Age in the Skeleton

Human Biology and Forensics
Tuesday May 22, 2012
Age Estimation

- Age estimation refers to the age of the individual when they died NOT how long the individual has been dead
Age in Adults and Subadults

• Harder to estimate age in adults; no teeth or bone fusion

• Easier to estimate in subadults
Age in Adults and Subadults

• Different periods of life are easier to determine age than other periods of life:
  – Teeth erupt at certain times
  – Epiphyses close at certain times
Age in Adults and Subadults

• After age 25-30 (teeth in and bones fused) the estimation of age depends on degenerative changes
Subadult Age Estimation

• Tooth Eruption:
  – birth to 2 years: all baby (deciduous) teeth (20) appear
  – 6 years – 18 years: permanent teeth (32) appear
  – chart of tooth eruption
Tooth Eruption

• Deciduous Teeth: Medial → Lateral
  – 2 incisors
  – 1 Canine
  – 2 molars

• Permanent Teeth: Medial → Lateral
  – 2 incisors
  – 1 canine
  – 2 premolars
  – 3 molars
CHART PRACTICE

• When do we see the first tooth erupt?
• When does the first adult tooth come in?
• When do we start losing teeth?
• If a jaw had 2 adult incisors, 3 baby teeth and 1 adult molar how old would that person be?
Subadult Age Estimation

- **Growth:**
  - First 18 years: more than triple in length
  - Many centers of ossification
    - As skeleton grows, bones fuse together
    - Start with 850 centers of ossification
    - At birth: 450 centers of ossification
    - Adulthood: 206 bones
Long Bone Review

- Long bones: Epiphyses fuse to diaphyses
  - Diaphysis or shaft: long part of bone
  - Epiphyses: ends of bones

- Long bones don’t grow at the same rate at both ends; when they fuse, the bone is done growing. Dwarfism if the bones fuse too soon.
CHART PRACTICE

• When does the distal end of the tibia fuse?
• When do the epiphyses in the toes fuse?
• When does the innominate fuse together?
• When does the medial end of the clavicle fuse?
Adult Age Estimation

• Mainly deterioration
• Tooth Wear:
  – Not very helpful – lots of variation
  – Wear on teeth differs since they erupt at different times
  – Differences in populations – still variation between members
Adult Age Estimation

• Osteoarthritis:
  – Following period of union of epiphyses; mid-20s and older, degenerative changes in many of the joint surfaces
Adult Age Estimation

– In vertebrae, lipping in the borders
  • Between 20 and 30: lipping slowly develops
  • 30 – 40 lipping intensifies
  • 40 – 50 more lipping intensifies, especially in the lumbar region
  • Beyond the age of 50, lipping is pronounced
Adult Age Estimation

• Pubic Symphysis Phases: look at medial surface of pubic symphysis

• Sutures in the skull: Not very reliable
  – Frontal
  – Sagittal
  – Lambdoidal

• Much less reliable to determine age in an adult skeleton
PRACTICE

• Complete Practice Worksheet and Review