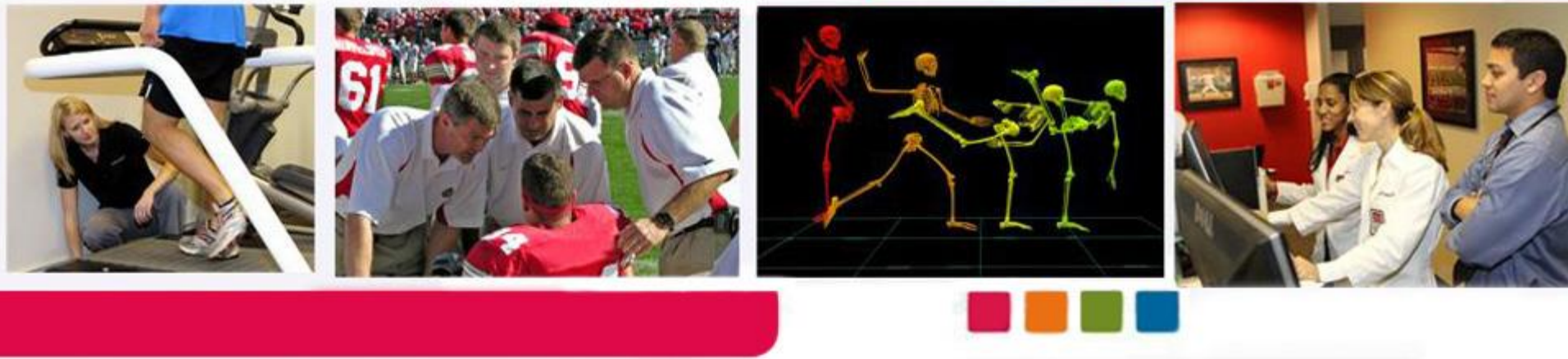


# Youth Baseball and Softball Injuries

Anne Marie Chicorelli D.O., M.P.H.

Amy Frase A.T.C.

Lisa Yeagley A.T.C.



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# Youth Baseball and Softball Injuries

## Objectives

- Be familiar with basic sports terminology
- Be aware of up-to-date techniques for preventing sports injuries
- Be able to differentiate between mild, moderate and severe injuries
- Know appropriate first aid techniques for the injuries you will encounter
- Know specific techniques to determine whether an injured player is ready to practice and play again

# Youth Baseball and Softball Injuries

## Introduction

- Listen
- Look
- Feel
- Move



## Treatment

### PRICES

P Protection

R Rest

I Ice

C Compression

E Elevation

S Support

# Youth Baseball and Softball Injuries

## Contusion

- Cardiac-asymptomatic
- Spleen-belly pain
- Kidney-blood in urine
- Testicular- swelling

### EVALUATION

#### LISTEN FOR:

- Typical history of a direct blow
- Complaints of pain over area of the blow

#### LOOK FOR:

- Swelling (mild, moderate, severe)
- Discoloration (mild, moderate, severe)
- Area of the body injured by the contusion (see Special Considerations)
- Breaks in skin (if present, treat as in Lesson 2)

#### FEEL FOR:

- Areas of tenderness (mild, moderate, severe)

#### MOVE

- See if the player can move the injured area:
  - with little pain (mild injury);
  - with more difficulty, perhaps requiring slight assistance (moderate injury); or
  - with extreme pain or not at all (severe injury).

### TREATMENT

- Apply PRICES as necessary.
- Notify parents.

*See the following special considerations for conditions that may be more urgent and require physician treatment.*

# Youth Baseball and Softball Injuries

## Laceration

- Bloodied uniform
- Stitches
- No jewelry unless diabetic bracelet, etc

### EVALUATION

#### LISTEN FOR:

- Typical history of contact against a rough surface or a sharp object

#### LOOK FOR:

- A break in the skin, either a scraped area or a sharp cut
- Bleeding

#### MOVE

- Have the athlete move the injured area to make sure there is no evidence of more serious injury.
- If a laceration overlies an area of tendons, make sure those tendons still move the joint they control.

### TREATMENT

- Use rubber gloves when treating any bleeding wound. This also applies to handling bloody dressings, equipment, or uniforms. Simply cleaning the wound in some fashion and covering it with an appropriate dressing can handle most abrasions. For small wounds, this may be nothing more than a Band-Aid. Larger wounds may require larger sterile dressings. Cleansing the wound can be done with simple soap and water or an antibiotic soap.
- Superficial lacerations may be handled in the same way. Deeper lacerations require physician evaluation and possibly suturing.
- Notify parents
- A physician should see serious lacerations as soon as possible.



# Youth Baseball and Softball Injuries

## Muscle Pulls and Strains

### TREATMENT

- Apply **PRICES**.
- Notify parents.
- In the event of a Grade III or severe injury that involves a complete tear of a muscle or tendon, the player should be splinted and sent to a physician immediately.
- Treatment should generally be divided into two phases. The first phase is the acute on-field care; best-approached using **PRICES** as listed above. The chronic phase of treatment involves the following points:
  1. Decreasing inflammation  
(continuation of **PRICES** treatment as above)
  2. Regaining motion
  3. Strengthening
  4. Regaining agility
  5. Participating in sport-specific activities.

An athlete must pass through each of these steps to return to sports activity safely.

### EVALUATION

#### LISTEN FOR:

- A typical story of little or no warm-up, a strong muscle contraction with sudden pain, or an accidental overstretching of muscle tissue
- Complaints of pain with use of the injured muscle group

#### LOOK FOR:

- Local swelling or discoloration (mild, moderate, severe)
- Visible defects in either muscle bellies or tendons that are located right under the skin, for example, the patellar tendon (right below the kneecap) or the Achilles tendon (behind the ankle)

#### FEEL FOR:

- Tenderness over a muscle or a tendon (mild, moderate, severe)
- Swelling or an indentation (hollow area) in the injured muscle or tendon

#### MOVE:

- Have the athlete move the joints above and below the injured area and look for pain or deformity.
- If the athlete is able to move these areas, look for the following in an effort to grade the injury:
  - Ability to tighten the muscle strongly with slight pain – Grade I (mild injury)
  - Ability to tighten the muscle weakly with moderate to severe pain – Grade II (moderate injury)
  - Complete inability to contract the muscle with or without pain – Grade III (severe injury or complete tear)

# Youth Baseball and Softball Injuries

## Overuse Injuries of the Throwing Arm

### EVALUATION

#### LISTEN FOR:

- Complaints of pain in the overused area: The player may first note this pain when the affected area is used, later, also when it is at rest.
- A change in likes and dislikes: "I don't like pitching any more," rather than, "My elbow hurts when I pitch."

#### LOOK FOR:

- Change in throwing form
- Other outward signs that the player has pain, such as continually rubbing a sore area

#### FEEL FOR:

- Tenderness to pressure over the injured area (mild, moderate, severe)
- Swelling (usually not present)

#### MOVE:

- See if the player can move the joint fully (compare to other side). This is especially important in the elbow where the ability to straighten all the way is easily lost.
- See if muscle strength is equal to that on the other side. Have player tighten the muscle against your resistance. Note pain and/or weakness.

### TREATMENT

- The most obvious treatment for overuse is rest, especially from the activity that created the injury in the first place.
- Use ice to reduce soreness and inflammation.
- Notify parents.
- Suggest physician referral, especially if symptoms persist. If there is a lack of full joint motion, the athlete MUST be evaluated by a physician.
- Usually a simple "rest cure" approach will not be enough, because even though it allows symptoms to decrease, it will also create loss of muscle bulk, tone, flexibility, and endurance. Once pain is gone and full motion is present, a throwing rehabilitation program can start.

**TABLE 2** Return-to-Throwing Program

Step	Progression Criteria
Short Toss	Toss the ball 10–15 feet for accuracy, using good throwing mechanics; no pain.
Long Toss	Stand 20 feet apart. Toss the ball back and forth 10 times. Increase distance until throwing 60–90 feet in the air (depending on age). Use good mechanics and throw for accuracy.
Hard Toss	Stand 60 feet apart (distance between bases) and throw five times at $\frac{1}{2}$ speed, five times at $\frac{3}{4}$ speed, and five times at full speed.
Fielding	Work on fielding ground balls and throwing to various bases from gradually more awkward positions. Outfielders work on throws to second base from an increasing distance.
Mound Toss (pitchers)	From the mound, throw at $\frac{1}{2}$ speed toward the plate. Emphasize accuracy and mechanics. Throw straight pitches progressively faster, up to $\frac{3}{4}$ speed. For more advanced players, throw curve balls progressively faster up to $\frac{3}{4}$ speed.
Speed	Increase speed on all pitches toward full speed while maintaining good mechanics and accuracy.



# Youth Baseball and Softball Injuries

## Overuse Injuries of the Throwing Arm

**TABLE 3** Maximum Number of Pitches Recommended

Age	Maximum Pitches/Game	Maximum Games/Week
8-10	52 ± 15	2 ± 0.6
11-12	68 ± 18	2 ± 0.5
13-14	76 ± 16	2 ± 0.4
15-16	91 ± 16	2 ± 0.4
17-18	106 ± 16	2 ± 0.6

*Source: From work by James R. Andrews, M.D. and Glenn Fleisig, Ph.D.*

**TABLE 4** Age Recommended for Learning Various Pitches

Fastball:	8 ± 2	Slider:	16 ± 2
Change-up:	10 ± 3	Forkball:	16 ± 2
Curve ball:	14 ± 2	Knuckleball:	15 ± 3
Screwball:	17 ± 2		

*Source: Andrews and Fleisig*

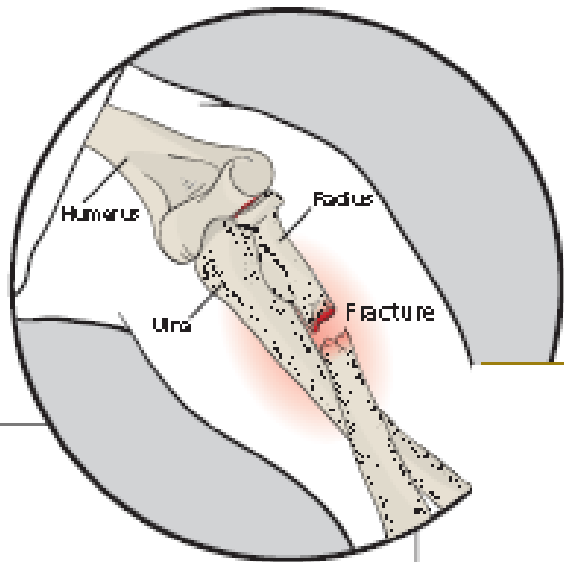


# Youth Baseball and Softball Injuries

## Fractures

### Arm Fracture

A complete or incomplete break in one or both bones in the forearm (radius and ulna).



### EVALUATION

#### LISTEN FOR:

- History of a violent twisting injury
- History of a direct blow
- A "snap," "pop," or "crack" that either you or the player may hear
- Complaints of severe pain and immediate disability

#### LOOK FOR:

- Obvious deformity, that is, a limb that has a bend where normally it should not (*Figure 2*)
- Immediate swelling
- Bone ends protruding through the skin

#### FEEL FOR:

- Marked tenderness over the bone
- A grating sensation of one bone end rubbing against the other

#### MOVE:

- Gently have the player try to move the injured area—but if player cannot do so because of pain, do not move it until it has been splinted. (See the explanation of active and passive motion in the introduction.)

### TREATMENT

- Arrange for physician evaluation as soon as possible.
- Consider calling for emergency help; if none is available, or if suspected fracture is relatively minor and player is relatively comfortable, consider splinting and transporting in private vehicle.
- In the meantime, apply ice.
- If there is an obvious difference in the appearance of the limb and it looks crooked or deformed, DO NOT attempt to straighten the limb out as this can cause injury to nerves and blood vessels.



Deformity of Wrist



- For an open fracture, apply sterile dressing and call 911 immediately.
- Notify parents or family physician.
- Keep athlete calm.

# Youth Baseball and Softball Injuries

## Hand and Finger Injuries

### EVALUATION

#### LISTEN FOR:

- Usually a history of a direct blow, most commonly from being hit by the ball itself or possibly from being stepped on
- A story that the finger joint was knocked out of place, even if it is now back in place

#### LOOK FOR:

- Deformity or appearance that something is out of place; note particularly any rotational deformity (*Figure 1*)
- Swelling (mild, moderate, severe)
- An associated laceration, especially involving the fingernail and nail

#### FEEL FOR:

- Tenderness (mild, moderate, severe)
- Grating sensation of bone ends rubbing together

#### MOVE:

- Have player completely straighten and bend all joints of all fingers and hand. Compare to uninjured hand and fingers.

### TREATMENT

- Apply PRICEs.
- If finger is obviously crooked or deformed, or if a joint seems out of place, do not attempt to straighten the finger yourself.
- If no significant deformity exists, use "buddy-taping" as a method of temporary splinting.
- For laceration of a fingertip or nail bed, send or take the athlete to the emergency department immediately. There is a limit of about four hours in which the wound can be closed, but the athlete should be seen no matter how long it takes.
- Notify parents.
- Refer the athlete to a physician if gross deformity was ever present, or if joint will not move fully, or if any other condition is a cause for concern.



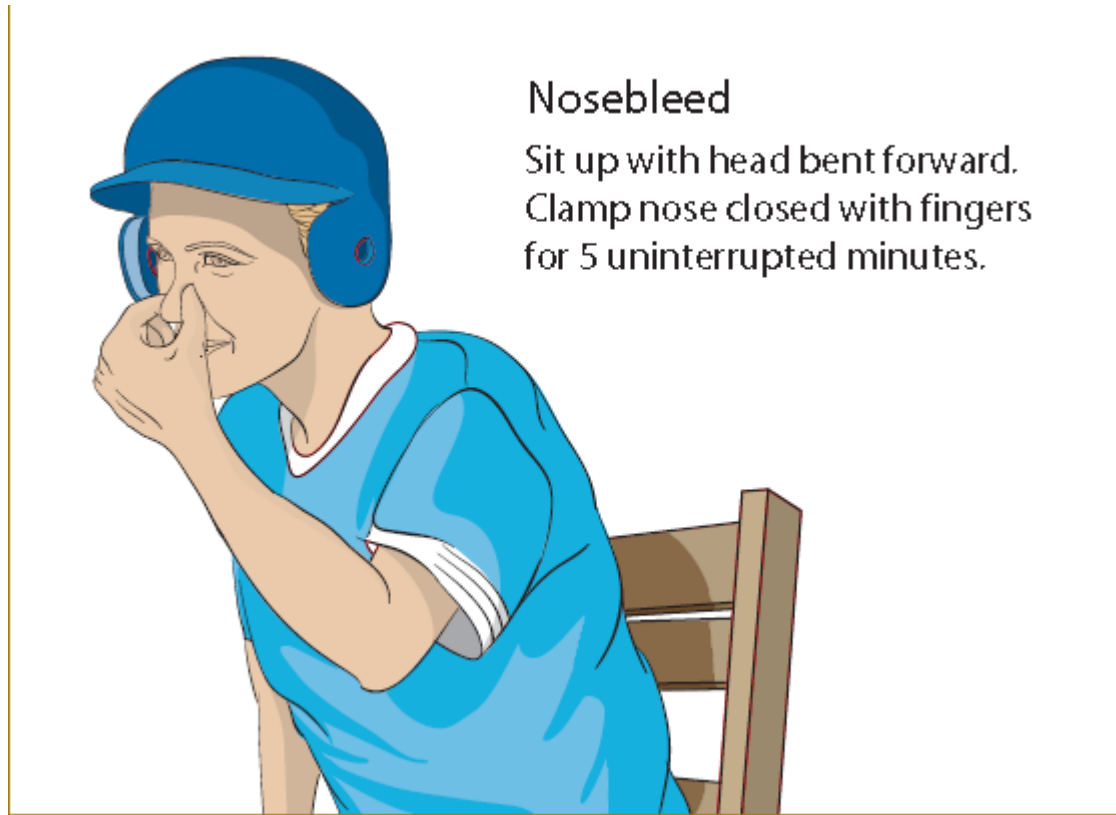
# Youth Baseball and Softball Injuries

## Hand and Finger Injuries



# Youth Baseball and Softball Injuries

## Facial Injuries



# Youth Baseball and Softball Injuries

## Jaw, Mouth, and Tooth Injuries

### EVALUATION

#### LISTEN FOR:

- History of a direct blow to the jaw or mouth
- Complaints of pain around the jaw, mouth, teeth, or ear
- Complaints of trouble breathing, swallowing, or speaking
- A report that the player feels like an object is in the throat (a piece of a cracked tooth lodged in place)
- A report by the player that he or she feels a chip, a crack, looseness, roughness or other abnormality of a tooth
- Complaints of difficulty bringing the teeth together or parting them, or pain with biting down
- Complaints of a numb feeling in the neck, chin, mouth, lip, tongue, or ear
- Difficulty moving the tongue, feeling the tongue, or controlling the tongue muscles (this should alert you to a potential airway problem that could be life-threatening)

#### LOOK FOR:

- The tooth or fragment of tooth on the ground, if it has been knocked out **This is critically important!**
- Missing tooth or fragments of tooth in the player's mouth
- An uneven tooth that appears to have been driven into the gum
- Cuts or swelling around lips, gums, mouth, or tongue
- Some asymmetry in the appearance of the face from one side to the other
- Some abnormal position of the lower jaw
- Tooth that don't line up properly. Do the top teeth protrude over the bottom teeth more than normal, or do the bottom teeth stick out in front of the upper teeth?

#### FEEL FOR:

- Looseness or pain when pressing on the injured tooth with your finger: (wear a rubber glove!)
- First, press gently toward the tongue.
- Then press outward toward the lips.
- Compare to movement of other teeth.
- Swelling, tenderness, abnormal step-offs, or unusual motion of bones as you glide your fingers from the middle of the neck up toward the chin, following the jaw to the ear and around the lips

#### MOVE

- If possible, have the person open and close the mouth, speak, stick out the tongue and move it side to side, and breathe deeply.

#### TREATMENT

- Control bleeding by placing pressure on the area with your gloved hand, using clean gauze or cloth. If bleeding doesn't stop within 10 minutes, get the player to an emergency department or summon help. Do not have the person swallow anything until all bleeding has stopped and he or she can speak, move the jaw fully, and breathe without difficulty or pain.
- Except for mild injuries, if the person has any trouble breathing, speaking, swallowing, or moving the tongue, lips, or jaw or shows some asymmetry of the face, the player should be sent to an emergency department immediately.
- Notify parents.
- Immediately refer player to a dentist or hospital for a tooth or a tooth fragment that has been knocked out. **Be sure to send the tooth or fragment with the player.**

# Youth Baseball and Softball Injuries

## ■ Heat Illness

Type of Heat Illness	Symptoms and Complaints	Physical Findings
Heat cramps	Muscle tightening and spasm with intense pain. Usually lower leg, but may be abdominal or rib cage.	Muscle spasms, either seen or felt, that usually do not respond to kneading or massage
Heat Exhaustion	Severe fatigue, profound weakness, light-headedness. Flu-like symptoms; headache; muscle aches; nausea; vomiting, diarrhea.	Elevated temperature, ranging from normal 98.6°F to 103°F Mental state normal or only mildly impaired. Complete loss of consciousness is rare
Heat Stroke	Confusion, disorientation, agitation in milder cases. Hysterical behavior, delirious behavior, coma in more severe cases.	Temperature at least 105°F Hot, flushed, dry

# Youth Baseball and Softball Injuries

- Heat Illness
- Due to dehydration
- Every 20 min, 88lb= 5 oz
- If 132 lbs, 9 ozs
- Red zones

## EVALUATION

### LISTEN FOR:

- History of recent illness, especially if player is taking medication for it now
- Other complaints as noted in heat illness chart

### LOOK FOR:

- Physical findings as noted in heat illness chart

### FEEL FOR:

- Cool and damp skin (heat exhaustion) or warm and dry skin (heat stroke)
- Pulse (thready or bounding)

## TREATMENT

Move player immediately out of the sun and into the shade. If for some reason this is not possible, adults should stand close to the player, providing shade with their bodies.

### FOR HEAT CRAMPS:

- Provide rest, cooling.
- Stretch gently.
- Administer diluted salt solution (1 teaspoon salt to 1 quart water) by mouth.

### FOR HEAT EXHAUSTION:

- Provide rest, rapid cooling.
- Administer diluted salt solution by mouth if player is awake and alert.
- Activate emergency care plan (call 911) as necessary or transport to local medical facility.
- Notify parents.
- Watch for progression to heat stroke!

### FOR HEAT STROKE:

- Extreme medical emergency!
- Cool rapidly, remove clothing, pack in ice, wet, and fan.
- Activate emergency care plan! (Call 911)
- Notify parents.

**Caution:** Do not try to force a player to drink water unless you are certain that he or she is conscious.



# Youth Baseball and Softball Injuries

## ■ Concussion

### EVALUATION

#### LISTEN FOR:

- A history of a blow to the head from a collision with an object or another player
- Complaints of an injury to the head such as a contusion, laceration, or other head and neck injury
- Complaints of headache or vision problems
- Accurate memory of recent events (things that happened during the game or earlier that day)

#### LOOK FOR:

- Localized area of injury such as a laceration or contusion on the head or face
- Imbalance in walking or moving
- Size and reaction of pupils (they should be equal and get smaller in response to bright light)
- Eye movements following your finger

#### FEEL FOR:

- Localized area of tenderness on head
- A skull fracture indicated by grating or soft spot where blow occurred.

#### MOVE:

Have the athlete:

- recall events from before the game and during the game;
- perform a mental task such as reciting the months of the year backwards (December, November, etc.);
- balance on one leg with eyes closed;
- rapidly reach from his or her nose to your finger and back several times while you move your finger;
- throw and field some ground balls; and jog and do some push-ups to see if a headache develops.

# Youth Baseball and Softball Injuries

## ■ Concussion

### TREATMENT

All concussions should be treated as potentially serious injuries, even if they appear to be mild. Severe concussions require immediate transfer to a medical care facility for evaluation. An unconscious athlete who has sustained a blow to the head requires special precautions. Because they may also have a neck injury, the head and neck should be immobilized until trained personnel arrive. Three or four assistants can logroll a person who is face down **while the head and neck are stabilized and kept in alignment with the body.** Standard CPR techniques should be employed to evaluate airway, breathing, and circulation (ABCs, as taught in Red Cross training) while awaiting transport by emergency medical personnel.

A physician should evaluate any concussion (moderate or severe) as soon as possible. This includes concussions associated with any loss of consciousness or cases with no loss of consciousness where symptoms don't resolve quickly. Therefore, after an initial assessment, the athlete should be reevaluated every five minutes or so until symptoms resolve. If any symptoms persist after 15 minutes or if they worsen, the player should be evaluated by a trained physician immediately. There is no specific treatment for most concussions other than rest and prevention of re-injury. Other head injuries such as lacerations and contusions are often associated with concussions. These should be treated as appropriate with PRICES as described in other chapters.

In rare circumstances, swelling or bleeding in the brain may develop hours after the initial injury. Thus, even an individual who appears to have recovered from a mild injury should be watched for any worsening in condition. The player should not be left alone after even a mild concussion that resolves quickly. Parents or other family members should be informed about the injury and warned to be on the lookout for any unusual behavior or symptoms. If anything unusual occurs, immediate evaluation is required.



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