

## **Body Composition of Peruvian Children With Short Stature and High Weight for Height**

Chronic undernutrition frequently occurs among children from underdeveloped countries. When combined with infectious diseases, it can result in a low height-for-age ratio and/or nutritional dwarfing. Paradoxically, nutritional dwarfing may also be seen in children with excess weight for height.

One hundred and thirty-nine Peruvian children, ages 6 months to 5 years, with nutritional dwarfing

but excess weight for height, were studied using both total body water measurements and detailed anthropometric assessment. Results of this study were compared with the National Center for Health Statistics (NCHS) Reference Standards. The mean weight-for-length/height of children in the study sample was above the 50th percentile and appeared to increase with age. In contrast, the

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mean length/height-for-age fell from the 35th percentile by age 18 months and remained consistently low. Although arm muscle area, based on age and body weight, was not altered, anthropometric assessment revealed a lower body fat content (based on tricep skinfold, subscapular skinfold, and arm fat measurements). Additionally, greater values on assessment of total body water suggested a lower body fat content in these children.

Trowbridge FL, Marks JS, deRomana GL, et al. *Am J Clin Nutr* 1987;46:411.

**Editor's comment**—*This interesting paper identifies nutritional dwarfing among children with ex-*

*cess body weight for length or height. The data show that undernourished children may cease to grow even before fat stores or lean body mass is depleted. This cessation may occur without weight loss or even when body weight continues to increase with age. Unfortunately, the authors did not provide data on progression of weight for age. It is possible that weight increments also slowed and the rate of advancement decreased, but since these changes were not as marked as those for length or height, a higher body weight for height continued. Additionally, these data emphasize the importance of repeated measurements of growth over time as indicators of normal health and nutrition. Any single weight-for-height measurement may fail to identify children with nutritional dwarfing.*

*The authors did not explain the causes of nutritional dwarfing in children without weight deficits. Dietary inadequacies beyond caloric or protein deficits may be implicated. For example, deficiencies of specific nutrients such as zinc and iron could lead to nutritional dwarfing. Additionally, obese children on weight-reduction diets also exhibit impaired growth despite continued excessive weight for height. Therefore, nutritional dwarfing in these Peruvian children may have resulted from a period of inappropriate diet following adequate nutrition. Stunting of growth without loss of body weight, but with reduction in body fat content, may occur as a gradual adjustment to inadequate dietary intake. Growth slows as an adaptive response to balance energy intake and expenditures.*

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