

A measure of obesity: BMI versus subcutaneous fat patterns in young athletes and nonathletes.

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Source

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Abstract

Although the body mass index (BMI, kg/m²) is widely used as a surrogate measure of adiposity, it is a measure of excess weight, rather than excess body fat, relative to height. The BMI classification system is derived from cut points obtained from the general population. The influence of large muscle mass on BMI in athletes and young adults may misclassify these individuals as overweight and obese. Therefore, the use of subcutaneous adipose tissue topography (SAT-Top) may be more effective than BMI in assessing obesity in physically active people and young adults. The purposes of this study were 1) to describe the relationship between the BMI and SAT-Top of young athletes and nonathletes, and 2) to determine the accuracy of the BMI as a measure of overweight. Height, weight, BMI and SAT-Top were determined in 64 males (25.0 +/- 6.7) and 42 females (24.8 +/- 7.0), who were subsequently separated into two even groups (athletes and non-athletes). The optical Lipometer device was applied to measure the thickness of subcutaneous adipose tissue (SAT). While BMI was similar, male athletes showed a 50.3% lower total SAT thickness compared to their male nonathlete controls. Even though female athletes had significantly higher BMI and weight scores, their total SAT thickness was 34.9% lower than their nonathlete controls. These results suggest subcutaneous fat patterns are a better screening tool to characterize fatness in physically active young people.

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