

Danish study finds only children enter puberty significantly earlier than children with siblings

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A new Danish study shows that children without siblings or with half- or step-siblings enter puberty significantly earlier than children with

biological siblings. The study provides new insights into how family dynamics affect children's development.

The findings are [published](#) in the journal *Annals of Epidemiology*.

Can sibling relationships influence when children enter puberty?

According to a new study from Aarhus University that sheds light on this surprising connection, the answer is a clear "yes."

The study reveals that children without siblings or with half- or step-siblings enter [puberty](#) earlier than children with biological siblings.

"We found that only children enter puberty significantly earlier—up to 4–5 months earlier—than children with full siblings," says Anne Gaml-Sørensen, a postdoc at the Department of Public Health, Aarhus University.

For children with half-siblings or step-siblings, the study found that they also entered puberty earlier, though not as significantly as only children. Girls with half-siblings or step-siblings entered puberty over two months earlier, and boys with these sibling relationships entered puberty between 1.2 and 1.4 months earlier than children with full siblings.

Multiple possible explanations

This surprising result, according to Gaml-Sørensen, provides new insight into how [family dynamics](#) and relationships affect children's development. Previous studies have shown that the absence of a father can lead to earlier puberty. Although it is difficult to document, one explanation could be increased stress.

The researchers behind the current study also offer several explanations for the connection between [sibling relationships](#) and children's pubertal development.

"According to one theory, the [genetic relatedness](#) between siblings could play a role in children's development. If you have full siblings, it may be evolutionarily advantageous to invest in their health and well-being so they can pass on your shared genes. But if you have half-siblings or step-siblings, the genetic relatedness is weaker, and therefore it may be more urgent to secure your own reproduction by entering puberty earlier," explains Professor Cecilia Ramlau-Hansen, a co-author of the study.

Another explanation could be related to the presence or absence of parents, as previous research has also shown.

However, the researchers found no clear connection here.

"We examined whether divorce or the absence of a parent could explain the connection, but our results showed the same trend even when we accounted for other factors such as childhood BMI and psychosocial stress. None of these factors could fully explain the results," says Ramlau-Hansen.

Tracking over 10,000 children

The study is based on data from more than 10,000 children. The children were followed from the age of 11 through puberty, with semi-annual reports on their pubertal development.

Although some may find the results concerning, Gaml-Sørensen emphasizes the importance of seeing them in a broader context.

"As parents, it is always good to focus on children's well-being and

development, but our study is about trends at the population level and not individual cases. Therefore, no specific advice can be drawn from the study regarding how to structure one's family," she says.

The researchers behind the study hope that further research can help answer more questions about how different family structures can influence children's [development](#).

"It would be exciting to study children from even more family structures, such as children of single parents by choice or children from families with two mothers. However, it requires a large dataset to draw strong conclusions," explains Gaml-Sørensen.

More information: Katrine Andersen et al, Sibling relatedness and pubertal development in girls and boys: A population-based cohort study, *Annals of Epidemiology* (2024). [DOI: 10.1016/j.annepidem.2024.08.004](https://doi.org/10.1016/j.annepidem.2024.08.004)

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