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Clinical Reference Systems: Pediatric Advisor 11.0

## Bone, Muscle, and Joint Trauma In Children

### Description

This guideline covers injuries to bones, joints, or muscles. Fractures (broken bones) generally need treatment by a physician. Stretches or tears of ligaments (sprains) are usually due to sudden twisting injuries and may require medical attention (unless they are mild). Often times it is difficult to tell the difference between a fracture and a sprain, and an X-ray is required. While tears of muscles or tendons require medical attention, most muscle strains are due to overexertion and can be treated at home. A muscle bruise (called a "charley horse") is the most common injury in contact sports and can also be treated at home. Bone bruises usually follow direct blows to the bone in exposed areas (for example, the elbow, hip, or knee) and are usually minor, if painful, injuries.

See also:

Finger and Toe Trauma

Tailbone Trauma

### First Aid

#### 1. Suspected fracture

- Shoulder: Use a sling made of a triangular piece of cloth.
- Arm: splint the fractured bone (either the humerus [arm bone] or lower arm [radius or ulna]) with a board, rolled up newspaper, or other rigid structure.
- Leg: Use padded boards, pillows, newspapers, etc. to splint the fracture. At a minimum, carry your child and don't permit your child to put any weight on the leg. Transportation can be by car.
- Neck: Protect the neck from any turning or bending. Do not move your child until a neck brace or spine board has been applied by trained medical personnel. Call a rescue squad for help.
- In any fracture if the bone penetrates the skin or if there is a deep cut over the area of the suspected fracture, call emergency medical services (EMS) for help immediately.
- If the limb beyond the area of the suspected fracture has no pulse or is turning a dusky, dark color, there may be an injury to the blood vessels requiring immediate medical assistance.

#### 2. Suspected sprained ankle (or knee)

Remember the pneumonic RICE: rest, ice, compression, and elevation.

- Stop all activity and immediately treat the injury with compression and ice to reduce bleeding, swelling, and pain.
- Apply compression with a snug, elastic bandage.
- Elevate the injured joint.
- While some mild sprains can be cared for at home, it can be very difficult to tell the difference between a sprain and a fracture so most injuries to ligaments need to be evaluated by your physician. Transportation can be by car.

### 3. Suspected muscle or tendon tear

Initial treatment of a suspected muscle injury is the same as for a sprain. A tear of a muscle or tendon is uncommon in children, but is an injury that requires medical attention. In this situation, your child will be unable to move the joint beyond the injury.

## Home Care

### 1. Mild sprain of ankle or knee

Treat most sports injuries with R.I.C.E. (rest, ice, compression, and elevation) for the first 24 to 48 hours.

- Apply compression with a snug, elastic bandage for 48 hours. Numbness, tingling, or increased pain means the bandage is too tight and it should be loosened or removed.
- Apply crushed ice in a plastic bag for 20 minutes. Repeat every hour for 4 hours.
- There are medications available to help with pain and inflammation. Contact your doctor for more information about this treatment option.
- Keep injured ankle or knee elevated and at rest for 24 hours. After 24 hours, allow any activity that doesn't cause pain.

### 2. Bruised muscle or bone

Put an ice bag on the area or massage it with ice cubes for 20 to 30 minutes. Repeat this three to four times the first day. After 48 hours apply heat with a heating pad or hot compresses for 10 minutes three times a day.

There are medications available to help with pain, swelling and inflammation. Contact your doctor for more information about this treatment option.

Rest the injured part as much as possible. The pain usually starts to ease after 48 hours, but there may be some discomfort for several weeks.

### 3. Strained muscles (pulled or sore muscles)

These guidelines apply if several muscles hurt after a strenuous practice, athletic game, or long hike. Most muscle injuries can be cared for safely at home.

- Massage the sore muscles with ice for 20 to 30 minutes. Repeat this three to four times the first day.
- There are medications available to help with pain and inflammation. Contact your doctor for more information about this treatment option.
- If stiffness persists after 48 hours, have your child soak in a hot bath or if the pain is in one particular area, use a heating pad or hot compresses. Apply heat for 10 minutes three times a day until improvement occurs.

Your child should learn about stretching exercises and return to exercise gradually. Next time, your child should be in better condition before going full throttle. Getting back in condition takes at least 7 days.

## Call Your Child's Physician or EMS Immediately If:

- The bone is deformed or crooked.
- Your child won't use an arm normally (especially if the injury occurred after someone pulled on the arm). Young children who won't straighten their elbow or turn the palm up may have an elbow dislocation.
- Your child won't stand on the injured leg.

- The pain is severe.
- Your child can't walk without pain and a pronounced limp.

**Call Your Child's Physician During Office Hours If:**

- The pain is not improving by 3 days.
- The pain is not gone by 2 weeks.
- You have other concerns or questions.

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