

## Constitutional Growth Delay

Short stature is a common finding in the routine medical examination of children. Between 3 and 5 children out of every 100 children will have short stature. The causes of short stature are varied from a normal pattern of growth to a presenting symptom of severe systemic disease or brain tumors. Thus, the challenge to every physician who sees children is to ascertain which child is likely or not likely to have a pathological process.

This brief discussion will focus on one of the most common variants of normal growth: constitutional growth delay of maturation. Although there is minimal literature published on this growth pattern, it is commonly applied to many children with short stature.

There are 6 considerations, which need to be satisfied before a physician can conclude that a child has constitutional delay of maturation.

1. Normal birth weight and length.
2. Growth velocity slowing between the ages of 6 months and 2.5 years of life with height percentile usually decreasing to less than the 5th percentile.
3. Beyond the age of 2.5 to 3, a velocity of growth which is normal for chronological age.
4. No evidence of a syndrome or systemic disease.
5. A delay in skeletal maturation which equals the delay in height (formally expressed as the bone age is equal to height age).
6. A positive family history for at least one of the parents being short as a child, having delayed onset of puberty, but a final adult height which is normal.

The sixth item may not be observed for each child; however, absence of any one of the first five items should raise concerns about the diagnosis of constitutional delay of maturation.

The natural history of a child with constitutional delay of maturation has already been suggested. At birth the child is normal size. Sometime between 6 months and 2.5 years of age, they slip on the growth curve such that their height is at or below the 5th percentile (19 out of 20 other normal children will be taller). After the slowdown period, the child's growth velocity improves so that he/she grows in parallel with their peer group and remains at the same percentile.

The time for puberty is a common crisis period. While his/her peers are enjoying the onset of puberty and its associated dramatic growth spurt, the child with constitutional delay will lag behind and the magnitude of short stature become more pronounced. Eventually, the child will enter puberty normally and the final adult height will be within the normal range.

A child with constitutional delay will face many of the same adjustment problems that a child with growth hormone deficiency will face, and it is important to communicate with the child about these issues.

Just as important, however, is not to imply that there is "something wrong" for which the child needs medication, but rather they should be reassured of their excellent health.

A careful evaluation by an individual with experience in growth disorders, along with regular visits for assessment of growth are necessary to assure that a child does have constitutional delay of maturation rather than some disease process.

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