

Pediatric fractures



Recognize the signs

By Steven W. Meisterling, MD

“Is it broken or fractured?” This is a common question parents ask when their child has an injury. In fact, the terms *broken* and *fractured* mean the same thing. Parents also typically want to know the exact location and severity of the injury. These are the same factors that an orthopedist—a doctor that treats fractures—uses to determine the best way to care for a child who has a broken bone.

With warmer weather around the corner, children soon will be spending more time playing outdoors, climbing trees, and generally running a greater risk of breaking bones. In order to know what to do if this happens, let’s consider some frequently asked questions about broken bones in children: causes, symptoms, treatment options, healing, and how to decide whether to seek treatment.

Causes

Frequently, children sustain fractures while playing sports or from falls at the playground. Other common activities that can lead to this type of injury include the use of ice skates, roller skates, skateboards, and bicycles.

Childhood fractures are common; an estimated one in three children will sustain a fractured bone during childhood. Studies have shown that boys may be more than twice as likely to fracture a bone than are girls, a discrepancy that likely relates to behavioral differences as well as the difference in activity exposure: Children with greater exposure to risky activities have a higher incidence of breaking a bone. However, this historic gender difference may be diminishing as more girls participate in activities that involve increased physical risk.

Types of pediatric fractures

Upper extremity fractures (i.e., arms and hands) are much more common than lower extremity fractures. Among upper extremity fractures, wrist fractures are the most common type, followed by hand and elbow fractures. The tibia, or shinbone, is the most common lower extremity pediatric fracture.

Because a child’s skeletal system is in a state of growth, young bones behave very differently than adult ones. Pediatric bones therefore have different fracture characteristics and healing properties. One major difference is that a child’s skeleton is more flexible than an adult’s. As a result, some injuries cause a child’s bone to bend before it breaks, resulting in a curved bone referred to as “plastic deformity.”

Other times, a bone bends far enough to partially snap while

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remaining partially intact. You can visualize this as the way a small, living, green branch will only partially snap, but not break in half, when bent. This type of injury is referred to as a “green stick” fracture.

A “buckle” fracture typically occurs at the wrist after a child falls on an outstretched hand. The radius, or wrist bone, partially buckles under the pressure.

Growth plates

Another important characteristic of the pediatric skeleton is the presence of growth plates. Growth plates, or physes, are located at both ends of most bones and are responsible for bones growing longer. When a bone is fractured and thus temporarily deformed, these active growth plates have the ability to correct the misaligned bone during future growth. A younger child has greater ability than an older child for this correction, due to physes’ tremendous growth potential.

Unfortunately, growth plates also represent a weak area of a child’s bone and therefore are prone to injury. Most injuries to this area will not affect the function of a growth plate. However, potential does exist for arrested growth due to an injured growth plate (physis). These injuries require special treatment to prevent or correct bone deformity.

Symptoms, diagnosis

Often it is quite apparent when a child has broken a bone because there is significant deformity, severe pain, or both. Other fractures can show more subtle symptoms, making it difficult to determine if the child needs medical care. How can you decide?

If a child has fallen and is experiencing extreme tenderness somewhere on his or her body, or severe pain out of proportion to the typical reaction to injury, that may represent an injury that requires professional care. If a child indicates verbally or behaviorally that pain is persisting for what seems like an excessive length of time, that, too, can be a sign of a broken bone. Evaluation by a doctor and X-rays are required to make a diagnosis in these situations.

Treatment

There are multiple ways to treat a fracture, based on such variables as the type and severity of the break and the child’s age. Many pediatric fractures can be treated by simply immobilizing the bone in a cast or splint and giving the body time to rebuild the connection between the two broken ends. This treatment is typically used when the two ends of the broken bone line up correctly. Complete healing in these cases generally occurs in six to eight weeks.

More severe injuries may require the fracture to be “set” or “reduced” prior to immobilization. This treatment involves repositioning the broken bone, and may be necessary if the two ends of the broken bone do not line up, if bone protrudes through the skin, or if the fracture involves a joint. These procedures can be accomplished with local anesthesia or with sedation and general anesthesia.

Finally, some fractures require surgery. This generally involves realigning the fractured bone and stabilizing the area where the

break occurred with metallic pins, screws, metal plates, or a combination of these aids. These implants are often temporary and can be removed once the fracture has completely healed.

One in three children will sustain a fractured bone during childhood.

Promote healing

No matter what treatment is used, healing is enhanced by proper nutrition—a healthy diet that includes sufficient calcium—and by avoiding cigarette smoke. Even caregivers

who do not smoke in the same room as the child expose the child to thirdhand smoke, which has been found to significantly delay the speed of healing. (Thirdhand smoke is the toxic residue on smokers’ clothing, hair, and skin, as well as on everything they contact.)

Prevention, awareness

Of course, the best treatment for pediatric fractures is prevention. Proper use of protective equipment can prevent many of these injuries, but the fact remains that children break bones. Be alert to any body part that looks deformed or not quite right. Also remember that persistent and severe pain can indicate the presence of a fracture. If you suspect your child has a broken bone, he or she should be seen by a physician without delay. Prompt treatment will help the child resume a healthy, active lifestyle as soon as possible. ❏

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