

Parental type 1 diabetes can affect children's cognitive development

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Cognitive development in children could be affected regardless of which biological parent has type 1 diabetes, according to research publishing April 19th in the open access journal *PLOS Medicine*. The research

shows for the first time that having a parent with a chronic disease like type 1 diabetes may be associated with lower school performance rather than maternal high blood sugar during fetal development.

The influence of maternal [diabetes](#) during pregnancy on the cognition of their [children](#) has been widely researched. Glucose crosses the placenta and maternal high blood sugar, hyperglycemia, can affect [fetal development](#) including the baby's brain. There is little evidence on different diabetes subtypes and the effect of having a father with type 1 diabetes.

Anne Lærke Spangmose and colleagues from Copenhagen University Hospital, Denmark obtained data from Danish registers and also on [test scores](#) in math for grades three and six, and reading for grades two, four, six and eight. The team included 622,073 children between 6-18 years old attending public schools over a seven-year period. There were 2,144 children with mothers with type 1 diabetes, 3,474 children with fathers with type 1 diabetes, and 616,455 children from the background population. Children of mothers and fathers with type 1 diabetes had mean scores of 54.2 and 54.4 respectively, compared with mean scores of 56.4 in children from the background population.

The team acknowledge that having a parent suffering from a serious chronic disease like diabetes could cause stress and be detrimental to a child's school performance. However this study suggests a different explanation for previously observed adverse effects of maternal type 1 diabetes during pregnancy on children's [cognitive development](#).

Spangmose adds, "Lower test scores in the offspring of mothers with type 1 diabetes appear to reflect a negative association of having a parent with type 1 diabetes rather than a specific adverse effect of maternal type 1 diabetes during pregnancy on the fetus. Our recent large Danish cohort study, including 622,073 children, has shown this."

More information: School performance in Danish children exposed to maternal type 1 diabetes in utero: A nationwide retrospective cohort study, *PLoS Medicine* (2022). [DOI: 10.1371/journal.pmed.1003977](https://doi.org/10.1371/journal.pmed.1003977)

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