Salter-Harris Fractures, Upper Extremities

Salter-Harris fractures are breaks through or near a growth plate of growing children. Growth plates are at the ends of the bones. Physis is the medical name of the growth plate. This is one part of the bone that is needed for bone growth. How this injury is classified is important. It affects the treatment. It also provides clues to possible long-term results. Growth plate fractures are closely managed to make sure your child has adequate bone growth during and after the healing of this injury. Following these injuries, bones may grow more slowly, normally, or even more quickly than they should. Usually the growth plates close during the teenage years. After closure they are no longer a consideration in treatment.

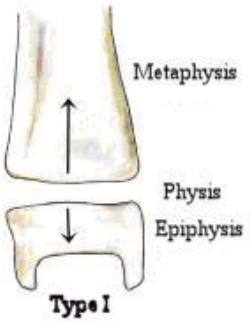
SYMPTOMS

Symptoms may include pain, swelling, inability to bend the joint, deformity of the joint and inability to move an injured limb properly.

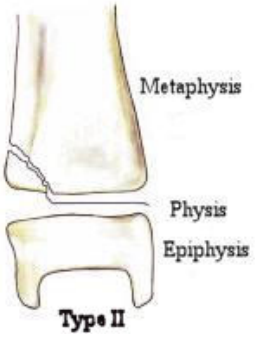
DIAGNOSIS

These injuries are usually diagnosed with x-rays. Sometimes special x-rays such as a CT scan are needed to determine the amount of damage and further decide on the treatment. If another study is performed, its purpose is to determine the appropriate treatment and to help in surgical planning.

The more common types of Salter-Harris fractures include the following:

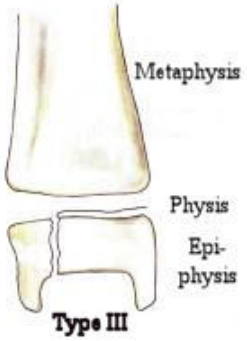


- **Type** 1: A type 1 fracture is a fracture across the growth plate. In this injury, the width of the growth plate is increased. Usually the growth zone of the growth plate is not injured. Growth disturbances are uncommon.



- **Type** 2: A type 2 fracture is a fracture through the growth plate and the bone above it. The bone below it next to the joint is not involved. These fractures may shorten the bone during future growth. These injuries rarely result in future problems. This is the most common type of Salter-Harris fracture.

- **Type** 3: A type 3 fracture is a fracture through the growth plate and the bone below it next to the joint. This break damages the growing layer of the growth plate. This break may cause long lasting joint problems. This is because it goes into the cartilage surface of the bone. They seldom cause much deformity so they have a relatively good cosmetic outcome. A Salter-Harris type 3 fracture of the ankle is likely to cause disability. The treatment for this fracture is often surgical.



TREATMENT

- The affected joint is usually splinted for the first couple of days to allow for swelling. A cast is put on after the swelling is down. Sometimes a cast is put on right away with the sides of the cast cut to allow the joint to swell. If the bones are in place, this may be all that is needed.
- If the bones are out of place, medications for pain are given to allow them to be put back in place. If they are seriously out of place, surgery may be needed to hold the pieces or breaks in place using wires, pins, screws or metal plates.
- Generally most fractures will heal in 4 to 6 weeks.

HOME CARE INSTRUCTIONS

- To lessen swelling, the injured joint should be elevated while the child is sitting or lying down.
- Place ice over the cast or splint on the injured area for 15 to 20 minutes four times per day during your child's waking hours. Put the ice in a plastic bag and place a thin towel between the bag of ice and the cast.

- If your child has a plaster or fiberglass cast:
  - They should not try to scratch the skin under the cast using sharp or pointed objects.
  - Check the skin around the cast every day. Put lotion on any red or sore areas.
  - Have your child keep the cast dry and clean.
- If your child has a plaster splint:
  - Your child should wear the splint as directed.
- You may loosen the elastic around the splint if your child's fingers become numb, tingle, or turn cold or blue.
- Do not put pressure on any part of your child's cast or splint. It may break. Rest your child's cast only on a pillow the first 24 hours until it is fully hardened.
- Your child's cast or splint can be protected during bathing with a plastic bag. **Do not** lower the cast or splint into water.
- Only give your child over-the-counter or prescription medicines for pain, discomfort, or fever as directed by your caregiver.
- See your child's caregiver if the cast gets damaged or breaks.
- Follow all instructions for follow up with your child's caregiver. This includes any orthopedic referrals, physical therapy and rehabilitation. Any delay in obtaining necessary care could result in a delay or failure of the bones to heal.

SEEK IMMEDIATE MEDICAL CARE IF:

- Your child has continued severe pain or more swelling than they did before the cast was put on.
- Their skin or fingernails below the injury turn blue or gray or feel cold or numb.
- There is drainage coming from under the cast.
- Problems develop that you are worried about.

It is very important that you participate in your child's return to normal health. Any delay in seeking treatment if the above conditions occur may result in serious and permanent injury to the affected area.

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