Obesity: A Risk Factor for Childhood Fractures

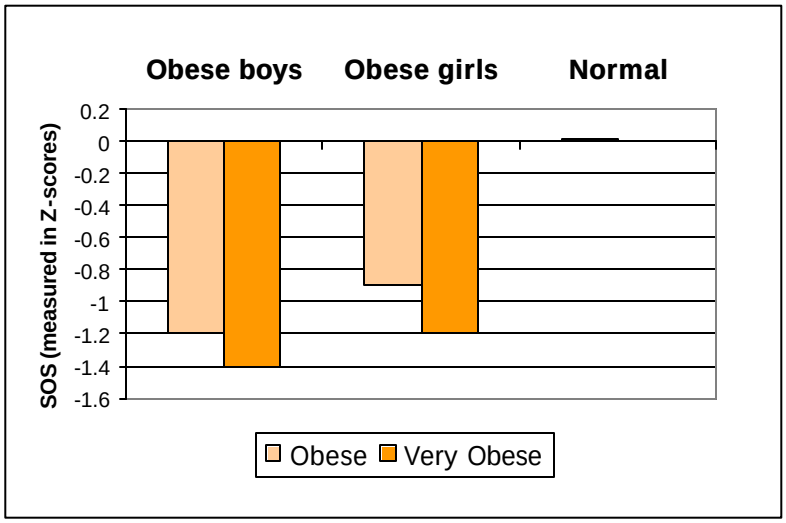
An Alarming Trend

Recent years have seen a growing trend of obesity among children and adolescents. Obesity is the direct cause of a number of immediate health problems during childhood and beyond.[1] It also plays a significant role in bone health, with obese children shown to suffer from reduced bone strength[2] and a higher incidence of fractures during childhood and adolescence.[3]

In the United States today, 13% of children and 14% of adolescents are considered overweight; that is, they have a BMI at or above the 95th percentile appropriate for their age.[4] Together with other overweight children (with a BMI between the 85th and 95th percentile), they number one fifth of American children today, a much higher proportion than in previous decades.[5] This trend of increasing obesity in children and adolescents is mirrored in much of the world, including a growing number of developing countries.[6]

Bone Strength and Obesity

A recent study using an ultrasound sonometer (Sunlight Omnisense® 7000P) showed that obese children had significantly lower bone strength than their normal-weight peers.[7] The SOS of the obese children was between 0.9 and 1.4 standard deviations lower than their age-matched peers, a highly significant result. The more highly obese children showed even lower bone strength. The researchers theorized that decreased bone strength among obese children and adolescents may result from an effect of obesity on qualitative aspects of bone. They proposed that the decreased bone strength among obese children and adolescents may increase their fracture risk, even at a young age.



Sunlight

This negative effect of obesity on pediatric bone health has also been found with bone assessment using X-ray based devices.[5] One study found that overweight and obese children had lower bone area and bone mass, relative to body weight, than other children.[2] Another study found that high body weight increases the risk of repeat fractures in girls who had sustained fractures.[3] The researchers suggested that bone mineral density accrual lags behind height and weight development in children and adolescents. As a result, obese children are at a disadvantage, because their bones are too weak to carry their high body weight. This leads to childhood fractures, especially at the forearm.[8]

Implications of Obesity for Children's Bones

Obesity has been shown to be an important risk factor for compromised bone health for children and adolescents. Regular bone monitoring for this risk group is important to track their bone development and help decrease fracture risk in this vulnerable population. It can also serve as an additional incentive for obese children and adolescents to make a high-calcium diet, regular physical activity, and weight loss part of their lifestyle routines.

Sunlight Omnisense® 7000P, a bone sonometer especially designed for bone assessment for ages 0-20, is the ideal way to measure and monitor the development of growing bones. Using Omnisense 7000P's unique pediatric reference database, physicians can compare the bone strength of their young obese patients with age- and gender-matched peers. Changes in lifestyle habits and regular monitoring can together help improve the bone strength of these patients and prepare them for a strong future.

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