

What Are Growth Plate Injuries?

Fast Facts: An Easy-to-Read Series of Publications for the Public

What Are Growth Plates?

Growth plates are located on the long bones of children and young people. These plates are areas of growing tissue near the end of the bones.

Each long bone has at least two growth plates—one at each end. This is where the long bones grow. When young people finish growing, the growth plates close and are replaced by solid bone.

Growth plate injuries occur mainly at the wrist, bones of the legs, or in the ankle, foot, or hip bones.

Who Gets Growth Plate Injuries?

Growth plate injuries happen to children and young people. The growth plate is the weakest part of the growing skeleton. Injuries to the plates are called fractures.

Growth plate fractures happen twice as often in boys as in girls.

What Causes Growth Plate Injuries?

Growth plate injuries happen for many reasons. Most occur after a sudden accident, such as falling or being hit hard on the leg. People who sometimes get injuries from overuse include:

- Gymnasts who practice for hours on the uneven bars
- Long-distance runners
- Baseball pitchers perfecting their curve balls.

The top reasons for growth plate injuries are:

- Falling down
- Competitive sports (like football)
- Recreational activities.

Other reasons for growth plate injuries are:

- Child abuse
- Injury from extreme cold (for example, frostbite)
- Radiation (used to treat certain cancers)
- Medications (for example, steroids) Neurological disorders that cause people to lose their balance and fall
- Some inherited disorders

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- Bone infections
- Metabolic disease, such as kidney failure and hormone disorders.

When to See a Doctor

A child should never have to "work through the pain." Parents should take their child to see a doctor when:

- The child has to stop playing because of pain after a sudden injury.
- The child is less able to play because of an old injury.
- The child's arm or leg bends the wrong way.
- The child cannot move an arm or leg because of pain.
- The pain continues after overuse or injury.¹

How Are Growth Plate Fractures Diagnosed?

First, the doctor will find out how the injury happened. Second, the doctor will examine the child and use x rays to find out what kind of fracture it is. Third, a treatment plan is chosen.

Sometimes other tests are used to look at the fracture, including CT scan (a special x ray), MRI (uses magnetic energy to look inside the body), and ultrasound (uses sound waves to look inside the body).

What Kind of Doctor Treats Growth Plate Injuries?

An orthopaedic surgeon (a doctor who treats bone and joint problems) treats most growth plate injuries. At other times, the child will see a pediatric orthopaedic surgeon (a doctor who treats bone and joint problems in children).

How Are Growth Plate Injuries Treated?

The treatment depends on the type of fracture. However, with all fractures, treatment should start as soon as possible. Treatment usually involves a mix of the following:

- Immobilization (a cast or splint)
- Manipulation or surgery (depending on where and how serious the injury is, and the patient's age)
- Exercises (only after the fracture heals)
- Long-term followup (including x rays).

¹ Adapted from *Play It Safe, a Guide to Safety for Young Athletes*, with permission of the American Academy of Orthopaedic Surgeons.

How Well Do Children Grow After a Growth Plate Injury?

Most growth plate fractures get better and do not cause any lasting problems. Occasionally, the bone stops growing and ends up shorter than the other limb. For example, a fractured leg might end up shorter than the other leg. Or, if only part of the growth plate is injured, the limb can become crooked when only part of the bone keeps growing.

Lasting problems are most common with injuries to the knee.

What Are Researchers Trying to Learn About Growth Plate Injuries?

Researchers are searching for better ways to diagnose and treat growth plate injuries. For example, they are:

- Studying gene therapy and finding other ways to help bones continue to grow after fractures
- Researching drugs that protect the growth plate during radiation treatment
- Finding ways to help damaged muscles, bones, joints, tendons, and ligaments grow back.

For More Information About Growth Plate Injuries and Other Related Conditions:

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)

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The information in this publication was summarized in easy-to-read format from information in a more detailed NIAMS publication. To order the Growth Plate Injuries Q&A full-text version, please contact the NIAMS using the contact information above. To view the complete text or to order online, visit www.niams.nih.gov.

For Your Information

This publication may contain information about medications used to treat the health condition discussed here. When this publication was printed, we included the most up-to-date (accurate) information available. Occasionally, new information on medication is released.

For updates and for any questions about any medications you are taking, please contact the U.S. Food and Drug Administration (FDA) toll free at 888–INFO–FDA (888–463–6332) or visit its website at www.fda.gov. For additional information on specific medications, visit Drugs@FDA at www.accessdata.fda.gov/scripts/cder/drugsatfda. Drugs@FDA is a searchable catalog of FDA-approved drug products.