

Bone Fractures and Bone Disorders

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What is fracture?

- Soft tissue injury with discontinuity of bone

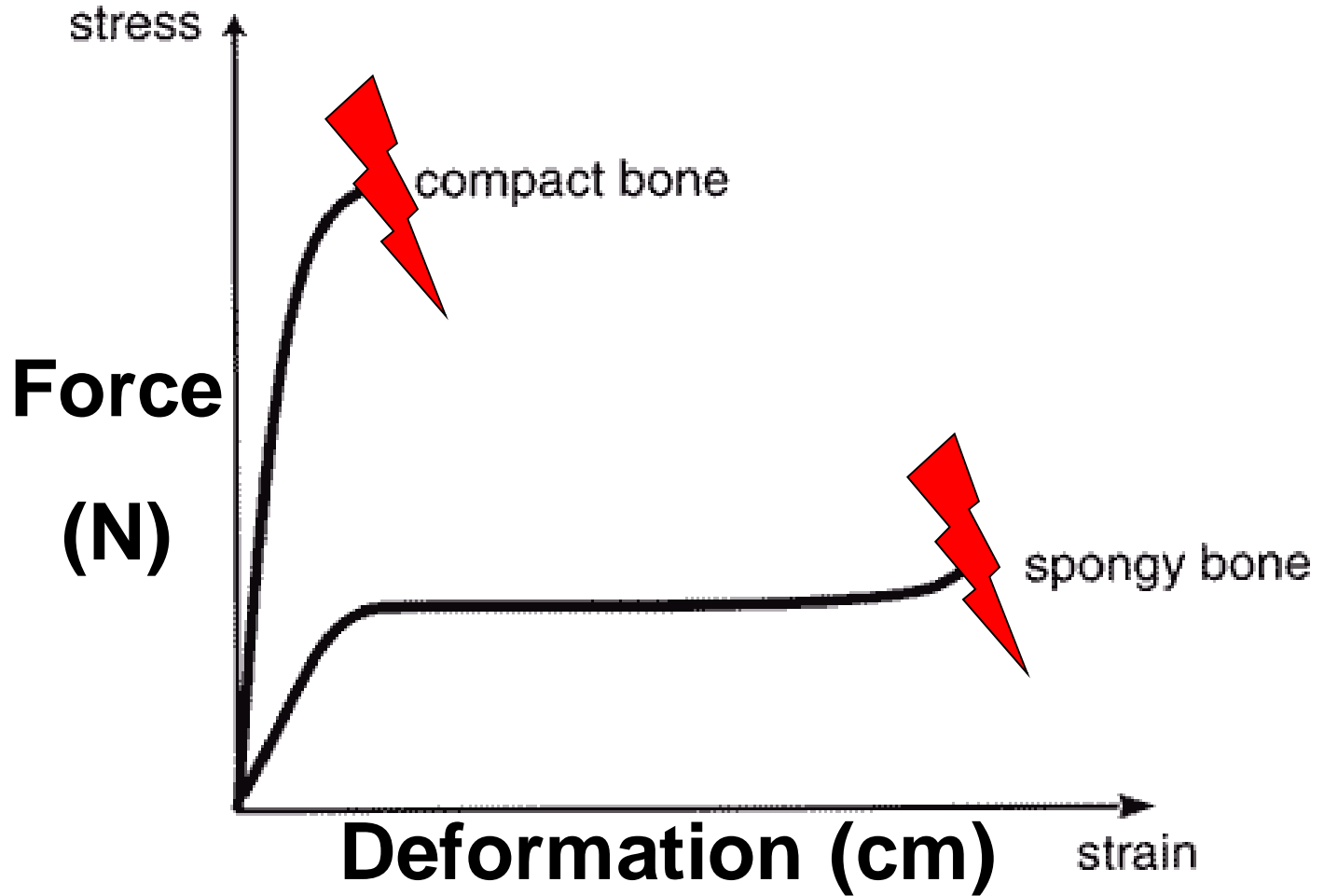
Epiphyseal and diaphyseal bone



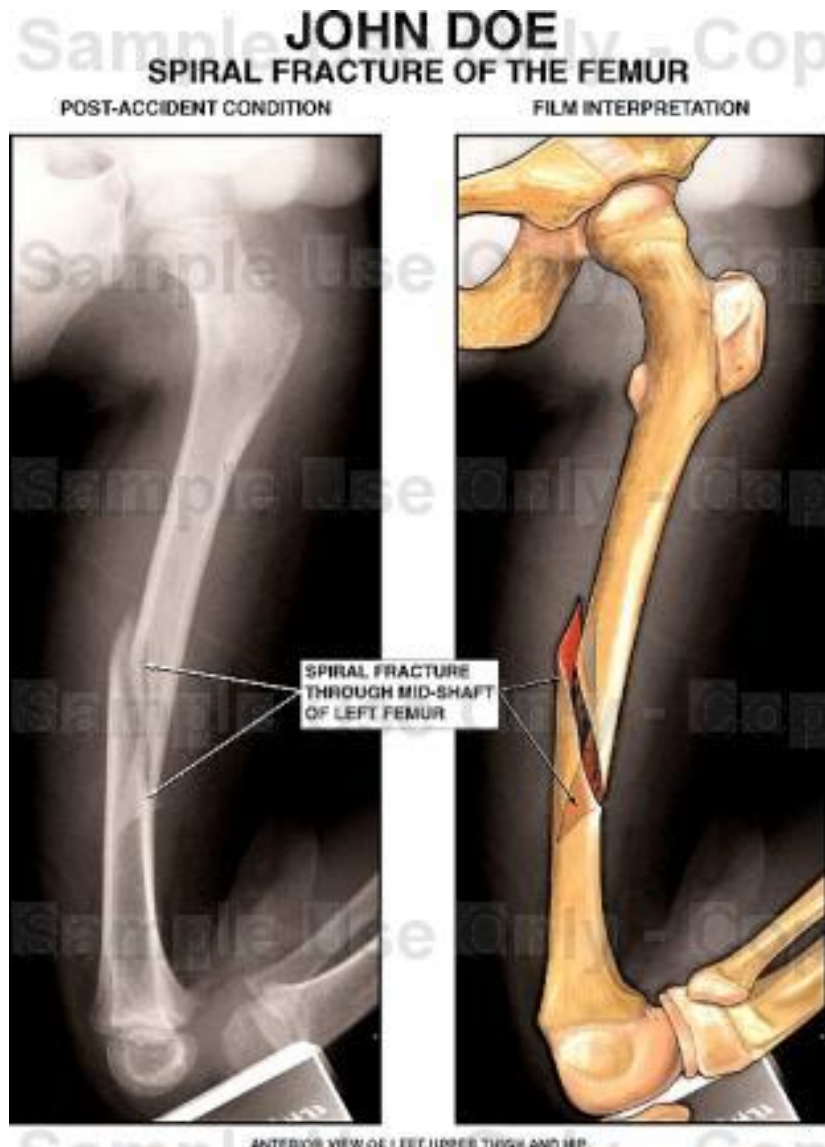
Fractures

- Simple ; spiral, oblique and transverse
- Complex
 - Complete separation of bone; major blow, intra-articular , comminution and segmental
- Open vs close

Stress – Strain



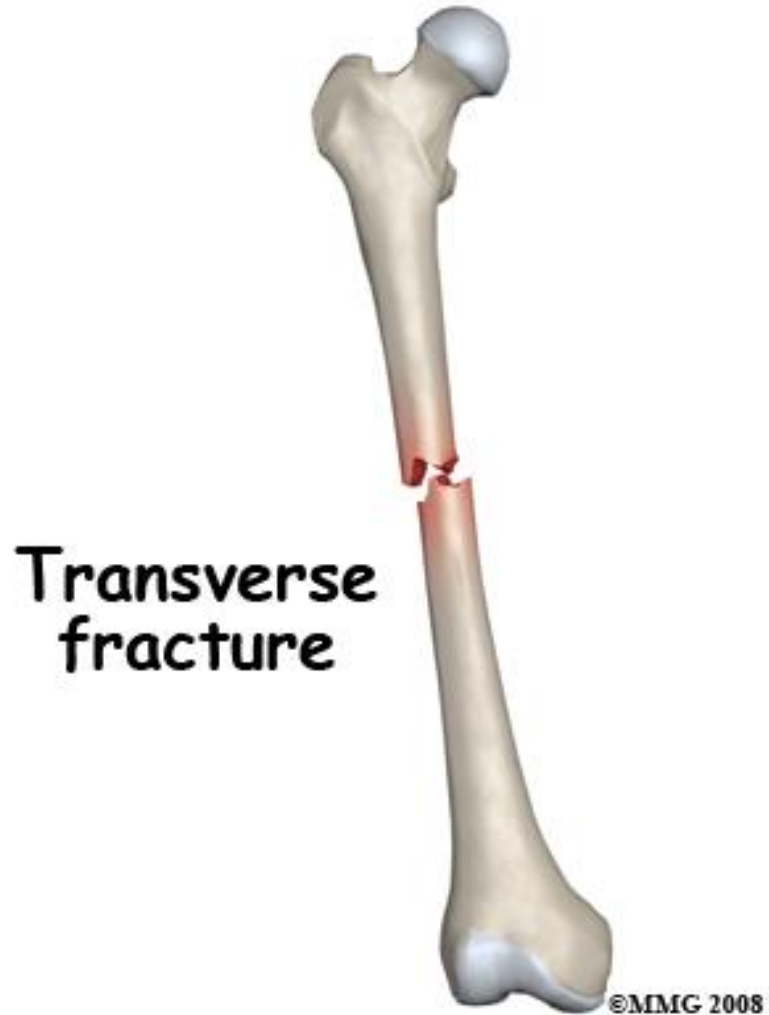
Spiral fracture , mechanism, amount of energy



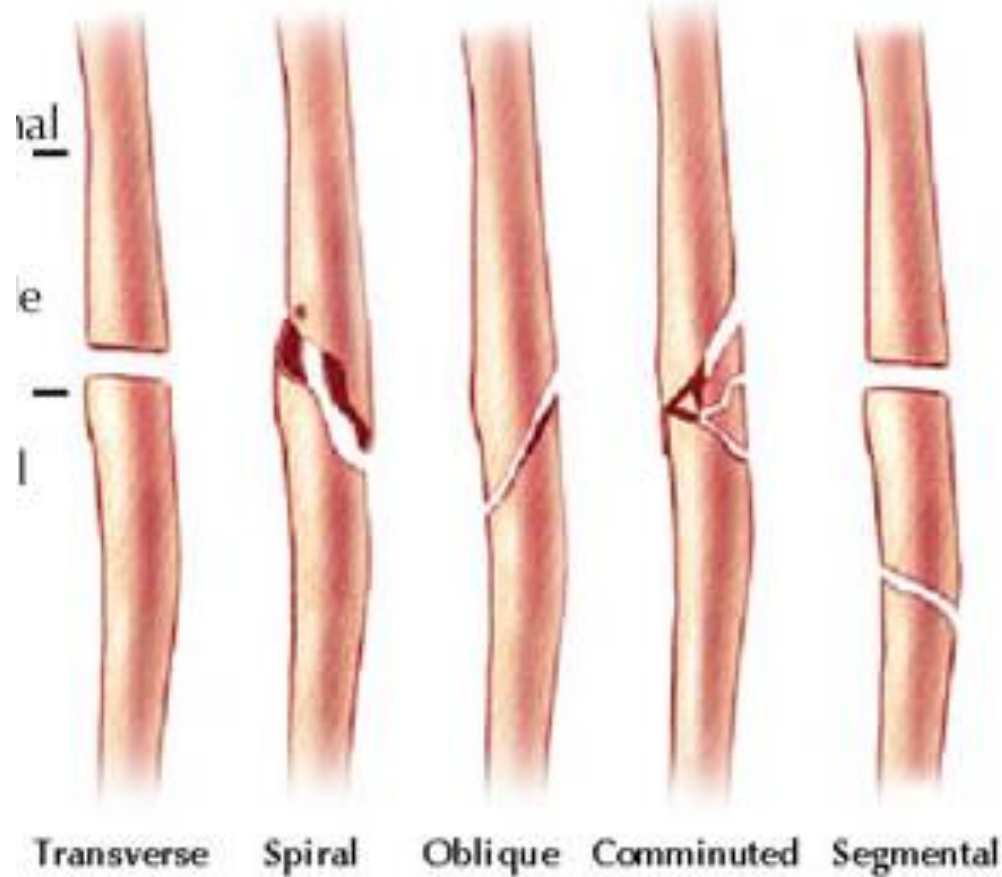
Oblique



Transverse



Common types of fractures



Segmental fx



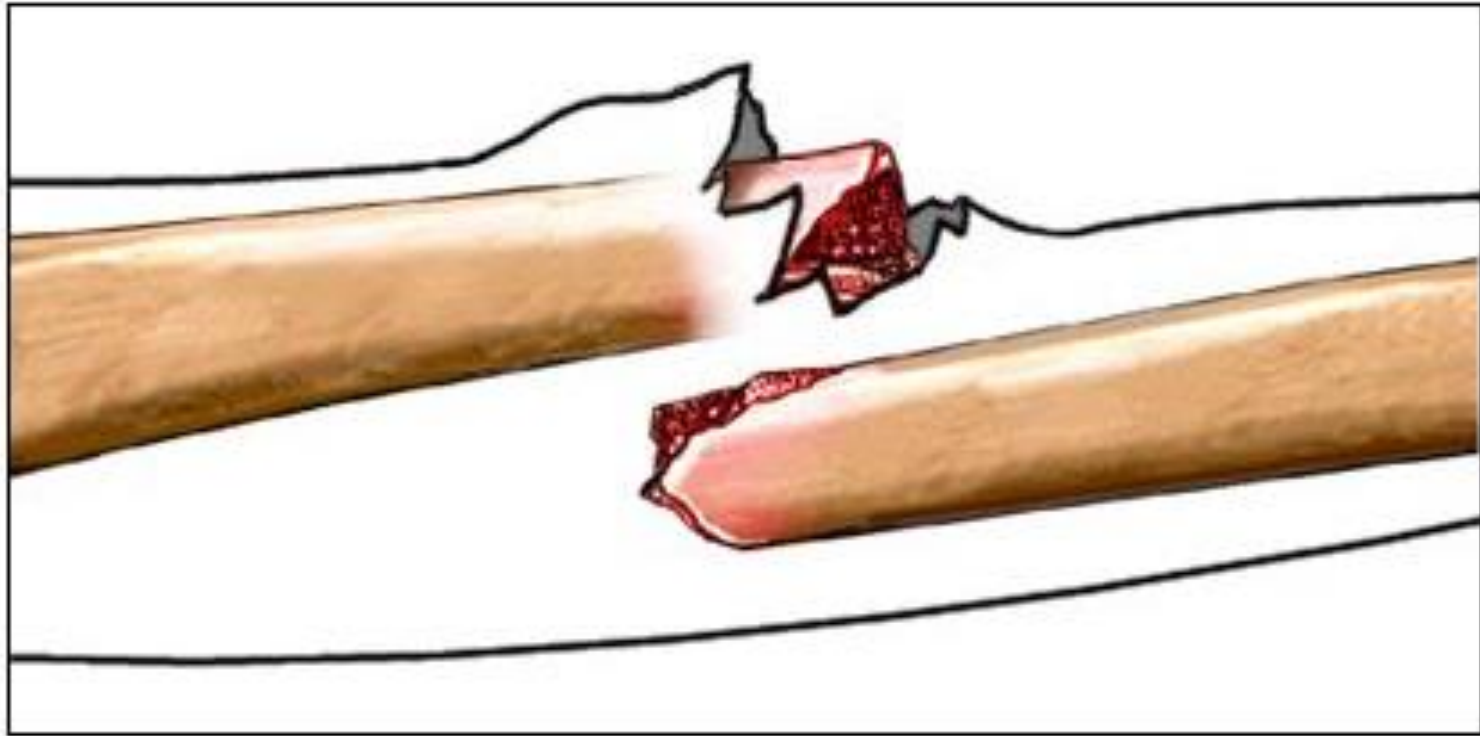
Comminuted fx



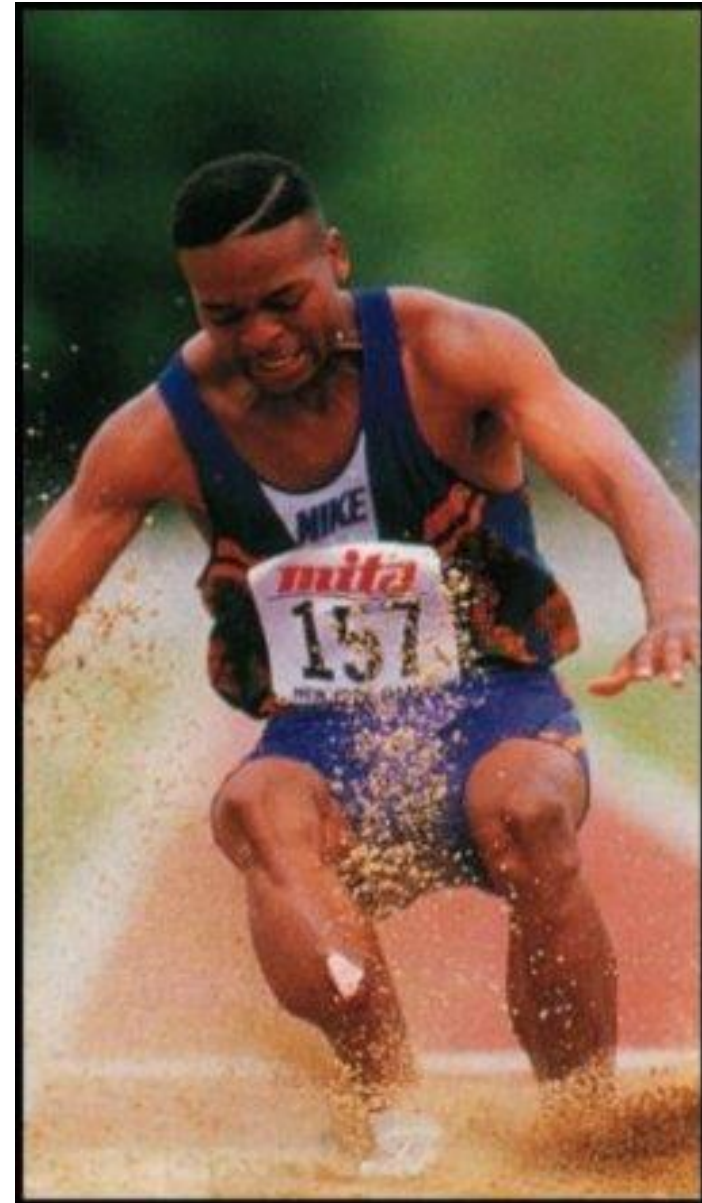
Closed Fracture



Open Fractures



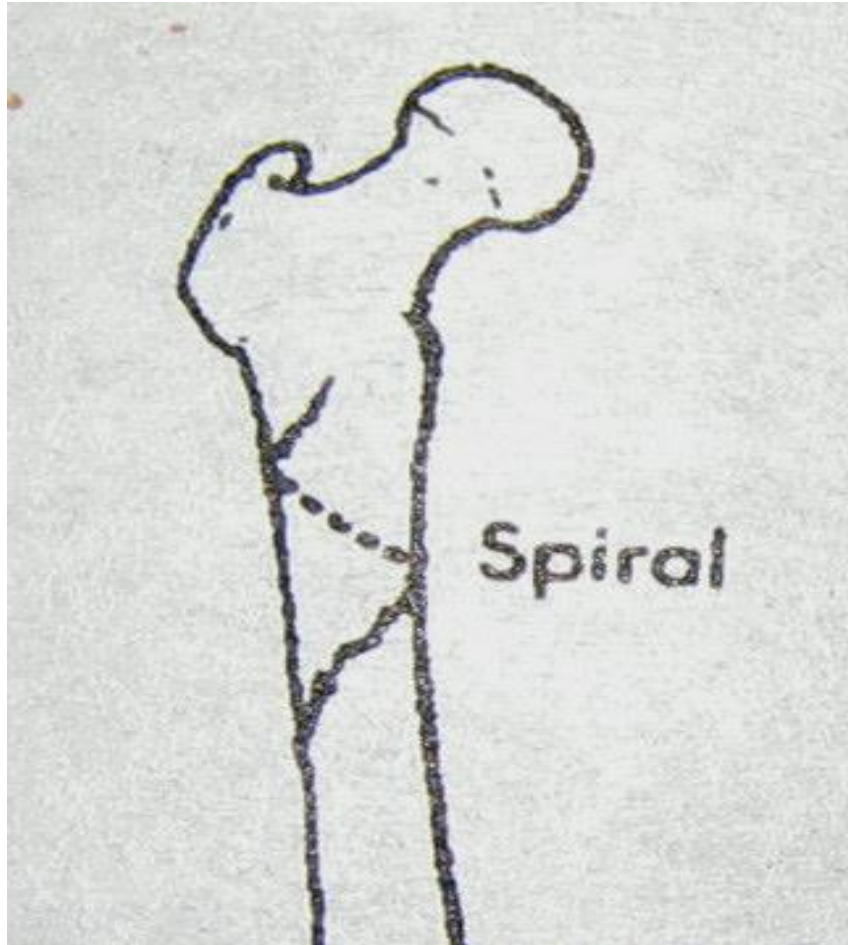
- Llewellyn Starks, who suffered a compound fracture to his right tibia and fibula when attempting a jump at the 1992 New York games. This injury ruined his career.



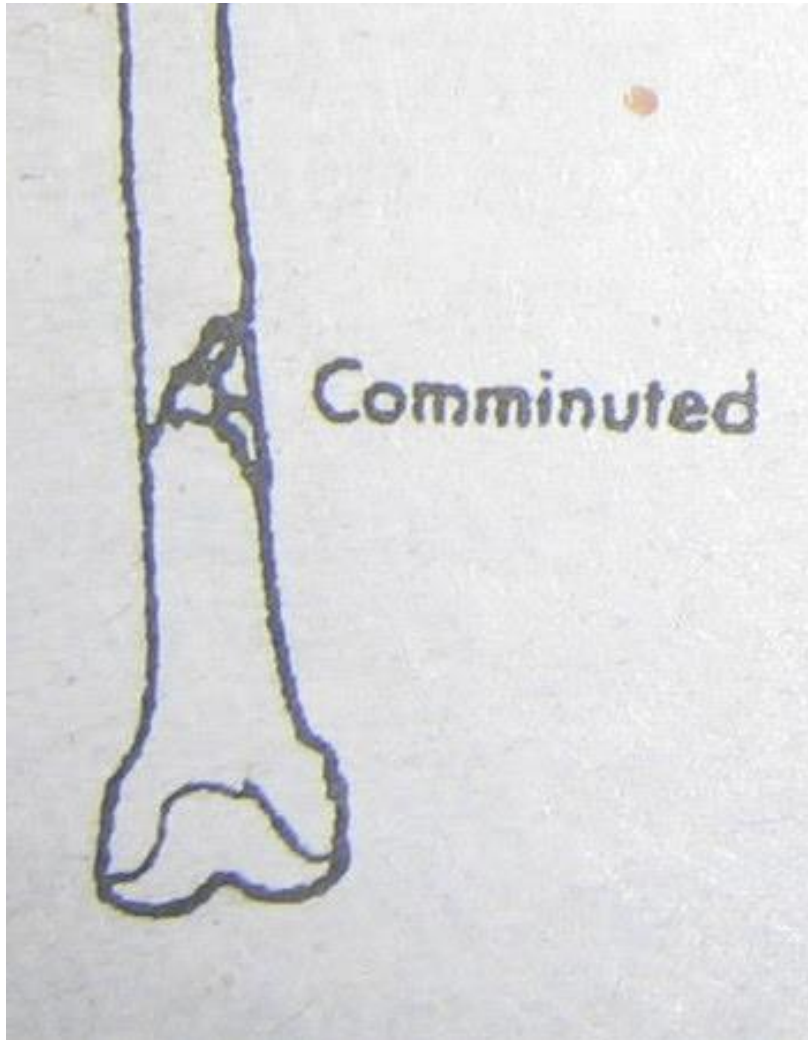




Spiral Fracture



Comminuted Fracture



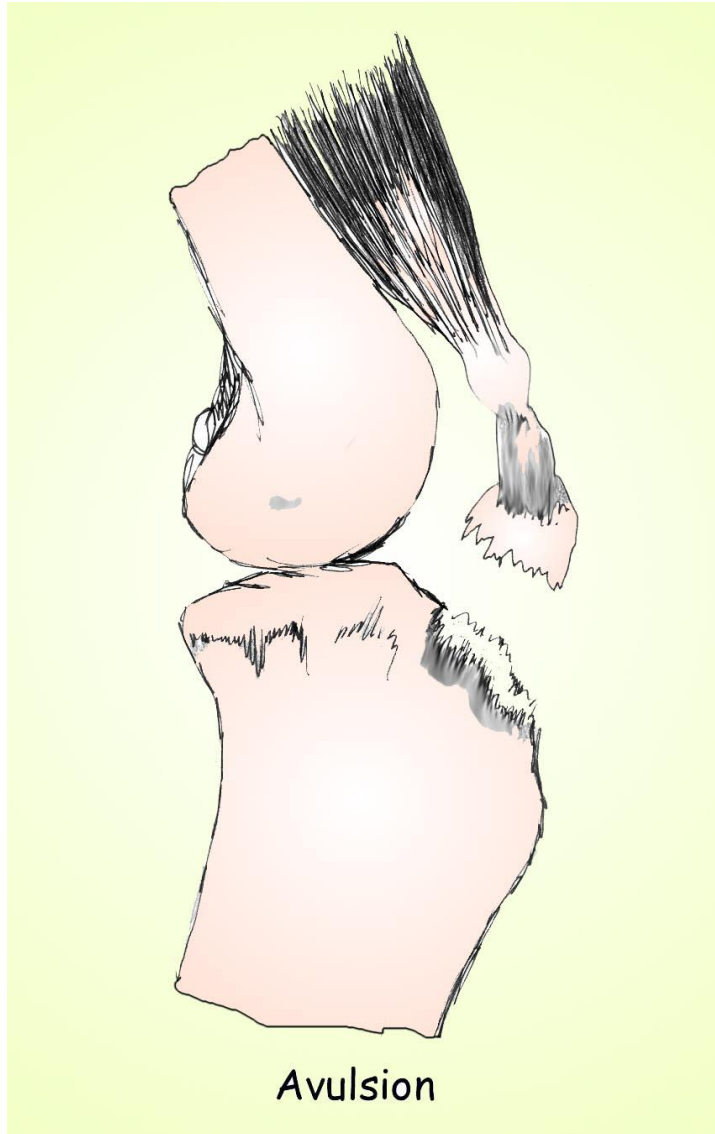


**Comminuted
fracture.**



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Avulsion Fracture



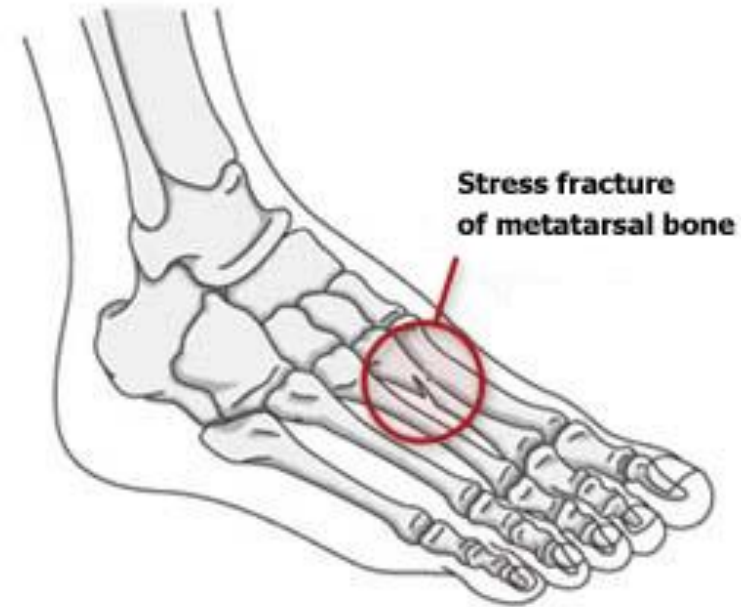
- When a fragment of bone tears away from the main mass
- Force of muscle contraction pulls tendon and bone from periosteum
- Athletes

Avulsion Fracture



Stress Fractures

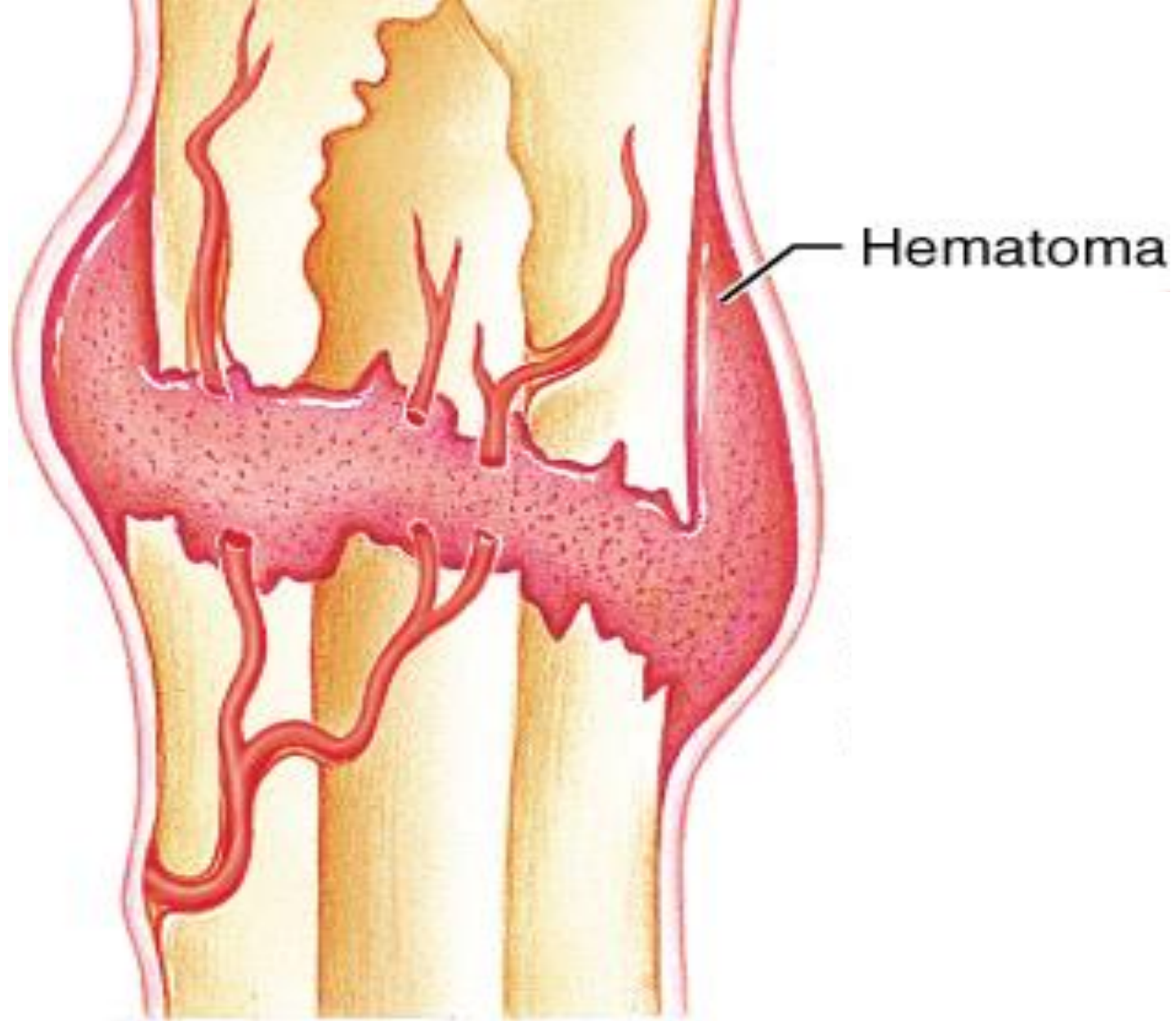
- Type of hairline fracture that occurs after repetitive stress
- Muscles become too fatigued to absorb the shock
- Common in runners. Which bones? _____
- Training too hard too soon



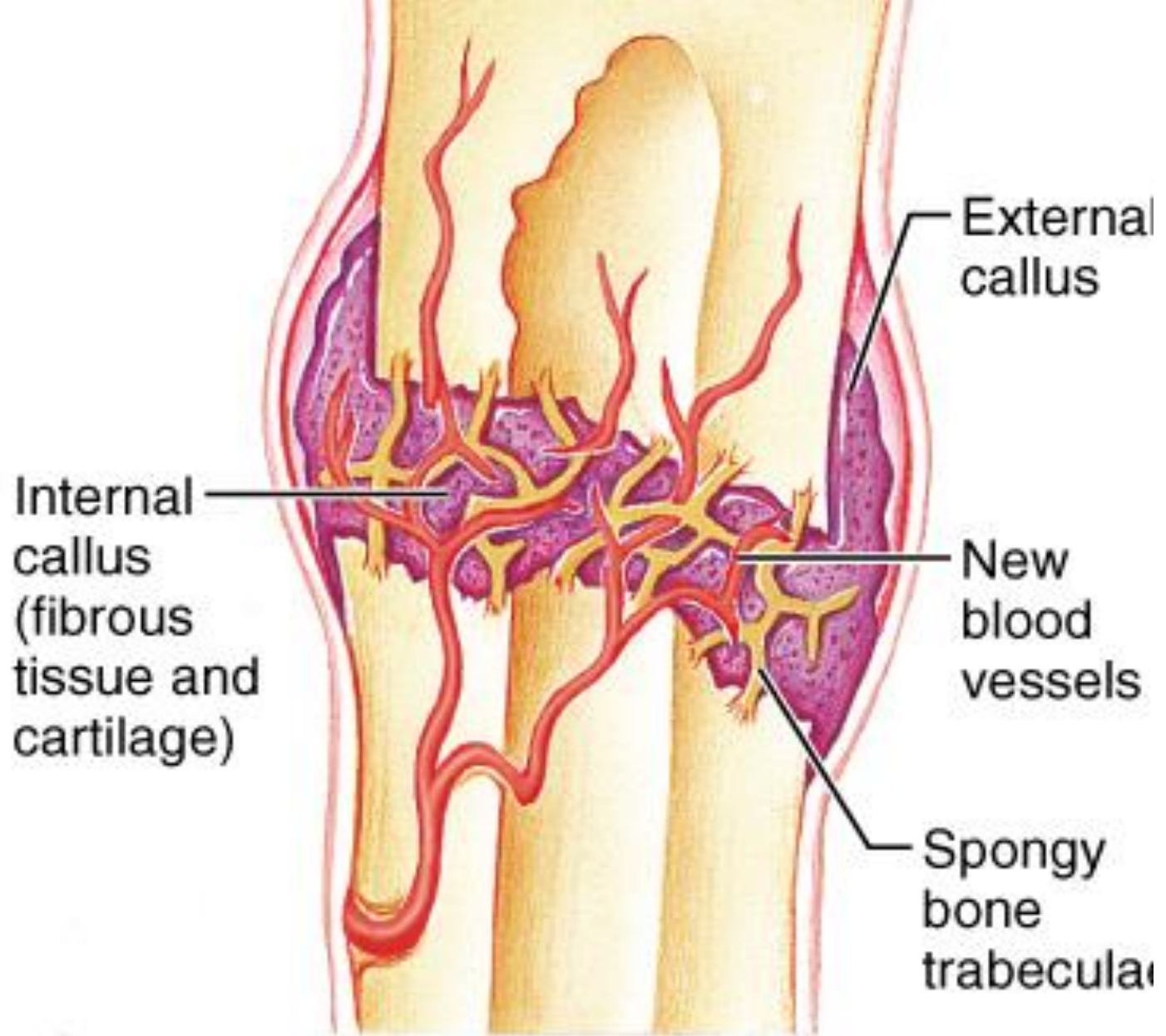
Management

- Principles of management of acute fractures

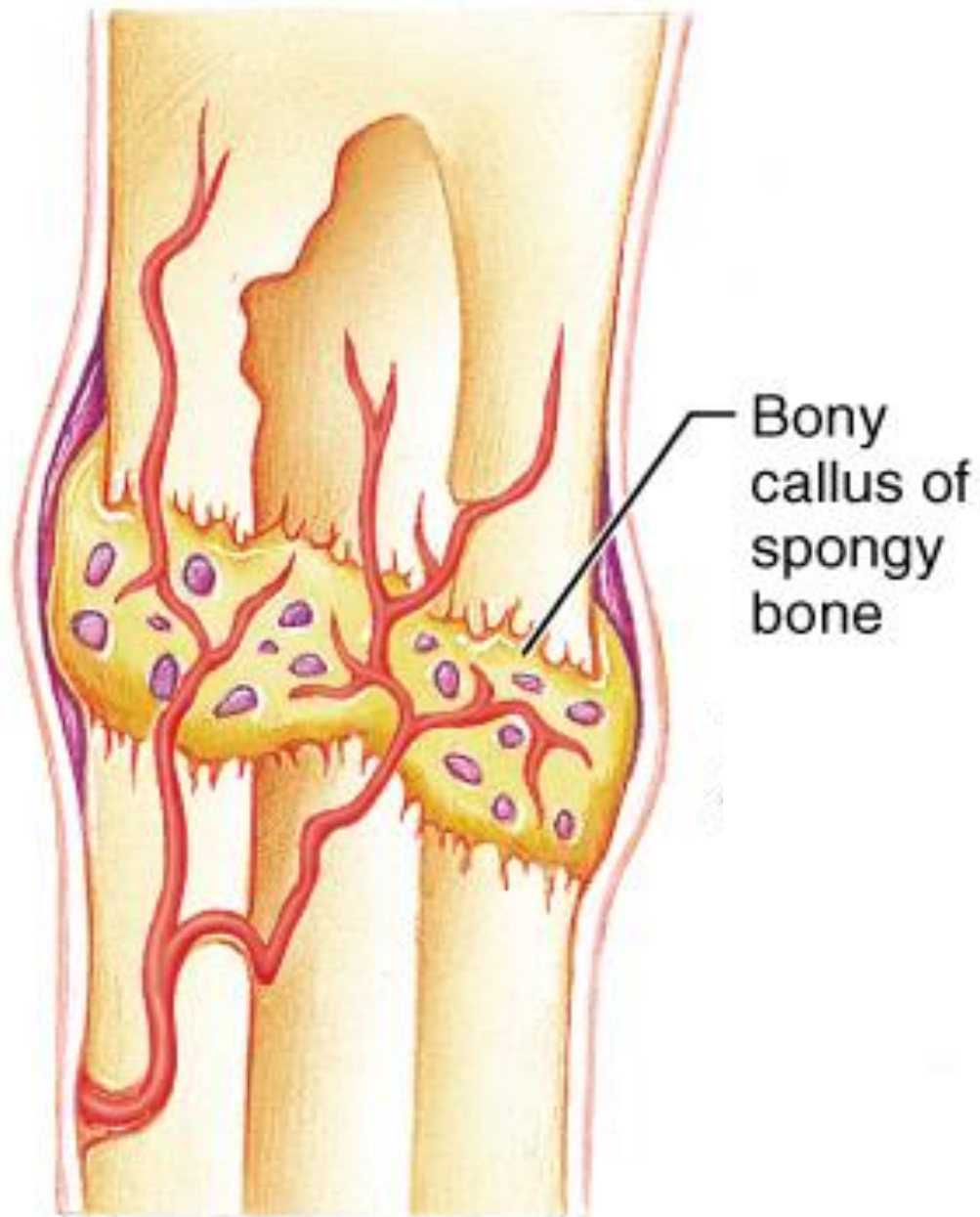
The Healing of Broken Bones



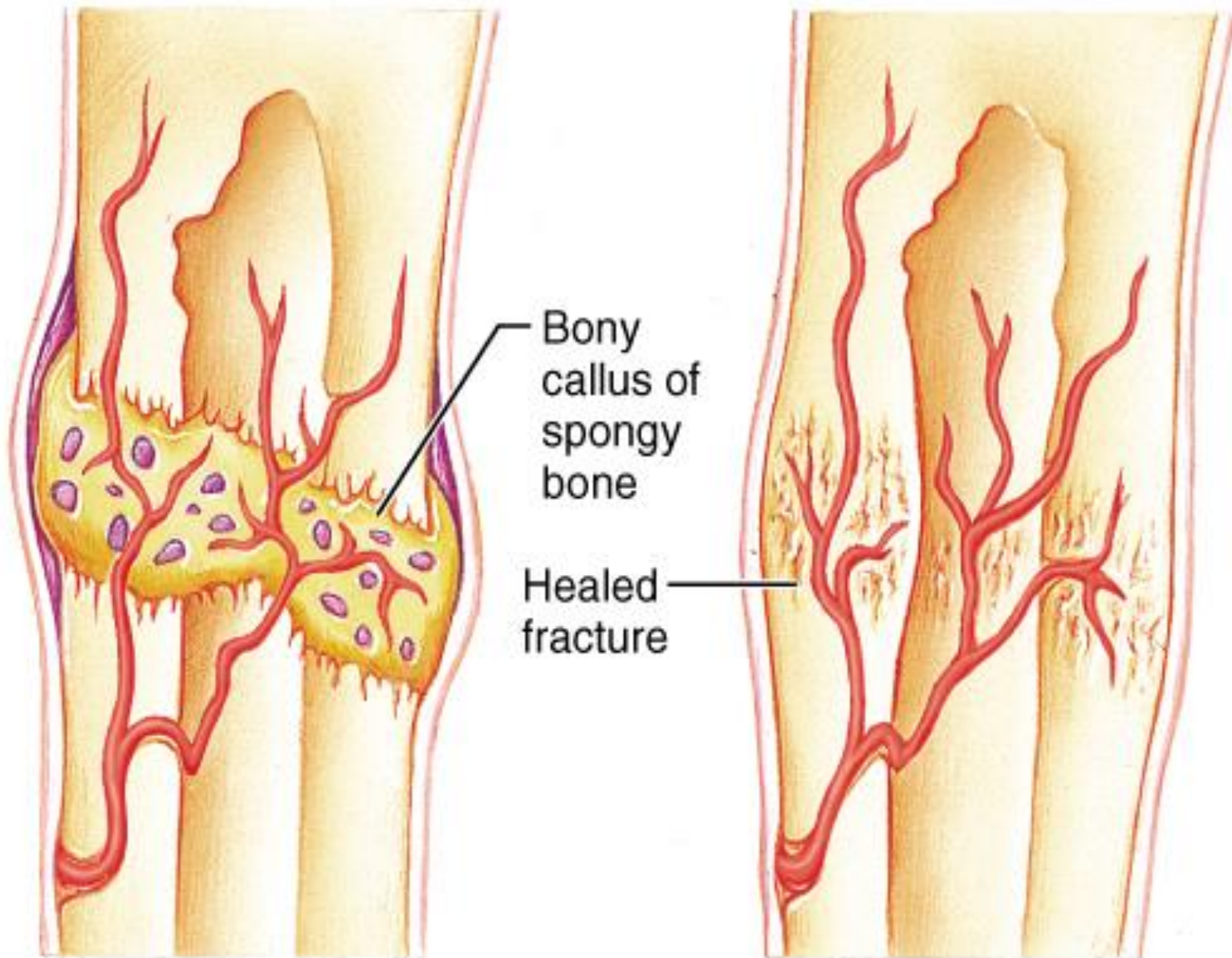
① Hematoma formation



② Fibrocartilagenous callus formation



③ Bony callus formation



③ Bony callus formation

④ Bone remodeling

Rickets

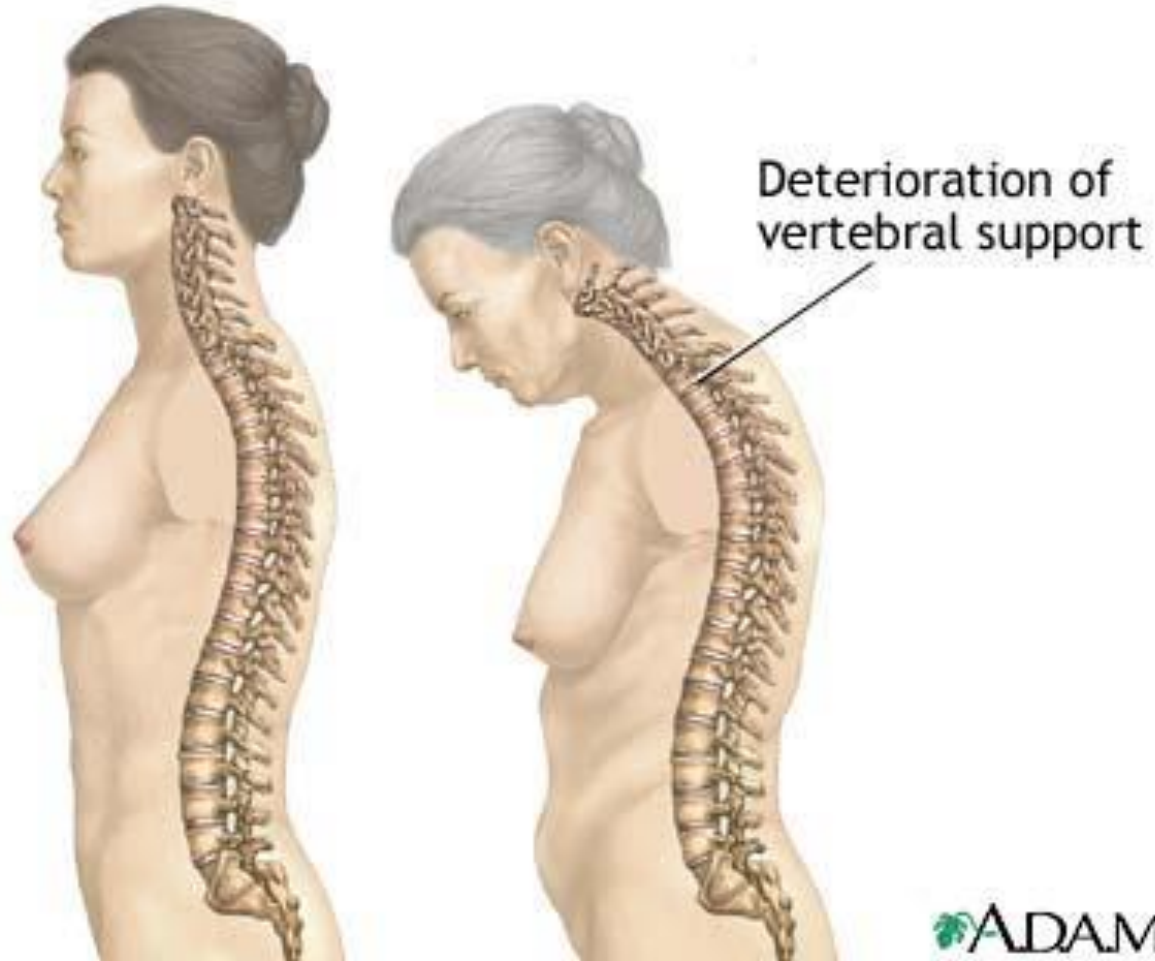
- **Rickets** is a disorder caused by a lack of vitamin D, calcium, or phosphate.
- It leads to softening and weakening of the bones.
- Symptoms: Bone pain or tenderness Arms; Legs; Pelvis; Spine. Dental deformities



Osteoporosis

- “porous bone”
- Leads to fragile bone and increases risk of breaks – hip wrist and spine. Why these bones?
- Called silent disease
- Post-menopausal women more at risk
- Young women with “female triad” also at risk (excessive exercise, poor diet, and weight loss)

Osteoporosis



Normal



Osteoporosis



Screening

- Treatment

- THANK YOU