

Self-control and obesity: Gender matters in children

July 16 2018



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A toddler's self-regulation—the ability to change behavior in different social situations—may predict whether he or she will be obese come

kindergarten, but the connection appears to be much different for girls than for boys.

Self-regulation is something all children must develop, and poorer self-control in childhood is associated with worse adult health, economic and social outcomes. However, a new study from The Ohio State University found that more self-regulation may not necessarily reduce the risk of [obesity](#), especially in [girls](#).

Girls who scored at either the low or the high end on measures of self-regulation when they were 2 years old were more likely than girls with average self-regulation to be obese at age 5, while boys with high self-regulation were less likely to be obese than their peers with low or average self-regulation, found the study, which appears in the journal *JAMA Pediatrics*.

The difference raises important new questions about the role of gender in the development of [childhood obesity](#), said lead author Sarah Anderson, an associate professor in Ohio State's College of Public Health.

"Although we tend to assume that more self-regulation is always a positive, it may not be," she said.

Those seeking answers about how to prevent childhood obesity should be mindful of the possibility that interventions to improve self-regulation might not play out the same way for boys and girls, she said.

"People are trying ways to prevent obesity in young children, and some of those approaches involve improving self-regulation. Our study suggests that could have an unintended impact for some girls," Anderson said.

"This study leads one to think about how young children are potentially responding differently to messages and expectations based on whether they are boys or girls. We should be cautious about assuming that increases in self-regulation are optimal for everyone."

The study analyzed data from a nationally representative sample of 6,400 U.S. children born in 2001 to see whether a child's ability to self-regulate when they were 2 years old was associated with their risk of obesity in kindergarten—and to look for any differences between genders. The data came from the National Center for Education Statistics.

Self-regulation was measured using a four-part in-home assessment that looked at a child's adaptability, persistence, attention and frustration tolerance. Each child received from one point to five points on each measure, for a possible score of 20—a very high level of self-regulation.

"Observers were looking at things like how readily a child gave up a block when an adult said it was time to play with something else, how difficult it was to hold their attention and how easily frustrated they became when things weren't going their way," Anderson said.

"Going in, we thought what many people think—that we would see lower rates of obesity as self-regulation increased."

But when they looked at their data, in which they separated children into quartiles ranging from "least regulated" to "most regulated," the researchers found that girls in the least and most self-regulated groups were more likely to be obese at kindergarten age than their female peers in the middle categories.

There was little difference in boys' risk of obesity except for among the most-regulated, who were least likely to be obese. Obesity was determined by measuring height and weight and defined as a body mass

index greater than or equal to the 95th percentile.

"We should not assume that interventions to increase self-regulation will necessarily lead to benefits for both genders—it may be different for boys and girls," Anderson said

The researchers said there are many ongoing efforts to promote self-regulation in children for a variety of desired outcomes, including [obesity prevention](#) and improved school readiness.

In neither gender did the researchers see a clear step-wise pattern where increased self-regulation meant decreased rates of obesity.

Researchers believe that a variety of factors may contribute to links between self-regulation and obesity, including physiological differences and behavioral responses to demands in a child's environment that could affect appetite, food intake, sleep and activity level.

"Obesity prevention is a complex and humbling task. Gender is another social influence that may affect the success of obesity prevention efforts," said Anderson's co-author, Robert Whitaker of Temple University.

This study adds to other obesity research that has found important differences between genders, Anderson said.

"All we can do based on this research is speculate, but it's possible that girls and boys are reacting differently to social expectations and that could play a role in childhood obesity," Anderson said.

"If you're a boy and if the people around you are more OK with you getting easily frustrated and not paying attention, the social stress from your environment may be less than it is for a girl."

It's also possible that girls are rewarded more than boys for "good" behavior, propelling them to put themselves under added stress in the interest of appeasing adults, the researchers wrote.

"These stresses might result in differences in energy balance and metabolism between girls and boys, especially in the group observed to have high self-regulation."

More information: Vincent Rigalleau et al, Early Weight Gain in Pregnancy and Infant Birth Weight, *JAMA Pediatrics* (2018). [DOI: 10.1001/jamapediatrics.2018.0413](https://doi.org/10.1001/jamapediatrics.2018.0413)

Provided by The Ohio State University

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