Current BMI tests underestimate obesity in teens with disabilities

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New approaches, based on body mass index (BMI) or other simple measures, are needed to improve assessment of obesity in adolescents with physical disabilities, reports a paper in the *American Journal of Physical Medicine & Rehabilitation*, the official journal of the Association of Academic Physiatrists.

Obesity is a major problem in children and adolescents with mobility limitations, but standard assessments tend to underestimate it, according to the new research by Brooks C. Wingo, PhD, of University of Alabama at Birmingham and colleagues. They suggest new cutoff points are needed for identifying disabled teens who may need diagnosis and treatment to prevent health and functional problems due to excess body weight.

What's the Best Measure to Assess Obesity in Disabled Teens?

The study included 29 adolescents (average age 16) who had spinal cord injury or other types of physical disability and used a wheelchair to get around. The researchers assessed various clinical indicators of body weight—not only BMI (calculated from height and weight), but also the width of a skinfold pinched in the upper arm (triceps) and circumferences of the waist, arm, and leg.

In addition, a procedure called dual-energy X-ray absorptiometry (DXA)

was done to measure the patients' percentage of body fat. Obesity was defined as 30 percent or greater body fat for males and 35 percent or greater for females. The various clinical measures were evaluated as indicators of obesity, as objectively determined by DXA.

As in previous studies, many of the teens with physical disability were obese. Thirty-five percent of boys and 58 percent of girls met the DXA criteria points for obesity.

However, if assessed by BMI alone, many of the patients would be misclassified as non-obese. Based on the standard BMI cutoff point of 95th percentile or higher for their age, only six percent of boys and 42 percent of girls were classified as obese. (Because they are still growing, the adult BMI cutoff point of 30 or higher isn't appropriate for assessing obesity for children and adolescents.)

All of the clinical measures were significantly correlated with body fat among the teens with disabilities. The best-performing measure was BMI, using a cutoff point of 20 for boys and 19 for girls. The second-best measure was waist circumference, with cutoff points of 83 centimeters (about 33 inches) for boys and 78 centimeters (about 31 inches) for girls.

Children and adolescents with physical disabilities are at high risk for obesity. In addition to health issues such as diabetes and heart disease, obesity puts disabled youth at risk of a wide range of other problems, such as pain and depression, and may further limit their independence and mobility.

But it can be challenging to assess obesity and overweight in people with disabilities, and especially in children and adolescents. While DXA is a more reliable test for measuring body fat, it's not practical for everyday clinical use.

The exploratory study confirms that current cutoff points underestimate obesity in adolescents with physical disabilities. It also provides a first step toward developing alternative assessments of obesity in this group of patients, although further research will be needed to confirm and validate the proposed alternative measures. Dr. Wingo and coauthors also call for the development of disability-specific cutoff points, "which will allow clinicians to better identify children at risk of adiposity-related diseases and offer parents preventive strategies to improve the health and quality of life of their children."

More information: "Exploratory Study Examining Clinical Measures of Adiposity Risk for Predicting Obesity in Adolescents with Physical Disabilities" DOI: 10.1097/PHM.0000000000000323

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