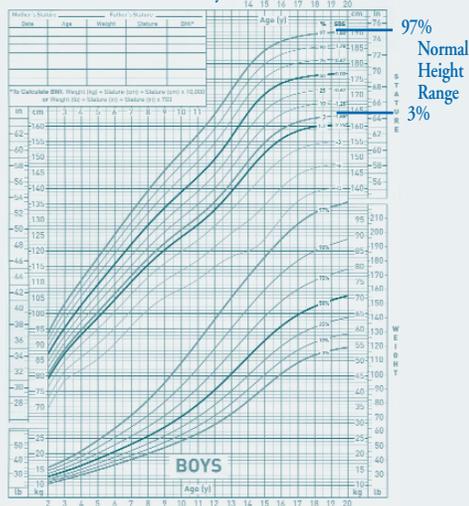


Idiopathic Short Stature:

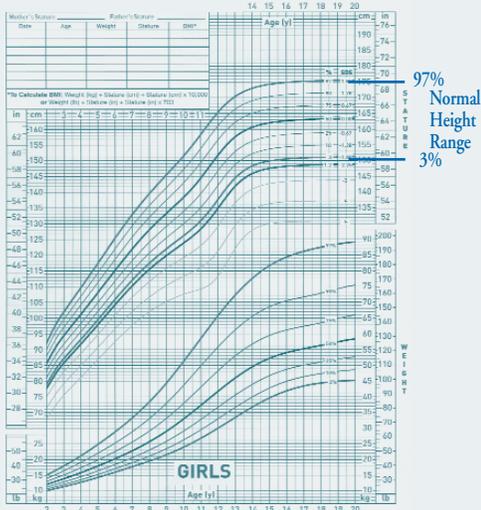
What You Need to Know

Normal Height Range for Children in the United States

Growth Chart 2 to 20 Years: Boys



Growth Chart 2 to 20 Years: Girls



“Is my child’s growth normal?”

This is one of the first questions parents ask after their child is born. Normal growth is defined as growth that follows established patterns based on studies of several different populations and that follows the paths of standardized growth charts. Normal growth falls between the 3rd percentile and 97th percentile of all children. This means that the shortest 3% and the tallest 3% fall outside of the bounds of what is generally considered “normal” growth.

Charting growth rate properly, that is, the change in length over time, is necessary when tracking a child’s general state of health.

What is Idiopathic Short Stature?

Some children don’t grow to a height that is within the normal range. They are normal physically, and their laboratory tests are normal. This condition is called *idiopathic short stature* (ISS). This is not the same as growth failure. Growth failure is a medical term that applies to children who are growing poorly for age, gender and stage of development.

ISS has been defined as a height that is well below the average for a child’s age and sex (more than two standard deviations below the average height). Children with ISS represent the shortest 2.3 percent of children.

Making the diagnosis of ISS can be tricky. There may be other reasons why a child is not growing taller at a normal rate:

- Some children have simple (or constitutional) delay in growth and maturation and just grow slower for a period of time.
- Children can have conditions that developed prior to birth or that result from changes in their chromosomes or genes, such as Turner syndrome.
- Chronic illnesses, such as diseases of the kidneys, heart, lungs, or gastrointestinal tract (bowels) can affect growth.
- Certain medications used to treat illnesses such as asthma can slow normal growth.

Source: National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000). <http://www.cdc.gov/growthcharts>
Published May 30, 2000 (modified Nov.21, 2000)

continued on back

- A disturbance of the growth plates in the spine or at the end of long bones such as thigh bones can affect growth.
- A child may have problems producing or using growth hormone or other hormones such as cortisol or thyroid hormone.



Hormones and ISS

Hormones are substances formed in body organs called glands. Hormones are carried in the blood circulation to other organs or tissues where they have a specific effect. Growth hormone (GH) is a very important hormone that can influence your health in many ways. It is powerful enough to alter the way people look, feel, and function.

Children with ISS are generally healthy. They don't have a problem with growth hormone production.

According to the U.S. Food and Drug Administration (FDA), your child with ISS may be eligible for treatment with a laboratory-made GH if your child's height is more than 2.25 standard deviations below the average for age and sex. This means that your child would be among the shortest 1.2% of children.

Various growth hormone products are already being used for children who have short stature associated with GH deficiency, chronic renal insufficiency, Turner syndrome, and other conditions. Growth hormone treatment for ISS, approved by the FDA in 2003, is the first approved use for growth hormone in children who have no other known medical conditions and the first to specify a height limit.

Treatments for ISS

Treatment for ISS is under much discussion today because these children are healthy and do not have severe physical problems. One option is for parents and physicians to wait and observe how the child grows for several months to a year. This solution is called "watchful waiting."

If your child's adult height is predicted to be very short, you may want to consider growth hormone treatment. Natural growth hormone is secreted by the pituitary gland in the brain and is one of a number of hormones affecting a child's growth. The approved GH therapy is available only under a pediatric endocrinologist's care.

If your child is found to have constitutional delay of puberty, your child may be given sex hormones (androgens for boys or estrogens for girls) to bring on sexual characteristics, as well as to induce the natural growth spurt that accompanies puberty. Sex

hormones, however, would *not* be used for a child who has yet to reach the age of normal puberty.

Regardless of what treatment option you choose, it is always important to encourage your child to have a healthy lifestyle. Be sure that your child gets a variety of healthy foods, regular exercise and plenty of sleep—all of which will help your child grow.

Side Effects of Therapy

The FDA decision to approve GH treatment for ISS was based on two clinical studies in children. There was an average height gain of 1.5 to 3 inches in adult height in the children who received GH treatment. According to an FDA Talk Paper, the safety profile of GH treatment in children with ISS was not different from the profile of other conditions for which GH is used.

The most common side effects are related to rapid growth, such as muscle or bone pains, swelling of the hands and feet, and occasionally a curve of the spine. The long-term effects of treating children with ISS remain unknown at this time.

Questions to Discuss with Your Child's Doctor

- Is my child's height within the normal range?
- Is my child's growth rate normal or less than normal?
- What tests are available to find the cause for short stature?
- What treatments are available for children with ISS?
- Is watchful waiting the best thing to do? How long does the waiting and observation period last?
- Do you think my child would be a good candidate for GH therapy? Why or why not?
- What is known about the growth hormone approved for ISS? How does it work?
- How many injections of GH would my child need each week?
- How long does the GH therapy last?
- What is the cost of GH therapy?

Does My Child Need to Visit a Specialist?

Consult your regular doctor with questions about growth. Even very skilled doctors may have a hard time pinpointing the exact cause of a growth problem. If you want to learn more about your child's growth condition and GH treatment, you may be referred to a specialist. A pediatric endocrinologist is trained to understand the complexity of conditions affecting growth and hormones.

To find a pediatric endocrinologist visit www.hormone.org or call 1-800-HORMONE.



THE HORMONE FOUNDATION

8401 Connecticut Avenue, Suite 900
Chevy Chase, MD 20815-5817
Phone: 1-800-HORMONE
Web: www.hormone.org

Editors:

Ora H. Pescovitz, MD
Alan D. Rogol, MD, PhD

May 2004

Supported by an unrestricted educational grant from Eli Lilly & Co.