

Physical activity affects boys and girls differently

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Being physically active has major health benefits. But physical activity affects boys and girls differently. New research has examined the relationship between body fat and physical activity in children.

"We looked at the connection between objectively measured [physical](#)

[activity](#) and the proportion of [body fat](#) in [girls](#) and [boys](#)," says Silje Steinsbekk, a professor at NTNU's Department of Psychology.

The researchers measured participants' body composition rather than their weight and height. They posed such questions as: Does increased physical activity lead to a lower percentage of body fat over time? Or is it perhaps the other way around, that people who gain more body fat over time become less physically active?

Body fat and physical activity in girls are unrelated

The researchers examined the children every two years from the age of 6 until they were 14 years old. They found that the level of activity affects the sexes differently.

"In girls, we found no connection between their physical activity and amount of body fat. Increased physical activity didn't lead to less body fat in the girls, and body fat had no effect on changes in their physical activity," says Tonje Zahl-Thanem, a former research fellow and first author.

But for boys, it's different. The amount of body fat influences their physical activity.

More body fat in boys results in less physical activity

"Increased body fat in boys led to less physical activity two years later, when they were 8, 10 and 12 years old," says Zahl-Thanem.

With one exception, increased physical activity had no effect on changes in body fat.

"We found that boys who are more physically active when they're 12 years old have a lower proportion of body fat when they're 14. This wasn't the case at an earlier [developmental stage](#)," Steinsbekk says.

Several possible reasons for differences between the sexes

The study did not investigate the reasons for these differences, but the researchers point out that [large bodies](#) are heavier and require more exertion when exercising, which may explain why boys whose body fat increases become less active over time. But why isn't this the case for girls?

"Here we can only speculate, but boys are generally more physically active than girls, so when boys reduce their activity level, the physical impact is greater," Steinsbekk says.

We also know that children with large bodies are less satisfied with their bodies, and body dissatisfaction is associated with less physical activity in boys, but not in girls.

"Boys' physical activity is probably even more competitively oriented than girls," and more body fat makes it more difficult to succeed. Both of these conditions can help explain why increased body fat leads to less physical activity in boys, but not girls," says Lars Wichstrøm, a professor in NTNU's Department of Psychology and also co-author of the study.

It could also be that girls are more likely to maintain physical activity when their proportion of body fat increases, because more attention is paid to girls' bodies and appearance.

Body fat affects sedentary activity in boys

The researchers also examined the link between inactivity or a [sedentary lifestyle](#) and body fat. In the same way that they objectively measured physical activity, they also measured how long the participants were sedentary during the day.

"The results show that boys who had an increase in the proportion of body fat had a corresponding increase in sedentary activity two years later. This carried through all the [age groups](#) studied, from the age of 6 through age 14.

In other words, boys whose proportion of body fat increases become more sedentary.

For the girls, however, there was no link here either. The percentage of body fat did not affect their level of inactivity over time, and they did not become less active by gaining more body fat.

"In sum, we found a link between physical activity, sedentary lifestyle and fat percentage in boys, but not in girls," Steinsbekk says.

Trondheim Early Secure Study

The researchers used figures from the Trondheim Early Secure Study (TESS). They followed almost 1000 children at two-year intervals from when they were 4 years old. The participants are now 18 years old, and the eighth survey is underway.

The research group used data from five different times in their study, when the participants were 6, 8, 10, 12 and 14 years old. The Trondheim Early Secure Study has provided data for a number of studies on children's development and health.

More information: Tonje Zahl-Thaniem et al, Relations between physical activity, sedentary time, and body fat from childhood to adolescence: Do they differ by sex?, *International Journal of Obesity* (2022). [DOI: 10.1038/s41366-022-01156-6](https://doi.org/10.1038/s41366-022-01156-6)

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