

Lecture-10–

Musculoskeletal system (Fracture)

:by

Assistant lecturers

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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

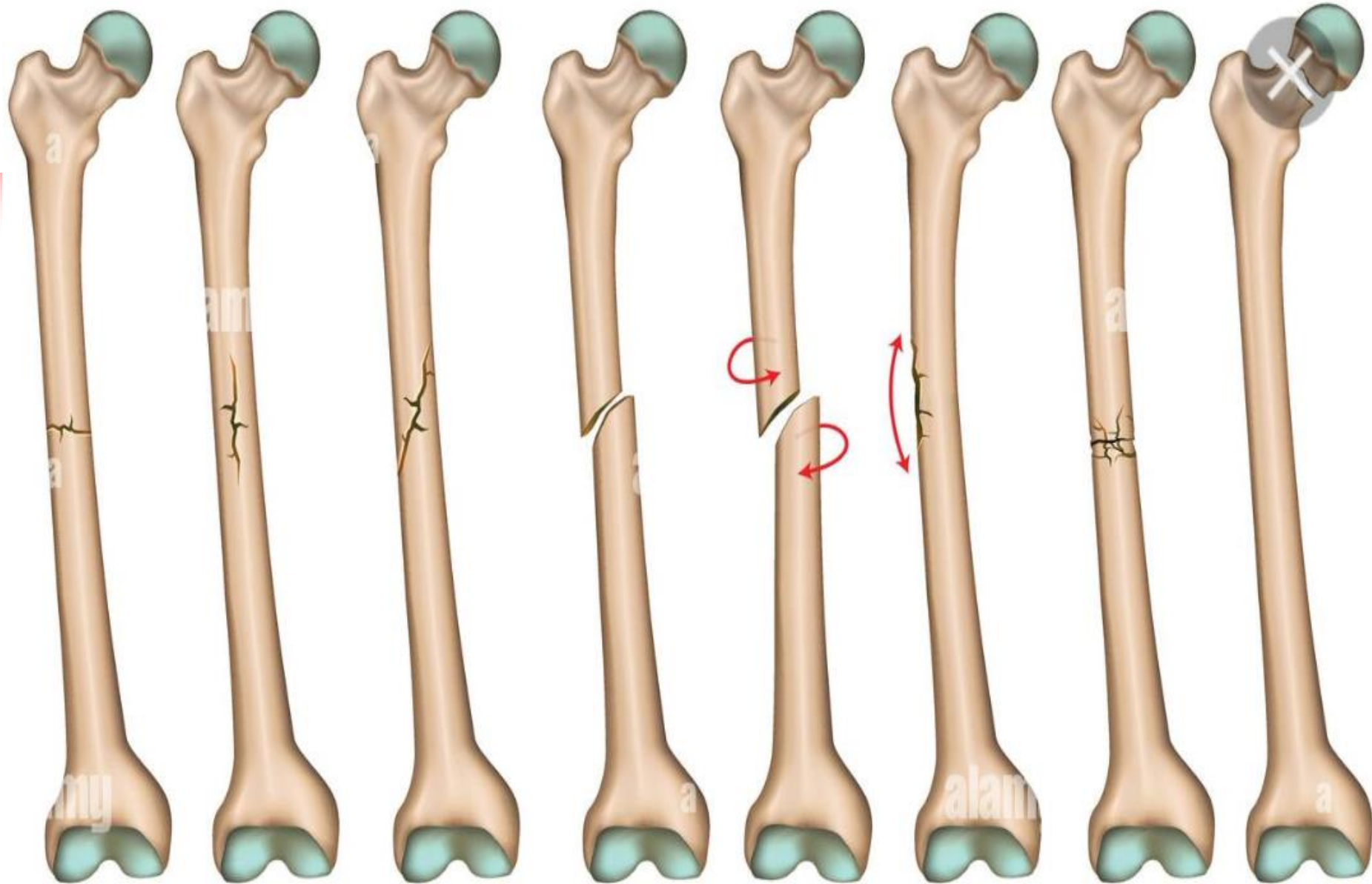
9-Steroid therapy

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:**

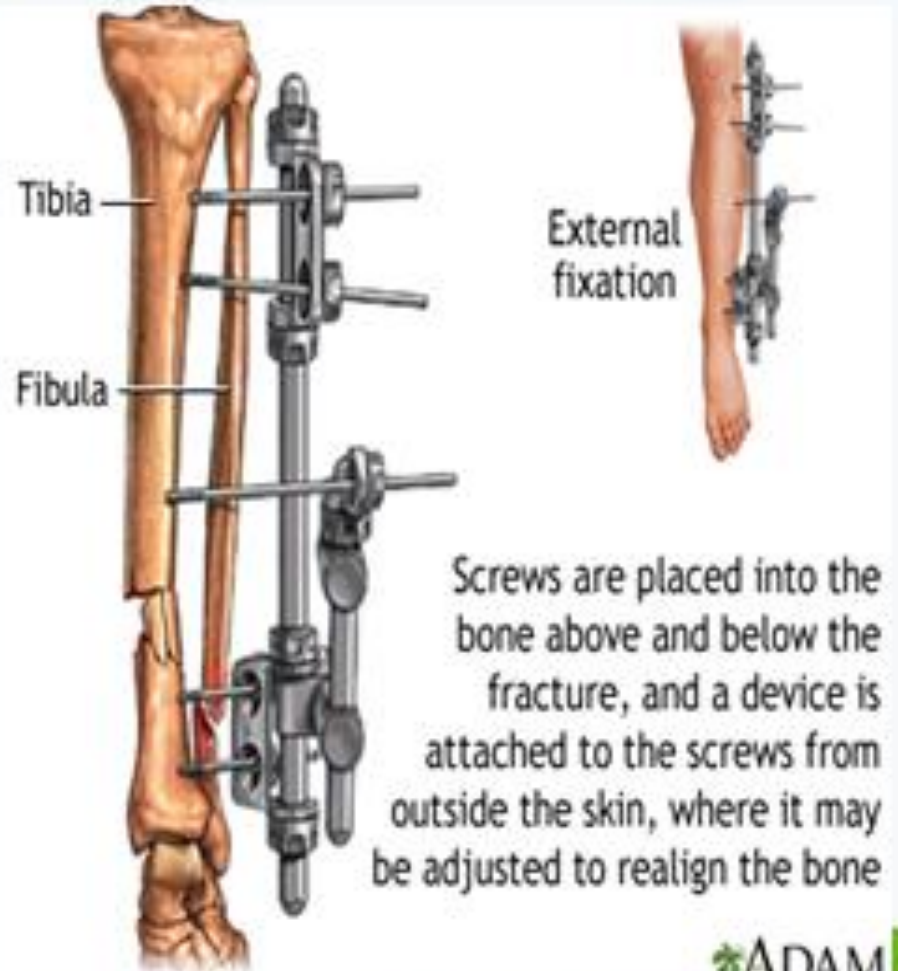
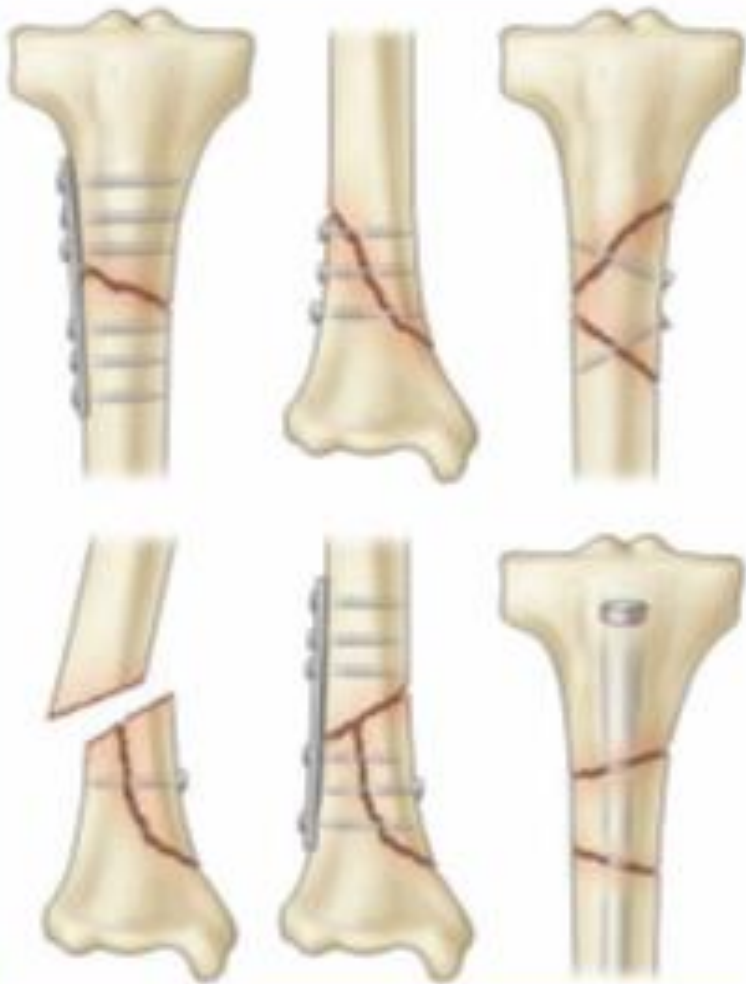
- Requires direct visualization and repair
 - Fracture associated with long-term complications
 - Severely comminuted fracture, which threatens vascular supply

- **Types:**

- External fixation:
 - Internal fixation:

Internal fixation

External fixation



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

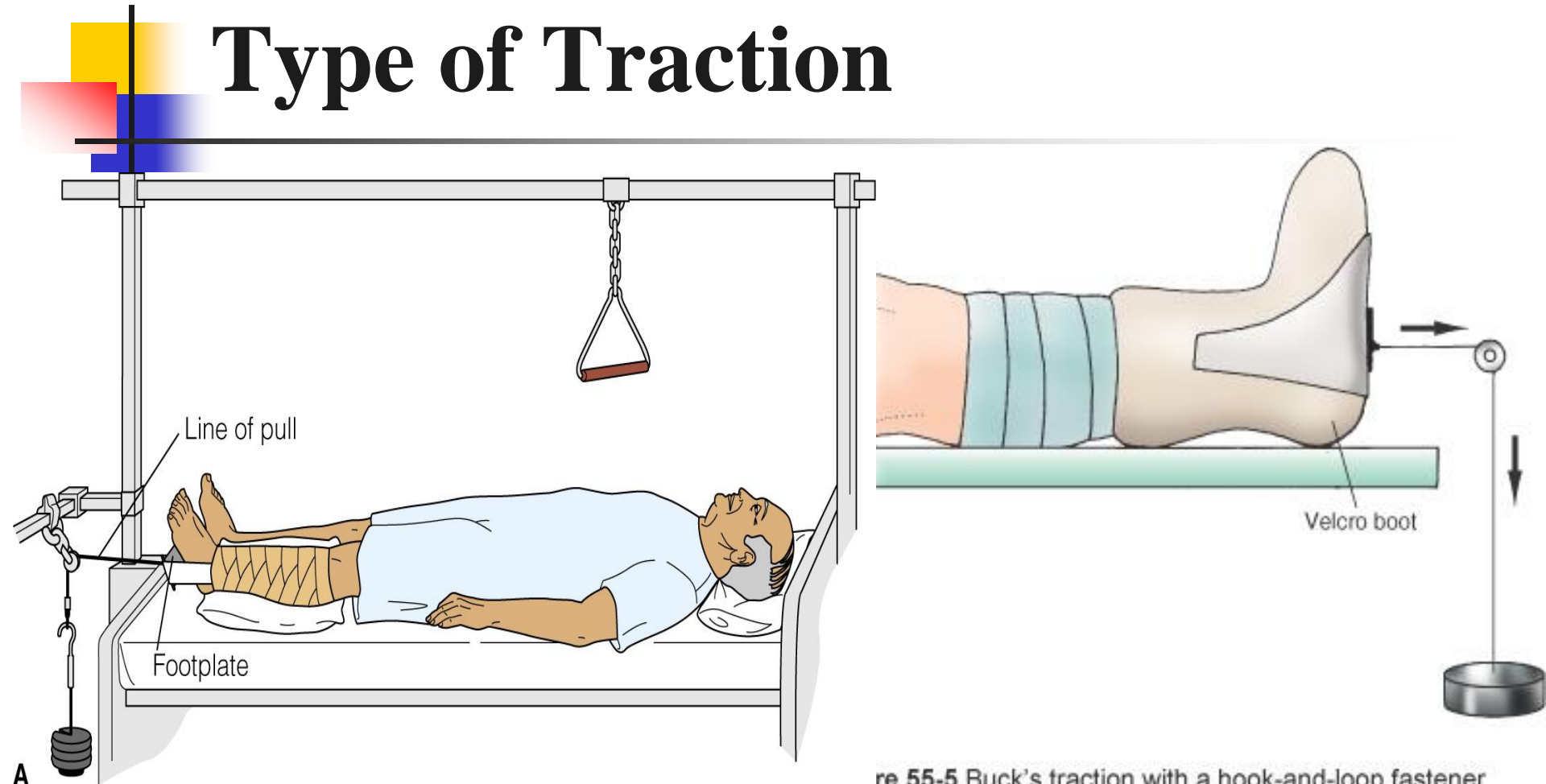
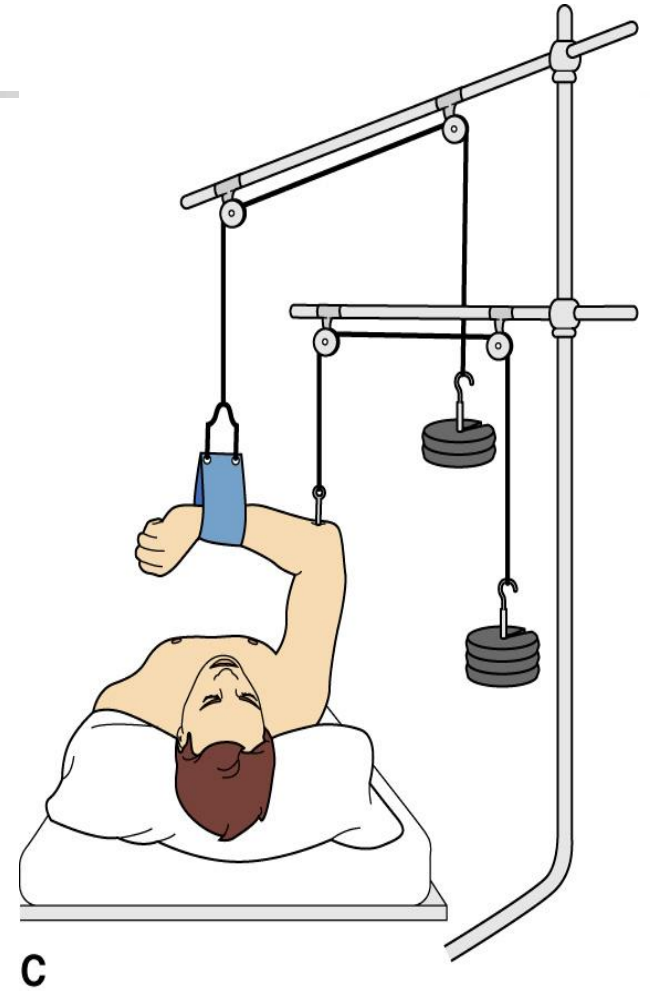
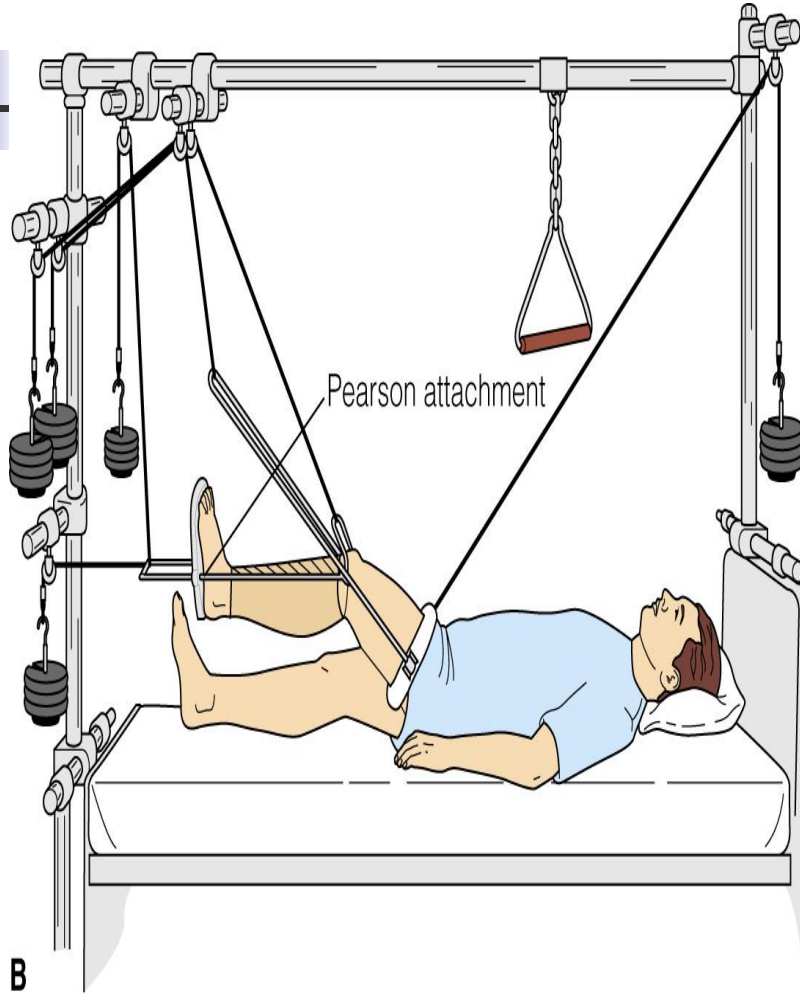


Figure 55-5 Buck's traction with a hook-and-loop fastener (Velcro) boot, commonly used for hip fractures.

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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