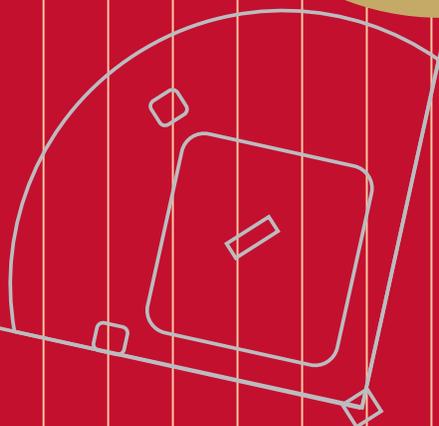




The American Orthopaedic  
Society for Sports Medicine

**Prevention and Emergency Management of**

# *Youth Baseball and Softball Injuries*



## Acknowledgements

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ince its inception, youth baseball has been dedicated not only to teaching sound fundamental playing skills and good sportsmanship, but also to providing a wholesome and safe environment in which youngsters may learn and grow. (Figure 1)

Youth baseball has definitely changed from its original form of throwing the ball around in the schoolyard. Now there are millions of boys and girls playing both organized baseball and softball around the world. But the American Orthopaedic Society for Sports Medicine's tradition of concern for safety has not changed. We continually explore new and better ways to enhance our programs. The handbook you are about to read is part of that exploration. The material in this handbook is organized to help coaches administer first aid and prevent injuries that may happen on the field.

We strongly recommend that before coaches assume the responsibility for their teams, they complete a first aid course such as those given by the American Red Cross, which include basic CPR (cardiopulmonary resuscitation).



Scherer Illustration Introduction — Figure 1

## Objectives

Let's look at our objectives. After reading these materials, you should:

- **Be familiar with basic sports injury terminology.** You may encounter new terms in these lessons, or new ways to describe ideas you're already familiar with. We will explain these as they come up in our lessons.
- **Be aware of up-to-date techniques for preventing sports injuries.** Preparation equals prevention. Prevention techniques address the important issues of the preseason medical exam, proper equipment use, maintenance of the playing site, awareness of weather conditions, and all the other rules for safe play that make youth baseball and softball a healthy and enjoyable experience for you and your players.
- **Be able to differentiate between mild, moderate, and severe injuries.** By listening, looking, feeling, and moving, you will learn to distinguish those injuries that require immediate treatment from those that may be safely treated by first aid techniques with further evaluation later on.
- **Know appropriate first aid techniques for the injuries you will encounter.** You'll learn simple general principles for treatment that you can apply in just about any case. You will also learn what you should avoid doing, and when it's time to call for expert emergency help.
- **Be able to design an emergency plan for your league to use when severe injuries occur.** Planning for emergencies is part of prevention. In an emergency, your injured player is the most important part of a complex picture. You'll learn how to evaluate the player and the other parts of the picture.
- **Know specific techniques to determine whether an injured player is ready to practice and play again.** You'll be given several simple techniques to help in determining whether a player is ready to practice and play again. You'll be given several simple techniques to help in determining whether a player is ready to return to running and throwing.

## Evaluating Injuries

As much as they may vary, most injuries can be classified according to whether they are:

- mild,
- moderate, or
- severe.

This is a convenient classification. As we discuss each injury, we will sometimes give specific ways you can classify it according to these categories and then determine the right treatment. Many times, however, it is simply a judgment call, based on swelling, pain, tenderness, and disability.

Classification and treatment depend on symptoms and signs.

A **symptom** is what your player reports: “My head really hurts, coach!” Or “I can’t move my arm.”

A **sign** is what you observe: Billy’s got a bloody nose. Or Susan’s eye looks really puffy. Or when you move Johnny’s foot, you can feel a grating sensation around the anklebones.

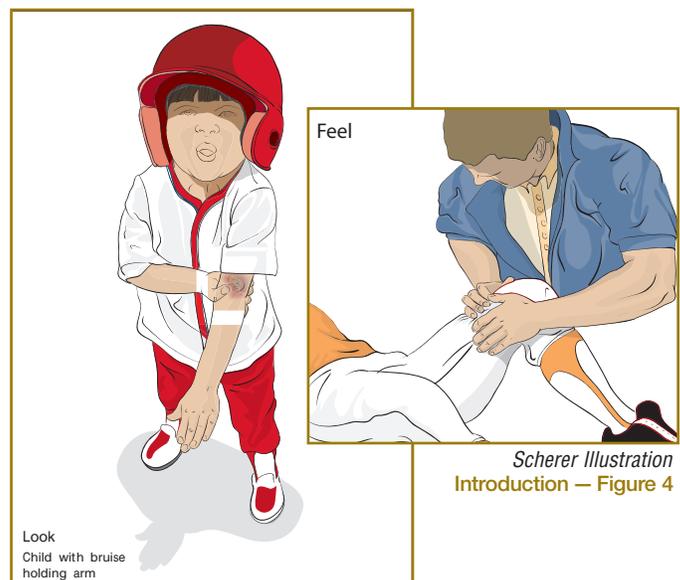
You’ll discover the injured player’s symptoms and signs as you evaluate the injury by **listening** and **looking**, then by carefully **feeling** and **moving** the injured part.

- **Listen** to the player to determine what happened. “I was reaching for the ball, and I fell down.” “It felt like something went out of place in my knee.” “I saw Jerry stumble and hit his head on the dugout bench.” Before questioning, though, you may have to calm and soothe an excited child to get an accurate description of the injury. (Figure 2)



Scherer Illustration Introduction — Figure 2

- What do you see as you **look** at the injured player? Bleeding? Black-and-blue discoloration? An obviously broken bone? (Figure 3)
- As you gently and carefully **feel** the injured area, you will be able to detect signs like swelling or the grating of a broken bone. (Figure 4)
- Have the player **move** the injured part carefully to determine whether he or she can do so without pain. Assist the player if necessary, but **DO NOT FORCE** the player to move if it is extremely painful to do so. Inability to move an injured area generally means a more serious injury. (Figure 5)

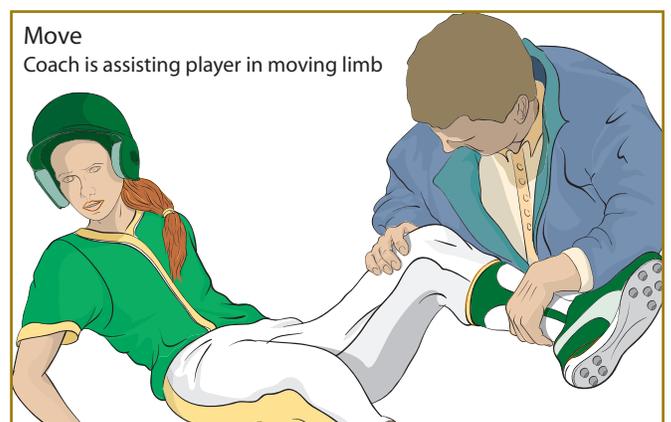


Look  
Child with bruise  
holding arm

Feel

Scherer Illustration  
Introduction — Figure 4

Scherer Illustration Introduction — Figure 3



Move  
Coach is assisting player in moving limb

Scherer Illustration Introduction — Figure 5

In evaluating an injured limb, it may be useful to remember the three kinds of motion. In **active motion**, the injured person can still move voluntarily and freely. In **active assisted motion**, your player may be able to move the injured part with a little help from you. In this case, a response like “OUCH! Don’t do that, it hurts!” is a warning sign.

**Passive motion** means that someone else must move the injured body part. For example, you might be able to move a friend’s stiff shoulder, even though it’s uncomfortable for the person to do it. Passive motion signals the need for extreme caution. As we have said, if there is no active or active assisted motion possible, you are probably looking at a serious injury.

We cannot list every symptom and sign of each injury. Some injuries, eye injuries for example, have their own very specific symptoms and signs. But you can rely on the following general statements in most cases.

The sooner a player’s **disability manifests itself**, the more serious the injury. By disability, we mean that the player cannot use this body part as it should be used. If Johnny twists his ankle but has only a slight limp, his injury may be **mild** or **moderate**. If he falls and cannot get up at all, he probably has a **severe** injury.

The larger and more immediate the **swelling**, the more serious the injury, because swelling seen from the outside means bleeding on the inside.

A noticeable **deformity** means a serious injury. If this body part doesn’t look the way it did before the accident, something’s wrong. Examples of deformity might be limbs that bend where they’re not supposed to bend, or bones that are clearly not in their normal relationship.

Always consider **unconsciousness** or any **eye injury** a serious situation, in the category of **severe** injuries, until medical personnel assure you otherwise.

In real life, several things may be happening at the same time. For the sake of clarity, we have devoted each of the early lessons to one kind of injury. But we will also

discuss the time when you may have more than one seriously injured player on your hands and will have to make some fast and correct decisions. These decisions are part of emergency management.

## Treatment

For a general guide to treating sports injuries, remember, the word **PRICES**

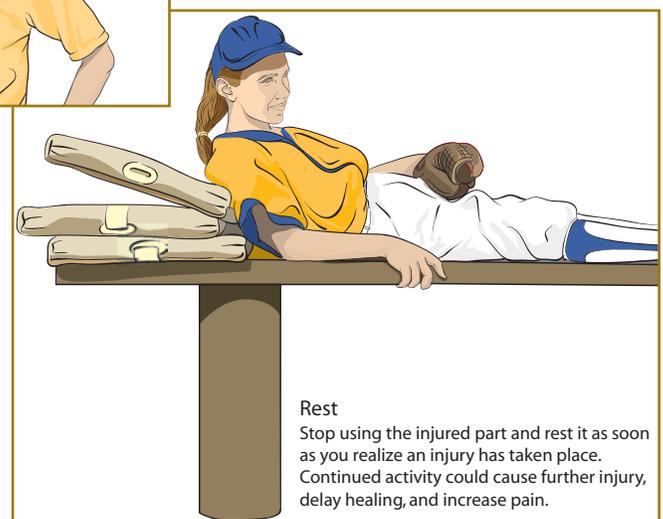
<b>P</b>	Protection
<b>R</b>	Rest
<b>I</b>	Ice
<b>C</b>	Compression
<b>E</b>	Elevation
<b>S</b>	Support

**Protect** the injured part of the body; for example, use crutches for an ankle or knee injury. (Figure 6)

Have the player **rest** and avoid using the injured part. There are different degrees of rest that are appropriate for different injuries at different stages of recovery. Usually, rest initially means avoiding the activity that created the injury. (Figure 7)



Scherer Illustration Introduction — Figure 6



Scherer Illustration Introduction — Figure 7

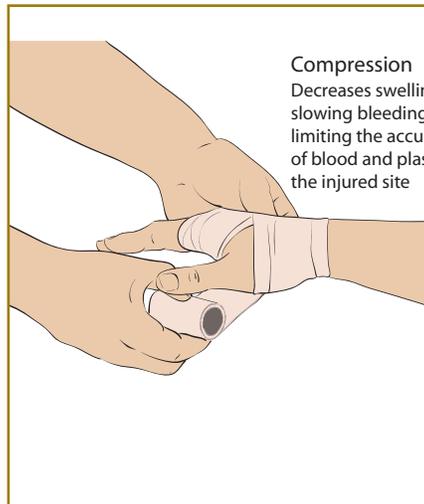
**Ice** not only makes your player comfortable by easing pain, it reduces swelling and inflammation. Ice should initially be applied for 20 to 30 minutes out of each hour. Place a thin towel or elastic wrap on the skin between the skin and ice. Commercially available Saran Wrap rolls or Ace wrap can be used to keep the ice in place. Instead of changing over to heat after the first few days, continue to use ice for any soreness that persists. Heat used any time following an injury may increase swelling and should be used cautiously. (Figure 8)



Ice  
Arm with ice pack

Scherer Illustration Introduction — Figure 8

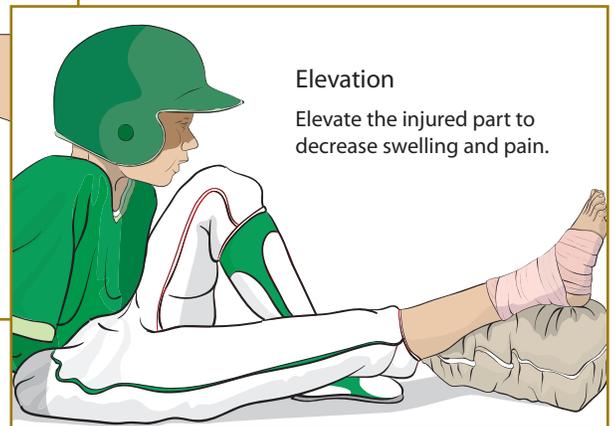
Apply **compression** carefully to keep swelling to a minimum. You must be cautious with elastic bandages, though. They must not be applied so tightly that they cause more swelling below where they are placed. The ideal technique is to wrap the entire exposed limb, from the most distant point to well above the injury site. For example, for an ankle injury, wrap all the way from the tips of the toes to just below the knee. (Figure 9)



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

Scherer Illustration Introduction — Figure 9

**Elevation** of the injured part decreases pooling of blood and other fluids in the area, thereby helping to keep down the swelling. The most effective elevation is with the injured part higher than the heart. For example, in treating an ankle injury, the ankle should be higher than the knee, and the knee should be higher than the heart. Remember, water (swelling) runs down hill! (Figure 10)



Elevation  
Elevate the injured part to decrease swelling and pain.

Scherer Illustration Introduction — Figure 10

**Support** the injured part as necessary with taping or some type of functional bracing to guard against re-injury. (Figure 11)



Scherer Illustration Introduction — Figure 11

At this point, perhaps you cannot yet visualize how you will put these ideas for evaluation and treatment into practice when you're actually there on the field. But as you work through our lessons on the different kinds of injury, both evaluation and treatment should become more clear, and you will see how part or all of the **PRICES** concept can be applied in almost any mild, moderate, or severe injury to any part of the body.

## Special Considerations for Youngsters

Most injuries would be treated in the same way, whether they happen to a 10-year-old shortstop or a person of your own age. Nevertheless, in evaluating injuries to your players, both you and your player's parents must remember that you are dealing with children. The young shortstop may not be able to describe easily just how the injury occurred, or how bad it is. Fear of being removed from the game for treatment may keep the athlete from acknowledging the injury. Therefore, your **careful observations and good instincts are very important.**

Also, remember that your young players are growing and developing. Some of them are undergoing the physical and emotional changes of adolescence, and in this age group you'll see startling differences among youngsters of the same calendar age. Watch for behavior, mood changes, or physical signs that may indicate an underlying problem. This could be anything from not understanding your instructions to some school or family problem that has the youngster worried and distracted. It is important that coaches and parents be responsive to complaints of injury from athletes in all age groups. They should be aware that an athlete, who is not playing up to skill level, might be suffering from a significant injury.

Fortunately, however, in youth sports, particularly in non-contact sports like baseball and softball, statistics are in our favor. According to the Society, "Minor sprains, muscle pulls, and blisters and overuse are the prevalent injuries in non-contact sports."

There's one other special consideration that is so important we should really put it in the category of treatment along with **PRICES** and emergency planning—that is **communication**. Managers and coaches must cultivate timely, open, and trusting communication with their players' parents and guardians. Be certain that Jimmy's mom and Betsy's dad know exactly what has happened, even in the case of the most insignificant injury. Explain how it happened and what you have done for it. You might even advise as to the next step. For example, "*If this were my child, and this swelling didn't go down within about the next 24 hours or so, I'd call my family doctor.*" However, while you may rightly feel that not every bruise and sprain requires treatment by a physician, the final decision on this must rest squarely with the parent or guardian.

## Your First Aid Kit—and More

Get your first aid and emergency kits together well before your team's first practice. Suggested contents for your first aid kit include:

### Ice Bags

- Zip-lock plastic bags containing crushed ice
- Plastic wrap to hold ice bag in place.

### Elastic Bandages

- 3-inch, 4-inch, and 6-inch widths

### Sterile Dressings

- 3-inch x 3-inch gauze, individually packaged
- 5-inch x 9-inch pads (keep 2 or 3 on hand)
- Telfa or other nonstick dressings
- Eye patches

### Non-latex Rubber Gloves

### Adhesive Bandages

- ¼ inch, 1-inch, and 2-inch widths

### Bandages

- Triangular shape and in rolls

### Adhesive Tape

- ½-inch, 1-inch, and 1½-inch widths

### Eye Shields

### Small Flashlight

### Scissors

### Antiseptic Soap

### Chlorine Bleach

- Diluted, to use for cleaning up blood

### Splints

- Inflatable, wooden, or cardboard—for arm and leg
- Large enough for the arms and legs of your largest player

### Petroleum Jelly

### Safety Pins

### First Aid Manual

### Towels

### Blanket

### Commercially Available Tooth Transport Kit (check expiration date)

### Small Pocket Notebooks and Pencils

### Drinking Water and Plenty of Paper Cups (can also do double duty in some first aid applications)

**A well-stocked ice chest, ice bags, ice packs—almost always needed at some point on a baseball field**

*Keep your first aid kit stocked and replenished!* If you or your colleagues use any first aid supplies, replace them before the next time the team meets. The health history forms for each of your players should also be kept with the first aid kit so you can refer to them immediately whenever needed.

## Special First Aid Items

Your first aid kit should also include special medications or devices and usage instructions for players with unique problems. You will know from the medical release form filled out by your players' parents which child might have a particular medical problem. For example, one player might be asthmatic; another might have a severe reaction to bee stings. For each of these players, discuss with the parents the proper emergency procedures and know how to administer any required medication. Keep written instructions for these procedures in your first aid kit. Follow the same precautions if you live in an area where there are poisonous snakes or dangerous insects.

### Don't forget to include:

- **Phone or access to one:** These days many of you will have immediate access to a cell phone. If you don't, you may still be relying on a pay phone that requires coins. Experienced trainers and coaches keep a few coins taped to the inside of the first aid kit lid just in case. In any case, immediate access to a telephone of some type is critical.
- **A list of emergency telephone numbers:** This should include at least the numbers of: the nearest hospital; local emergency medical service; parents of each player; and the family doctor of each player.
- **Written instructions for getting to the nearest hospital emergency room from your playing field.** Such instructions are necessary when you need to transport a player.
- **Written instructions for getting to your playing field.** If you must call emergency medical services, it's better to rely on the accurate written notes than to try to remember this information when you are under stress. You can simply read the directions over the phone.



## Contusion

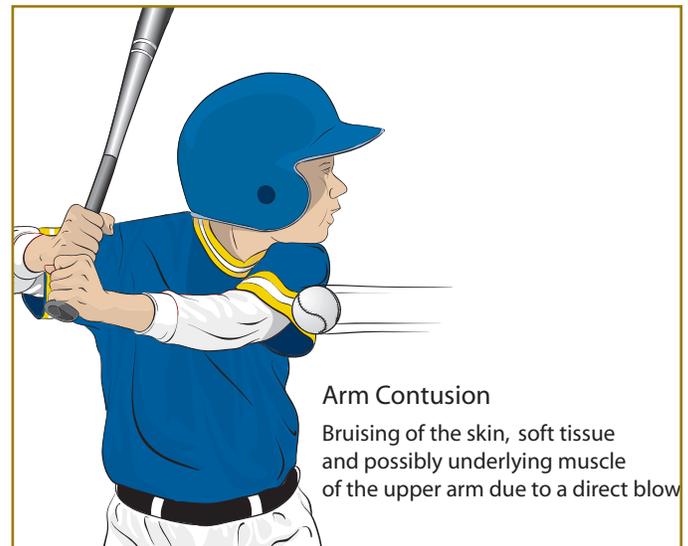


Contusion is another term for bruise. Its telltale sign is dark discoloration on the skin—the area becomes, literally, black and blue. A hard blow causes small blood vessels to rupture so that they bleed into the surrounding tissue.

The same bleeding causes the usual second common sign of a contusion—swelling.

There may be more noticeable swelling in an area of the body that doesn't have much padding with muscle or fat. (Figure 1)

The most likely source for a blow hard enough to cause a contusion in a young player is getting hit by the ball itself, but there are other possibilities: getting hit by the bat, falling and hitting the ground, sliding into another player, or running into a hard object such as a fence, another player, or a dugout.



Scherer Illustration Lesson 1 –Figure 1

## 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.

## Special Considerations

You should be aware that a severe contusion in certain areas of the body is a much more serious problem: (See Lesson 1–Figure 2)

## Cardiac (heart):

With any significant blow over the sternum (breast bone), a condition called *commotio cordis* can occur, which causes the heart to go into an irregular rhythm and can cause sudden death. This has been reported in baseball players struck by the ball as well as in players of other contact sports. Even for a mild blow over this area, remember:

- There may be **no** symptoms prior to sudden unconsciousness.
- This is **life threatening**.
- Even players without immediate problems should be referred to a physician or a local emergency room.
- In case of sudden unconsciousness, **activate your emergency care plan, call 911, and begin CPR if necessary!**

## Spleen:

A blow to the upper abdomen under left rib cage causes the injury.

- Athlete experiences belly pain, aversion to movement, and extreme tenderness to the touch.
- Immediately refer the player to local emergency room or physician.
- The condition **may be life threatening**.

## Contusion

### Kidney:

A blow to the back, just below the rib cage, and on either side of the spine can cause kidney damage.

- Watch for blood in the urine.
- Refer to a physician if any blood or other change appears during urination, or the player suffers severe flank (lower back, on either side of spine) pain.

### Testicular:

The key finding is swelling in and around area of scrotum and testicles.

- If swelling occurs, refer to a physician.
- This condition may cause permanent impairment.
- Prevention is by use of protective cup for all male players.

### Calcium deposit (myositis ossificans):

Deposits result from a blow to a typical muscular area, usually the quadriceps muscle on the front of the thigh or the outside part of upper arm:

- Severe injury causes the deposit; swelling, pain, and disability are out of proportion to other contusions.
- The deposit affects use of a nearby joint, usually a knee or an elbow, which then won't bend, as it should.
- Appropriate first aid is initially the same as for simpler contusion. If available, use foam rubber pad wrapped over area with elastic bandage.
- Much more follow-up by a physician is required to prevent and/or treat a calcium deposit that may form in muscle.
- Recognition that this is a different injury is most important so it receives appropriate medical treatment.
- A calcium deposit forms later on after the injury and may only be recognized when it limits the motion of a nearby joint.
- A severe blow to the head, the mouth, or the eyes is also, of course, a serious situation—so serious that we have a separate lesson about each of these, where we'll discuss special points for evaluation and treatment.

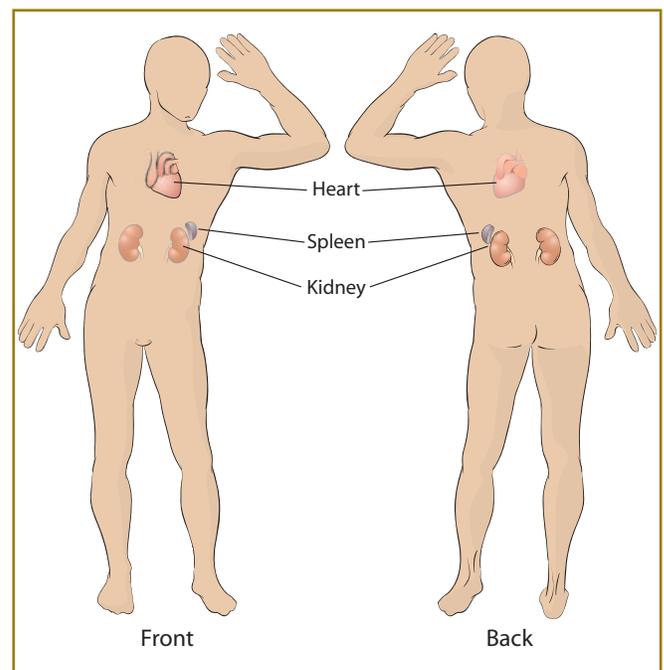
### Prevention

Occasional contusions are inevitable in any vigorous sport. But in youth baseball, many can be prevented by providing:

- safe playing areas for games and practices;
- proper protective gear, including batter's helmet with face protection, catcher's gear, cup supporter, padded brassieres, protective jackets for batters, and softer baseballs; and
- guidance on how to avoid a pitched ball when batting; for example, instruction to rotate away from a wild pitch rather than ducking or jumping back from the plate.

### Return to Play

Return to play may be easier and quicker with simple soft-tissue contusions than with other more serious injuries. However, at a minimum you should check to see that swelling and pain are resolved and that motion in nearby joints is back to normal. If the injury was to a leg, make sure the player is not still limping. Consider some type of protective padding over the injured area to protect against another blow and recurrent problems.



Scherer Illustration Lesson 1 –Figure 2

## Abrasions and Lacerations



n abrasion is a break in the skin that is usually caused by something scraping the skin surface. Abrasions can range from very minor injuries that do not bleed at all to those that are deeper and may bleed quite a bit. A laceration, on the other hand, is more of a sharp cutting of the skin. It usually comes from contact with something that has a sharp edge. Again, these can range from minor and superficial ones that require little treatment to cuts that are quite deep and require stitches.

### 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.

### Special Considerations

Because of the current concerns over disease transmission, the **proper handling of blood** is a major topic. While children and adolescents may be exposed to blood that is contaminated with certain diseases, such as hepatitis and HIV/AIDS, the risk for passing these diseases is extremely small. Transmission would have to occur through mucous membranes or open wounds on the person who comes in contact with contaminated blood or body fluid. The chance for transmission through intact skin has been estimated at less than 0.1%. Still, if at all possible, blood should not be allowed to come into contact with you or another player. Use rubber gloves at all times when handling anything that is bloody. Bloody dressings should be placed in a plastic bag and disposed of properly.

Use an appropriate disinfectant solution to clean blood from objects that may come into contact with other individuals (equipment, playing surfaces). An appropriate disinfectant is 10% chlorine bleach solution (Clorox or any other chlorine bleach is fine) and 90% water or salt solution. Contaminated surfaces should have contact with the bleach for at least 30 seconds. Do not allow bleach on skin, eyes, ears, mouth, or other body parts. Bloody uniforms should be cleaned or changed prior to the player's return to the practice or game. Contaminated dirt must be removed. Wash your hands immediately after removing gloves.

Very rarely will you encounter a situation in baseball or softball that produces enough bleeding to lead to shock. However, even with minor wounds, the player may become light-headed or faint. If this occurs, have the player lie down and elevate the legs. If the player does not immediately return to normal, you may need to summon emergency help.

The **wearing of jewelry**, especially pierced jewelry, is of special concern. The jewelry may actually provide a sharp surface that creates an abrasion or laceration. Jewelry pierced through various body parts can be accidentally ripped out causing an ugly, ragged laceration. If at all possible, players should remove all jewelry prior to playing. The exception to this would be jewelry that alerts medical personnel to a specific condition.

### Return to Play

For minor abrasions and lacerations, the player may return as soon as the wound is properly cleaned and covered. For more major injuries, especially lacerations that require stitching, return to competition would need to be approved by the treating physician. Do not allow the athlete return to play with a bloodied uniform.

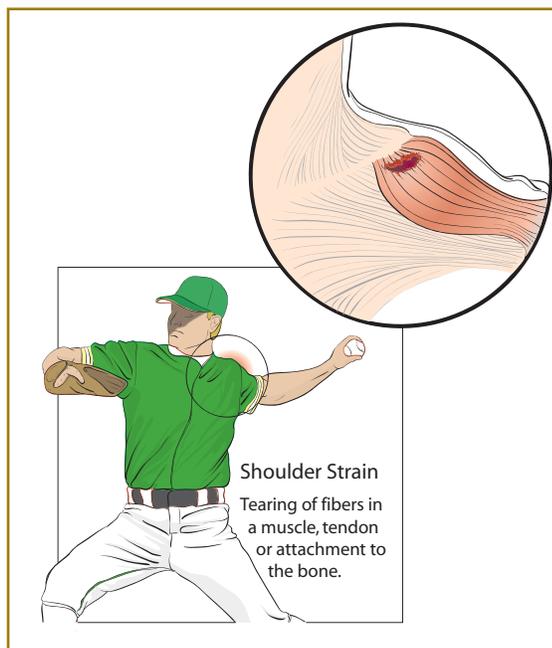
## Muscle Pulls and Strains



uscles are the tissues in the body that move the bones. Muscles attach to bones through ropelike structures called *tendons*. Injury caused by overstretching muscles or tendons is called a *pull* or a *strain*. Minor injuries of this type involve stretching of the tissue, while major injuries can lead to tearing of the tissue. The term *strain* should be distinguished from the term *sprain*, with a sprain being an injury to a ligament (a structure that connects one bone to another bone around a joint), while a strain is an injury to a muscle or tendon. (Figure 1)

Normal healthy muscles and tendons are somewhat elastic. If they weren't, we wouldn't be able to perform the throwing, running, kicking, twisting, and other motions associated with sports activities. However, a sudden forceful contraction of the muscle or an overstretching of the muscle secondary to an injury results painfully in what we call a muscle pull or a strain.

In contrast to what we saw in Lesson 1, where the force of injury was generated from outside the body (by the ball, by another player, etc.), the force for a muscle pull or strain is usually generated from inside the body, that is, by contraction of the muscle itself.



Scherer Illustration Lesson 3 – Figure 1

## 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)

## 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.

## Muscle Pulls and Strains

### Special Considerations

A severe strain of a muscle or tendon can mean the same thing as a complete tear. Usually, even a complete tear in the fleshy muscular area is treated non-surgically and, therefore, is not a lot more serious than a milder muscular tear. However, a complete tear of the tendon is much more serious, because it often requires surgical repair. Well-known examples of serious tendon ruptures include tears of the Achilles tendon, which runs down the back of the calf, and tears of the rotator cuff in the shoulder. Fortunately, complete tendon tears don't often happen in the young athlete, because tendon rupture is almost always preceded by wear-and-tear changes leading to weakening of the tendon—and that takes some years to occur!

In some tendons, like the Achilles tendon, the diagnosis of a complete tear may be made rather easily, by feeling a defect in the tendon. In many cases, the athlete will be unable to contract the muscle and tendon at all. However, these complete tears may actually be less painful than partial tears of the muscle-tendon, because with a partial injury, the pain-signaling nerve endings in the tendon are still intact, while in the complete tear, the nerves have been completely disrupted, too.

Another variation of a strain that occurs only in the young athlete is a muscle-tendon injury in which a small piece of bone is pulled off by the muscle, usually at its upper attachment. This most commonly occurs where the hamstring muscles attach to the bones of the pelvis. A “pop” may accompany the injury. Pain and tenderness will be much closer to the upper attachment of the hamstrings than the usual muscle pull. If this injury is suspected, the athlete should be referred to a physician immediately, because it actually represents a type of fracture or broken bone.

### Return to Play

The return of an athlete to sport activity after an injury is the major goal of treatment. Return-to-play decisions should be shared among the physician, athlete, parents, and coaches.

While a physician may release an athlete to return to play, the manager or coach should still assess this step with the following criteria:

1. The injury in question has sufficiently healed so that re-injury is unlikely.
2. The injury should have healed sufficiently so that other areas of the body are not put at risk of injury.
3. The athlete should be able to participate in a manner such that other athletes on the field of play will not be put at risk of injury.

Answering these questions will involve evaluation of strength, flexibility, agility, and endurance. The manager or coach should ensure that athletes return to full activity on a gradual basis. A good example of this with regards to injuries about the legs is the progressive running program described in Table 1. This program can be modified to match the age group involved.

TABLE 1 Return-to-Running Program	
Step	Progression Criteria
Walk	Walk around the perimeter of the field with no limping.
Jog	Jog around the perimeter of the field with no stopping or limping.
Run	Run fast down the foul line; jog around the outfield; and then run fast back down the opposite foul line with no pain or limping.
Sprint	Sprint from home to first; walk back; repeat five times.
Figure 8	Jog a large (20–30 yards) figure 8; gradually run the 8 faster; then decrease the size of the 8 so that the cutting is progressively sharper.
Sport drills	Test the player in fielding drills (side to side, running backwards, etc.) and running drills (sprinting, sliding).

It is difficult to predict return-to-play times with any accuracy. Coaches should remember that there will be tremendous variability in the length of time it will take each player to return to full sports activity. An athlete with a mild injury may be able to move through a treatment program and return-to-play evaluation within one to two days. Moderate to severe injuries may require several weeks or months, but it is the coach's job to be sure the athlete moves through an entire return-to-play program before resuming full activity.

Regardless of the length of time it takes, it is critical that a return-to-play program does not create any further symptoms. The athlete and coach should be aware of any pain, swelling, or limping. As an athlete recovers from an injury, the coach can evaluate what movements and activities are required for various phases of the sport, enabling the athlete to return to full sports activity in a step-wise fashion. For example, a recovering athlete who can perform straight-ahead running, turning, twisting, and stopping easily and in a pain-free fashion may resume running the bases. Prior to that, in the case of a lower-extremity injury, a player can return to catching and throwing until running skills sufficiently return.

## Overuse Injuries of The Throwing Arm



n overuse injury results when a part of the body is repeatedly subjected to stress, even a minor stress. In this way, it is different from an injury caused by one specific traumatic event. With only a few repetitions over a long period of time, there may be no symptoms at all. In baseball and softball

players, there are certain motions that are repeated over and over again and are likely to create an overuse injury. The most obvious of these will be to the arm, usually the shoulder or elbow.

### 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.

### Special Considerations

Overuse, stress-related problems can affect growing parts of bone, not just soft tissue (muscles, tendons, and ligaments). If this condition is not treated, it could cause deformity of the limb and permanent disability. Your player may need physician evaluation and X rays to properly diagnose these bony problems.

The elbow is under a tremendous amount of stress during the overhand throwing motion. The structures on the inside (medial) part of the elbow are under tension as the throwing stress tries to pull them apart. The structures on the outside (lateral) part of the elbow are being forcefully compressed by the stress of throwing. Generally, the more serious problems are indicated by pain on the outside of the elbow rather than the inside. Fortunately, inside (medial) elbow problems are much more common than outside (lateral) problems.

The most serious complication of soft tissue overuse injury of the shoulder in a throwing sport is injury to the rotator cuff. Given enough wear and tear, a rotator cuff tear can develop, but this is extremely rare in this age group. Rotator cuff tendonitis would be more likely to occur. As in our previous discussion of a pulled hamstring (Lesson 3), a player with a shoulder or elbow overuse injury may return after being released by the physician because the injury has “healed.” Whether the arm is actually ready to resume throwing is also a matter of concern. To help judge the athlete’s readiness, Table 2 presents a return-to-throwing program. As with the return-to-running program, this can be modified as needed for various age groups, especially in regard to breaking pitches (see Prevention).



## Overuse Injuries of The Throwing Arm

**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.

Again, players with minor injuries might be able to complete this return-to-throwing program in one day. Others with more severe injuries will require much more time. As with the return-to-running program, it is critical that return to throwing not create any further pain or altered throwing mechanics.

### Prevention

Proper warm-ups including adequate stretching, running, and easy, gradual throwing should be done at each practice and game.

Avoid overuse setting. Remember how much more time kids may spend playing and practicing at home in addition to the time they spend with you at practice. Guidelines have been developed by sports medicine experts to suggest the maximum number of pitches that should be allowed per game and the maximum number of games per week. *See Table 3.*

**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.*

Develop skills that are appropriate to the age group. Emphasize control and accuracy in youngsters. Only later introduce breaking pitches, if parent and coach agree. Again, guidelines have been developed to suggest when such pitches may be safely introduced. *See Table 4.*

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

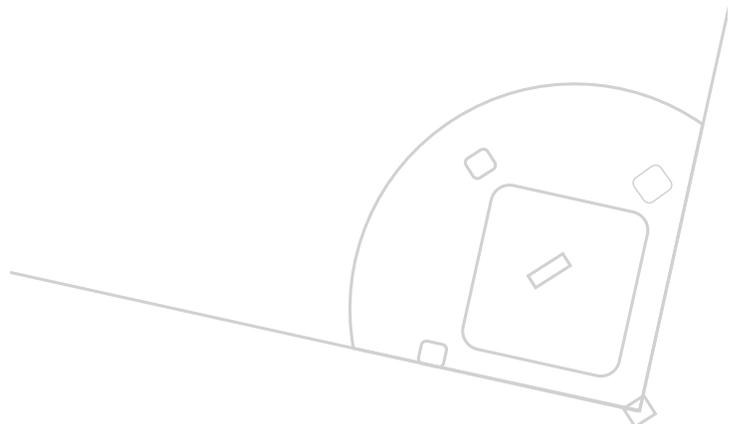
Fastball:	8 ± 2	Slider:	16 ± 2
Change-up:	10 ± 3	Forkball:	16 ± 2
Curve ball:	14 ± 2	Knuckleball:	15 ± 3
Screwball:	17 ± 2		

*Source: Andrews and Fleisig*

Even if you were not able to prevent an injury from happening, you may be able to prevent it from getting worse, or to help your player avoid a frustrating re-injury.

### Return to Play

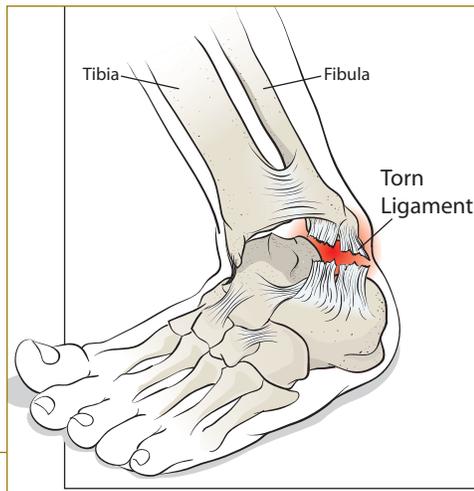
See our discussions under **Special Considerations** earlier in this lesson and in Lesson 3, “Muscle Pulls and Strains.”



## Sprains



sprain is an injury to a ligament. A ligament is the strong connective tissue that runs from bone to bone across a joint. Ligaments make our joints stable. Therefore, a severe sprain (or tear) of a ligament can render the joint unstable. (Figure 1)



## Ankle Sprain

Severe injury to the ankle in which one or more ligaments or stretched and totally torn.



## EVALUATION

## LISTEN FOR:

- Typical story of twisting injury to a joint, most commonly ankle or knee
- Report of a “pop” when the joint was twisted (may be a more severe injury)
- Feeling by the player that the joint “slipped out of place” when the injury occurred or when the player tried to use the joint (may indicate joint instability)
- Complaints of pain when using the joint

## LOOK FOR:

- Local swelling or discoloration (mild, moderate, severe)
- Obvious deformity of the joint; looks as if something is out of place

## FEEL FOR:

- Tenderness over the joint (mild, moderate, severe)

## MOVE:

- Have player move injured joint.
- If discomfort is relatively mild, see if the player can use the injured area (for example, walk on injured ankle or knee) without pain or favoring the area.

## TREATMENT

- Treat a sprain very much like you would a pull or strain:
- Apply PRICES.
- Notify parents.
- For severe injury, refer the player to a physician right away.
- If injury is accompanied by a loud pop, and immediate pain, swelling or disability, you may need to call 911 rather than risk moving the player yourself. It may be difficult to distinguish a severe sprain from a possible fracture.

Scherer Illustration Lesson 5 – Figure 1

## Sprains

**Special Considerations**

A severe ligament sprain is the same thing as a complete tear of a ligament. This makes the joint unstable. While usually not life threatening, a sprain is the most common athletic injury leading to the need for surgery and to potential long-term consequences. This is especially true for knees.

A complete ligament tear may lead to a complete dislocation of the joint. If there is an obvious gross deformity of the limb, DO NOT try to put it back into place. Either immediately summon medical help or, if none is available, consider splinting adequately and transporting the player to a physician or hospital.

Some myths or misconceptions about complete ligament tears:

- **“Complete ligament tears are extremely painful.”** Actually, complete ligament tears may be less painful than partial tears because nerve endings in the ligament—the means of sensing pain—have been completely torn, too. So, with this very serious injury, pain may not be the first complaint.
- **“Players cannot use a joint when the ligament is completely torn.”** For the same reason, players may actually be able to use an injured joint more comfortably, with less pain, when there has been a complete ligament tear than with a partial tear.
- **“A joint with a completely torn ligament will be badly swollen.”** Often that is true, but not necessarily. In the case of the knee, when a ligament is completely torn, it sometimes cannot retain fluids that occur naturally in the joint, and the fluids leak out. The knee may then appear to be its normal size, whereas a ligament that is only partially torn holds in some of the fluid, making the joint appear swollen and puffy. The seriously injured knee may appear normal in shape and size.

**Don't be misled by these misconceptions!** Just because a player doesn't immediately cry out in pain, or seems to be able to use the injured joint comfortably, or doesn't have gross swelling in that area, don't rule out a ligament tear.

**Prevention**

- Players should have a thorough warm-up.
- The playing field should be properly maintained.
- Using breakaway bases may also help prevent severe sprains.
- Checking the player's return-to-play status can prevent delayed recovery or re-injury. See Lessons 3 and 4.

**Return to Play**

The considerations here are the same as in Lessons 3 and 4. Physicians may choose to treat some sprains with a cast or surgery. Other sprains may be treated with only functional rehabilitation. After treatment, regardless of the method of treatment chosen, it is important to make sure that the athlete is ready to return to play. Follow the return-to-running program shown in Lesson 3 or the return-to-throwing program in Lesson 4.



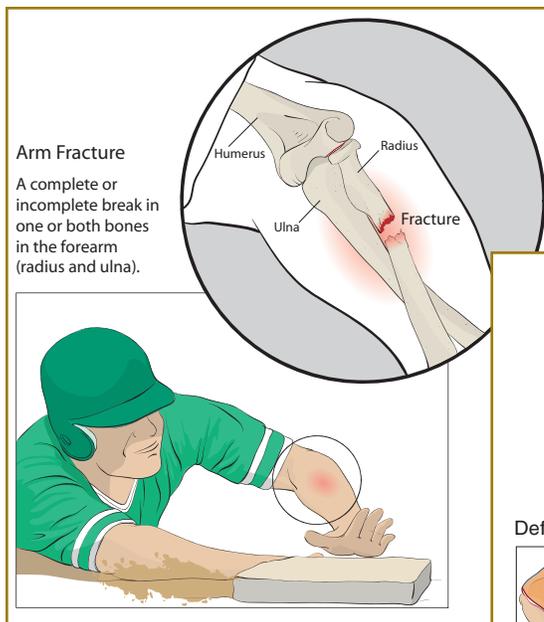
## Fractures



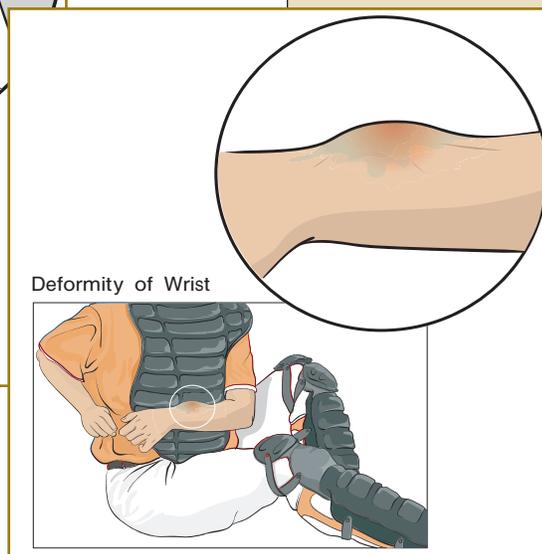
A fracture is a broken bone. In a closed fracture, the skin overlying the broken bone is still intact. (see Lesson 6 – Figure 1) In an open fracture, the overlying skin has been cut or torn, exposing the broken bone to the air. This disruption of skin can come either from the bone ends themselves puncturing the skin from inside, or from whatever force was applied to the outside of the limb that created the fracture in the first place.

A fracture can be caused from just about any imaginable mechanism. It may come from a twist, as when a player tries to slide and catches his foot. It can occur from a direct blow, such as the base runner colliding with the shortstop at second base. It can occur from an extremely violent muscle contraction, when the muscles either twist the bone so hard that it breaks, or the muscles pull off a small piece of bone.

Often, fractures in children occur through the growth areas at the ends of the long bones. These fractures have the added potential for later disturbances of the growth in that bone.



Scherer Illustration Lesson 6 – Figure 1



Scherer Illustration Lesson 6 – Figure 2

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

## Fractures

### Special Considerations

The most important consideration in dealing with suspected fractures will be whether to leave the athlete where he or she is and summon emergency transportation OR to apply a splint and transport the athlete yourself to the nearest medical care facility. Your league and your team should consider this decision in advance. It will depend on the availability of emergency care in your community, as well as on the severity of the suspected injury.

For severe injuries, where emergency care is immediately available, certainly the simplest thing is to make the player as comfortable as possible and summon the EMTs or paramedics. When an injury occurs in a rural location or in an area where no emergency medical services are available, or if the injury seems much less severe (for example, no gross deformity visible), then splinting in accordance with standard first aid techniques and transportation by private vehicle is acceptable.

Moldable splints or air splints are commercially available as are typical wooden splints for your first aid kits. Splints can also be made of cardboard, magazines, or any other readily available material that is reasonably firm but pliable. Even a catcher's shin guard can be used in a pinch. The splint should be fitted securely and wrapped in place to immobilize the injured limb.

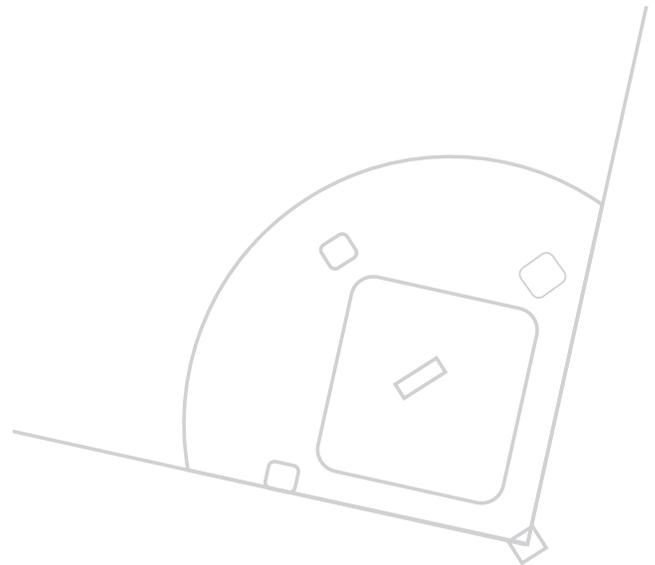
Open fractures are especially serious. They must be treated as soon as possible. Complications such as infection may be directly related to delay in treatment. Growth plate fractures may be easily confused with severe sprains in the young athlete. Always be especially suspicious of this injury in preadolescent players.

### Prevention

- Make the playing environment as safe as possible.
- Be sure that the playing field is properly maintained.
- Teach all of the proper techniques for play, especially for sliding.
- Use of breakaway bases has been shown to significantly reduce the chance of fractures.
- Checking player's return-to-play status can prevent a delay in recovery or a re-injury.

### Return to Play

Return-to-play decisions after fractures are very much the same as mentioned in Lessons 3, 4, and 5. The difference is that it may take a lot longer for a player to return to the team with physician permission to resume playing. When he or she does, it is important to ensure that the player has regained full range of motion of the injured extremity as well as normal strength, flexibility, and endurance. The progressive running and progressive throwing programs presented in the earlier lessons and modified as necessary for the age group would be appropriate to use. Once again, a return to playing should not produce any significant increased pain, swelling, or in the case of a leg fracture, any limping.



## Injuries of The Hands and Fingers



n injury to a small joint in the body may not be a small injury. Too often our fingers are considered less important than the larger knees, ankles, shoulders, and elbows. Finger injuries should be taken seriously, examined, and evaluated, just as you would do if you had reason to think that a player had suffered any other strain, sprain, or fracture. In the case of what is commonly called a *jammed* finger, the delicate tendon and ligament balance around the small joints can be disrupted and permanently damaged if the injury is not treated correctly.

**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:**

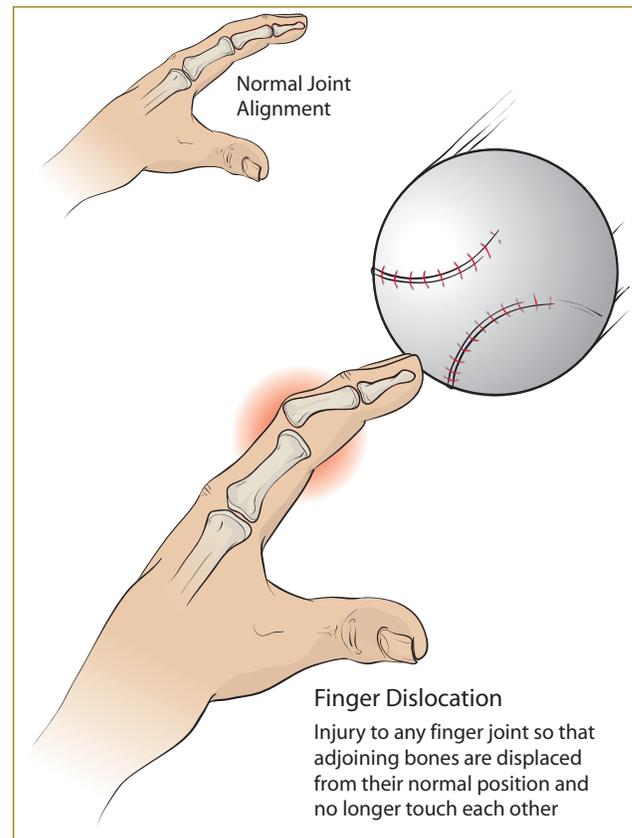
- Tenderness (mild, moderate, severe)
- Grating sensation of bone ends rubbing together

**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.



Scherer Illustration Lesson 7–Figure 1

**Special Considerations**

The hazard with finger injuries is in saying that some of these are “only a jammed finger.” You must take these injuries seriously. If there is a history of a joint ever having been dislocated in the finger, it must be completely evaluated by a physician, no matter how quickly and easily the dislocated finger may have popped back into place. There may be an accompanying fracture, so X rays will be needed.

Pay particular attention to rotational deformities of the fingers. These may be very subtle and difficult to see. Have the athlete fold all of the fingers down into the palms of both hands. An abnormal rotation may show as a finger that overlaps another more than the corresponding finger on the uninjured hand does. Another technique is to have the athlete straighten all of the fingers of both hands. Look at the fingers from end on and note the rotation of the nail beds comparing the injured side to the uninjured side.

## Injuries of The Hands and Fingers

One of the most common significant finger injuries is the “mallet finger.” In this injury, the tendon along the back of the finger that straightens the joint is torn off of the last bone in the finger. Consequently, the tip of the finger droops, and the player cannot completely straighten the fingertip with his own muscle power. A mallet finger requires medical attention.

Remember that there are multiple small joints in the wrist area as well. Be very suspicious of anything that seems to be a wrist sprain. Many of these so-called sprains are actually hidden fractures, not obvious on first examination.

### Prevention

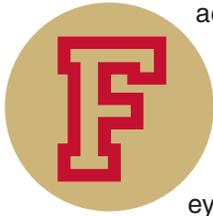
Teaching proper playing technique can prevent many of the injuries to the hand and fingers. This is especially true for catchers.

### Return to Play

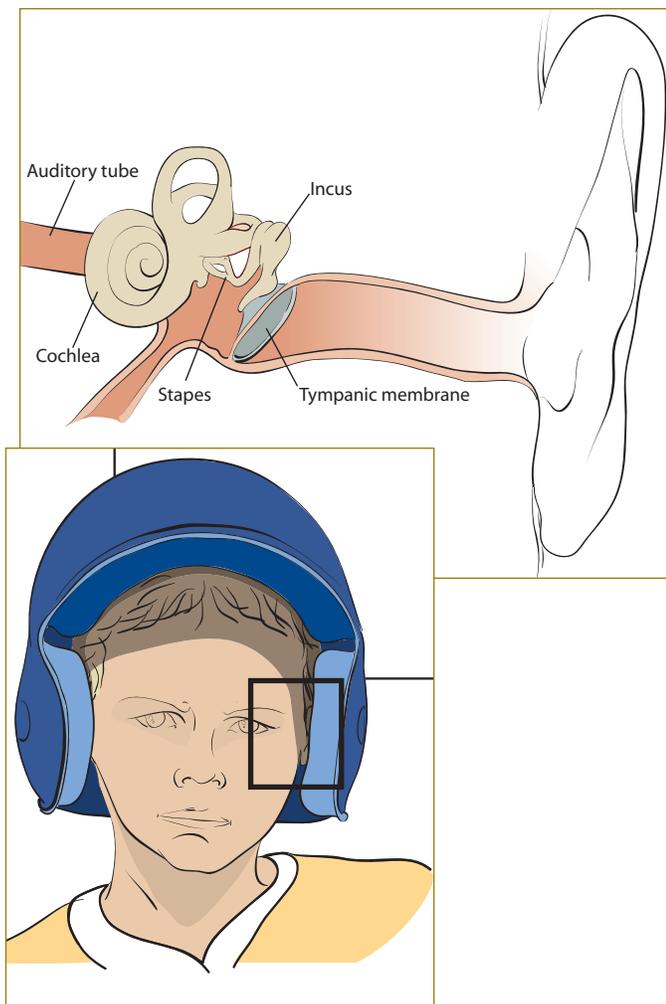
Return-to-play considerations are the same as contained in Lessons 3 through 6.



## Facial Injuries



Facial injuries (cheek and nose) can range from a simple abrasion requiring washing and covering to an extensive fracture of the nasal and cheekbones. Facial injuries can be associated with skull fractures, concussion, and neck, eye, and throat injuries (see appropriate lessons). Some of these injuries may require emergency surgery or life-saving treatments. (Figure 1)



Scherer Illustration Lesson 8—Figure 1

## EVALUATION

Assess to see if the player is conscious and oriented (knows who and where he or she is), has an open airway, and is able to breathe and swallow (see appropriate lessons).

## LISTEN FOR:

- History of direct blow to the face (think fracture)
- History from bystanders as to how injury occurred
- History of how bleeding occurred—spontaneously (no direct injury) or as a result of the blow
- Complaints of pain, to what extent, and over what area
- Complaints of difficulty breathing (airway problem), seeing (eye injury or facial fracture), hearing (skull, ear, or head injury), swallowing (neck injury or blockage of throat), or speaking or moving the jaw (jaw injury)
- Complaints of numbness around the face (facial fracture and/or nerve injury)

## LOOK FOR:

- Bleeding; site of bleeding (external from a laceration or internal from the nose)
- Clear fluid either from the nose or ear (suggestive of a skull fracture)
- Change in the appearance of the face or some asymmetry that was not present before injury (for example, crooked nose or depressed cheek)
- Swelling around nose, cheek, or inside the nose (mild, moderate, severe)

## FEEL FOR:

- Marked tenderness as you gently feel the facial bones from the corner of the eye towards the ear, across the cheek, over the nose, and around the mouth and jaw
- Abnormal motion of the bones, an unusual step-off in the bones, or a grinding sensation

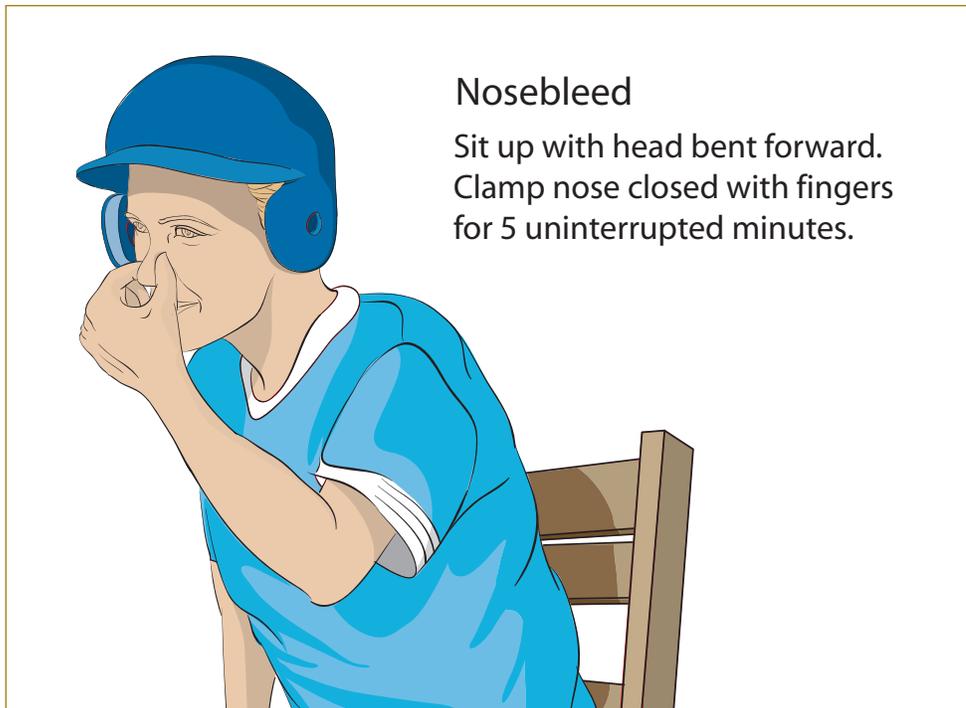
## MOVE:

- Have the player move the jaw in all directions.
- Have the player move the eyes in all directions and make sure both eyes move together.

## TREATMENT

- Apply PRICES where appropriate.
- Pain along with grinding or abnormal motion over the injured area signifies moderate to severe injury requiring an immediate visit to an emergency department.
- Send the athlete to the emergency department if he or she is unable to fully and painlessly move the mouth open and closed and speak normally. Any injury to the facial area other than mild injuries should be sent to the emergency department immediately. Never think of a nosebleed as simple. Many are uncontrollable, requiring treatment in an emergency department.

## Facial Injuries



## Nosebleed

Sit up with head bent forward.  
Clamp nose closed with fingers  
for 5 uninterrupted minutes.

Scherer Illustration Lesson 8–Figure 2

### Rules to follow if a nosebleed occurs:

- If associated with a crooked nose (deviated septum) or other injury, send the athlete to the emergency department immediately, while maintaining gentle pressure either internally or externally to control bleeding.
- If possible, have the patient sit with head angled slightly forward to prevent blood from going down the throat, which could cause nausea, gagging, and vomiting.
- If blood comes from only one side, then press the fleshy part of the nostril towards the midline; if from both, then pinch both together, maintain pressure for 5 to 10 minutes. (Figure 2)
- If bleeding persists, insert sterile gauze or twisted piece of cloth from a torn handkerchief into the nostril. Leave a tail sticking out for easy removal. Try not to use facial tissue or other material that would easily come apart. Repeat this for 10 minutes.
- Encourage the patient to breathe through the mouth.

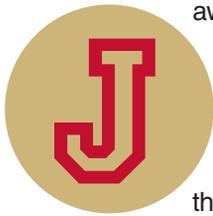
- Supplement the pressure and packing with ice to the bridge of nose.
- At any point if the bleeding is not controlled with pressure or packing, or if it fails to stop after 20 minutes, then go to the emergency department or call 911.
- Have the player avoid blowing the nose after bleeding is controlled.
- Notify parents.

### Special Considerations

Facial injuries can be some of the bloodiest ones encountered. Refer to Lesson 2 **Special Considerations** for appropriate handling of blood to avoid disease transmission.

As mentioned in Lesson 2, jewelry and body piercing do not serve any purpose in sport but can cause injury to wearer or other participants. Therefore, jewelry wear should be avoided for safety reasons.

## Jaw, Mouth, and Tooth Injuries



Jaw injuries can be as minor as scraping the chin or as serious as a fracture. If identified early and treated appropriately, short- and long-term problems may be avoided. While injuries to teeth may not be life threatening or as serious as a severe jaw injury, damage to permanent teeth can cause significant disfigurement and long-term problems for the young player.

The time from injury to treatment of tooth injuries may be of critical importance in determining the survival of an injured tooth. The time factor in this particular case is even more important than with some injuries to the muscles, joints, and bones.

### 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 teeth or fragments of teeth 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
- Teeth 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.**



## Jaw, Mouth, and Tooth Injuries

### Special Considerations

When is a dental injury not serious? If the teeth are in place, are not loose, are intact, and don't hurt when biting down, speaking, swallowing, or breathing, then usually the tooth problem is not urgent. However, parents should still be notified, and they should make the final decision as to whether the player sees the dentist or not. All other dental problems should be evaluated immediately.

What should you do with a knocked-out tooth? The ideal treatment of a tooth that is knocked out is early replacement and stabilization. **TIME IS CRITICAL!** **Re-implantation within one hour** provides the best chance for saving the tooth.

The other significant consideration is handling and transporting the tooth. It must be kept wet. **DO NOT TOUCH THE ROOT OF THE TOOTH** (the area where blood or tissue is attached). All dirt and other loose debris should be *gently* rinsed off with a sterile solution or, if that is not available, tap water. The best way to transport a tooth is in a commercial tooth transport kit that contains the appropriate solution. Keep this in your first aid kit. Other options would be to transport the tooth wrapped in a sterile moist gauze or sponge or in a cup of water. Another solution in which to place the tooth is fresh milk or the person's own saliva.

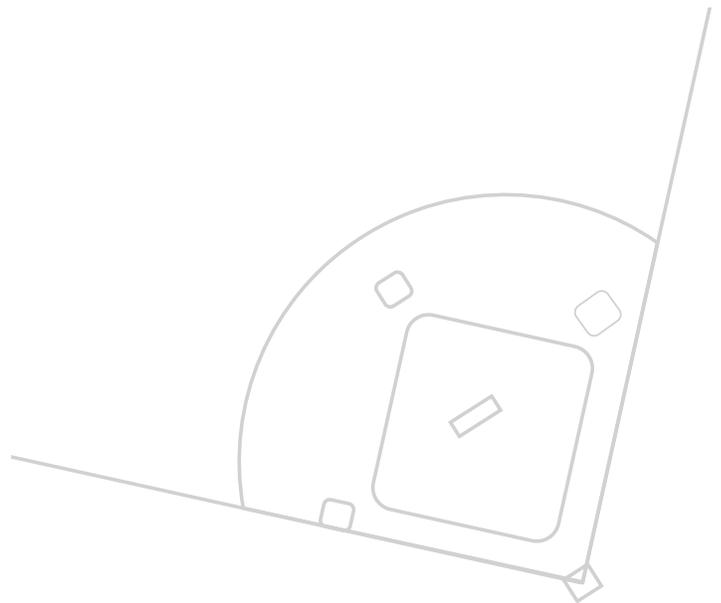
The preseason history should include information regarding loose teeth, false teeth, braces, and so on. Maintain a list of each player's dentist and the phone number with your other medical information.

### Prevention

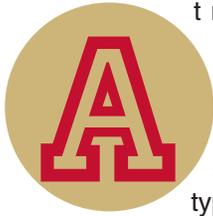
- Maintain the playing field properly.
- Promote proper use of **protective mouth guards**. This may be recommended depending on the dental history (check with dentist.) Currently three types of mouth guards are available:
  1. Stock mouth guard: preformed, over-the-counter, worn as manufactured; usually inexpensive, bulky, and held in place by clenching teeth (may interfere with speaking and breathing)
  2. Mouth-formed protectors: over-the-counter, with heating can be contoured to better fit the mouth
  3. Custom-made mouth guard: most comfortable, interferes least with breathing and speaking, more expensive.

In general, a mouth guard should

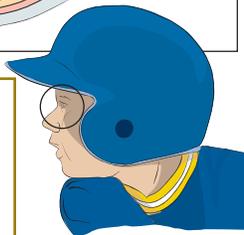
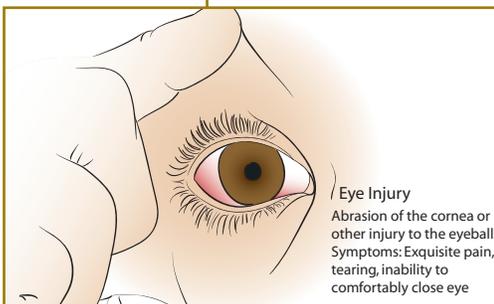
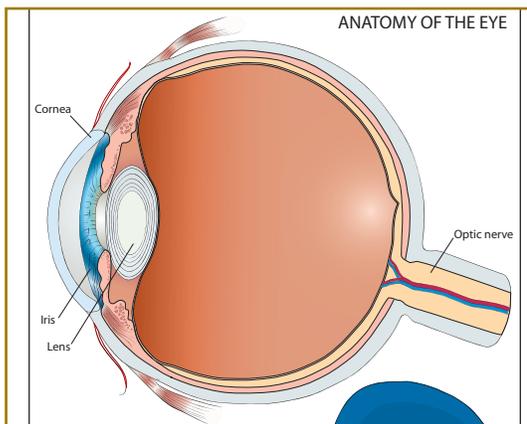
- be soft and comfortable yet able to withstand trauma,
- not interfere with breathing or speech,
- not deteriorate with use, and
- fit over braces.



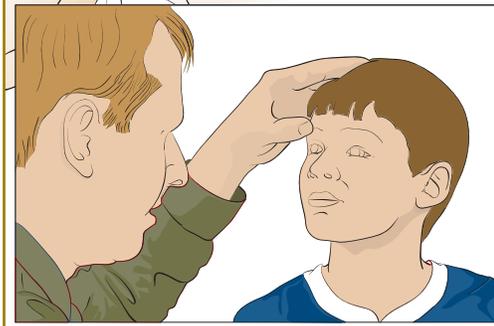
## Eye Injuries



At no time does the baseball travel faster on the diamond than when it is hit solidly with the bat. Speeds of up to 100 miles per hour for the batted ball have been recorded. While such a speeding projectile could cause many types of damage, some of the most serious and crippling may be to the eye. The ability to evaluate eye injuries properly is an important skill. Generally, eye injuries will require physician referral and treatment, but **your initial handling of the injury, along with safety precautions on and off the field, can make the difference between full recovery and permanent blindness.** (Figure 1)



Scherer Illustration  
Lesson 10–Figure 1



Scherer Illustration Lesson 10–Figure 2

### EVALUATION

#### LISTEN FOR:

- Complaints of sharp, stabbing, or deep, throbbing pain in the eye
- Complaints of blurred vision
- Complaints of double vision
- A report of seeing halos of light, flashing lights, or the sensation of a floating object inside the eye
- Complaints of extreme sensitivity to light
- Complaints of loss of part or all of the visual field (looks like the view through a camera lens, with a finger covering part or all of the lens)

#### LOOK FOR:

- One eye bulging or protruding more than the other
- Cut or puncture on the eyeball (Figure 2)
- Pupils that are not equal in size or shape
- Blood in the eye
- Foreign particle on the iris or elsewhere in or around the eye
- Swelling, bruising, or discoloration around the eye: a “black eye” (mild, moderate, severe).

#### FEEL FOR:

(Always use clean hands to touch this area. Wear rubber gloves if there is any blood or body fluid involved.)

- Tenderness around the eye (mild, moderate, severe). Avoid pushing on the eyelid since a foreign object may be under the lid.
- Bone-grinding sensation (could be a facial fracture along with an eye injury, so don't push too hard)

#### MOVE:

- Ask the player to slowly move both eyes in all directions while following your finger. Compare movement of injured eye to movement of uninjured eye.

### TREATMENT

- If you find any of the abnormalities described above other than a minor scrape or bruise, cover the eye with an eye shield (see [Special Considerations](#)) and have the player transported to the nearest emergency department.
- For a simple foreign body like sand or dirt, it is acceptable to flush the eye with plain water. Other foreign bodies such as metal or glass should be covered and sent to the emergency department for removal. **DO NOT** pull any foreign object out that is embedded or sticking in the eye. Have the player seen immediately in the nearest emergency department.
- If a chemical irritant such as chalk from the foul lines is in the eye and the remainder of the eye is fine, wash the eye with a sterile salt solution or water. If burning or irritation persists, take the player immediately to the emergency department.
- Ice is the only acceptable painkiller for an eye injury.
- Notify parents.

## Eye Injuries

### Special Considerations

#### Checking for Vision

To check for vision, simply cover the good eye and ask the player to read the names or numbers on outfield signs or the scoreboard. If none are present, have the player read from your scorebook or even your driver's license.

#### Making an Eye Shield

The purpose of any eye shield that you use is to protect the eye from pressure as well as to keep it clean until a doctor can examine it. If your first aid kit does not contain a protective eye shield, usually made of a stiff material such as aluminum, you can easily make one from a paper cup. Cut off the top part of the cup so that it is about one and a half to two inches deep. Carefully place this small cup upside-down over the injured eye and tape it in place. The edges of the shield should extend from the brow right above the eye, to the top of the cheekbone right below the eye.

Whether you use an eye shield you've made yourself or the commercially manufactured one that came in your first aid kit, after you have fastened the shield in place, no part of it should push on or touch the eye itself. For comfort, have the player keep both eyes closed during transport since the injured eye will relax better if the good eye is closed.

#### Concussion

Remember that an athlete will not always have one injury alone. Any blow to the face that may create an eye injury may also cause a concussion. This topic is discussed more completely in Lesson 13.

### Prevention

#### Eye Protection

Any athlete who routinely wears glasses should wear some type of safety glasses when playing baseball or softball, since regular glasses not only do not protect the eye from injury, but may actually cause injury if they do not meet safety requirements. These should be made with sturdy polycarbonate frames molded to the temples. This is especially important in children and adolescents who have small faces and features. Lenses should be made of polycarbonate that is 3 mm thick. These have been shown to provide the best protection.

#### Preseason History

Does the player have a history of any eye problems that have required treatment? Does the player use contact lenses or glasses? **NOTE:** Contact lenses do not protect the eye from injury. Is vision or vision corrected with glasses or contacts at least 20/40 in each eye? If not, then the player should be considered a functionally one-eyed individual. If vision in the good eye were then lost from injury, the person would be considered functionally blind. Functionally one-eyed individuals should wear full-face shields, masks, or cages at all times during participation (running, hitting, and fielding). The attached helmet or shield should be custom fit to ensure proper protection. Glasses and masks should be fog resistant.

#### Proper Playing Technique

Since we routinely tell baseball players to "*Keep your eye on the ball*," there is only so much that can be done to protect against blows to the eye. However, the pitcher especially should be taught to assume a proper defensive position after delivering the ball to home plate.

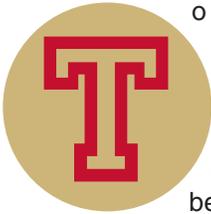
#### Other Considerations

Unnecessary eyewear such as sunglasses not made of safety materials should be avoided. Eyelid piercing can pose great danger to the eye during sport participation and should **NOT** be worn. Eye make-up and artificial lashes serve no function in sport and can potentially create problems to the eye so they should **NOT** be worn. Since pinkeye (conjunctivitis) is contagious, have the parents inform you immediately if they suspect or know that their child has pinkeye. Swinging bats and throwing balls are prohibited in the dugout.

### Return to Play

Only when you are confident that none of the abnormalities we have described are present, and that your player has normal vision with full painless motion of the eye in all directions, should you allow that player back into the game (or practice) after an injury. All others should be sent to a physician or the emergency department for evaluation.

## Insect Bites and Stings



o most people, bites and stings from insects are nothing more than a temporary annoyance. Since baseball and softball are played outdoors, coaches need to be aware of the implications of stings or bites from bees, wasps, yellow jackets, hornets, ants, spiders, and ticks. **If one of your players is allergic to a bite or sting, it can pose a serious, even life-threatening problem for the athlete. The coach must know how to handle such a situation.**

**EVALUATION****LISTEN FOR:**

- History of player having been bitten or stung by something, even if it wasn't seen and identified
- Complaints of sudden weakness all over
- Complaints of sudden headache
- Complaints of breathing difficulties, like wheezing or shortness of breath
- Complaints of sudden stomach cramps
- Complaints of generalized itching, burning, or hives
- Complaints of swelling about the lips and tongue

**LOOK FOR:**

- A local reaction from the bite or sting
- Presence of a tick
- A suddenly developing rash

**FEEL FOR:**

- Pulse – may be rapid, weak, thready, or absent
- A raised area of the skin
- Local swelling
- The presence of a stinger

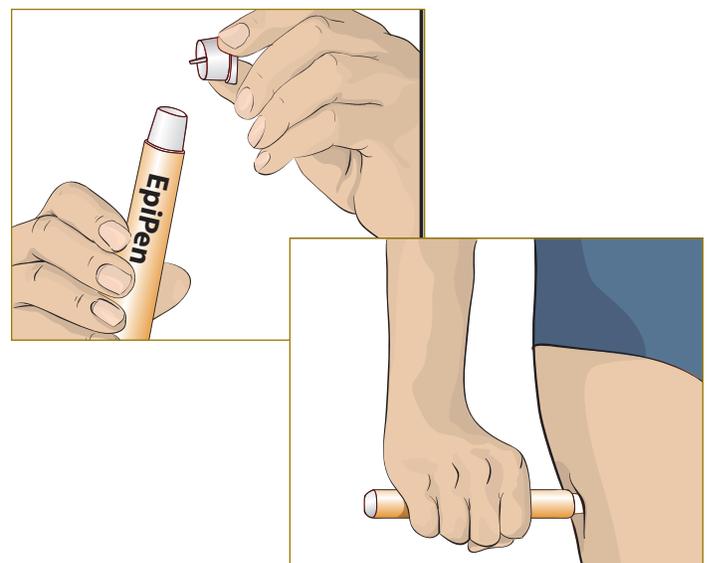
**TREATMENT**

- Apply ice locally for a very mild reaction.
- Prior to the start of the playing season, the family of allergic players who would have a significant reaction should provide a specific treatment kit, with instructions.
- If a player is not known to be allergic but still shows some of the signs of an allergic reaction as described above, activate your emergency care plan (see Lesson 14) and/or transport the player to a hospital immediately.
- Notify parents.

**Specific Considerations****Special Bites**

**Bee Stings:** Approximately 1 out of 20 individuals will be allergic to the venom produced by bees, hornets, yellow jackets, or wasps. However, deaths from severe allergic reactions are rare. The symptoms of itching, burning, and hives, along with swelling about the lips and tongue with problems breathing, can indicate that a person is allergic to the venom injected at the time of a sting. Ice should be applied to the site of the bee sting, but the coach should remember that in this type of reaction, time is critical. The emergency plan should be activated and the athlete should be transported to the hospital immediately. The stinger can be removed by carefully scraping, trying not to inject more venom.

Players who have a history of allergic reactions to bee stings may carry a special kit with them for treatment. Most commonly, these kits contain adrenaline (epinephrine) in a syringe for quick injection. This can reverse the effects that make it difficult for a player to breathe. Many kits also contain antihistamines in an oral form, but these are slower in providing relief from a sting. If a special insect bite kit is provided by a player's family, the coach must know how to use it and must be sure that the kit is available at all times (during both games and practices). Be sure to go over proper use of the kit with the player and family at the beginning of the season. (Figure 1)



Scherer Illustration Lesson 11– Figure 1

## Insect Bites and Stings

**Spider Bites:** Spiders are common in widespread areas across the United States. Most spider bites are local injuries that do not produce serious complications. However, the black widow spider and the brown recluse spider can cause serious and often life-threatening problems with their bites.

A black widow spider bite can cause local numbness and pain. The venom from a black widow spider can cause severe cramps and spasms in the abdominal area. In addition, difficulty breathing, dizziness, sweating, nausea, and vomiting can occur. If a black widow spider bite is suspected, the emergency care plan should be activated.

While a black widow spider bite can produce body wide symptoms, the brown recluse spider bite produces local symptoms. The brown recluse spider venom can cause severe local tissue damage and can result in a large non-healing ulcer if treatment is not begun immediately. Prompt transport of the player to an emergency department after a brown recluse spider bite is the best treatment.

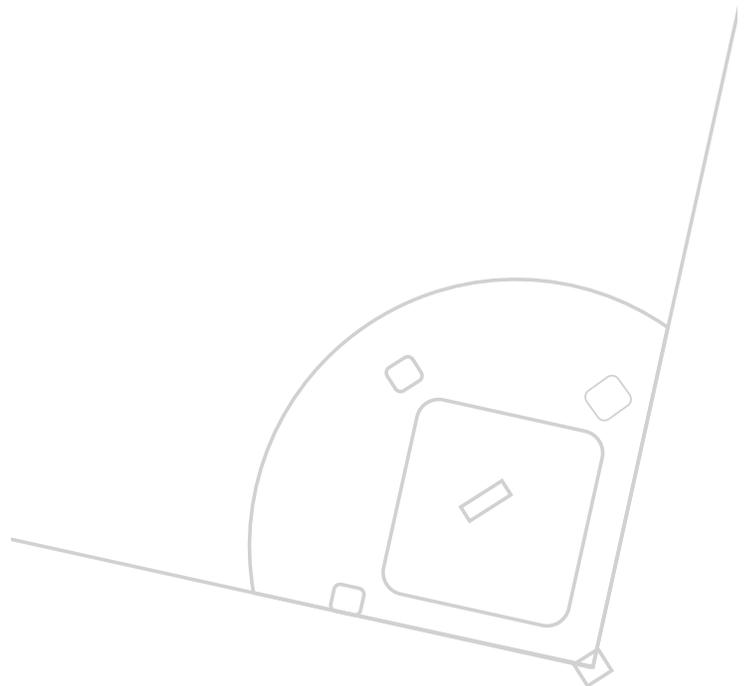
**Tick Bites:** Ticks are a problem not so much because of their bites, but because of their ability to spread infectious diseases. Ticks commonly spread Rocky Mountain Spotted Fever and Lyme Disease. Tick bites are generally painless and often players may not even be aware of having been bitten. The tick attaches itself directly to the skin and then begins to suck blood and, in doing so, can spread infection through the tick's saliva. Ticks are small and can be mistaken for dirt or freckles. When ticks are identified, the best treatment is prompt removal and referral of the player to a physician. Infection is transmitted from the tick slowly, and therefore, care and time can be taken when removing a tick. Gentle removal with fine tweezers is the most effective method. You should avoid the use of gasoline, petroleum jelly, and matches as these may irritate the tick and cause the injection of more infecting bacteria into the skin. Once the tick is removed, a physician should see the player. It is best to place the tick in a container to take to the physician for identification. Avoid handling the tick with fingers or hands.

### Prevention

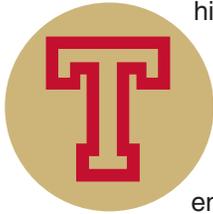
Know the medical history of each player, preferably through a preseason medical questionnaire.

Know the local conditions. Know what insects and venomous creatures may be found in your area.

Proper field maintenance to decrease the risks from stinging insects is also important. Specifically, keeping trash cans with sticky-sweet residues away from playing areas will aid in keeping playing fields clear of stinging insects.



## The Unconscious Athlete: Heat Illness



his and the next two lessons deal with far more serious medical problems you may encounter on the ball diamond. Though such serious problems occur infrequently, you must **be prepared!** Your league must develop an emergency plan, if you don't have one already (see Lesson 14). If you spend practice time away from your league's home ball park (for example, at local schools and public parks), you should also do a certain amount of emergency planning for your own team.

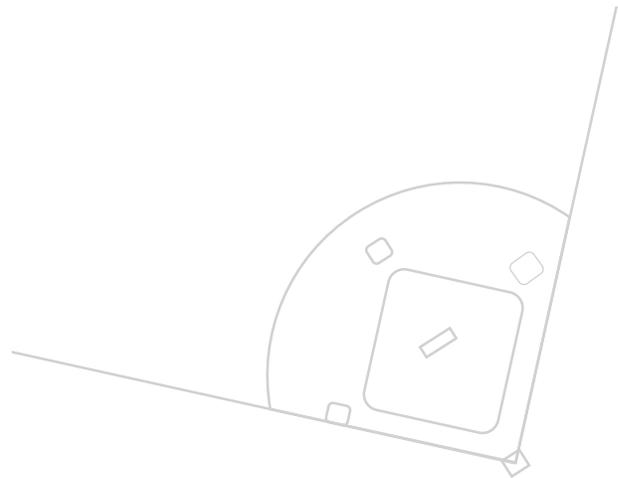
There are several possible causes for unconsciousness in a young player. These include:

- Head and neck injury (*see Lessons 13 and 14*)
- Cardiac arrest—a sudden and often unexplained stoppage of the heart. This can result from many different causes, including an inherited heart defect.
- Heat illness—high temperature and high humidity may result in life threatening heat illness. This is the subject of the rest of this lesson.
- Other illness—medical problems such as diabetes and epilepsy may certainly be the cause of unconsciousness.
- Intoxication—unfortunately, intoxication with alcohol or other drugs must also be considered in dealing with the unconscious athlete.

As you run out onto the field to take care of a player who has just become unconscious, you should quickly run through these possibilities in your mind. Probably the most common of all these possibilities will be heat illness, particularly if you live in a hot and humid part of the country.

Heat illness can be divided into three categories, depending on its severity: heat cramps, heat exhaustion and heat stroke. These three conditions are summarized in the following chart.

*Source: Chart adapted from Office Management of Sports Injuries and Athletic Problems, Morris B. Mellion, M.D., ed., C. V. Mosby Company, 1987.*



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

## The Unconscious Athlete: Heat Illness

### 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.

Heat exhaustion may lead to heat stroke, so it is important to treat heat exhaustion as vigorously as possible.

Heat stroke is a medical emergency and often fatal. The outcome for your player is related to how quickly the body temperature can be brought down.

### Prevention

Players should have a preseason medical evaluation for previous incidents of heat intolerance, as well as all the other causes for unconsciousness mentioned above.

**Water, water, water.** Almost all heat illnesses are related to dehydration! As temperature and humidity go up, athletes must be almost forced to drink adequate amounts of water. Plain water is still the best and the cheapest. However, a flavored salt-containing sport drink may stimulate players to drink a greater volume. **NEVER** use salt tablets.

The American Academy of Pediatrics specifically recommends that a child should not only be well-hydrated prior to activity, but should also be forced to drink a specific amount of fluid even if he or she does not feel thirsty. For example, every 20 minutes, an 88-pound child should be encouraged to drink five ounces of cold tap water or a flavored salted beverage. An adolescent weighing 132 pounds should consume nine ounces. These considerations could be especially important if your team is playing a doubleheader or is in a tournament.

Pay careful attention to weather conditions. Any time the temperature is above 90°F, or the relative humidity is above 95%, you are in a **danger zone**. Consider curtailing practice or moving it to a cooler time of day.

Make sure your players maintain their body weight. Weight loss through sweating should be completely regained by the next day. It may be wise to have your players weigh themselves before and after each practice. Playing time for catchers may also need to be limited because their heavy equipment limits their ability to sweat and maintain cooling through evaporation.

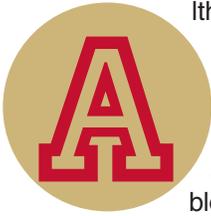
If you and your team live in a hot climate, ease into the season. Give your players a couple of weeks to get used to practicing and playing in the heat.

Dugouts should be covered to allow some shady relief from the hot sun.

### Special Considerations

Children are somewhat more susceptible to heat illness than adults, so in the young age groups be especially careful. According to the American Academy of Pediatrics: "Kids do not adapt to extremes of temperature as effectively as adults. Children frequently do not feel the need to drink enough to replenish fluid loss during prolonged exercise. This may lead to severe dehydration."

## Head Injuries (Concussions)



Although typically associated with contact sports, concussions are occasionally encountered in baseball and softball. Concussions are defined as brain-tissue injuries that result in an abnormality in brain function. A direct blow to the head causes them. Typical mechanisms of injury in baseball are: a blow from the ball or bat or collision with another player or with an object such as the fence or the ground. It is important to realize that **concussions range in severity from very mild to life-threatening injuries**. Although they can result in unconsciousness, most concussions that occur during sports are milder. However, even without a loss of consciousness, these are serious injuries and should not be ignored just because an athlete wasn't knocked out. In addition to unconsciousness, other signs and symptoms that indicate someone may have sustained a concussion include headache, poor muscle coordination, confusion, irritability, memory loss, double vision, nausea, and vomiting.

Concussions can be classified as mild, moderate, or severe. In mild concussions, symptoms (including headache) are completely resolved within a short period of time following the injury (less than 15 minutes). Moderate injuries are those that last longer before symptoms resolve. Severe concussions are those in which there is **ANY** loss of consciousness or when symptoms other than headache persist longer than 30 minutes.

### 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.

### 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.

## Head Injuries (Concussions)

### Special Considerations

One of the most important reasons for recognizing and treating concussions is to prevent **second impact syndrome (SIS)**. SIS is a condition that may occur if the brain is subjected to a second impact before it has completely recovered from an initial injury. This complication can occur even if the second blow is mild. Severe brain damage, even death, may occur. Half of people who develop SIS die, while others sustain permanent brain damage! Therefore it is essential that a player who has suffered a concussion be kept from playing until all symptoms are resolved, an appropriate amount of time has passed, and a physician has given clearance for return to play.

### Prevention

Prevention of concussions is of vital importance. Typically helmets are required for batters, catchers, and base runners in games. These should fit appropriately and be in good repair with properly functioning chinstraps. These same precautions should be used during practices. In addition, the game and practice fields should be evaluated for the risk of collisions with immovable objects such as poles, trees, and fences. Site-specific rules may need to be made to reduce the risk for collisions with these objects. Players can be coached to avoid injury with techniques such as no head-first sliding, calling out clearly for fly balls, and getting out of the way of wild pitches.

### Return to Play

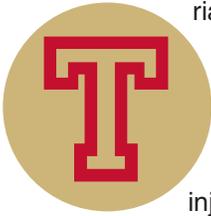
All players with possible concussions should be removed from playing for at least 15 minutes for rest and evaluation. In order to prevent re-injury and avoid the catastrophic results of SIS, players that sustain concussions should not return to play unless they meet several criteria. First, any player that suffers a concussion cannot return to play that same day. That includes anyone with any symptoms (including headache) lasting longer than 15 minutes. Trained medical personnel, preferably a physician, should see them promptly. Many times special tests are required to evaluate for internal bleeding. Typically, they will not be able to play for at least one week and then may return only if they have had no symptoms and are cleared by a physician. If they sustain a second injury that season after returning, they typically would not be able to play for a month or more.

In cases of very mild concussions, those that resolve within 15 minutes and involve **NO LOSS OF CONSCIOUSNESS**, it is not usually necessary to require medical evaluation. The athlete should be removed from playing or practicing for the duration of that event. It is important that all symptoms resolve. The player's family or responsible adult should be notified and should be warned to watch for any worsening in the player's condition. Someone should stay with the player for the next 24 hours. If any symptoms persist or worsen, medical personnel should evaluate the player.

A player who has been cleared to return to play should perform some basic exercises such as push-ups, sit-ups, and several short sprints. If no headache or other symptoms develop, the player may be allowed to return to play. However, if any symptoms are present or the player just doesn't seem right, return to play should be delayed and further evaluation performed. **You can never be wrong to hold out a player you are not sure about.**



## Triage and Emergency Management



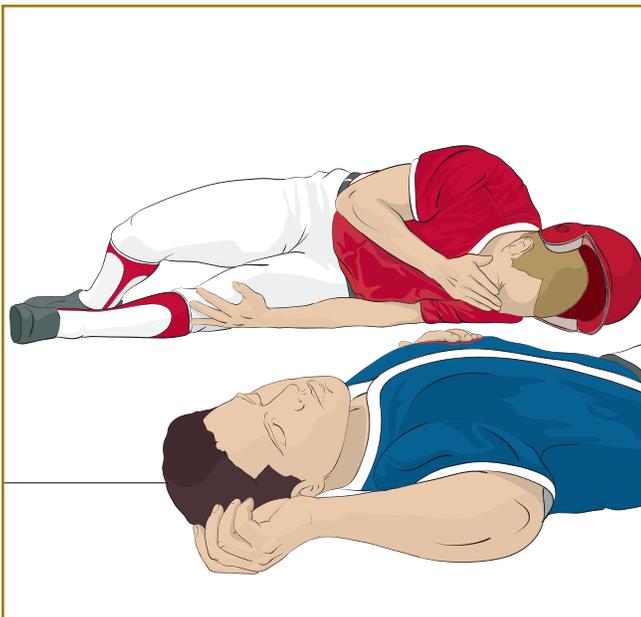
riage is a French word that means *sorting* or *classifying*. In medicine, the term is used in dealing with a mass casualty situation, when more than one injury victim must be dealt with at one time.

The idea is to briefly assess all of the injuries quickly, and then treat first the ones that are more serious or life threatening.

Hopefully, you will never be faced with masses of injured players, but this is a situation that could well occur—the simultaneous injury of two players. One is clearly much more seriously hurt and must be treated first. (Figure 1)

**It is not within the scope of this handbook to teach you cardiopulmonary resuscitation (CPR). Should you ever encounter a player whose heart stops, the knowledge of CPR is indispensable. We strongly recommend that all adult volunteers learn and stay current in CPR.**

The other important issue raised in this lesson is emergency planning. More will be said about that later in this lesson, under the section [Special Considerations](#).



Scherer Illustration Lesson 14—Figure 1

## EVALUATION

In this lesson, our usual *listen-look-feel-move* routine does not apply. You may actually use those instructions from all of the previous lessons, depending on what injuries you encounter in a multiple casualty setting.

The scenario; two injured players, one with a suspected broken forearm and one who is completely unconscious, probably from a head or neck injury. The evaluation of the less seriously injured player is very superficial, only enough to see that he is awake, alert, and in no immediate danger. The evaluation of the unconscious player is in accordance with CPR guidelines—shouting to see if the victim can be aroused, taking the pulse, and checking for breathing.

## TREATMENT

Following the concept of triage, the more seriously injured player is the one to be treated first. The less seriously injured player can wait and should simply be encouraged to remain calm.

The first step in dealing with the unconscious player is to remain calm yourself and try to make sure that everyone else does, too. Keep all the other players back away from the scene. Get additional adult help as soon as you can, but ask someone to keep a crowd from forming around the injured player. At this time you should **activate your emergency plan!!** This should include immediately summoning expert help, usually a local rescue squad, to deal with the unconscious player while you try to stabilize and support the injured player(s). More will be said about emergency planning later in this lesson.

The rest of the treatment of an unconscious player (or fan) should follow the teachings of CPR. One thing you must remember: If a player in this situation maintains his pulse and breathing, **do not move him!** If the player is face down, allow him or her to move spontaneously or just monitor the pulse and breathing in that position until help arrives. If, on the other hand, the pulse or breathing stops, the player must be turned immediately, but gently, so that CPR can be started. Remember the teachings of CPR! Turning an unconscious player who may also have a neck injury can cause more serious damage, even death. The head and neck must be stabilized as the player is turned. Preferably, more than one rescuer should do this. With three or four people working together, the athlete can be log rolled safely.

## Triage and Emergency Management

### Special Considerations

#### Head Injuries

All head injuries, or concussions, may be serious and may progress to a life-threatening situation. They can be divided into three levels of severity as described in Lesson 13. Any loss of consciousness is considered a severe injury. If this occurs, the player should be referred to a local hospital or physician for further evaluation. You should follow this precaution even if the player appears to return to a normal state fairly promptly. Some of the serious consequences of a concussion can occur in a delayed fashion, but can progress very quickly when they do occur.

#### Emergency Planning

There is nothing complicated about emergency planning. It's simply a matter of looking ahead and anticipating all of the problems you could encounter. Your league should develop a written emergency plan, make sure that everyone is familiar with it, and stage regular drills to make sure that it works. Here are some important points to consider:

Do you have a reliable mobile phone? If not, does someone else present have one? Is there another phone available? Is it accessible all the time? Or is it sometimes locked up and inaccessible? Is the phone a pay phone? If it is, do you always have plenty of change to use for calls if necessary? (Many pay phones allow you to call **911** without inserting a coin).

What number will you call in an emergency? Does your community use the standard **911**, or is there another emergency assistance number to call?

How long will it take the rescue squad to arrive at your field? Should you contact the local rescue people before the season starts to let them know that hundreds of young players will be competing and possibly experiencing injuries?

What access does the ambulance have to your playing field? Must the vehicle come through a gate? Is the gate usually locked? If it is, who has the key? Who will be responsible for obtaining the key in an emergency? Who will show the ambulance how to get to your location, and who will let it onto the field? This is particularly important if your league plays on a large complex with many separate ball diamonds.

How will you handle notifying the player's family and, if necessary, the family doctor? Before the first practice of the season starts, you should have every player's family fill out an emergency information form, and keep all of these forms in a notebook. The emergency information notebook should always be handy whenever you have your team together. If another adult volunteer takes over for you, even for a short time, be sure that this emergency notebook is passed along.

What difference will the time of day, or the day of the week make in your ability to get emergency medical help quickly?

If your team plays at one location and practices at another, go over all the same emergency planning factors for both locations. For example, if you practice at a school or public park, where is the telephone you will use to contact the rescue squad? Can you use the school's telephone and will it always be available, regardless of the time of day? If not, can you arrange ahead of time with a neighboring family to use their phone? What will you do if the family isn't home? If only one adult runs the practice, who will get emergency help if it is needed?

Remember that even with the most careful and complete planning, in an emergency, everyone involved is likely to be upset—players, parents, and adult volunteers, including you. In that state of mind, it's easy to forget something important. Practice what you will do, but also write down basic instructions, such as the directions to your playing field. Place these written instructions in your team's emergency information notebook and post them near the telephone you plan to use in an emergency. Then the person calling the ambulance can simply read the directions over the phone.

Remember that you may have to calm both worried parents and frightened teammates, and keep both the curious and the well meaning out of the way. Volunteers should be able to handle this problem by assigning important tasks to the other adults who are present.

The time to wonder about these details is before the emergency occurs. Be prepared! Plan ahead!

### Prevention

Despite your best attempts, there is no real way to prevent all injuries. The general concepts for preventing injuries in youth baseball and softball are recapped in the next section of our text.

## Conclusion



Even though much of this handbook has focused on taking care of injuries, our main emphasis is still on prevention of injuries. Ideally, if all injuries were prevented, none would need to be treated. As a final chapter in our handbook, then, let's review all of the techniques that will help you prevent baseball and softball injuries in young players.

- 1. Pre-participation health screening.**  
This should at least be done through your league's use of an annual health questionnaire. In addition, players should be encouraged to see their physicians for regular medical check-ups.
- 2. Proper maintenance of the playing site.**  
This should include not only fields where you play your games, but also practice sites.
- 3. Pay close attention to playing conditions.**  
Coaches and managers should always be aware of heat and humidity as well as the potential hazards posed by severe weather, such as thunderstorms.
- 4. Make sure players know the basics of good nutrition.**  
This means not only the nutritional role played by food, but also the extreme need for water replacement on hot humid days.
- 5. Proper athletic conditioning.**  
Conditioning includes stretching, strengthening, and endurance work, as well as drills to improve coordination and agility.
- 6. Avoid overuse.**  
This means paying special attention to the hours your players spend outside of organized games or practices. Remember the role of appropriate rest in preventing overuse injury.
- 7. Consistent and proper use of all protective gear**
- 8. Close coaching supervision and organization of warm-ups, practices, and games.**  
Always emphasize proper playing technique.
- 9. Careful compliance with all rules having to do with safety.**

*The End  
Play Ball*