



## LESSON 14

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# BONE, JOINT AND MUSCLE INJURIES



# Musculoskeletal Injuries

- Fractures
- Dislocations
- Sprains
- Strains
- Contusions
- Cramps



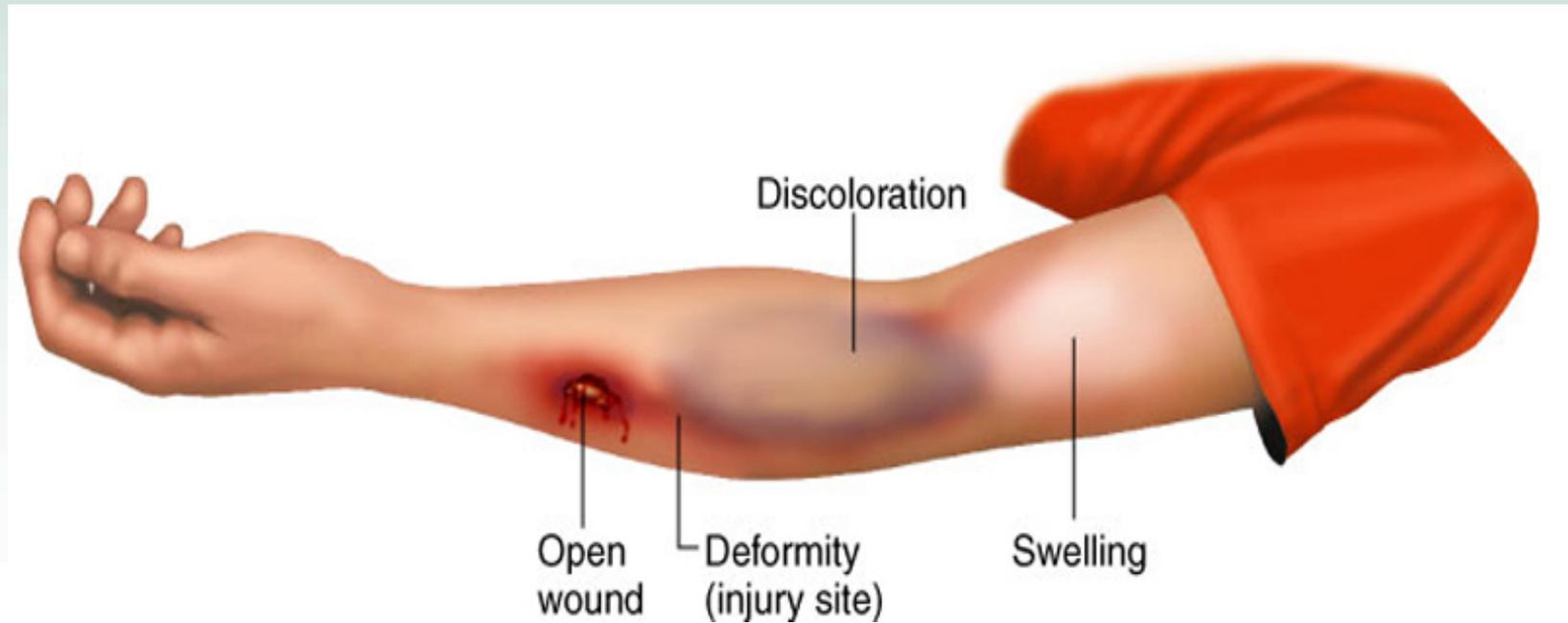
# Signs and Symptoms of Injury

- Compare injured arm or leg to opposite one
- Pain when area touched
- Bleeding or other wounds





# Signs and Symptoms of Injury continued





# Signs and Symptoms of Injury continued

- Abnormal sensation (numbness, tingling)
- Inability to move area
- Difference in temperature



# During the Physical Examination

- Carefully remove victim's clothes as needed
- Do not assume less painful injuries are minor
- Do not ask victim to move injured area if it causes pain
- Lack of sensation may be symptom of serious injury (nerve damage)



## During the Physical Examination continued

- Swelling usually occurs but amount of swelling not a good indicator of severity
- Obvious deformity usually sign of dislocation or fracture
- Skin discoloration may resemble bruising
- Pale, bluish skin color and cool skin may indicate lack of blood flow to area (serious injury)



# General First Aid: RICE

**R** - Rest

**I** - Ice

**C** - Compression

**E** - Elevation



# Fractures

- Bone may be completely broken or only cracked
- Closed fracture – skin not broken
- Open fracture – open wound at site
- Bleeding can be severe with fracture of large bones
- Nearby organs may be damaged
- Assess circulation: Call 9-1-1 if compromised
- <http://www.youtube.com/watch?v=cLJA6KVEQms>
- <http://www.youtube.com/watch?v=pstZI1hBnf8>



# Fractures continued



## **Transverse**

The fracture line crosses the bone at a right angle.

## **Greenstick**

An incomplete fracture and bending of bone that is more likely in children whose bones are soft.

## **Comminuted fracture**

The bone is broken into more than two fragments.

## **Hairline fracture**

The bone fragments do not separate.

## **Impacted**

One fragment is driven into the bone of the other fragment.



# First Aid for Fractures

1. Immobilize area (joints above and below).
2. Call 9-1-1 or transport.
3. Treat open wound.
4. Apply RICE.
5. Splint if help delayed.





[http://www.break.com/index/disgusting\\_arm\\_break.html](http://www.break.com/index/disgusting_arm_break.html)

<http://www.youtube.com/watch?v=WMPllsGLisI&feature=fvwrel>



# Dislocations

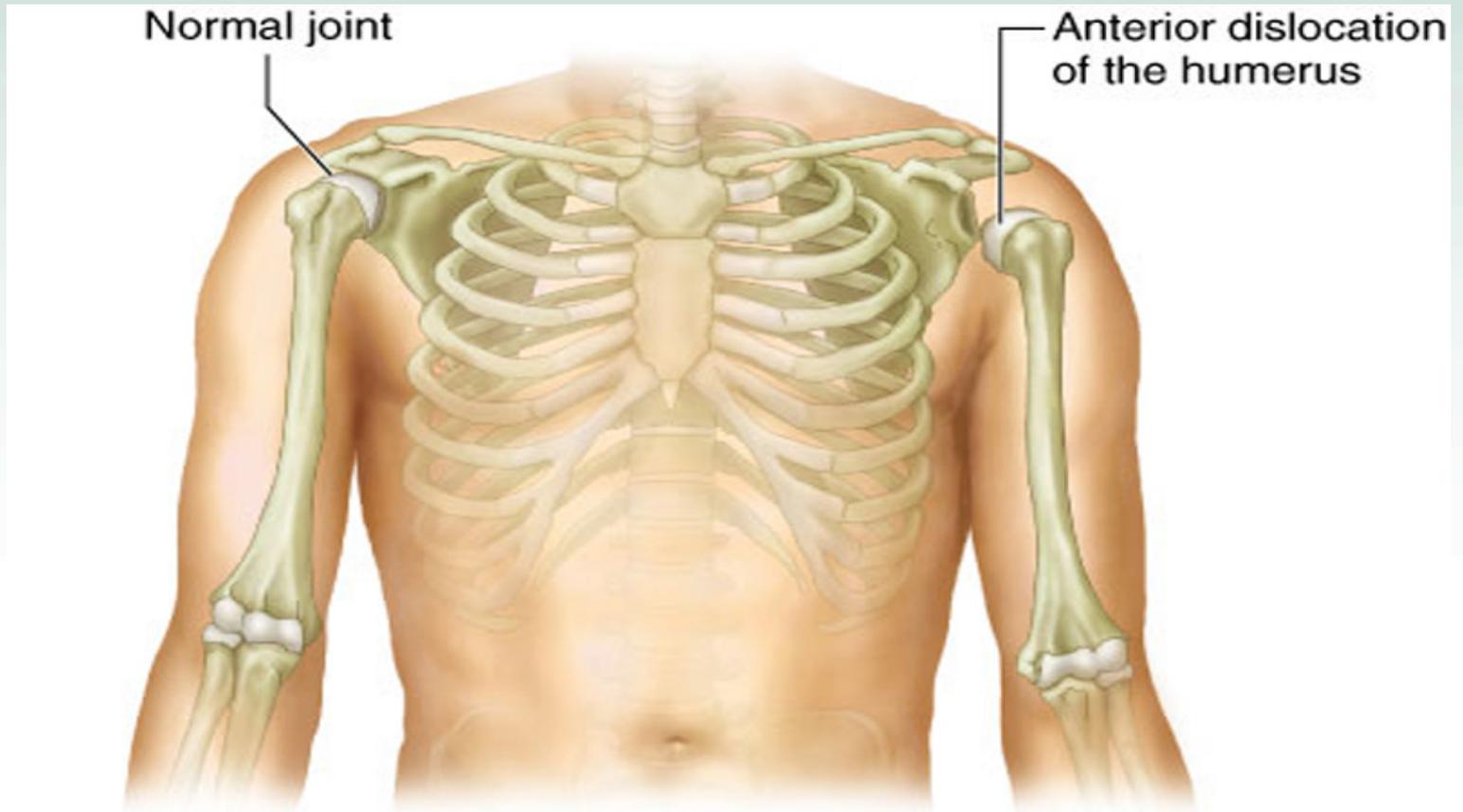
- Typically result from strong forces
- Sometimes accompanied by fractures or other serious injuries
- Pain, swelling, bruising occur
- Significant displacement can damage nearby nerves and cause serious bleeding

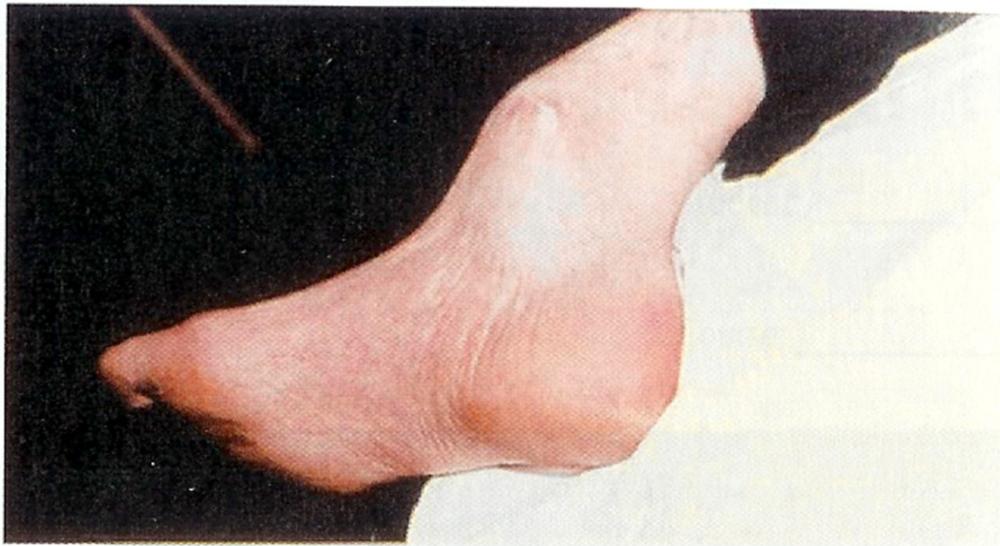


# Dislocations continued

- Joint or limb may look deformed
- Can be serious because of potential for nerve and blood vessel injury
- With severe bleeding, victim may go into shock
- Check and care for life-threatening conditions first – then care for dislocation

# Dislocations continued





**FIGURE 12-16.** Dislocated ankle



# Sprains

- Typically occur when joint overextended
- Ankles, knees, wrists, fingers most common
- Cause swelling, pain, bruising and inability to use joint
- Difficult to tell severe sprain from fracture
- Assess circulation: If compromised – call 9-1-1
- [..\..\..\tennis ankle fx.mpg](#)



# When to See Health Care Provider

- Signs and symptoms of fracture or dislocation
- Injury causes severe pain
- Cannot walk
- Tenderness or numbness
- Injured area looks different than other extremity
- Injured joint cannot move
- Redness or red streaks from injured area
- Area has been injured before
- If you are unsure of seriousness or treatment



# Removing a Ring

- Jewelry can cut off circulation with swelling
- Try to remove before swelling occurs
- To remove ring
  - Soak finger in cold water or wrap in cold pack
  - Put oil or butter on finger



# Muscle Injuries

- Typically caused by overexertion, careless or sudden movement, poor body mechanics
- Common injuries include strains, contusions and cramps
- Usually less serious than bone and joint injuries
- Repeated injury can lead to chronic problem



# Strains

- Tearing of muscle or tendon
- Occurs when muscle stretched too far by overexerting
- Causes pain, swelling and sometimes inability to use muscle
- Can be prevented by avoiding overexertion, good body mechanics, sports safety

# Contusion

- Bruised muscle
- May result from a blow
  - Occurs when muscle compressed between object causing blow and underlying bone
- Cause pain, swelling and discoloration
  - May persist up to a month





# Muscle Cramps

- Tightening of muscle
- Usually occurs from prolonged use but may have no apparent cause
- Most common in thigh and calf muscle
- Different from heat cramps
- May last a few seconds to 15 minutes
- May be prevented with flexibility exercises and stretches