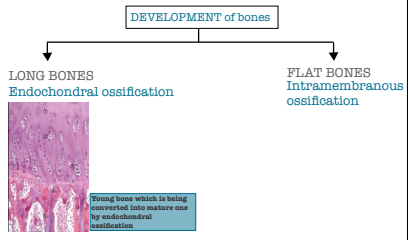
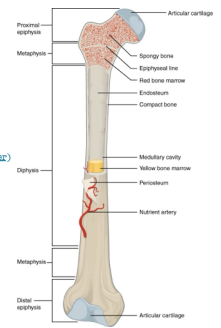
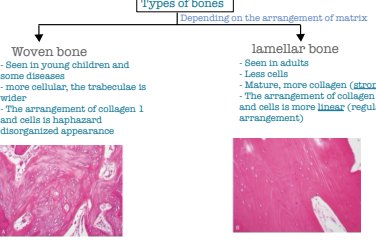
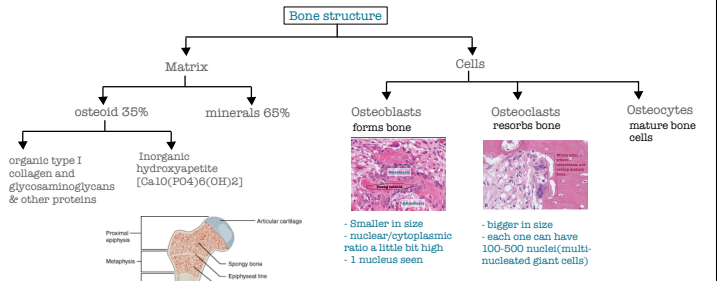
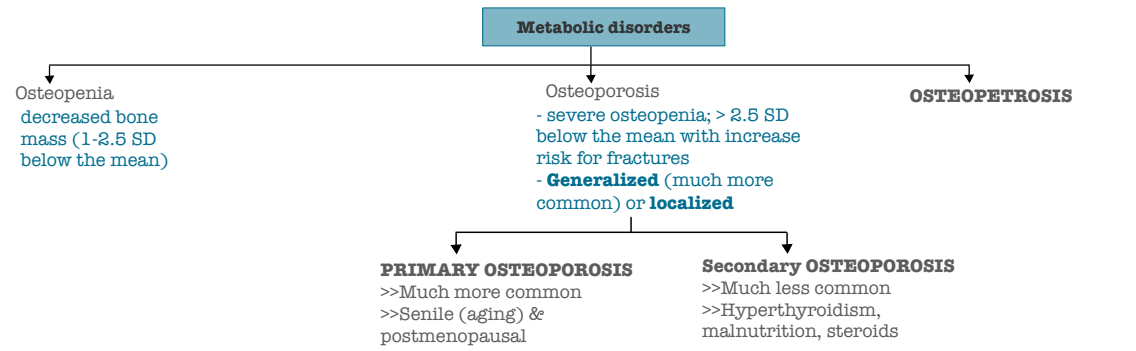
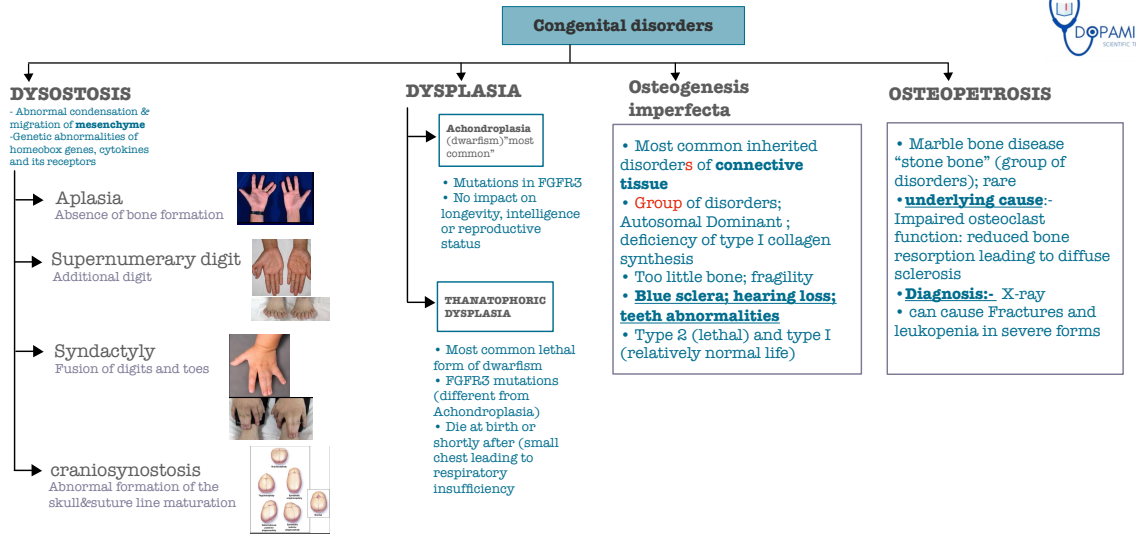
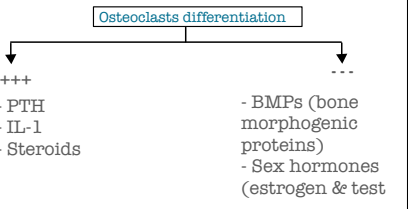


- ### Bone Functions
- Mechanical support
  - Force transmission
  - Protection Of internal organs
  - Mineral homeostasis
  - Hematopoiesis

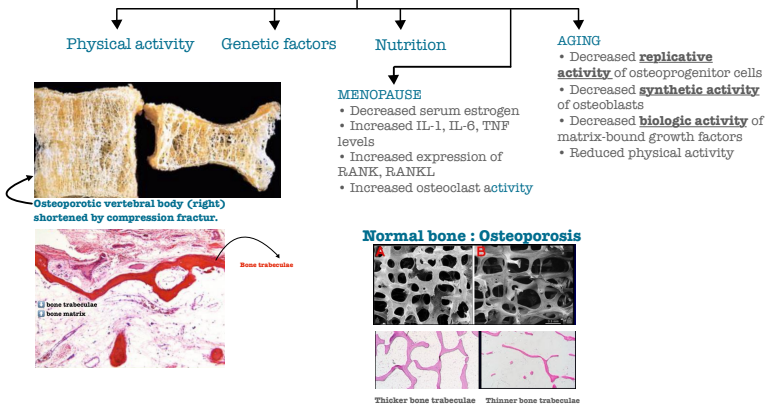


### HOMEOSTASIS & REMODELING

- Definition**- Continuous and dynamic complex process even in adult mature skeleton (microscopic level)
- Peak bone mass** is reached in early adulthood after completion of skeletal growth
- on 4th decade → Resorption > bone formation



Peak bone mass => decrease => lead to osteoporosis  
Because of



### OSTEOPOROSIS CLINICALLY

- Vertebral fractures
- Femur and pelvic fractures: immobility, PEs, pneumonia (40-50K death/yr in USA)
- Diagnosis: special imaging technique, bone mineral density (BMD scan); dual-energy X-ray absorptiometry (DXA or DEXA scan) or bone densitometry

### PREVENTION AND TREATMENT

- Exercise
- Calcium & vitamin D
- Bisphosphonates: reduce osteoclast activity and induce its apoptosis
- Denosumab: anti-RANKL; blocking osteoclast activation (new, expensive and potent)
- Hormones (estrogen): risking DVT and stroke

Teen