

Lecture-10–

Musculoskeletal system (Fracture)

:by

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Fracture: Is any break in continuity of the bone



Causes:

1-Trauma (direct or indirect force)

2-Osteoporosis

3-Myeloma (is a primary tumor of the bone marrow)

4-Bone tumors

5-Immobility

6-Malnutrition

7-Cushing`s syndrome (is a hormonal disorder cause by high levels of the hormone cortisol in your body)

8-Osteomeylitis

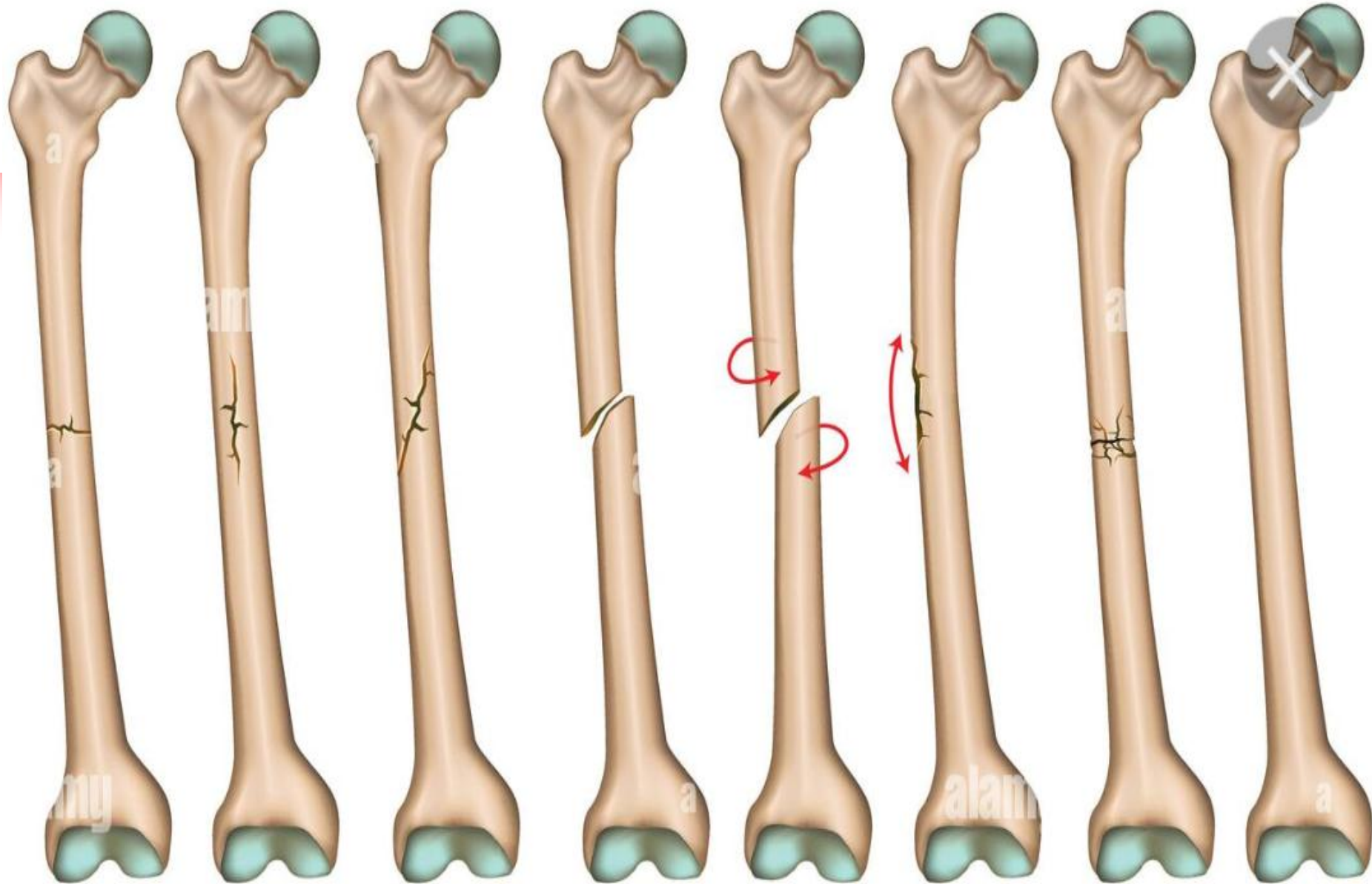
9-Steroid therapy

10-Aging



Classifications of Fractures

1. - Simple or closed
2. - Open or compound
3. Oblique – Line of Fx. Angled
4. Transverse – Across the bone
5. Longitudinal – Length of bone
6. Spiral – Twisting or rotation of bone
7. Comminuted – broken in > 2 places
8. Impacted – Fragments driven into each other
9. Displaced or Avulsed – torn away by a ligament or tendon



Transverse

Linear

Oblique
Nondisplaced

Oblique
Displaced

Spiral

Greenstick

Comminuted

Avulsion

Types of Fractures

- **Open fracture**



Closed fracture





Clinical Manifestations

1-Pain

2-swelling and discoloration

3-loss of function

4-deformity

5-shortening

6-crepitus



Investigations

- **History of incident and initial assessment**
- **Diagnostic Tests**
- **Physical examination**
- **X-Ray**
- **An MRI or arthroscopy**



Medications

- **Pain relief** using **NSAIDs** for anti-inflammatory affect as well as analgesia
- Medications to guard against ulcers
- **Stool softeners** to prevent constipation
- **Anticoagulants**, if client considered at risk for deep vein thrombosis



Treatments

- **Surgery**

- **Indications:**

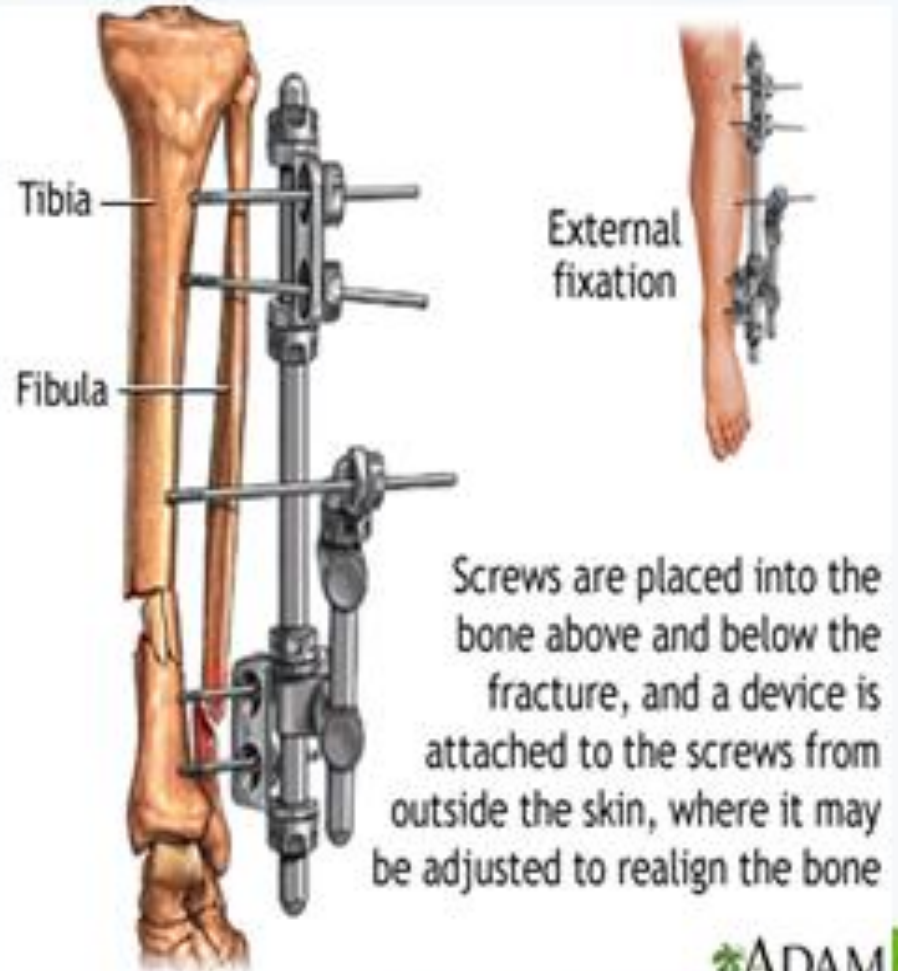
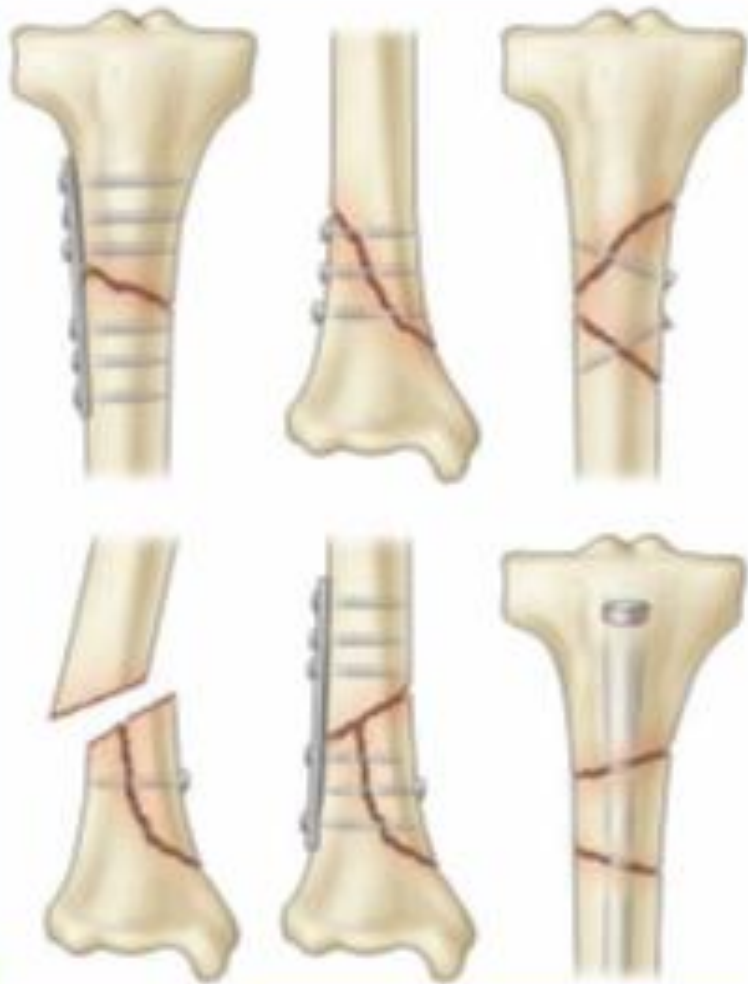
- Requires direct visualization and repair
- Fracture associated with long-term complications
- Severely comminuted fracture, which threatens vascular supply

- **Types:**

- External fixation:
- Internal fixation:

Internal fixation

External fixation



Screws are placed into the bone above and below the fracture, and a device is attached to the screws from outside the skin, where it may be adjusted to realign the bone

Traction

application of straightening or pulling force to maintain or return fractured bones in normal alignment; prevent muscle spasms.

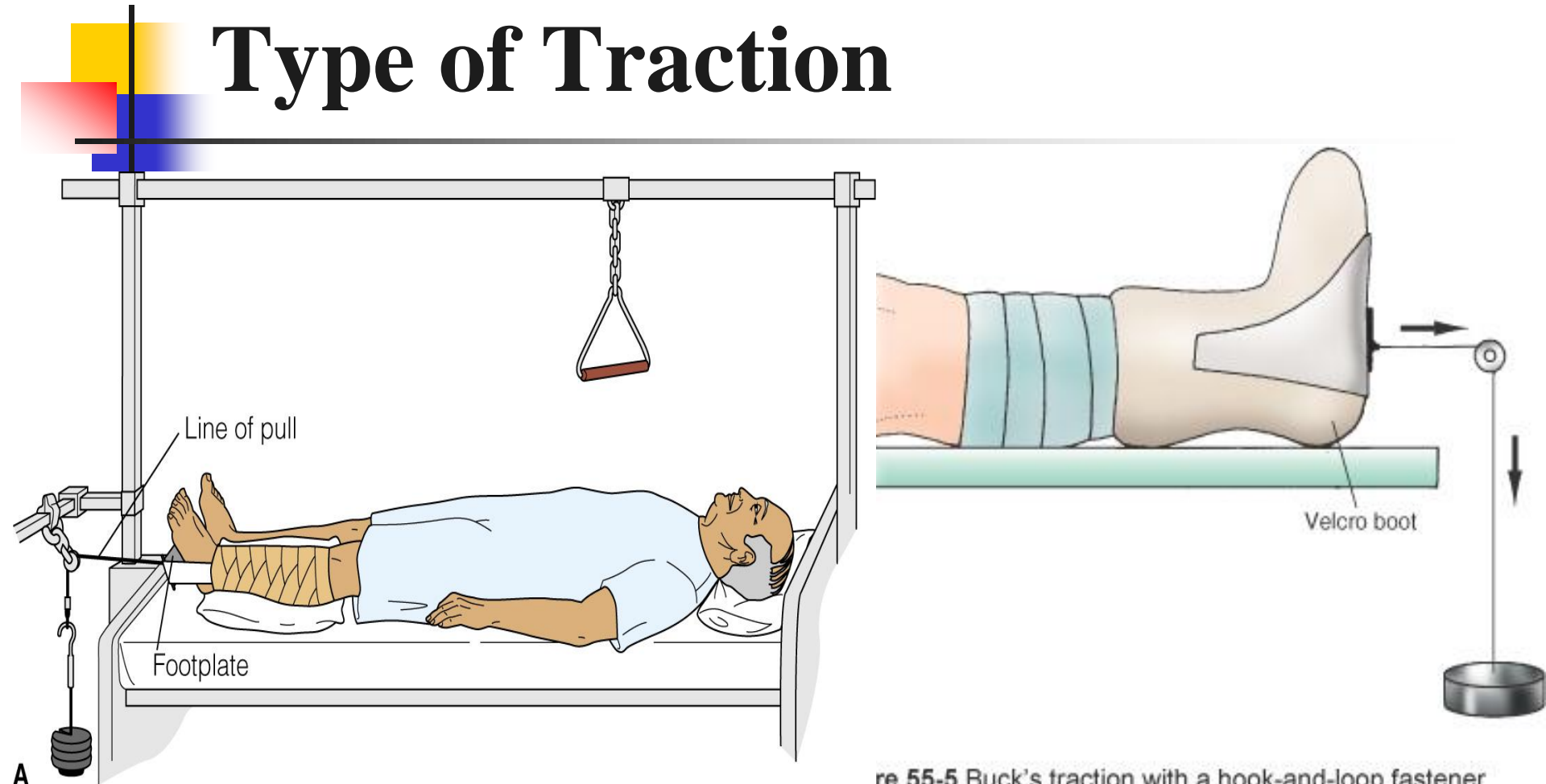
- **Types of traction:**

- Manual: by hand
- Straight: pulling force in straight line
- Buck's traction: straight skin traction often used with fractured hip

- Balanced suspension: involves more than one force of pull.

- Skeletal: application of pulling force through placement of pins into the bone; allows use of more weight to maintain alignment; increased risk of infection.

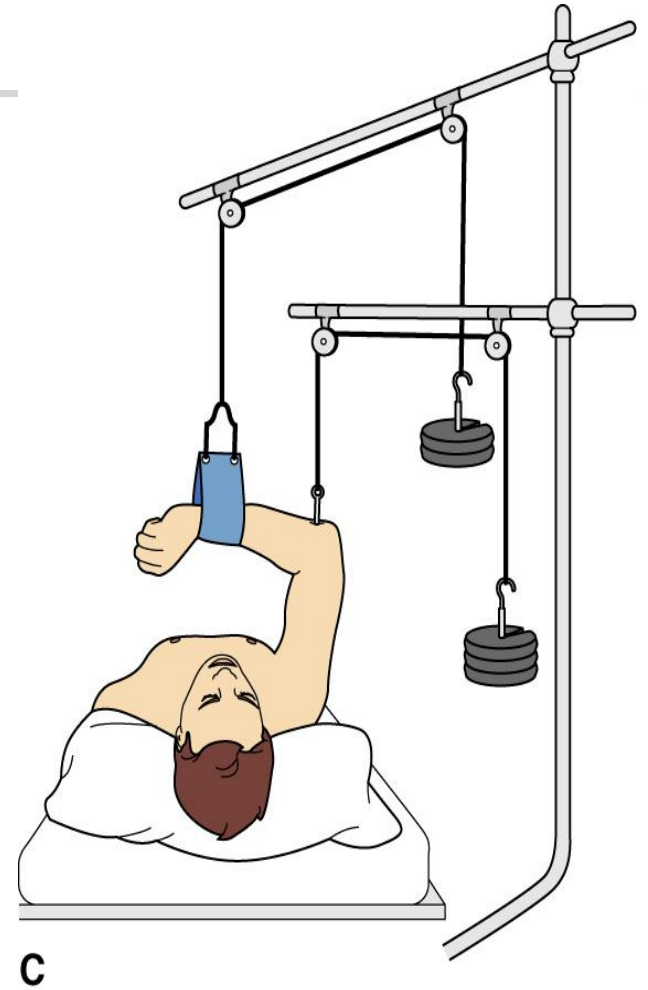
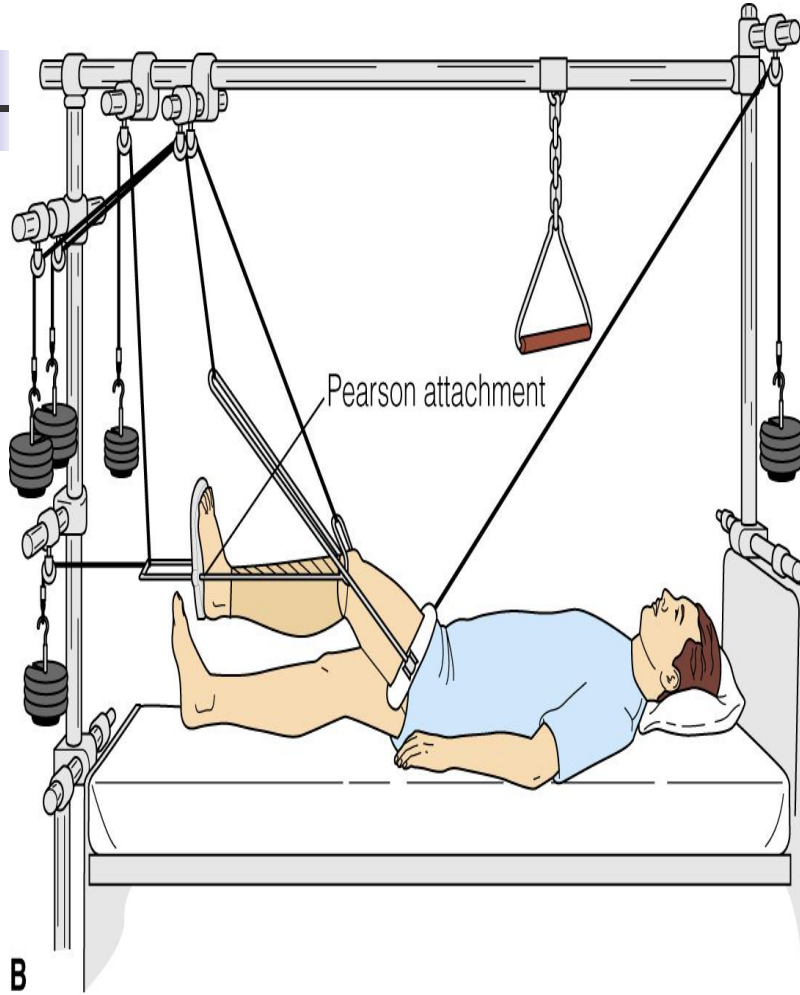
Type of Traction



re 55-5 Buck's traction with a hook-and-loop fastener (Velcro) boot, commonly used for hip fractures.

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Traction





Casting

- Rigid device applied to immobilize bones and promote healing.
- Extends above and below the fractured bone which must be relatively stable.



Complications of fracture

- 1- Shock
 - 2- Hemorrhage
 - 3- Fat embolism
 - 4- Pulmonary embolism
 - 5- Compartment syndrome
 - 6- Neurological complications
 - 7- Infection
- Mal union
 - Delayed union (4-6 months)
 - Non union



Nursing Diagnosis

- Acute Pain
- Risk for Peripheral Neurovascular Dysfunction
- Risk for Infection
- Impaired Physical Mobility
- Risk for Disturbed Sensory Perception: Tactile (touch)



Nursing management

Nursing Care involved with fractures includes management of

- 1. Pain
- 2. Impaired physical mobility
- 3. Impaired tissue perfusion
- 4. Neurovascular compromise
- 5. Assessment of client's response to trauma

Home Care: Client and family teaching focuses on individualized needs

- 1. Cast care
- 3. Home physical therapy referral
- 4. Obtaining needed equipment