Large-scale German study discovers earlier puberty onset in both girls and boys with diabetes

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Puberty in both girls and boys with type 1 diabetes has shifted forward over the last two decades, according to research presented at the 61st

Annual European Society for Pediatric Endocrinology Meeting in The Hague. Additionally longer duration of diabetes, bigger waistlines, and lower blood sugar levels were associated with even earlier puberty onset.

The findings of this large-scale study highlight a close relationship between type 1 diabetes and puberty onset and the utmost importance of managing diabetes and weight appropriately during puberty.

Type 1 diabetes is the most common form of diabetes in children. Puberty brings about hormonal changes that can impact metabolic control in diabetes, for instance the body can become more resistant to insulin, increasing blood sugar levels. In recent years, many studies have reported earlier puberty onset across the world, particularly in healthy girls. However, diabetes is known to be associated with a delay of pubertal onset in children.

In this study, researchers from Germany analyzed data on the onset of puberty and pubic hair development of 65,518 children aged six to 18 years, all diagnosed with type 1 diabetes between 2000 and 2021, from the German DPV registry. They found that over two decades both girls and boys are going through puberty at about six months earlier than before. This result was more evident in children who had diabetes longer, were overweight, or had lower blood sugar levels.

"While the findings for girls align with previous research, our study is groundbreaking in revealing a similar trend in boys with type 1 diabetes for the first time," said lead researcher Dr. Felix Reschke from the Children's Hospital Auf Der Bult in Hanover. "As a result, we now anticipate that the average onset of puberty in boys with diabetes will occur just before the age of 12 (11.98 years)."

He adds, "Our study demonstrates that children with diabetes are also experiencing this trend towards an earlier puberty, which is already

known in healthy girls, but not evident in boys yet. It's also important to note that previous research indicated that type 1 diabetes may lead to delayed pubertal onset, thus our study provides new insights into the complex relationship between type 1 diabetes and puberty onset."

Many factors that alter puberty in children, such as body weight, disease and genetics, have been associated with early puberty. However, early puberty often does not have an obvious cause.

"Our research not only sheds light on the evolving landscape of puberty timing in children with type 1 diabetes but also underscores the intricate interplay between metabolic factors, hormones, and environmental influences," said Dr. Reschke. "Further investigations are warranted to explore these dynamics comprehensively and inform targeted interventions for this vulnerable population."

The researchers will now compare this trend of an early onset of puberty with children without chronic diseases and delve deeper into understanding the underlying causes. "It is crucial for both society and pediatricians to recognize this trend, and if necessary, we may need to reevaluate and adjust our clinical approaches to examining premature puberty accordingly," said Dr. Reschke.

More information: The study "Earlier Occurrence of Puberty and Pubertal Hair Development in Boys and Girls—Insights from the DPV Initiative Data" will be presented on Friday 22 September 2023 at the 61st Annual Meeting of the European Society for Paediatric Endocrinology (ESPE 2023) at the World Forum in The Hague, Netherlands: https://abstracts.eurospe.org/hrp/0097/hrp0097rfc6.4

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