Bone Metabolism

Rickets

- Rickets (children) – failure of mineralization of the epiphyseal plate
- Related to lack of Vitamin D
  - Dietary
    - Poverty
    - Third world countries
  - Sunlight exposure
    - Northern latitudes
    - Sun screen
  - Metabolic failure
Renal Osteodystrophy

- Osteomalacia (low bone density) – failure of mineralization of osteoid
- Osteosclerosis (high bone density) – dense bones
  - Abnormal resorption of mineral
  - Abnormal deposition of mineral

Renal Rickets

- Child
- Zone of provisional calcification is deficient
- Metaphyses irregularly mineralized, widened and cupped
- Fracture of distal fibula

Images courtesy Nancy Fitzgerald, MD, Texas Children's Hospital
Rickets

- Widening of the ribs at the costal-chondral junction
- Known clinically as Rachitic Rosary

Images courtesy Nancy Fitzgerald, MD, Texas Children's Hospital
Rickets

- Widened metaphysis with fraying

Rickets

- Wrist film
- Another patient
- Cupping and fraying of metaphyses
Treated Rickets

- Same patient after 3 months of Vitamin D
- Improved appearance with well-defined slightly undulating metaphysis