

Childhood obesity may contribute to later onset of puberty for boys

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Increasing rates of obese and overweight children in the United States may be contributing to a later onset of puberty in boys, say researchers at the University of Michigan Health System.

In a new study published in the February issue of the [Archives of Pediatrics and Adolescent Medicine](#), researchers show that a higher [body mass index](#) during early and mid-childhood for boys is associated with later onset of puberty. This is one of the first longitudinal studies in the U.S. to examine the association between weight status and timing of puberty in boys.

"We found that increased body fatness is associated with a later onset of puberty in boys, the opposite of what we have seen in girls, as heavier girls tend to develop earlier, rather than later. Our study shows that the relationship between body fat and timing of puberty is not the same in boys as it is in girls," says U-M pediatric endocrinologist Joyce M. Lee, M.D., M.P.H., the study's lead author.

With [childhood obesity](#) rates more than doubling in the U.S. during the past two decades, it has become increasingly important to better understand the ways in which excess body fat can impact children's growth and development, she adds.

"Although there have been a number of longitudinal studies looking at the link between body fat and puberty in girls, few studies have been performed in boys. The results of our study suggest that excess weight

may lead to a later onset of puberty in boys. Our findings have important implications for understanding sex differences in physiological mechanisms of puberty," says Lee, assistant professor in the Department of Pediatrics and Communicable Diseases.

To study the association between weight and the onset of puberty, Lee and her colleagues looked at 401 boys from diverse socioeconomic backgrounds in 10 regions of the U.S. using data from the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development. The study recruited full-term singleton children born in 1991 in 10 geographic areas and measured their height and weight from ages 2 to 12 years.

The study examined children's body mass index (BMI) trajectories, which is the way children's body fatness changes over the course of childhood. Children were divided into low, intermediate, and high [body mass index \(BMI\) trajectories](#). Children in the low group were on the thinner side throughout childhood, while children in the high group were on the heavier side. Of boys in the low BMI trajectory group (91 boys), 7 percent had later onset of puberty. Of boys in the intermediate BMI trajectory group (196 boys), 13.3 percent had later onset of puberty. Of boys in the high BMI trajectory group (114 boys), 14 percent had later onset of puberty.

Puberty was measured by Tanner genitalia staging. There are five stages of puberty in the Tanner scale, which looks at testicular and penis growth. Boys who were in Stage 1, defined as a lack of genital development by 11 ½ years of age, were defined as having later onset of [puberty](#).

"Given the recent childhood obesity epidemic, additional studies are needed to further investigate the epidemiological link between fat and pubertal initiation and progression in [boys](#) as well as physiological

mechanisms responsible," Lee says.

More information: ArchPediatrAdolescMed. 2010;164(2):1-6

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