Summary:
This cross-sectional pilot study compared the body mass index (BMI) to percent body fat in 25 preadolescent boys, and then examined the grouping of boys based upon their BMI and percent body fat. Six boys who were classified in the lower percent body fat group were also classified in the high BMI group. Six boys who were classified in the higher percent body fat group were also classified in the lower BMI group, suggesting that 12 of the 25 boys were mislabeled.

Major results reported by the authors:
Percent body fat was significantly correlated with BMI (r=0.74, P<0.0001). A significant difference was found in sedentary activity between groups of boys based on their percent body fat, but not based on their BMI. A significant difference was found in the classification of boys into groups (x2= 13.52, P<0.0001).

Authors Conclusions:
Although BMI provides a good overall description of adiposity in children, it does not differentiate between whether excess weight is fat or muscle. Further investigation of boys with a high BMI is warranted before intervention is completed.

Evaluation:
Researchers determined BMI using a portable digital scale and measuring tape. They determined body fat percentage using air displacement plethysmography (BOD POD) and the Lohman equation. Because no standard for body fat in pediatric population exists, researchers divided the groups in half to establish “high percent body fat” and “low percent body fat” groups. Children were recruited via written advertisements in local press, flyers and community programs. Mothers reported their son’s physical activity for the past year via questionnaire. This study is limited by small sample size and homogenous participants (all participants were male and Caucasian). Strengths of this study include standardized data collection, strong statistical relationships between study variables, and the inclusion of physical activity in the written questionnaire.

Take Home Message
Clinical practitioners should recognize that some boys who have higher percent body fat may be missed when only BMI is used for screening.

For Discussion
Researchers purposefully excluded boys from the study whose BMI fell between the 68th and 85th percentile to allow for a greater separation between the low BMI (between the 33rd and 68th percentile) and high BMI (≥95th percentile) groups. How do you think their results may have changed had they included overweight boys? Will the results of this study impact the way that you interpret BMI in your clinic? If so, how? Should we routinely measure body fat percentage in children who attend our clinics?