

Height gap with parents, not genetics, determines onset of puberty

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Ben-Gurion University of the Negev (BGU) researchers have found that the age puberty hits is based on the gap between the parents' and child's ultimate height, not genetics.

In the study, published in the *PLOS ONE* journal, Dr. Yehuda Limony

and Dr. Michael Friger of the BGU Faculty of Health Sciences, together with Slawomir Koziel at the Polish Academy of Sciences in Warsaw, discuss the significance of this "[height gap](#)" and their new prediction model for determining [onset of puberty](#).

"We found that the age a child reaches [puberty](#) is based on how the body responds to the child's individual growth needs," Dr. Limony says.

"When a 'tall' child seems to be exceeding a parent's height, he may begin puberty earlier than his fellow peers to slow his growth and ensure that his final adult height is in the 'target' range.

"The opposite is also true: 'short' children don't reach puberty until later than the societal average because their bodies are giving them extra time to grow in order to reach a parent's height."

The researchers said that while there is a wide variation for what is considered a "normal" age for puberty to begin, scientists have not been able to validate the prevalent assumption that genetics plays a major role in determining when an individual will begin puberty.

BGU's observational, [retrospective study](#) focused on groups of Israeli and Polish children. The Israeli group of 110 boys and 60 girls had been referred to an endocrinology clinic in southern Israel from 2004 to 2015 because of a "normal" but below average or [short stature](#), or early or late puberty. The Polish group of 162 girls and 173 boys attended Warsaw elementary schools. Researchers followed the boys from ages 8 to 18, and the girls until age 17.

"A child who hits puberty earlier than his peers, but at a time consistent with a parental height gap model, should be considered 'healthy'," Dr. Limony says. "We believe having the ability to determine normal ranges more accurately will reduce the need for unnecessary diagnostic procedures and help doctors better explain the emergence of early- or

late-onset puberty to concerned parents."

More information: Yehuda Limony et al, Association between the onset age of puberty and parental height, *PLOS ONE* (2019). [DOI: 10.1371/journal.pone.0211334](https://doi.org/10.1371/journal.pone.0211334)

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