

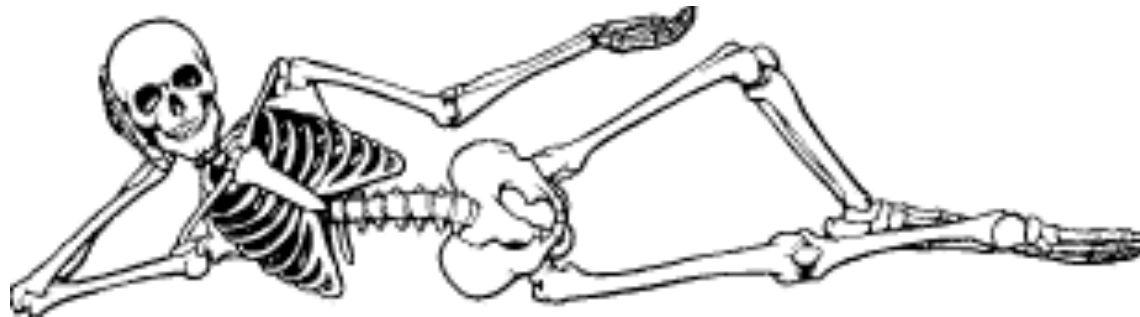


Musculoskeletal Objectives

Upon completion of this lecture, you will be better able to:

- Identify important focused history points and techniques for physical assessment of musculoskeletal injury
- Differentiate soft tissue injuries from skeletal injuries
- Demonstrate appropriate nursing interventions for musculoskeletal trauma

MUSCULOSKELETAL EMERGENICIES



TYPES OF INJURIES

- **CONTUSION**
- **STRAIN**
- **SPRAIN**
- **DISLOCATION**
- **FRACTURE**
- **EPIPHYSEAL TRAUMA**



CONTUSION

**A contusion is a
bruise without a
break in the skin**

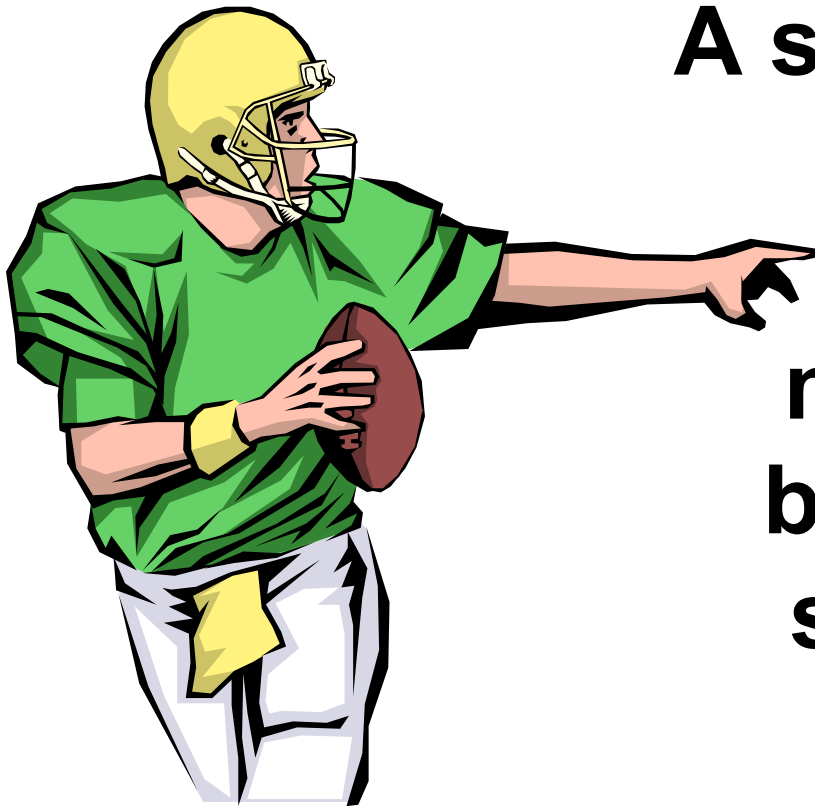




CONTUSION

- **Bleeding in the subcutaneous tissue**
- **Discoloration**
- **Edema or swelling over area**
- **Dissipates in 48-96 hours**

STRAIN



**A strain is a “pull”
in a tendon,
ligament, or
muscle caused
by an excessive
stretch or force**

STRAIN

SIGNS AND SYMPTOMS MAY INCLUDE:

- Pain which may radiate
- Spasms
- Disfigurement
- Loss of function
- Severe weakness



SPRAIN

A sprain is a partial or full tearing of a ligament away from its attachment to a bone





SPRAIN

■ FIRST DEGREE

- little or no swelling
- minimal pain or point tenderness

■ SECOND DEGREE

- localized swelling with point tenderness
- moderate to severe pain
- limited motion or weight bearing



SPRAIN

THIRD DEGREE

- total disruption of ligament
- history of hearing loud “snap” or “pop”
- severe pain
- loss of function-abnormal motion
- deformity
- unable to bear weight



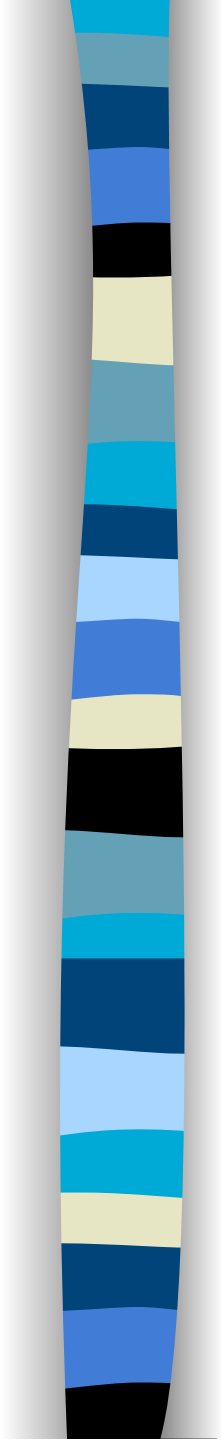
DISLOCATION

- **Primarily in ball and socket joints, ie shoulder**
- **Subluxation is a partial dislocation**
- **Signs include:**
 - **deformity**
 - **severe pain, swelling**
 - **loss of function, rigidity**
 - **neurovascular compromise**



DISLOCATION

- **Joint moves beyond normal range**
- **May be complete or partial**
- **Causes deformity, severe pain, rigidity, loss of function**
- **Neurovascular compromise**



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FRACTURE

**A fracture is a break in
the continuity of a
bone**





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WRIST FRACTURE





FRACTURES

- **Deformity, pain, loss of function**
- **Immobilize, elevate and ice, for comfort**
- **Assess neurovascular status distal to fracture both before and after immobilization**
 - **distal pulse and capillary refill**
 - **sensation and motion (active and passive)**
 - **swelling, color and temperature of skin**



EPIPHYSEAL FRACTURE

An epiphyseal fracture is a break in the growth cartilage at the articulating end of a long bone

INJURY ASSESSMENT

- **Across the room assessment**
- **Initial Assessment - ABC' s**
- **History – CIAMPEDS/SAMPLE**
 - Chief Complaint
 - Mechanism of injury
 - Onset of symptoms
- **Focused Physical Assessment**
 - Observation
 - Inspection
 - Palpation
 - 5 P' s



RANGE OF MOTION

- **Flexion and extension**
- **Rotation**
 - internal
 - external
- **Abduction and adduction**



INSPECTION/PALPATION

FIVE P'S

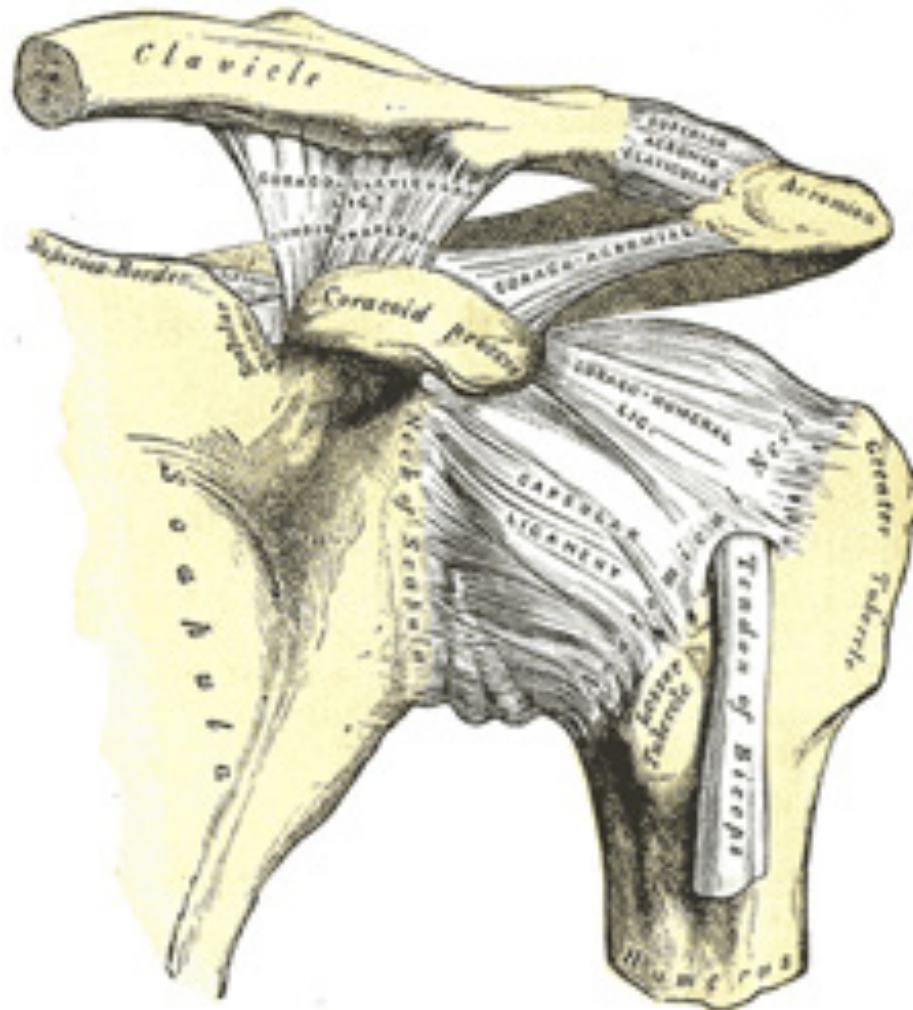


- PAIN
- PULSE
- PALLOR
- PARASTHESIA
- PARALYSIS



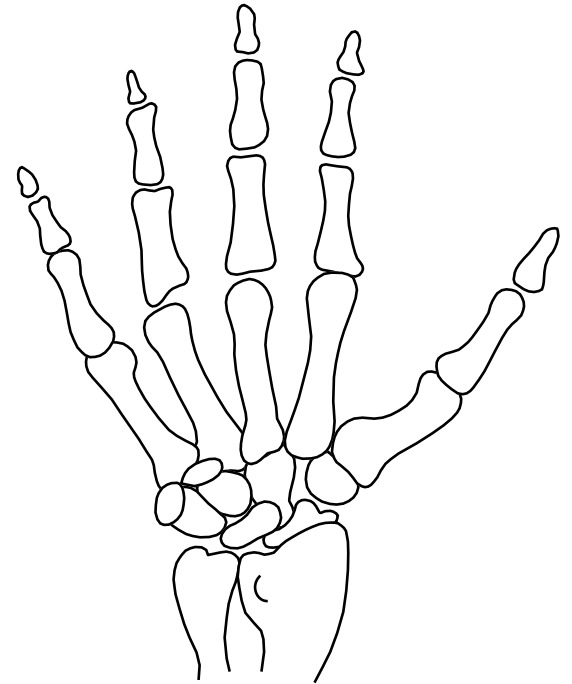
UPPER EXTREMITY INJURIES

- **Clavicular fracture**
- **Acromioclavicular (AC) separation**
- **Anterior shoulder dislocation**
- **Humeral fracture**
- **Radial head dislocation
(Nursemaid's elbow)**



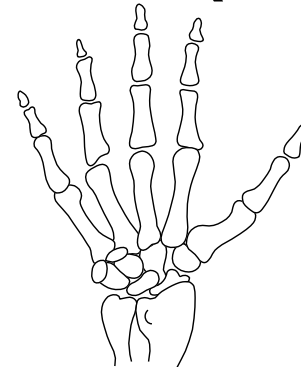
HAND AND WRIST INJURIES

- **Navicular (scaphoid) bone fracture**
- **Phalangeal fracture**
- **Finger dislocation**
- **Mallet finger**
- **Degloving injury**



FINGER JOINTS

- MP-metacarpo-phalangeal joint
- PIP-proximal interphalangeal joint
- DIP-distal interphalangeal joint
- IP-interphalangeal joint (thumb)





Focused Assessment

■ Mechanism of Injury

- Was the arm or hand outstretched?
- At what angle to the body was the arm, shoulder or hand on impact?
- Did hyperflexion or hyperextension occur?
- Fracture or dislocation of the area before?
- Involved in rigorous athletic training (overuse injury)?

■ Observation

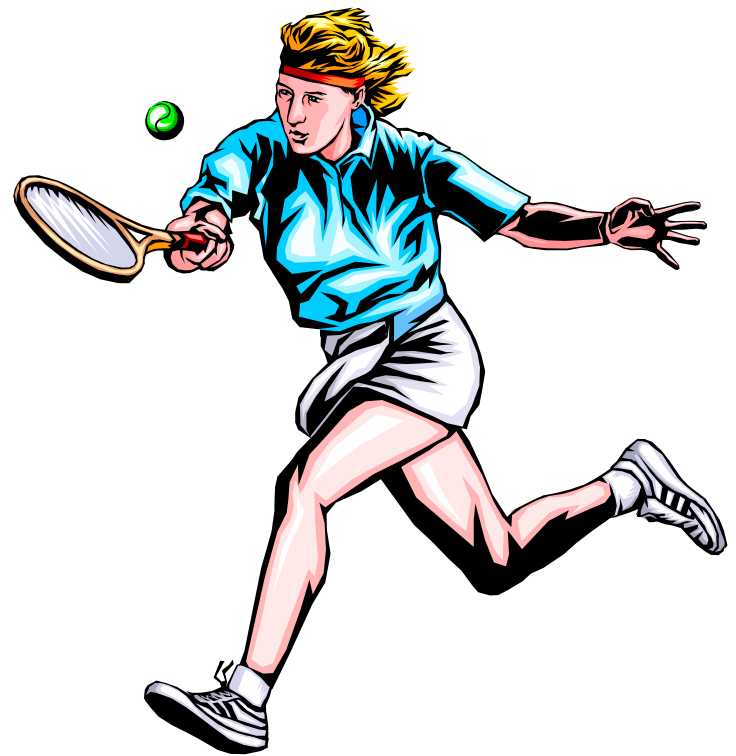
- Is injured shoulder lower than uninjured shoulder? Does student need to support the arm?
- Is there deformity at the joint?

■ Movement

- Able to tolerate limited movement of the injured area?
- Is there tenderness, edema or deformity that inhibits motion?

LOWER EXTREMITY INJURIES

- Epiphyseal separation (head of the femur)
- Collateral ligament injury to the knee
- Meniscus injury to the knee
- Knee dislocation
- Osgood-Schlatter disease
- Chondromalacia patellae





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ANKLE AND FOOT INJURIES

- Ankle sprain
- Ankle fracture
- Phalangeal fracture





OPEN FRACTURES

- Usually associated with the long bones
 - Femur
 - Tibia
 - Fibula
- Lacerated blood vessels can cause moderate to severe hemorrhage into the tissue which may not be evident
- **Any open fracture is considered urgent due to the likelihood of bacterial infection or other contamination of the wound.**
- **If neurovascular compromise exists, then it becomes an emergent condition.**

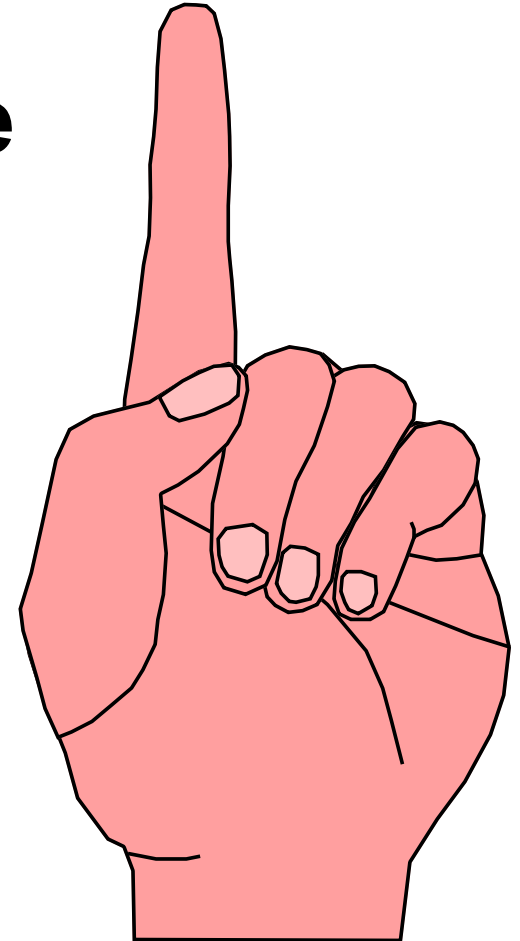


Lower Extremity Assessment

- Palpate entire surface of thigh
 - Hematoma
 - Tenderness
 - Edema
 - Rotation
 - Deformity
- Palpate knee, collateral ligaments
- Assess patellar borders for signs of subluxation
- Check neurologic integrity in foot
- Assess adequacy of pulses in foot

INTERVENTIONS

- R - Rest/immobilize
- I - Ice
- C - Compression
- E - Elevation
- S - Support





SPLINTING INDICATIONS

- **Prevention of further injury**
- **Decrease pain**
- **Decrease swelling**
- **Stabilize fracture or dislocation**
- **Relieve impaired neurological function or muscle spasms**
- **Reduce blood and fluid loss into tissues**



IMMOBILIZATION/SPLINTING

KEY POINTS

- Immobilize joint above and below injury
- Assess neurovascular status distal to injury prior to splint application and again right after splint application
- If angulation at fracture site without neurovascular compromise, immobilize as presented
- Minimize movement of extremity during splinting
- Secure splint to provide support and compression
- Reassess/monitor neurovascular status every 5-10 minutes



TRIAGE AND TRANSPORT

■ EMERGENT

- ABC' s or neurovascular compromise
- Fractured femur or open femur

■ URGENT

- Deformity, loss of motion
- Severe swelling or pain

■ NON-URGENT

- Mild swelling, no neurovascular compromise





PREVENTION

- Assess safety risks of school environment
- Use data to determine where/when students are being injured
- Ensure safety procedures are emphasized during all school activities
- Work cooperatively with teachers, coaches and school staff to ensure they are current in first aid preparedness



SUMMARY

Musculoskeletal injuries range from simple strains and sprains to joint dislocations and bony fractures. Familiarize yourself with appropriate assessment techniques to guide your nursing diagnosis and determine appropriate triage categorization.

Your primary goals in treating these injuries are to prevent morbidity and alleviate pain. Appropriate immobilization/splinting techniques will be assistive in stabilizing the area until EMS transport arrives

ANY QUESTIONS??

