**Preterm Birth Linked to Diabetes Later in life**

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A national cohort study of approximately four million individuals followed from birth into adulthood found that those born preterm (gestational age less than 37 weeks) had a 21% increase in risk for developing type 1 diabetes (HR 1.21, 95% CI 1.14-1.28) and a 26% increased risk for developing type 2 diabetes (HR 1.26, 95% CI 1.01-1.58) before the age of 18.

As shown in the study online in [*Diabetologia*](https://doi.org/10.1007/s00125-019-05044-z), the risk was even higher once these preterm individuals reached adulthood -- i.e., a 24% increased risk for type 1 diabetes (HR 1.24, 95% CI 1.13-1.37) and a 49% increase for type 2 diabetes (1.49, 95% CI 1.31-1.68). An analysis by sex found that type 2 diabetes risk was significantly higher for females (HR 1.75, 95% CI 1.47-2.09) than males (HR 1.28, 95% CI 1.08-1.53) (*P*<0.01). There was no significant sex difference for type 1 diabetes.

**Higher Risk in Women was Unexpected Finding**

"To our knowledge, no prior studies have examined gestational age at birth in relation to both type 1 and type 2 diabetes and potential sex-specific differences from childhood into adulthood. The present study addressed these gaps using nationwide diagnoses in the largest cohort to date, while controlling for multiple potential confounders," Crump's group wrote.

Type 2 diabetes has a higher overall prevalence among men, so the higher risk in women was an unexpected finding, the researchers said. "To our knowledge, this sex-specific difference has not been previously reported and thus warrants confirmation in other well-powered studies."

Crump's team also conducted a co-sibling analysis that found the associations were partly explained by shared genetic or environmental factors in families. "However, the association between preterm birth and type 2 diabetes in adulthood specifically appeared independent of shared familial factors," the researchers said.

The study's findings may have multiple underlying mechanisms, the team noted. Preterm birth has been shown to interrupt the development of pancreatic beta cells, which are formed predominantly during the third trimester. In addition, preterm birth also alters immune functioning including T cell response.

Crump's team conducted a national cohort study that included all 4,139,069 singleton births occurring in Sweden from 1973 to 2014. Using national medical records and pharmacy data, the researchers followed these individuals for type 1 and type 2 diabetes to the end of 2015. The oldest patients at this time were 43. The median age at the end of follow-up was 22.5 years. The researchers used Cox regression analysis to adjust for potential confounders, including age, sex, and maternal body-mass index, gestational diabetes, and smoking.

One potential limitation of the study may have been detection bias, Crump's group said. It is possible that people born prematurely were more likely to be diagnosed with diabetes because of greater contact with the healthcare system. However, detection bias is most likely to affect relatively asymptomatic conditions early in life. Detection bias is less likely for diabetes because it is highly symptomatic, especially in adulthood when most type 2 diabetes is diagnosed. In addition, despite up to 43 years of follow-up for some of the participants, the cohort was still relatively young, the researchers noted.

Source Reference: [Crump C, et al "Preterm birth and risk of type 1 and type 2 diabetes: a national cohort study" Diabetol 2019; DOI: 10.1007/s00125-019-05044-z.](https://doi.org/10.1007/s00125-019-05044-z)