

# Cannabis use during pregnancy may affect brain development in offspring

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Pregnancy test. Credit: public domain

Compared with unexposed children, those who were prenatally exposed to cannabis had a thicker prefrontal cortex, a region of the brain involved in complex cognition, decision-making, and working memory.

Author of the study Dr. Hanan El Marroun, of Erasmus University Medical Center in The Netherlands, said: "this study is important because cannabis use during [pregnancy](#) is relatively common and we know very little about the potential consequences of cannabis exposure during pregnancy and [brain development](#) later in life."

An estimated 2-13% of women worldwide use cannabis during pregnancy. Previous studies have identified short and long-term behavioral consequences of prenatal cannabis exposure, but effects on brain morphology were unknown.

"Understanding what happens in the brain may give us insights in how children develop after being exposed to cannabis," said El Marroun.

In the recently published study, the researchers used structural magnetic resonance imaging to examine the brains of 54 children, 6 to 8 years old, who were prenatally exposed to cannabis. Most of the children exposed to cannabis were also exposed to tobacco, so the researchers compared them to 96 children prenatally exposed to tobacco only, as well as to 113 control children with no exposure. The children were part of a prospective population-based study in The Netherlands.

Comparing tobacco-exposed children with children exposed to both tobacco and cannabis revealed differences in the cortical thickness, suggesting that cannabis exposure has different effects than tobacco. No differences were found in overall brain volume in the cannabis-exposed children.

"The growing legalization, decriminalization, and medical prescription of cannabis increases the potential risk of prenatal exposure," said Dr. John Krystal, Editor of Biological Psychiatry. "This important study suggests that prenatal exposure to cannabis could have important effects on brain development."

"We have to be careful interpreting the results of the current study," said El Marroun, noting that further research is necessary to explore the causal nature of the relationship between prenatal cannabis exposure and structural brain abnormalities.

"Nevertheless, the current study combined with existing literature does support the importance of preventing smoking [cannabis](#) and cigarettes during pregnancy," she said.

**More information:** Hanan El Marroun et al. Prenatal Cannabis and Tobacco Exposure in Relation to Brain Morphology: A Prospective Neuroimaging Study in Young Children, *Biological Psychiatry* (2016). [DOI: 10.1016/j.biopsych.2015.08.024](https://doi.org/10.1016/j.biopsych.2015.08.024)

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