Lab 6, 7, 8: Skeletal System

Adult Skull

Bony orbit (**FLEZMS**)

- **F**rontal bone
  - supraorbital foramen
  - frontal sinus
- **L**acrimal bone
- **E**thmoid bone
  - perpendicular plate of ethmoid
  - middle nasal conchae
  - cribriform plate
  - crista galli
- **Z**ygomatic bone
- **M**axillary bone
  - infraorbital foramen
  - palatine process of maxilla
- **S**phenoid bone
  - lesser wing and greater wing
  - optic foramen (canal)
  - sella turcica
  - sphenoid sinus
- Mandible
  - mental foramen
  - mental protuberance
  - mandibular condyle
- Palatine bone
- Nasal bone
- Vomer
- Inferior nasal conchae
- Parietal bone
- Temporal bone
  - zygomatic process of temporal
  - mandibular fossa
  - styloid process
  - mastoid process
  - external acoustic meatus
  - petrous ridge
  - internal acoustic meatus
  - carotid canal
  - jugular foramen
- Occipital bone
  - foramen magnum
  - occipital condyle
  - external occipital protuberance

Sutures

- coronal suture
- squamous suture
- lambdoid suture
- sagittal suture

Fetal Skull

- anterior fontanel
- posterior fontanel
- anterolateral (sphenoidal) fontanel
- posterolateral (mastoid) fontanel

Remainder of Axial Skeleton:

Hyoid bone

Typical vertebra (know on all vertebrae):
- body
- vertebral (spinal) foramen
- transverse process
- spinous process
- superior articular surface
- inferior articular surface
- lamina
- pedicle

Cervical vertebrae:
- C1 (atlas)
- C2 (axis)
  - dens (odontoid process)
- transverse foramen
- transverse process

Thoracic vertebrae:
- costal facets – locate 2 places
  - rib facet - on transverse process (for tubercle of rib)
  - demifacet – on side of body (for head of rib)

Lumbar vertebrae:
- superior articular surface
- inferior articular surface

Sacrum
- sacral promontory
- sacral foramina

Coccyx

Ribs - true, false (vertebrocohondral & floating)
- head
- tubercle
- shaft

Sternum (manubrium, body, xiphoid process)

Appendicular Skeleton:

- Clavicle
  - sternal (medial) end
  - acromial (lateral) end

- Scapula
  - acromion process
  - coracoid process
  - glenoid cavity
  - lateral (axillary) margin
  - subscapular fossa
  - medial (vertebral) margin
  - supraspinous fossa
  - spine of scapula
  - infraspinous fossa

- Humerus
  - greater tubercle
  - lesser tubercle
  - head
  - anatomical neck
  - surgical neck
  - deltoid tuberosity
  - lateral epicondyle
  - capitulum
  - trochlea
  - medial epicondyle
  - coronoid fossa
  - olecranon fossa

- Radius
  - head
  - neck
  - radial tuberosity
  - styloid process

- Ulna
  - coronoid process
  - olecranon process
  - trochlear (semilunar) notch
  - radial notch
  - styloid process

- Wrist and Hand
  - carpals
  - metacarpals
  - phalanges

Coxal bones (os coxae)
- ilium - iliac crest, anterior superior iliac spine (ASIS)
- ischium - ischial tuberosity, ischial spine
- pubis - symphysis pubis
- sacrum articulating surface (sacroiliac joint)
- acetabulum
- obturator foramen
- greater sciatic notch

Femur
- head
- neck
- greater trochanter
- lesser trochanter
- linea aspera
- patellar surface
- medial condyle
- lateral condyle

Patella

Fibula
- head
- lateral malleolus

Tibia
- lateral condyle
- medial condyle
- tibial tuberosity
- medial malleolus

Foot
- tarsals - talus, calcaneus
- metatarsals
- phalanges

	Component Removed	Component Remaining	Characteristics
Bones in Acid			
Baked Bones			

Compact bone
Spongy (cancellous) bone

Diaphysis
Epiphysis

Slides: Ground Bone Cartilage (Monkey trachea)

Skeletal System - Relationships

You will find it more interesting and significant to study the following list of relationships after you become familiar with the skeleton. Your lab instructor will help explain many of them while helping you with the skeleton. Please inquire about any that you do not understand.

Acromion process - easily palpated as bone of the shoulder.

Anterior superior iliac spine - important radiologic landmark; origin of sartorius muscle.

Atlas - 1st cervical vertebrae, has no body.

Bony Orbit of Eye - FLEZMS: frontal, lacrimal, ethmoid, zygomatic, maxillary, sphenoid (and palatine)

Cribriform plate - also known as horizontal plate of ethmoid.

Crista galli - serves as attachment for meninges.

Deltoid tuberosity - insertion point for the deltoid muscle

Fontanels - where cranial bones of fetus or infant have not yet met; allows skull to change shape during parturition.

Foramen magnum - for passage of spinal cord.

Groove for radial nerve - where radial nerve passes on lateral side of humerus.

Groove for ulnar nerve - where ulnar nerve passes dorsal to elbow ("funny bone")

Hard palate - composed of palatine bone and palatine process of maxilla.

Intervertebral discs - discs of fibrocartilage between bodies of vertebrae.

Intervertebral foramina - openings for passage of spinal nerves.

Ischial spines - of obstetrical significance; too large in males to permit childbirth.

Ischial tuberosities - the part you sit on.

Jugular (suprasternal) notch - palpate as depression at superior end of sternum sternal ends of clavicles.

Lacrimal fossa - location of nasolacrimal duct.
Mental foramen - for passage of nerves and blood vessels.

Nasal septum - composed of vomer, perpendicular plate of ethmoid, septal cartilage, and parts of palatine and maxillae.

Occipital condyles - articulate with the atlas.

Odontoid process - or Dens, peglike process which allows atlas to pivot on it.

Olecranon process - easily palpated as tip of elbow.

Olfactory foramina - for passage of olfactory nerves through cribriform plate.

Optic foramen - for passage of optic nerve.

Paranasal sinuses - ethmoid, maxillary, sphenoid, and frontal sinuses all drain into nasal cavity.

Radial tuberosity - point of attachment for biceps muscle (located on radius).

Sacral promontory - most anterior part of sacrum, obstetrical landmark.

Sacrum - made up of 5 fused bones.

Sella turcica - location of the pituitary gland.

Spina bifida - congenital condition in which laminae of vertebrae fail to close thus leaving the spinal cord exposed.

Tibial tuberosity - insertion point of Quadriceps femoris muscle.

Transverse foramina - openings in cervical vertebrae for vertebral arteries.

Zygomatic arch - composed of zygomatic and temporal bones.

Joints:

Shoulder

Elbow

Hip

Knee