

Thus, *TRPS1* mutations account for TRPS. Loss of function of 1 *TRPS1* allele gives rise to mild to moderate manifestations associated with the diagnosis of TRPS I. Missense mutations that act in a dominant negative manner account for the severe features observed in TRPS III. Chromosomal deletions that cause haploinsufficiency of *TRPS1*, *EXT1*, and potentially other neighboring genes are responsible for TRPS II.

Lüdecke H-J, et al. *Am J Hum Genet* 2001;68:81-91.

Editor's comment: This study nicely demonstrates how different types of mutations of the same gene can produce clinical phenotypes that appear to be different. The authors acknowledge that no mutations were detected in a few patients, making it possible that 1 or more other genes could harbor mutations that lead to a TRPS clinical phenotype. However, their conclusion that *TRPS1* is the major, if not only, gene locus responsible for this constellation of features cannot be disputed. It will be interesting to learn the function of *TRPS1* in skeletal growth and maturation.

William A. Horton, MD

BMI in Childhood and Its Association With Height Gain, Timing of Puberty, and Final Height

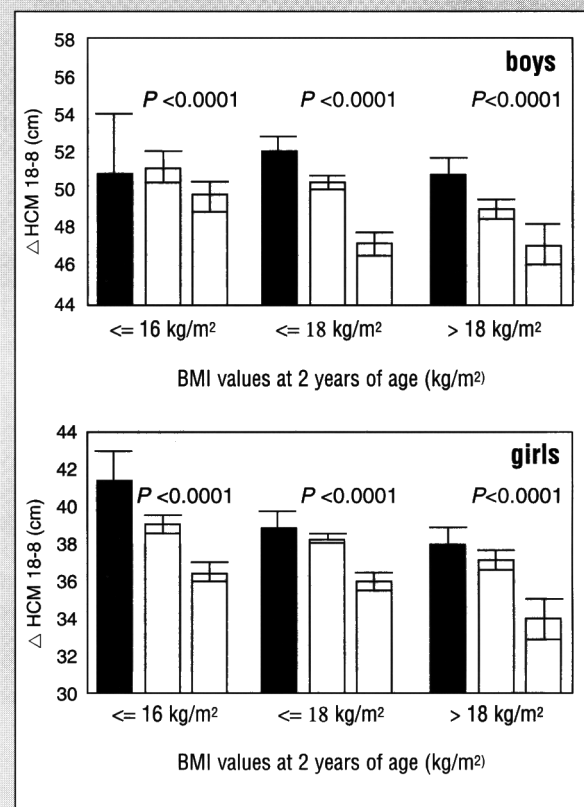
This study was undertaken to ascertain the effects of overnutrition in childhood on height, final height, and timing of puberty. This study was performed in 5111 grade-school children born in the early 1970s in Goteborg, Sweden. The final analysis was made in 3650 full-term healthy children whose growth information was accurate from birth to 18 years of age. The others were eliminated from the final analysis due to a variety of factors and/or illnesses. A computer-generated growth chart was produced for each child, and their nutritional status was assessed by body mass index (BMI) changes between 2 and 8 years of age. Mean parental heights were adjusted to assess genetic influences of the linear growth. Childhood BMI gain was related to an increased height gain during the same period (ie, an increase of 1 BMI unit was associated with an excess increase in height gain of 0.23 cm in boys and 0.29 cm in girls). The BMI also was linked to an earlier onset of puberty; the impact on the timing of puberty was 0.6 years in boys and 0.7 years in girls. Each increased unit of BMI gain in childhood also reduced the height gain in adolescence by 0.88 cm for boys and 0.51 cm for girls. However, no direct effect was found between childhood BMI gain and final adult height. The authors conclude that overnutrition between 2 and 8 years of age may lead to earlier onset of puberty and earlier achievement of adult height, but not greater height.

He Q, Karlberg J. *Pediatr Res* 2001;49:244-251.

Editor's comment: Overnutrition and/or obesity in childhood is a worldwide health concern because it may produce several adverse physical and psychosocial developmental consequences. Moreover, the obese child is at a higher risk of remaining obese throughout adulthood. Several studies have shown that overnutrition accelerates linear growth. This large population study certainly adds support to this concept. However, postnatal linear growth is complex, resulting from genetic, nutritional, and endocrine system influences. The BMI does not necessarily represent the only variable affecting growth, nor does it represent the true nutritional status of an individual. The effect of dietary attempts to lose weight was not investigated in this study. Usually, children who are obese tend to be on and off diets. This may lead to poor nutrition and potential growth deceleration. However, it is reassuring to know that this large population of obese children did not experience a reduction in final adult height.

Fima Lifshitz, MD

Figure
The Mean and Its 95% Confidence Interval of Δ HCM 18-8 for Boys and Girls in 3 Different Groups of BMI Values at 2 Years of Age



The cut off points, 16 and 18 kg/m², represent the 25th and 75th centile values at 2 years of age. Within each BMI group at 2 years, the values of height gain between 8 and 18 years are also shown separately in 3 childhood BMI change groups. The P values refer to the ANOVA to compare the differences in central tendency of height gain among the 3 BMI change groups.

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