



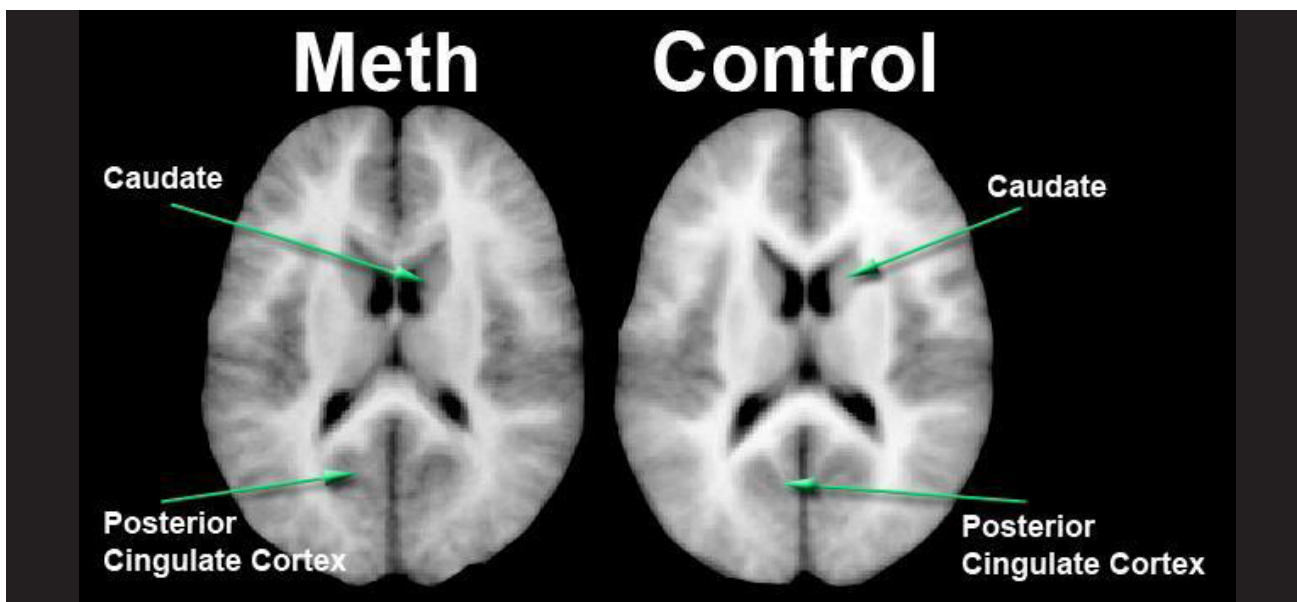
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Researchers ID brain abnormalities in children exposed to methamphetamine in utero

Prenatal methamphetamine exposure is toxic to the developing fetus and can result in lifelong brain, cognitive and behavioral problems. In this study, UCLA researchers used structural magnetic resonance imaging to show that the sizes and shapes of certain brain structures varied depending on prenatal drug exposure. The authors found that some brain regions in meth-exposed children were

similar to those in alcohol-exposed children and that in some areas they were even smaller. Other brain regions were larger than normal. For example, an abnormal volume increase was noted in the cingulate cortex, which is associated with control and conflict resolution. "The tragedy here is that all these developmental problems are 100 percent avoidable," UCLA professor of neurology Elizabeth Sowell said.¹



Meth Exposure

In the methamphetamine-exposed brain on the left, the caudate is smaller and the cortex is larger than in the healthy brain on the right.

Children exposed to methamphetamine or amphetamine in utero show decreased arousal, increased stress, decreased school achievements, movement disturbances and low birth weight, which is highly correlated with special needs programs at school age. Neurocognitive testing showed that these children score lower on sustained attention, long-

term spatial and verbal memory, and visual motor integration.²

From a biological point of view, in utero substance exposure affects brain architecture, in terms of under-development of prefrontal structure and functional abnormalities, ultimately causing cognitive, affective, and behavioral impairments.³

1. <http://newsroom.ucla.edu/releases/ucla-researchers-identify-brain-155276>
2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2777887/>
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2777887/>