

BMI measurement may be missing 25 percent of children who could be considered obese

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Physicians using body mass index (BMI) to diagnose children as obese may be missing 25 percent of kids who have excess body fat despite a normal BMI, which can be a serious concern for long-term health, according to a Mayo Clinic study published online today in *Pediatric Obesity*.

The researchers found that BMI has high specificity in identifying [pediatric obesity](#), meaning BMI accurately identifies children who are obese, but has a moderate sensitivity, meaning the BMI tool misses children who actually should be considered obese, according to the percent of fat in their bodies.

"If we are using BMI to find out which children are obese, it works if the BMI is high, but what about the children who have a normal BMI but do have excess fat? Those parents may get a false sense of reassurance that they do not need to focus on a better weight for their children," says Francisco Lopez-Jimenez, M.D., senior study author and director of preventive cardiology at Mayo Clinic, Rochester, Minn.

In the meta-analysis, the researchers used 37 eligible studies that evaluated 53,521 patients, ages 4 through 18. It is the first systematic review and meta-analysis to assess the diagnostic performance of BMI to identify excess [body fat](#) as compared with techniques considered reference standard to measure obesity. These other techniques include skin-fold thickness measurement and dual-energy X-ray absorptiometry, which can be used to measure body composition and fat content.

It is known that [childhood obesity](#) can lead to an increased risk of type 2 diabetes and cardiovascular disease, says Asma Javed, M.D., the study's first author and a pediatric endocrinology fellow at Mayo Clinic Children's Center. "Our research raises the concern that we very well may be missing a large group of children who potentially could be at risk for these diseases as they get older," Dr. Javed says. "We hope our results shine a light on this issue for physicians, parents, public health officials and policymakers."

While not part of this study, its results mirror what has been found in Dr. Lopez-Jimenez's research of adults. Over several years of research, he and investigators discovered what they call normal weight obesity (NWO), wherein adults have a normal BMI but a large percentage of body fat. NWO shares some of the risks of obesity, which can lead to pre-diabetes, metabolic syndrome and cardiovascular death. "The lesson is that we need additional research in [children](#) to determine the potential impact of having high fat in the setting of normal BMI to recognize this issue and perhaps justify the use of [body composition](#) techniques to detect [obesity](#) at an early stage," he says.

More information: *Pediatric Obesity*, [onlinelibrary.wiley.com/journal/1111/\(ISSN\)2047-6310](https://onlinelibrary.wiley.com/journal/1111/(ISSN)2047-6310)

Provided by Mayo Clinic

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