Bone Growth and Articulation Notes

BONE FORMATION

- Known as "_____" or "Osteogenesis" (=bone creation).

Two Types of Embryonic Ossification:

1. _____ Ossification
2. _____Ossification

A**. Intramembranous Ossification**

LOCATION: Occurs in flat bones like ribs and the plates of the skull. (=Epiphysis Formation)

1. Begins with the _____ of connective tissue "sheets" in late embryonic development.
2. These sheets are highly _____ and form osteoblasts on the interior.
3. The osteoblasts turn into _____, thus forming the spongy bone.
4. The remaining CT "sheets" are layed down to form the _____.
5. The newer _____ accumulate on the edge of the _____ bone and then create the compact bone.

B. Endochondral Ossification

Location: Long, short & Irregular Bones (=_____Formation)

1. Chondrocytes _____up and begin to die.
2. _____ forms along the outside of the cartilage.
3. Osteoblasts invade the _____(Primary Ossification Center) in the _____turning into osteocytes.
4. Next, _____die in the epiphyses, osteoblasts invade the _____ (Secondary Ossification Center) turning into osteocytes.
5. The POC and SOC never merge and are left with _____ inbetween the 2 regions.
6. This remaining cartilage becomes the _____ or "Growth Plate" where new cells are _____down.

BONE GROWTH

Two Types

1. Length-Wise (=_____ Growth)
2. Diameter/Width (=_____l Growth)

Oppositional Growth

1. _____in the epiphyseal plate divide (via Mitosis).
2. They are_____ by bone on the diaphysis side of the plate.
3. When growth stops, _____in the epiphyseal plate is replaced by bone.
4. Osteocytes then lay down the _____ matrix (=calcification)

Appositional Growth

1. Bone around _____ cavity is destroyed.
2. More _____marrow moves into the cavity and fills the space.
3. The periosteum adds_____ bone to the outside.

JOINT TYPES

4 Main Categories of Joints

1. _____ 3. _____
2. _____ 4. _____

1. Immovable Joints

- _____ movement

Example: The plates of the skull that form the cranial sutures.

2. Fibrous Joints

- _____ movement in the joint.
- Dense connective tissue _____ bones together.
- Forms _____ membrane.

Examples: Ulna/Radius and Tibia/Fibula

3. Cartilaginous Joint

- Formed by _____ or Fibrocartilage.

Examples: Intervertebral disks (Vertebra),Costal Cartilage (Ribs), Symphysis Pubis (Pubic Bone)

4. Synovial Joints

- The most "_____" joints in the body.
- Membrane secretes _____fluid in the joint.
- Fluid used for _____ of the joint.
- Fluid is produced by the _____ sack.
- Bone ends have _____(hyaline) cartilage.

Types of Synovial Joints (write chart underneath notes on ISN-43).

BONE TERMINOLOGY

1. _____on Bones 2. _____ in Bone 3._____in Bones

1. **Bumps on Bones**
   a) Process = _____ (on vertebrae, scapula).
   b) Condyle = _____, smooth projections (on posterior, distal femur)
   c) Epicondyle = found _____ a condyle (on anterior, distal femur).
   d) Spine/Crest = thorn-like, _____ projection (on tibia shaft).
   e) Tubercle = _____ process (on humerus).
   f) Tuberosity = large, _____ tubercle (on radius shaft).
   g) Trochanter = large, rough _____ (found on femur).

2. **Depressions on Bones**

- _____= flat area that articulates (on vertebrae)
- _____ = shallow indentation (on scapula)

3. **Holes in Bones**

- Foramen = _____for blood vessels, nerves, and ligaments (vertebrae, coxa, cranium).
- Meatus = bony _____ (opening for ear)
- Sinus Cavity = _____ filled with _____(on anterior cranium).