



The American Orthopaedic  
Society for Sports Medicine

**Prevention and Emergency Management of**

# ***Youth Baseball and Softball Injuries***





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Introduction**





## Objectives

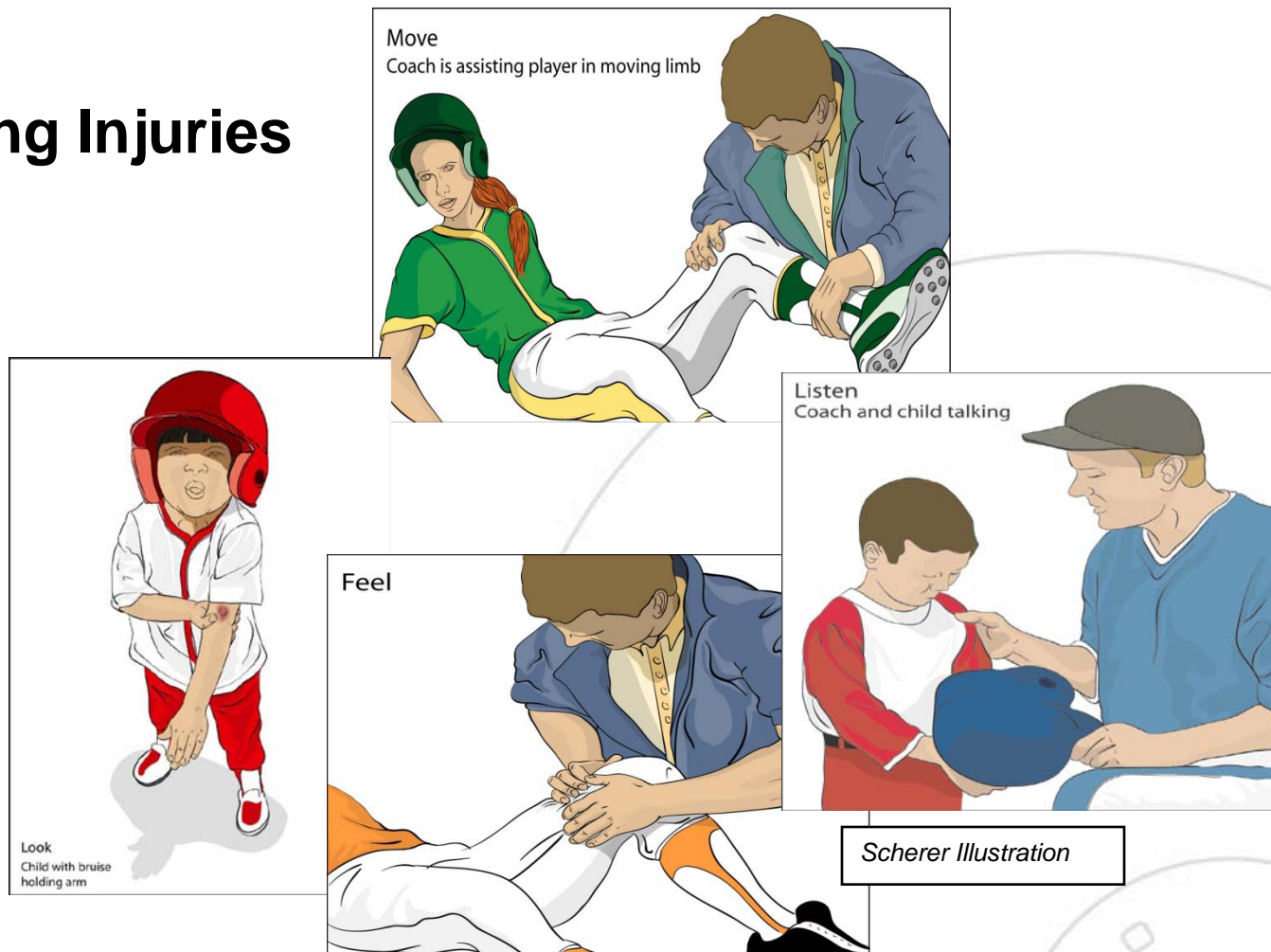
- ❖ Understand basic injury prevention techniques
- ❖ Differentiate between mild, moderate and severe injuries
- ❖ Determine appropriate first aid techniques
- ❖ Design an emergency plan to prepare for a severe injury
- ❖ Decide when injured player is ready to practice and/or play





## Evaluating Injuries

- Listen
- Look
- Feel
- Move







## Treatment

Protection

Rest

Ice

Compression

Elevation

Support

Protect  
The injured arm: Place in sling



Rest  
Stop using the injured part and rest it as soon as you realize an injury has taken place. Continued activity could cause further injury, delay healing, and increase pain.

Compression  
Decreases swelling by slowing bleeding and limiting the accumulation of blood and plasma near the injured site

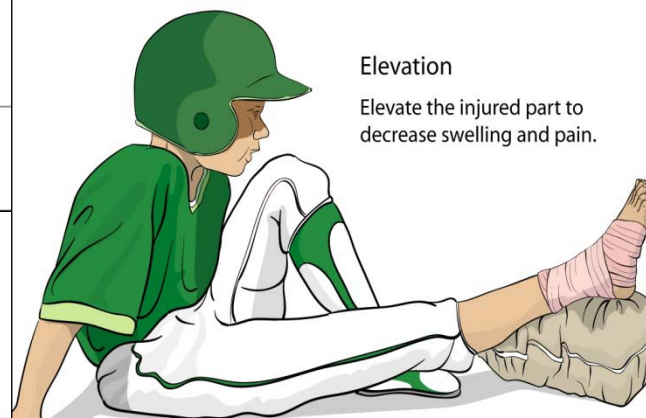


Ice  
Arm with ice pack



Elevation

Elevate the injured part to decrease swelling and pain.



Scherer Illustration



Support



# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 1 Contusion**





## Evaluation

### Listen

- History of direct blow
- Complaint of pain from blow

### Look

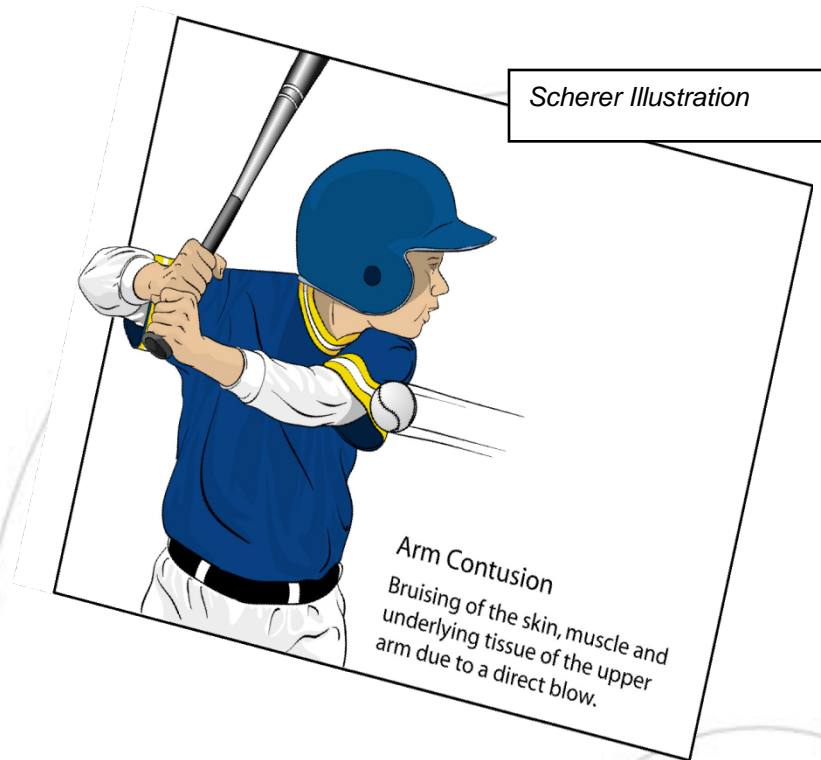
- Swelling
- Discoloration
- Breaks in skin

### Feel

- Tenderness

### Move

- Can player move injured area?





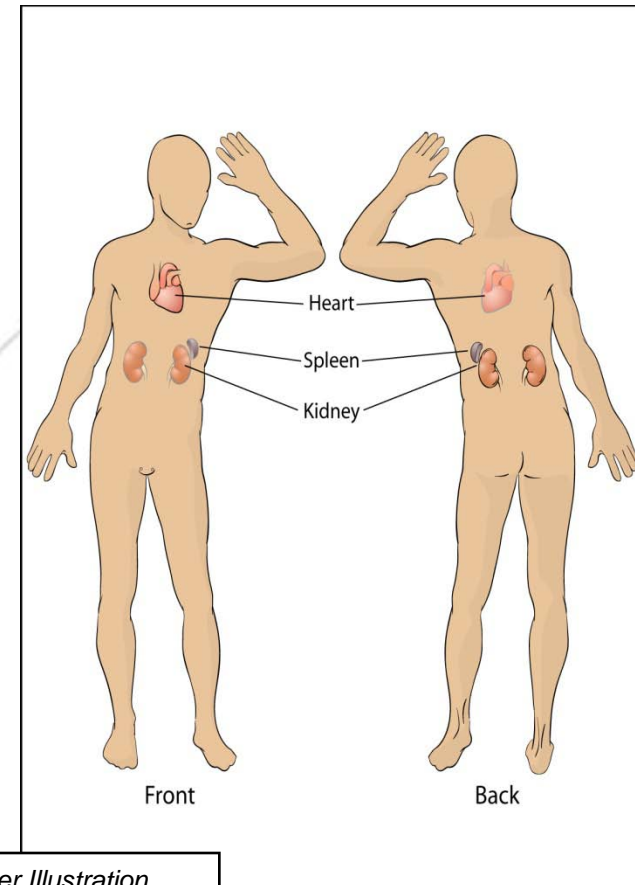
## Treatment

- Notify Parents
- Apply PRICES

## Special Considerations

### Seek immediate treatment if:

- Hard blow to breastbone – may cause life-threatening heart rhythm disturbance
- Blow to upper abdomen under left ribcage – may cause life-threatening spleen injury
- Blow to kidney area followed by low back pain and/or blood in urine
- Injury to groin followed by swelling of scrotum



Scherer Illustration





## Prevention

- Safe playing area
- Proper protective gear
- Coach players how to avoid being hit

## Return to Play

- Resolved swelling and pain
- Normal range of motion
- Protective padding





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 2**

### **Abrasions & Lacerations**





## Evaluation

### Listen

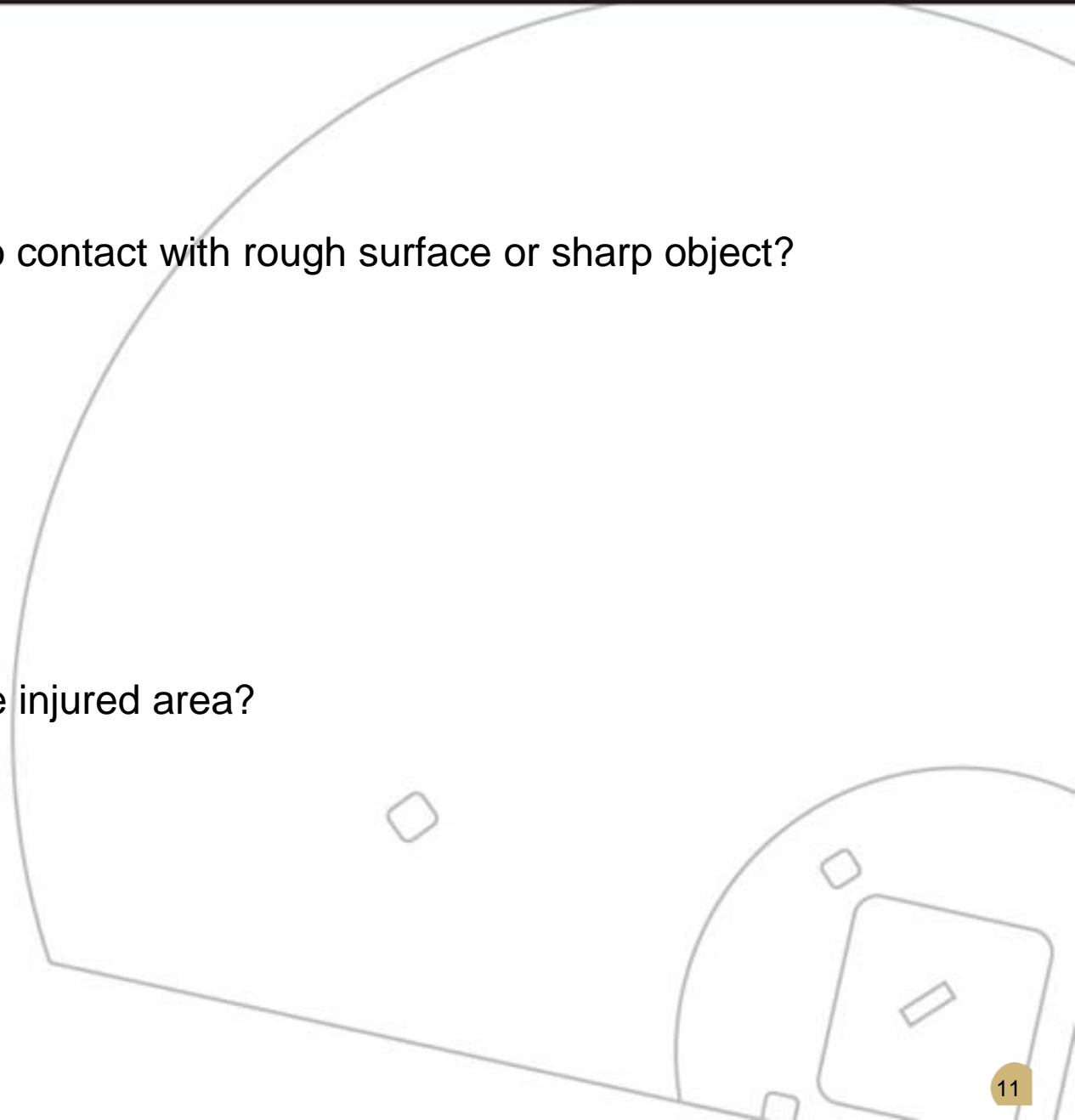
- Was the injury due to contact with rough surface or sharp object?

### Look

- Break in skin
- Bleeding

### Move

- Can player can move injured area?





## Treatment

- Notify parents
- Clean and cover abrasions and minor cuts
- Deeper wounds require physician care
- Use rubber gloves anytime a wound is handled

## Prevention

- Safe playing area
- All jewelry to be removed before playing

## Return to play

- Minor cuts and scrapes: cleaned and covered
- Deeper wounds: cleared by physician
- Player must change bloody uniform





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 3 Muscle Pulls & Strains**







## Evaluation

### Listen

- History of little or no warm-up
- Complaint of pain with use of injured muscle

### Look

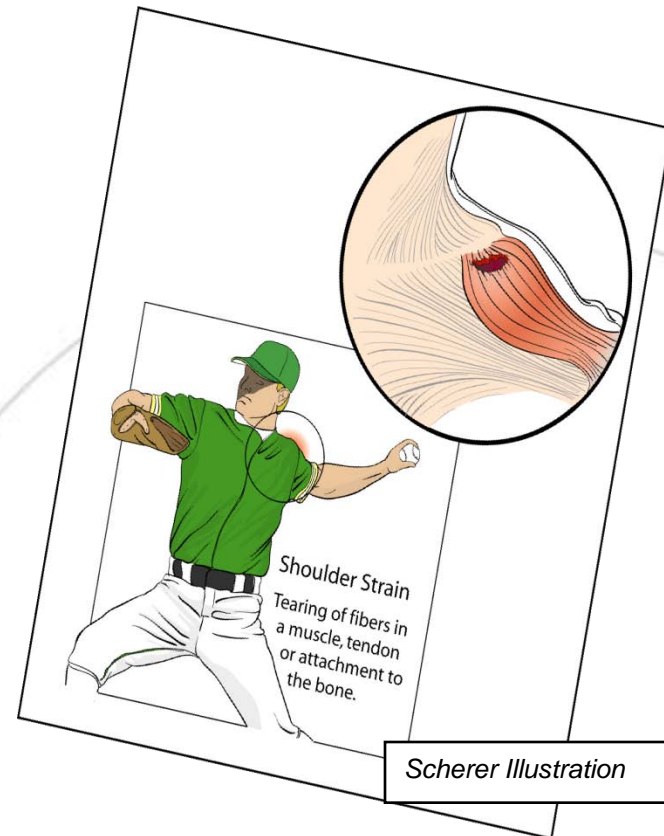
- Local swelling or bruising
- Visible defect in muscles or tendons

### Feel

- Tenderness, swelling, or indentation

### Move

- Have athlete move joints above and below injured area and look for pain or deformity





## Treatment

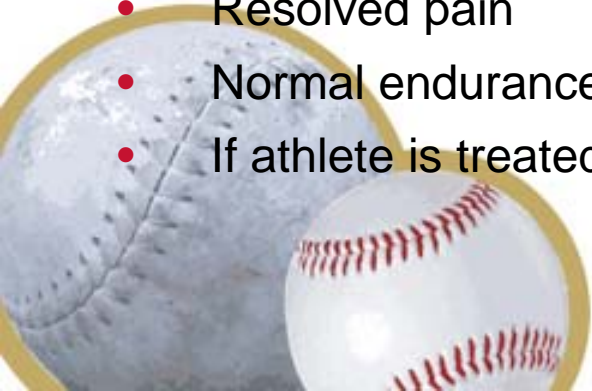
- Notify parents
- Apply PRICES

## Special Considerations

- Tendon rupture
- Complete tear of muscle tissue
- Muscle contraction may pull off piece of bone in younger athlete

## Return to Play

- Resolved pain
- Normal endurance, flexibility, range of motion and strength
- If athlete is treated by physician, approval of physician is needed





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 4 Overuse Injuries of the Throwing Arm**





## Evaluation

### Listen

- Complaints of pain in overused area

### Look

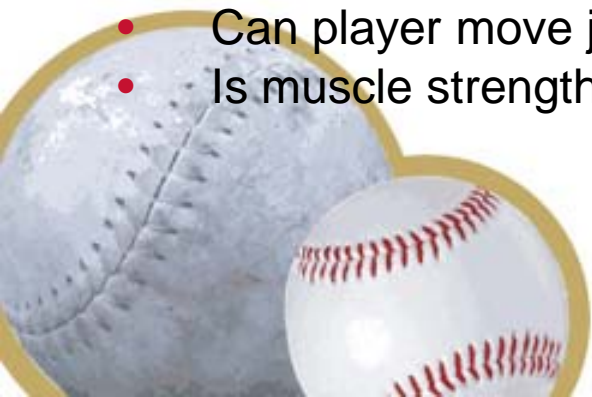
- Change in throwing form
- Other signs of pain, i.e., rubbing arm

### Feel

- Tenderness

### Move

- Can player move joint fully as compared to other side?
- Is muscle strength equal to other side?





## Treatment

- Notify parents
- Rest, especially from activity that caused injury
- Ice
- Lack of motion and/or persistent pain requires physician evaluation
- Rehabilitative exercises
- When symptoms are alleviated, begin progressive throwing program
- Guidance of physician







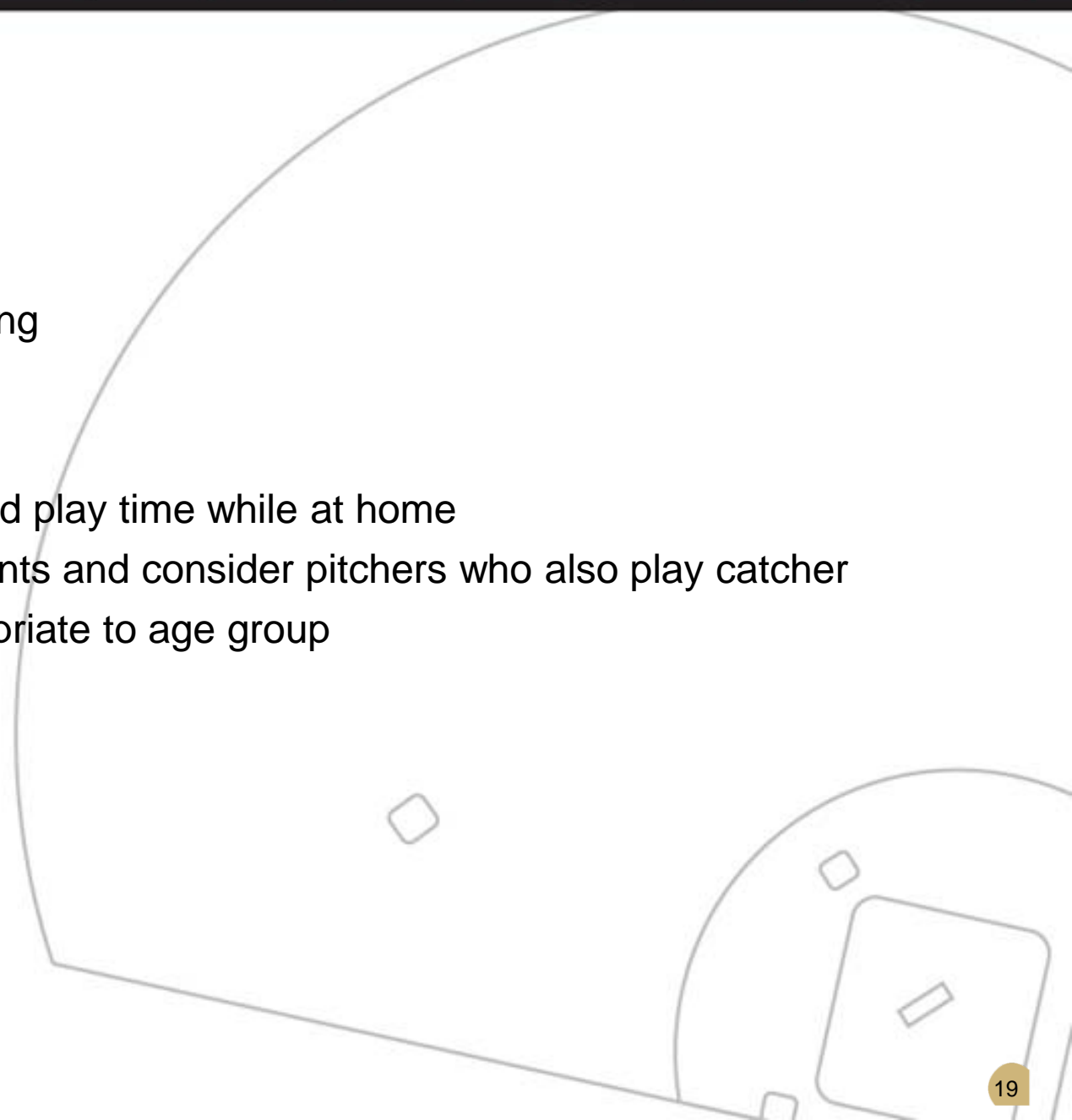
## Prevention

### Warm-ups

- Stretching
- Easy, gradual throwing

### Avoid overuse

- Consider practice and play time while at home
- Stay within pitch counts and consider pitchers who also play catcher
- Develop skills appropriate to age group





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 5 Sprains**





## Evaluation

### Listen

- Complaint of a twisting injury to a joint, most commonly ankle or knee
- Reported hearing a “pop”
- Described the joint as “slipping out of place,” then back into place when moved
- Complaint of pain when using joint

### Look

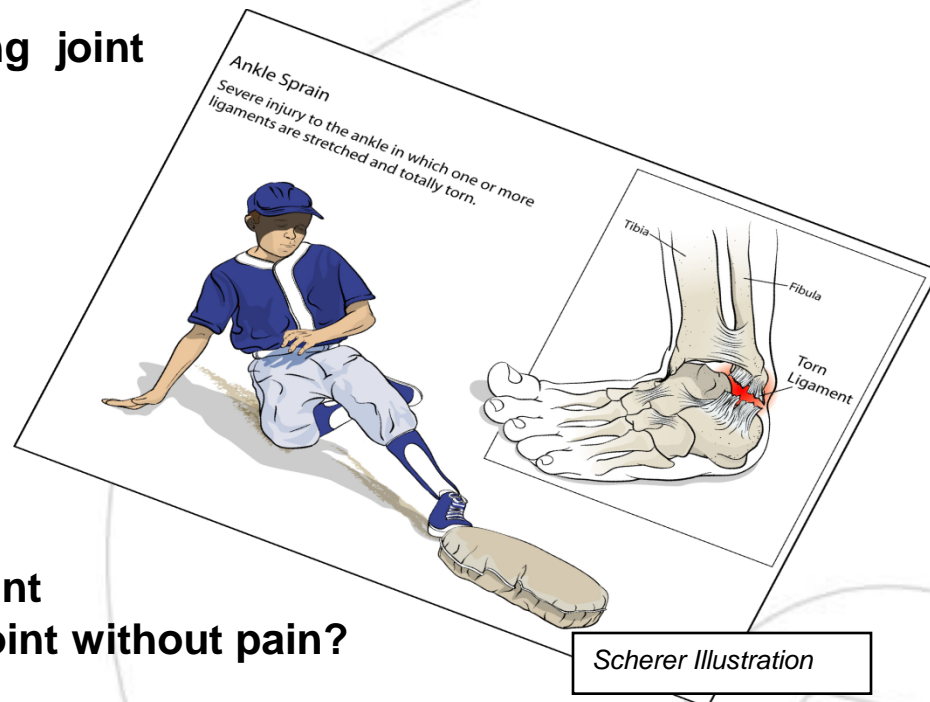
- Swelling or discoloration
- Joint deformity

### Feel

- Tenderness over joint

### Move

- Have player move injured joint
- Can the player use injured joint without pain?





## Treatment

- Notify parents
- Apply ice and compression wrap and elevate
- Seek emergency care for severe injury
- If injury is accompanied by a loud pop and immediate pain, swelling, or disability call 911. Do not move player

## Special Considerations

- Obvious gross deformity: do not manipulate; summon help immediately. If help is unavailable then splint and seek emergency care
- Severe sprain may mimic a fracture





## Prevention

- Warm-up thoroughly
- Maintain playing field properly
- Use breakaway bases
- Check player's return-to-play status with physician

## Return to Play

- Resolved pain
- Normal endurance, flexibility, range of motion, and strength
- Approval of coach and physician







# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 6 Fractures**





## Evaluation

### Listen

- Description of violent twisting
- Complaint of a direct blow
- Heard a “snap”, “pop”, or “crack”
- Complaint of severe pain and immediate disability

### Look

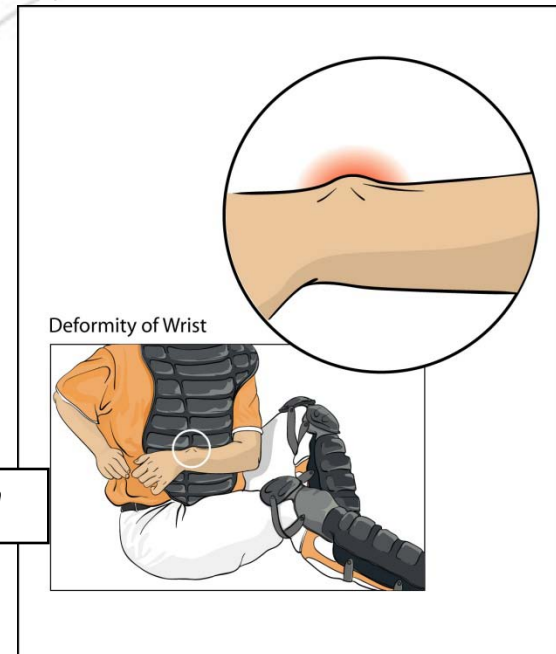
- Deformity
- Immediate swelling
- Bone protrudes through skin

### Feel

- Tenderness over the bone
- Players reports a grating sensation

### Move

- Can player move the affected area?



Scherer Illustration

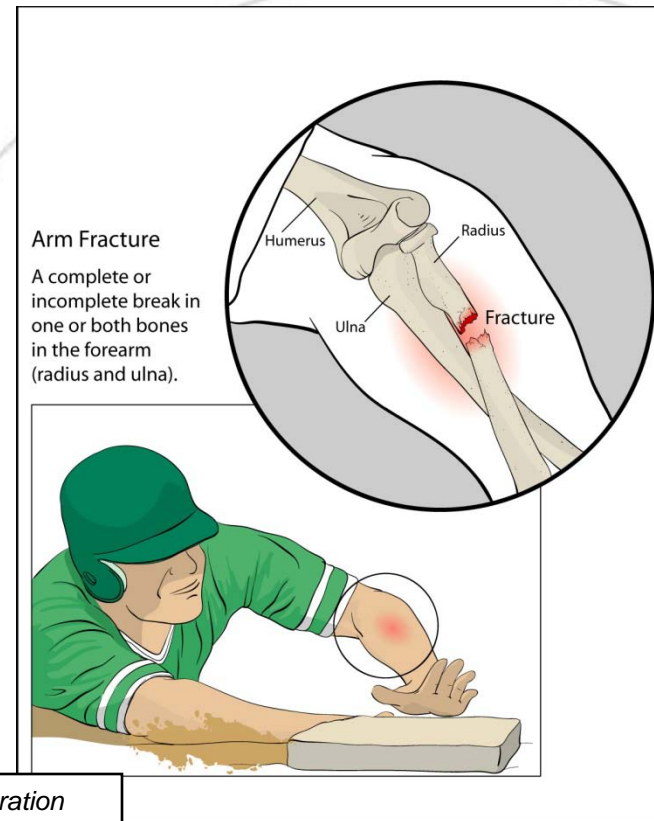


## Treatment

- Notify parents
- Apply ice
- Seek emergency care
- Apply sterile dressing to open fracture; call 911
- Do not straighten limb in a visually apparent break; call 911
- Splint suspected fracture and transport in private vehicle

## Special Considerations

- Growth plate fractures, fractures at the ends of the long bones are serious and may be confused with severe sprains



Scherer Illustration

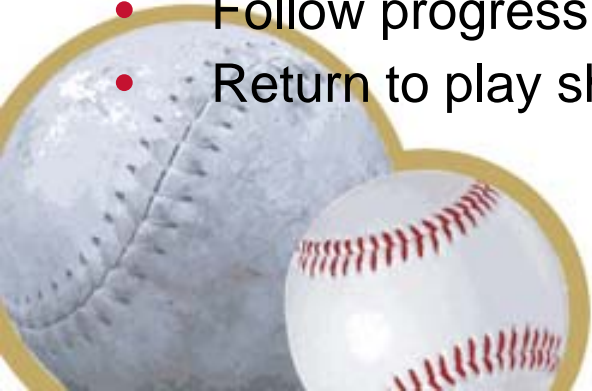


## Prevention

- Properly maintain playing field
- Teach proper techniques
- Use breakaway bases
- Check return-to-play status

## Return to Play

- Wait for complete healing and physician approval
- Exhibit full range of motion, normal strength, flexibility, and endurance
- Follow progressive running and throwing programs
- Return to play should not produce pain, swelling, or limping





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 7 Hand & Finger Injury**







## Evaluation

### Listen

- Mention of direct blow
- Complaint of finger joint moving out of place

### Look

- Deformity
- Swelling
- Cuts

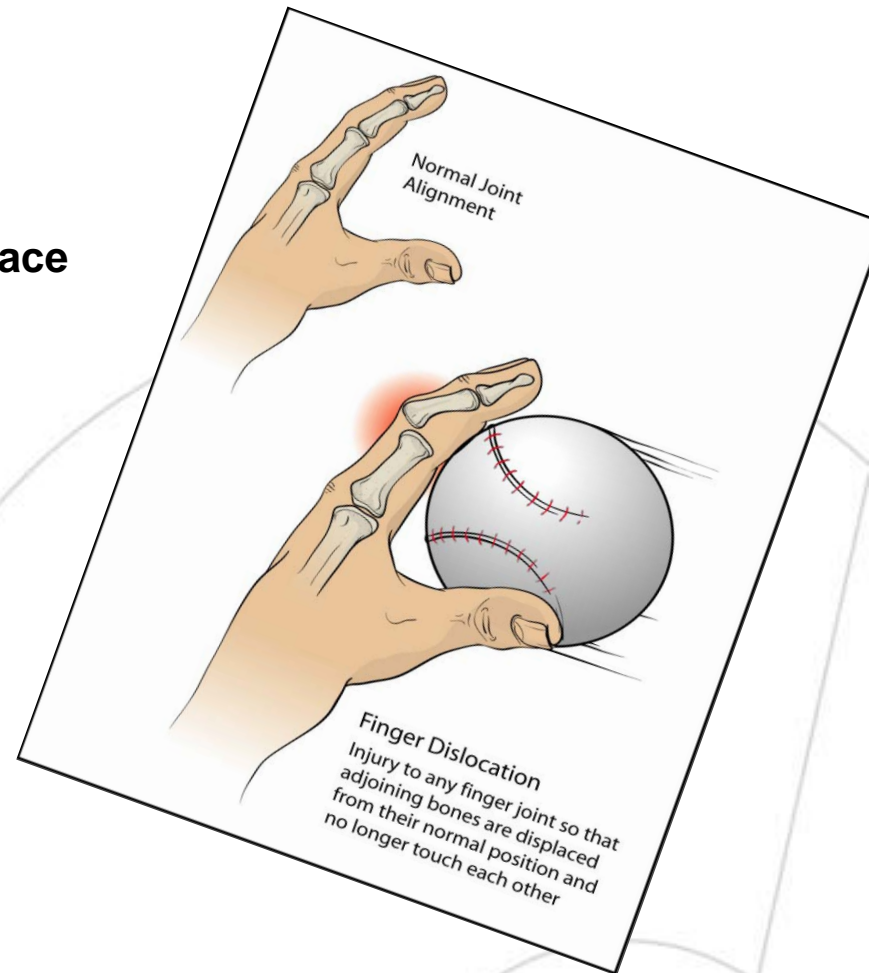
Scherer Illustration

### Feel

- Tenderness
- Grating sensation

### Move

- Can player straighten and bend joints of fingers and hand?
- Compare to uninjured hand





## Treatment

- Notify parents
- Apply PRICES
- Do not manually straighten crooked or deformed finger
- No significant deformity: tape to adjacent finger
- Laceration of fingertip or nail-bed: send for emergency care
- Gross deformity or limited movement: visit physician

## Special Considerations

- Rotational deformities require medical care
  - Do any fingers overlap when fingers are folded over palm?
  - Do nail-beds have same rotation when comparing straightened fingers on both hands?
- Drooping fingertips require medical attention
- Wrist sprain can be a hidden fracture and may require an x-ray
- Previously dislocated fingers require physician evaluation





## Prevention

- Teach proper playing techniques

## Return to Play

- Wait for complete healing and physician approval
- Exhibit full range of motion, normal strength, flexibility, and endurance
- Follow progressive running and throwing programs
- Return to play should not produce pain, swelling, or limping





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 8 Facial Injuries**





## Evaluation

### Listen

- Mention of blow to the face
- Complaint of pain
- Complaint of difficulty in breathing, seeing, hearing, swallowing, speaking, or moving the jaw
- Complaint of facial numbness

*Scherer Illustration*

### Look

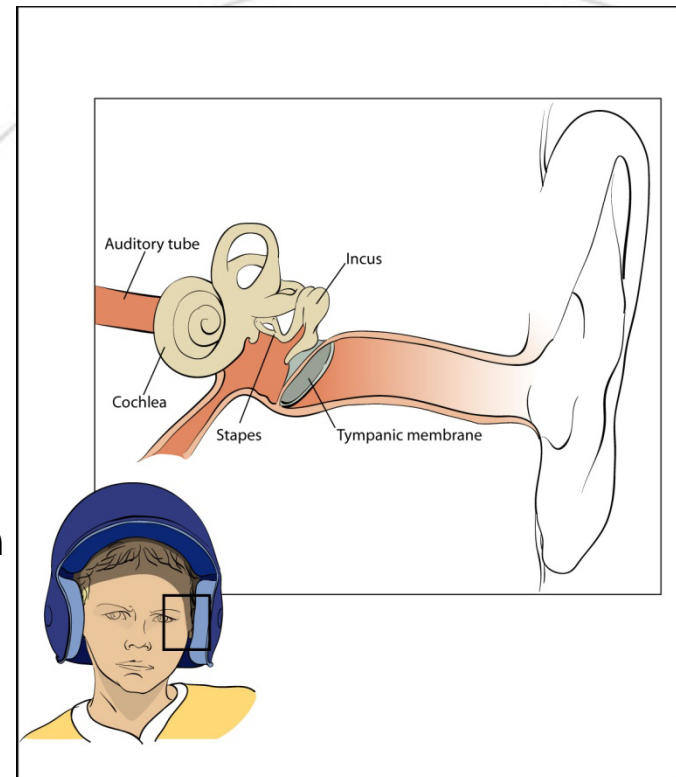
- Bleeding
- Clear fluid from nose or ear
- Change in facial appearance
- Swelling around or inside nose or cheek

### Feel

- Tenderness around facial bones
- Abnormal jaw motion or grinding sensation

### Move

- Can player move jaw in all directions?
- Can player move eyes together in all directions?





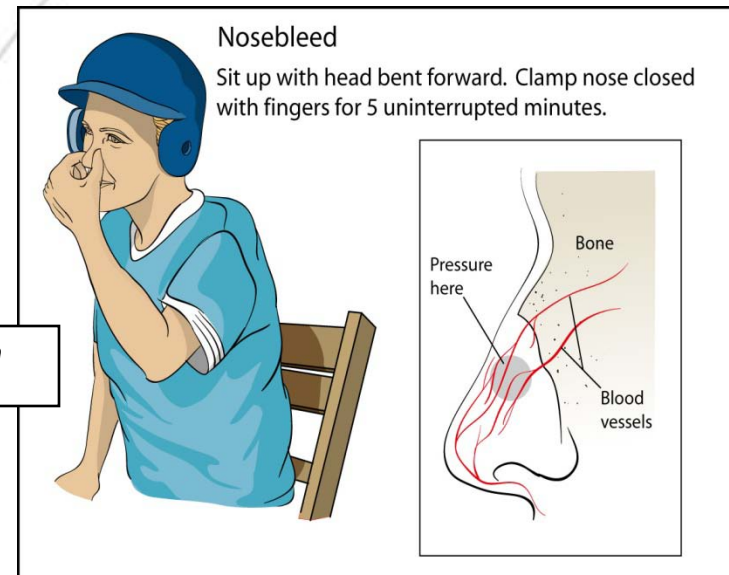
## Treatment

- Notify parents
- Apply PRICES
- Seek emergency care for pain along with grinding or abnormal motion
- Seek emergency care for moderate to severe facial pain
- Nosebleeds lasting 20 minutes or longer require emergency care

## Special Considerations

- Avoid direct contact with blood
- Remove jewelry and body piercing ornamentation

*Scherer Illustration*







# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 9 Jaw, Mouth & Tooth Injuries**





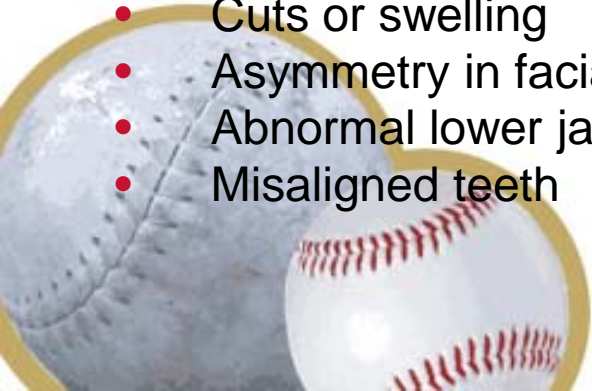
## Evaluation

### Listen

- Complaint of direct blow
- Complaint of pain
- Complaint of trouble breathing, swallowing, or speaking
- Complaint of an object in throat
- Complaint of chipped, cracked, loose, or rough tooth
- Complaint of difficulty bringing teeth together or parting them
- Complaint of numbness
- Difficulty moving or feeling tongue

### Look

- Missing teeth or tooth fragment in player's mouth or on the ground
- Tooth driven into gum
- Cuts or swelling
- Asymmetry in facial appearance
- Abnormal lower jaw position
- Misaligned teeth





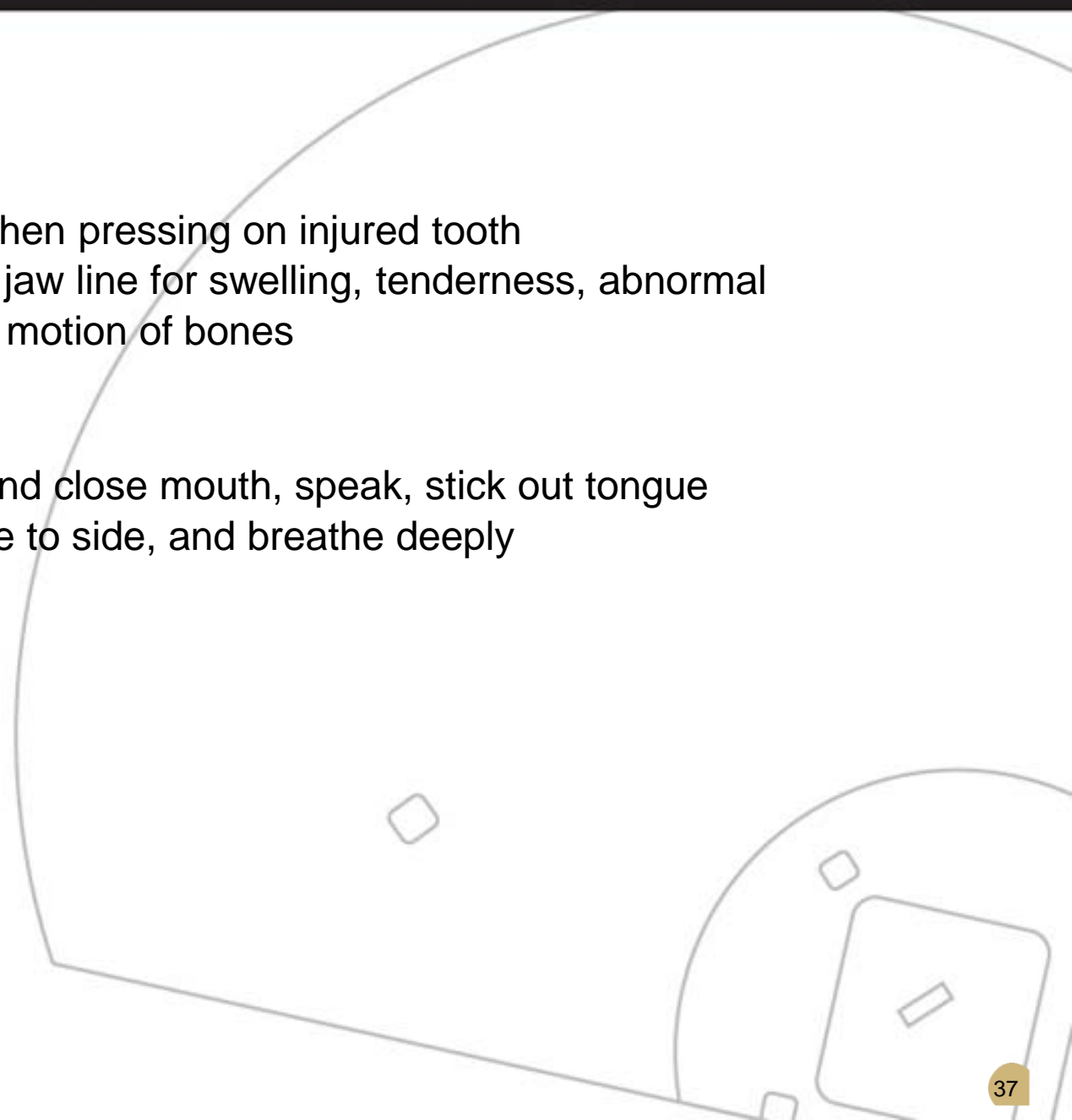
## Evaluation

### Feel

- Looseness or pain when pressing on injured tooth
- Feel along neck and jaw line for swelling, tenderness, abnormal step-offs, or unusual motion of bones

### Move

- Ask player to open and close mouth, speak, stick out tongue and move it from side to side, and breathe deeply





## Treatment

- Notify parents
- Control bleeding by applying pressure to the area with gauze or cloth for 10 minutes. If bleeding continues, send player for emergency care
- Any player who has trouble breathing, speaking, swallowing, or moving tongue, lips or jaw, or shows some asymmetry of the face should be sent for emergency care
- Knocked-out teeth require immediate care

## Special Considerations

- Knocked-out teeth can be reimplanted within one hour of injury
- Keep knocked-out tooth moist. Transport tooth in a commercial tooth transport kit, in a cup of water or milk, or tucked in corner of athlete's mouth

## Prevention

- Maintain field properly
- Require protective mouth guards





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 10 Eye Injuries**





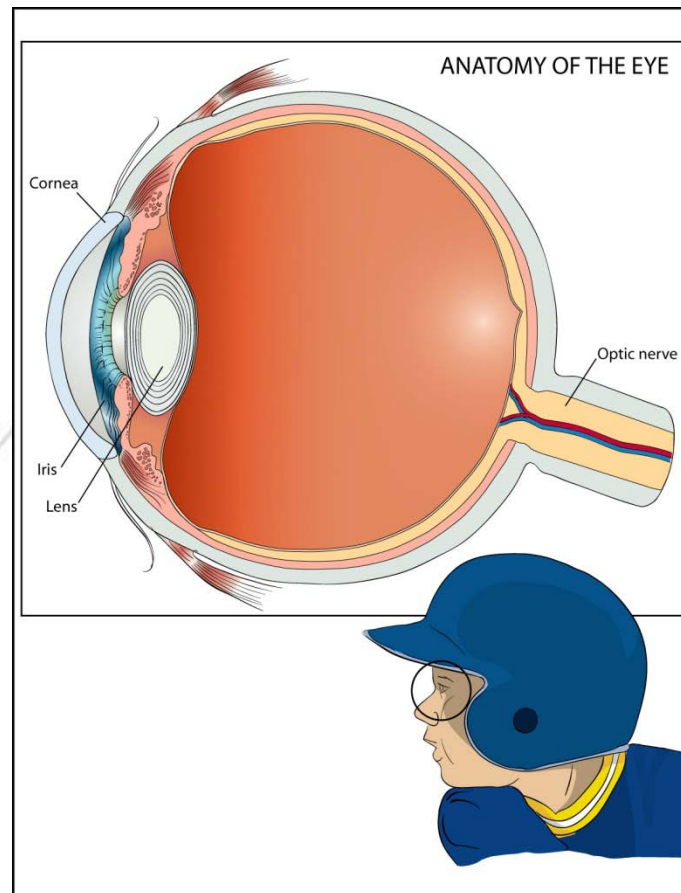
## Evaluation

### Listen

- Complaint of eye pain
- Complaint of blurred or double vision
- Report of halos or flashing lights
- Sensation of floating object inside eye
- Complaint of extreme light sensitivity
- Complaint of diminished vision

### Look

- Bulging or protruding eyeball
- Puncture or cut on eyeball
- Unequal pupil dilation
- Blood in eye
- Foreign particle in or around eye
- Swelling or bruising around eye



Scherer Illustration





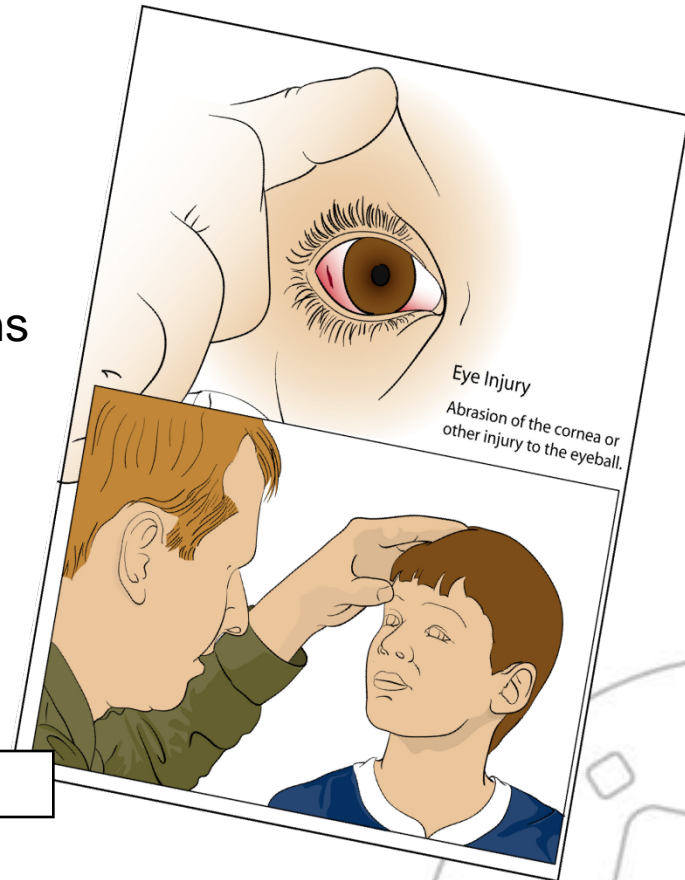
## Evaluation (continued)

### Feel

- Tenderness around eye
- Bone grinding

### Move

- Ask player to move eyes in all directions
- Unsynchronized eye movement



Scherer Illustration





## Treatment

- Notify parents
- For abnormalities other than scrapes or bruises, shield eye and take player for emergency care
- Flush dirt or sand from eye
- Emergency care is required for metal or glass in eye
- **Do not** pull embedded objects from eye
- **Avoid pushing on the eyelid in case a foreign object is under lid**
- Flush chemical irritants from eye. Persistent burning or irritation requires emergency care
- Ice is the only acceptable painkiller for an eye injury

## Special Considerations

- Check for vision by covering good eye and asking player to read
- Remember, concussion can result from blow that caused injury





## Prevention

- Safety glasses should be worn instead of regular glasses or sun glasses
- Functionally one-eyed players should wear full-face shields, masks, or cages with attached custom fitted helmets
- No ornamentation in eyelid piercings
- No eye make-up
- Prohibit swinging bats and throwing balls in dugout
- Teach proper playing technique

## Return to Play

- Normal vision with painless motion





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 11 Insect Bites & Stings**





## Evaluation

### Listen

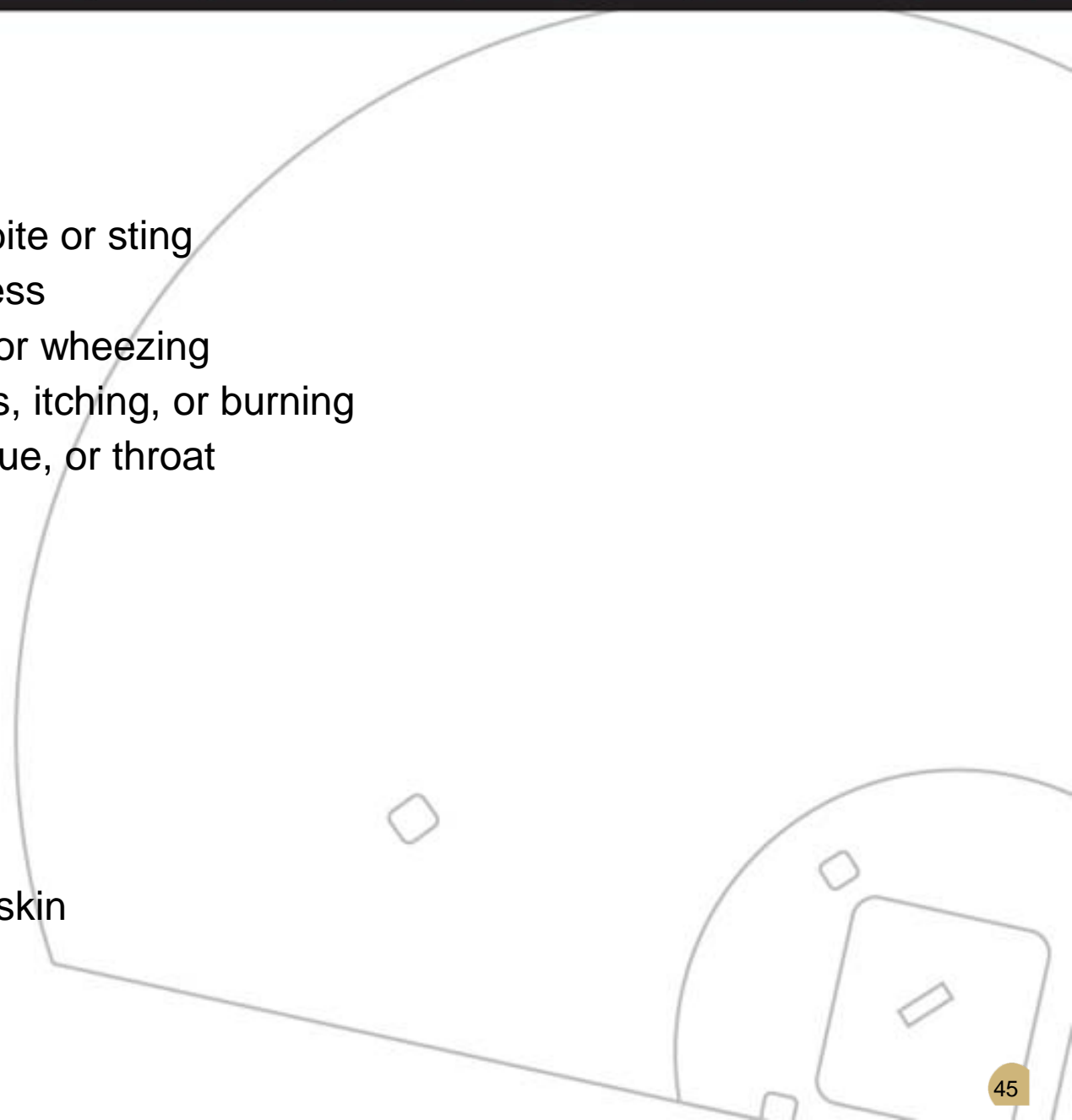
- Complaint of insect bite or sting
- Complaint of weakness
- Shortness of breath or wheezing
- Complaint of cramps, itching, or burning
- Swelling of lips, tongue, or throat

### Look

- Local reaction
- Rash

### Feel

- Pulse
- Red, raised area on skin





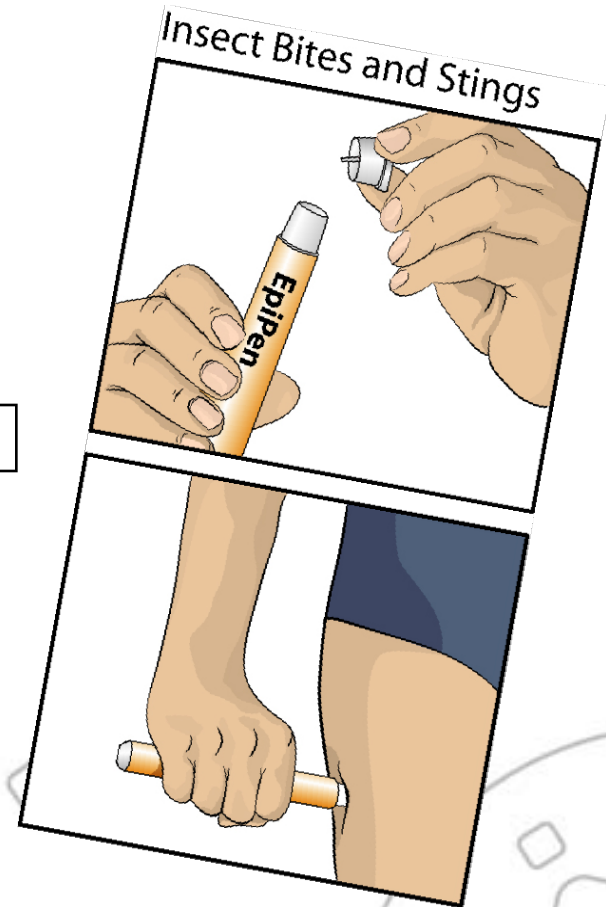
## Treatment

- Notify Parents
- Ice
- Follow instructions for allergies

## Prevention

- Maintain field
- Empty trash cans
- Confine attractive foods

*Scherer Illustration*







# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 12 Heat Illness**





## Evaluation

### Listen

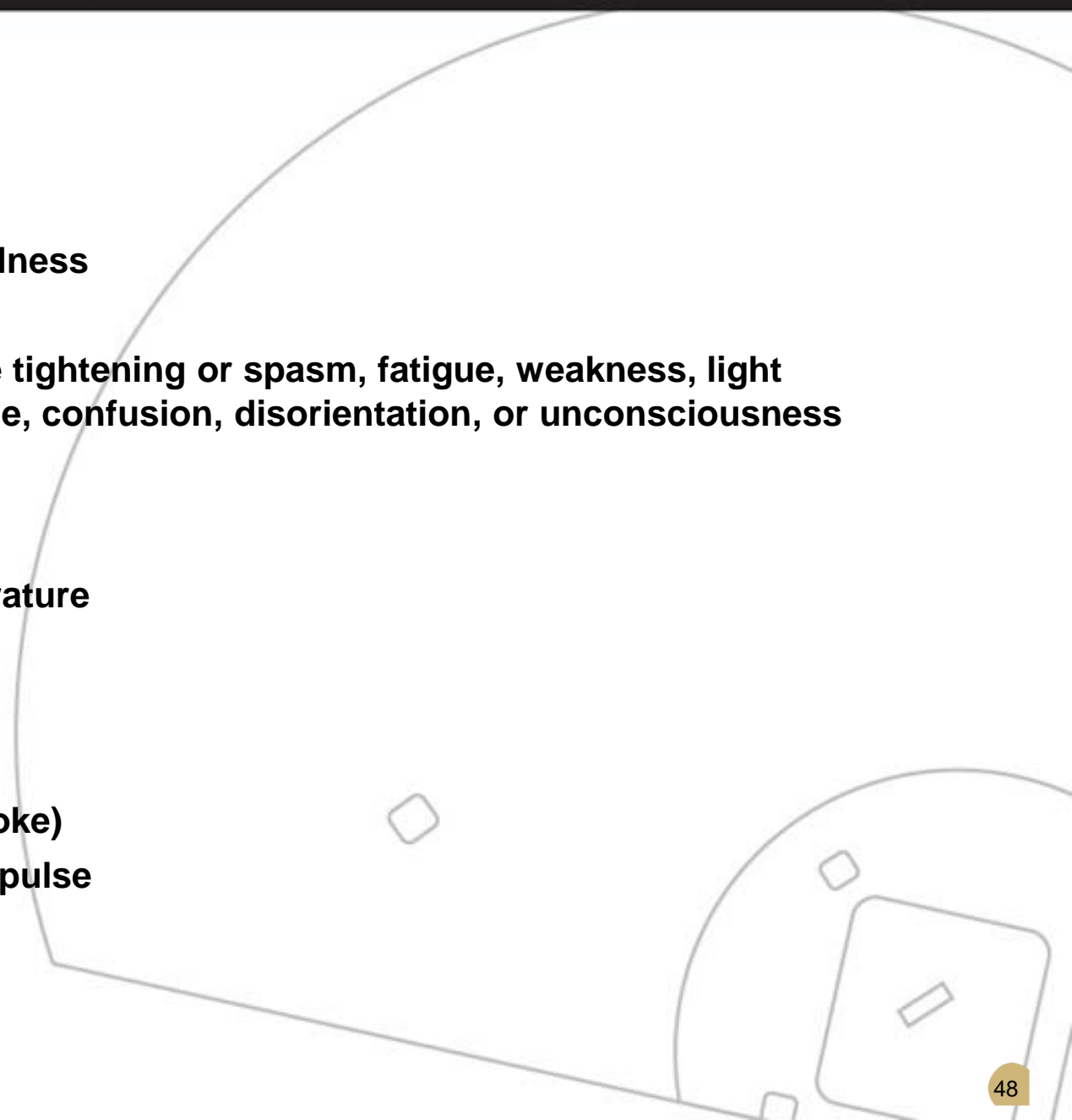
- Complaint of recent illness
- Current medications
- Complaints of muscle tightening or spasm, fatigue, weakness, light headedness, headache, confusion, disorientation, or unconsciousness

### Look

- Elevated body temperature
- Hot, flushed, dry skin

### Feel

- Hot dry skin (heat stroke)
- Thready or bounding pulse





## Treatment

### Heat cramps

- Rest, cooling
- Stretch gently
- Water or diluted salt solution (1 tsp salt to 1 qt water) by mouth

### Heat exhaustion

- Call 911 as necessary
- Shade, rest, rapid cooling
- Diluted salt solution by mouth if player is alert
- **Watch for progression to heat stroke**
- Notify parents

### Heat stroke

- Call 911
- Cool rapidly, remove clothes, pack in ice, wet, fan
- Notify parents





## Special Considerations

- Children may not feel the need to drink enough to prevent dehydration
- Heat exhaustion can lead to heat stroke, which can be fatal

## Prevention

- Pre-season evaluation regarding previous heat illness or other illnesses
- Players must drink adequate water
  - Flavored salt solution may encourage more fluid intake
  - Heat above 90 degrees, humidity above 95% means danger zone, curtail practice or move to cooler part of day
- Be sure players maintain body weight
- Limit time in bulky catcher gear
- Get used to heat gradually as season starts
- Cover dugouts to provide shade





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 13 Concussions**





## Evaluation

### Listen

- Report of a blow to the head
- Complaints of a head or neck injury, headache or vision problems
- Mention of memory problems

### Look

- Cuts and bruises
- Balance problems
- Pupils – equal and reactive to light
- Eye movements following finger

### Feel

- Localized tenderness on head
- A soft or grating area on skull where blow occurred

### Move

- Can player recall events before and during game?
- Ask athlete to list months of year backward
- Can player balance on one leg with eyes closed?
- Can player repeatedly touch finger to nose?
- Throw and field practice balls





## Treatment

- Notify parents
- Treat as potentially serious injuries
- All possible concussions require removal from play pending assessment
- Unconscious Athlete
  - Call 911
  - Assume neck injury – stabilize
  - Check airway, breathing, and pulse
- Remove from play for duration of event
- Initial assessment and re-assess every five minutes
- Symptoms lasting longer than 15 minutes or those associated with change in mental status require physician evaluation





## Special Considerations

- Delayed brain bleeding
  - Bleeding can occur hours later
  - Can lead to death
  - Do not leave athlete with a concussion alone
  - Watch and consider waking at night

## Second Impact Syndrome

- A second brain injury before complete recovery can result in severe brain damage
- Prevent second impact syndrome by
  - Remove player with ANY concussion from activity
  - Let all symptoms, even headache, resolve
  - Require physician clearance before returning to play





## Prevention

- Require helmets for all batters, base runners, and catchers
- Pad immovable objects in the field, such as poles
- Coach players to avoid head first slide, to call out fly balls, and to dodge wild pitches

## Return to Play

- For symptoms that lasted longer than 15 minutes
  - Must be symptom free to return to play
  - Generally at least a week of rest is required
  - No return unless cleared by a physician
- Mild concussions (total resolution within 15 minutes)
  - Cannot return the same day
  - Watch for symptoms next 24 hours
  - Return with parent or physician permission
  - Evaluate for headache or other symptoms while doing conditioning drills
- If no symptoms – Okay to return





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Lesson 14 Additional medical issues**





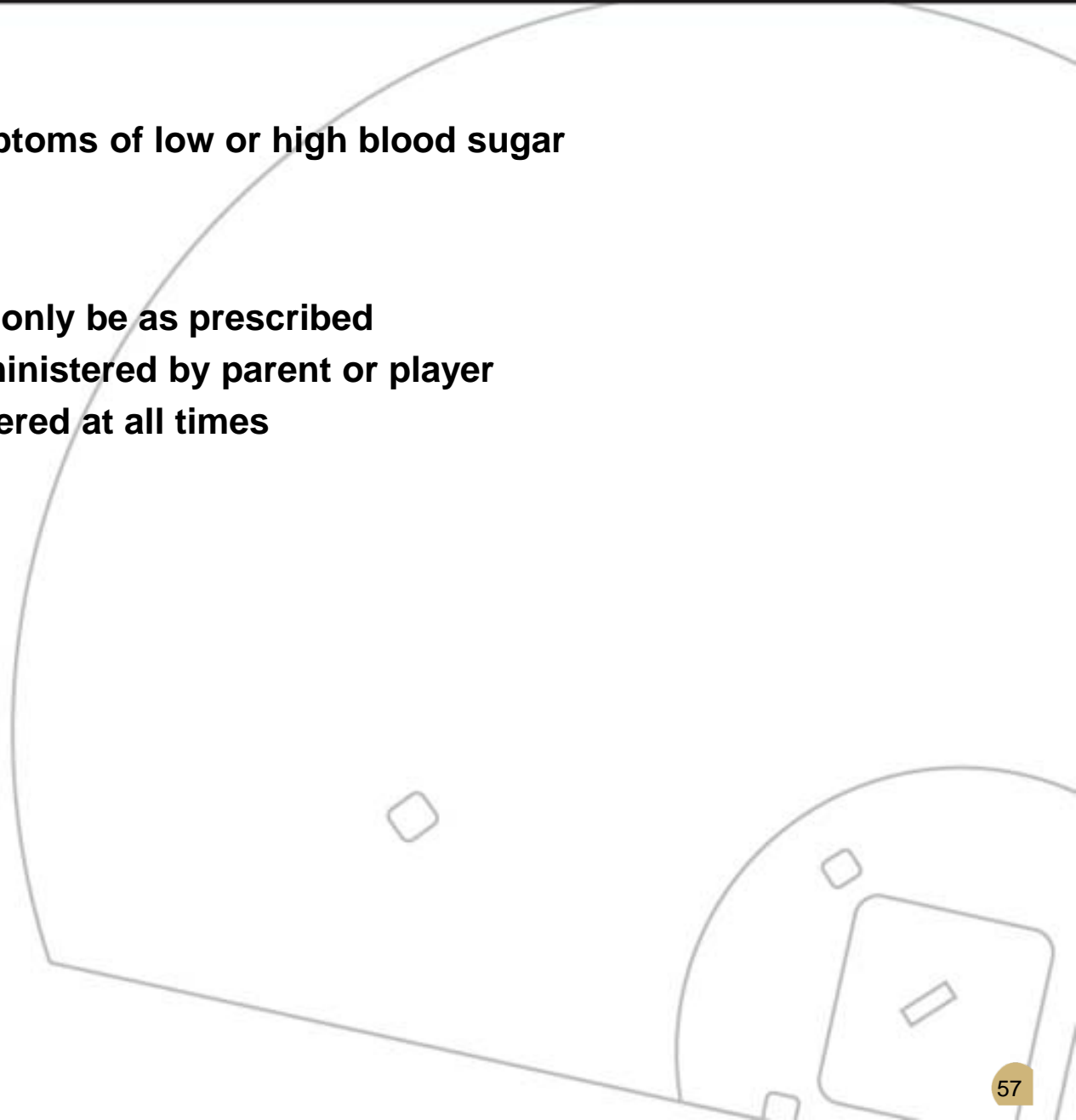
# Lesson 13 – Additional medical issues

## Diabetes mellitus

- Recognize signs/symptoms of low or high blood sugar

## Asthma

- Use of inhaler should only be as prescribed
- Inhaler should be administered by parent or player
- Inhaler should be covered at all times





# ***Prevention & Emergency Management of Youth Baseball & Softball Injuries***

## **Conclusion**







Let's review all of the techniques that will help prevent baseball and softball injuries in young players.

- ❖ **Pre-participation health screening**
- ❖ **Proper maintenance of the playing site**
- ❖ **Pay close attention to player conditions**
- ❖ **Make sure players know the basics of good nutrition**
- ❖ **Proper athletic conditioning**
- ❖ **Avoid overuse**
- ❖ **Consistent and proper use of all protective gear**
- ❖ **Close coaching supervision and organization of warm-ups, practices and games**
- ❖ **Careful compliance with all rules have to do with safety**

***PLAY BALL***

