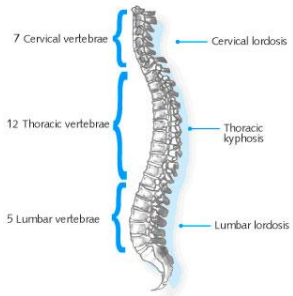
Frontal = forehead. Contains the sinuses
Parietal = most of the superior and lateral aspects of the skull
Occipital = the base of the skull
Temporal = temple

The Vertebral Column



The supporting rod of the body that is made up of 26 irregular bones in a flexible curved structure. It extends from the skull to the pelvis reaching about 70 centimeters (28 inches) in the average adult.

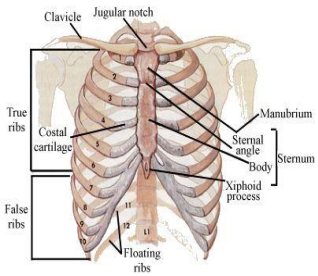
The Vertebral Column



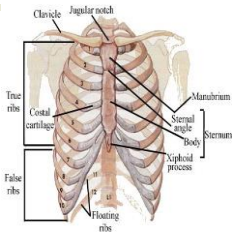
- Cervical Vertebrae = 7 vertebrae
- Thoracic vertebrae = 12 vertebrae
- Lumbar Vertebrae = 5 vertebrae
- Sacrum (base of spine between hips) = 5 fused vertebrae
- Coccyx (tailbone) = 4 fused vertebrae

The Bony Thorax

- Sternum (Breastbone)



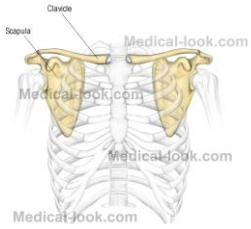
The Rib Cage



- **12 pair:**
  ~the superior 7 = true or vertebrosternal ribs
  ~the remaining 5 pair = false or vertebrochondral ribs
- **1-7 increase in length**
- **8-12 decrease in length**
- **8-10 attach indirectly to the sternum**
- **Pairs 11 and 12 are called vertebral or floating ribs**

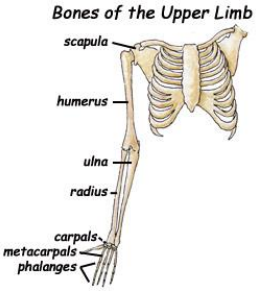
The Appendicular Skeleton

- The Pectoral (Shoulder) Girdle



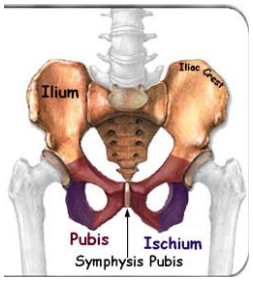
The Appendicular Skeleton

- The Upper Limbs



The Appendicular Skeleton

- The Pelvic (Hip) Girdle



The Appendicular Skeleton

- The Lower Limbs