

Constitutional Growth Delay and Familial Short Stature: A Guide for Families

What is short stature?

Doctors usually define *short stature* based on standard growth charts, rather than how a child compares in height with his or her classmates. Growth charts show that for each age, there is a range of heights that are normal for boys and girls. Most charts show the lowest line as the third percentile, which means that if a child is at the third percentile, he or she is shorter than all but 3% of children the same age. If a child is at or above the 10th percentile, he or she is somewhat short but in the lower end of the normal range and usually not short enough to see a growth specialist. The exception is when such a child was previously at, for example, the 25th or 50th percentile and crosses lines to the 10th percentile or below; for these children, a growth evaluation may be needed. This “crossing the growth line” suggests that your child’s rate of growth may have decreased.

What are the 2 most common causes of short stature?

Most short children seen by specialists are healthy, and their growth charts usually show that they have been growing close to or slightly below the third or fifth percentile curves but not falling further below over time. In such children, the chances of finding an endocrine problem, such as growth hormone deficiency, or a chronic medical condition serious enough to affect growth that has not already been diagnosed is low. In most cases, the diagnosis will be *familial short stature* or *constitutional growth delay*. What are the differences between these 2 diagnoses?

What is familial short stature?

Familial short stature is the most likely diagnosis when a child is growing at a normal rate (following his or her curve) and one or both parents are short—that is, the mother is 5’1” or shorter and/or the father is 5’5” or shorter. Screening laboratory tests almost always produce a normal result. Some specialists order laboratory studies and some do not. A hand radiograph for bone age is sometimes helpful because in children aged 7 years and older, it can help make a prediction of how tall the child will be as an adult. In most cases, the bone age will be within a year of the child’s age and the adult height prediction will be within 2 to 3 inches of that estimated by the following formula: (mom’s height

+ dad’s height + 5”)/2 for boys; (mom’s height + dad’s height - 5”)/2 for girls. Growth hormone is sometimes used to treat familial short stature but mainly when it is very severe. Insurance will not always cover the costs of growth hormone treatment.

What is constitutional growth delay?

Constitutional growth delay is similar to familial short stature in that the child is usually healthy and growing normally but slightly below the curve. The difference is that, in most cases, neither parent is short, and in most cases, one parent was a late maturer. This means the mother may have started her periods at age 14 years or later, or the father had his growth spurt late (starting after age 15 years) and may have continued to grow in height until age 18 or 19 years. Aunts, uncles, and older brothers or sisters often have the same growth pattern. Screening laboratory test results are generally normal with the exception of the x-ray of the hand (bone age x-ray). The bone age is a useful test because bone maturation is generally delayed by longer than 1 year and often by 2 years or more. This means that the child will likely start puberty later than many of his or her peers, will continue to grow when other children are finished, and will reach an adult height in the normal range for his or her family. Growth hormone treatment is rarely needed, but some boys with this diagnosis may benefit from a brief course of testosterone if they have not started puberty by age 14 years.

Can your child have both of these conditions?

Yes; sometimes, children have short parents with a history of delayed puberty in the family, and they may be diagnosed with both conditions. Again, a bone age x-ray is often helpful in giving an idea as to how tall the child is likely to be when fully grown.

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