

Study suggests earlier puberty onset may affect adult cardiometabolic health

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The implications of this work are that pubertal development and its timing should be considered, and potentially targeted, in efforts to improve cardiometabolic health. Credit: Mohamed_hassan, Pixabay, CC0 (creativecommons.org/publicdomain/zero/1.0/)

Experiencing puberty earlier, compared to same-age peers, may be one

of the mechanisms through which childhood risk factors influence adult cardiometabolic health issues, according to a study published March 27, 2024 in the open-access journal *PLOS ONE* by Maria Bleil from the University of Washington and colleagues.

Adverse experiences in childhood are frequently linked to [poor health](#) in adulthood. Most of the conceptual models describing adversity-related changes that may be adaptive to stress in the short-term but are risky to long-term health don't specifically include [puberty](#), which links childhood and adulthood and is itself also sensitive to the child's environment.

Earlier onset of puberty is often linked to factors like race (with Black and Latina girls developing earlier than white girls), mother's age at her first period, infant weight gain and [childhood obesity](#), and [adverse experiences](#) like childhood socioeconomic disadvantage, stressful parent-child relationships, and other stressful life events.

Bleil and colleagues modeled pubertal timing and [health risks](#) in a cohort of women who had participated in the 30-year NICHD Study of Early Child Care and Youth Development prospective study of children and their families. Participants were followed from birth to adolescence (1991–2009) to examine trajectories of child health and development, with an additional in-person study follow-up (2018–2022) among participants ages 26 to 31 to capture social, behavioral, and health status information in adulthood. The authors fit models to data from the full sample of 655 women.

The authors found that later pubertal onset (later breast development, pubic hair onset, and first period) predicted lower adulthood cardiometabolic risk. These puberty indicators were also found to mediate the effects of factors like mother's age at her first period, race, BMI percentile, and childhood [socioeconomic status](#) on adult

cardiometabolic risk.

It's important to note that this study maps predictive relationships between childhood risk factors, timing of puberty, and adulthood cardiometabolic risks, but cannot prove causation. That said, the pattern of results provides strong longitudinal evidence for the role of puberty onset as a pathway linking early life exposures and adulthood cardiometabolic health—and suggests targeting puberty onset may improve health more broadly in at-risk girls. The authors hope future studies will both replicate their findings and better characterize the nature of the links identified here.

The authors add, "This study suggests the timing of pubertal development in girls is an important pathway through which early life risk factors, such as prepubertal body mass index and socioeconomic position, influence cardiometabolic health in adulthood. The implications of this work are that pubertal development and its timing should be considered, and potentially targeted, in efforts to improve cardiometabolic health."

More information: Pubertal timing: A life course pathway linking early life risk to adulthood cardiometabolic health, *PLoS ONE* (2024). [DOI: 10.1371/journal.pone.0299433](https://doi.org/10.1371/journal.pone.0299433)

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