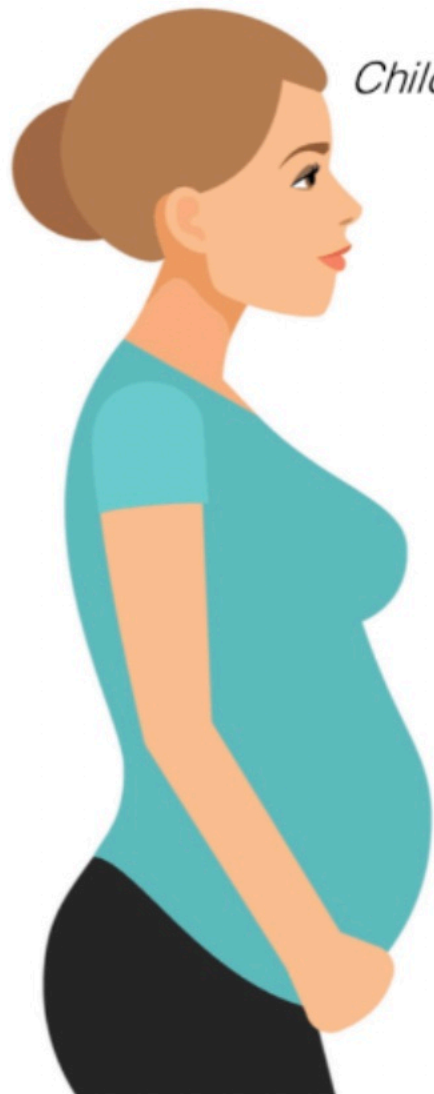


Marijuana Effects Fetal Brain Development

Children have poor memory, hyperactivity, poor attention & impaired abstract thinking.



NEONATE



- ↓ Birth Weight
- ↓ Dopamine D2 Receptor Levels in Brain

EARLY DEVELOPMENT



- ↓ Short-Term Memory
- ↓ Verbal Reasoning
- ↑ Aggression (Females)
- ↑ Anxiety & Depression
- ↑ Hyperactivity
- ↑ Impulsivity & Inattention

ADOLESCENCE



- ↓ Abstract Reasoning
- ↑ Antisocial Behavior
- ↑ Depression
- ↑ Delinquency

ADULT



- ↓ Visuo-Spatial Memory
- ↑ Drug-Seeking



The Permanent Effects of Marijuana

REFERENCES

- J. Mulder et al. "Endocannabinoid signaling controls pyramidal cell specification and long-range axon patterning." *PNAS*, 105:8760-65, 2008.
- C.-S Wu et al., "Requirement of cannabinoid CB(1) receptors in cortical pyramidal neurons for appropriate development of corticothalamic and thalamocortical projections," *Eur J Neurosci*, 32:693-706, 2010.
- G. Tortoriello et al., "Miswiring the brain: f19-tetrahydrocannabinol disrupts cortical development by inducing an SCG10/stathmin-2 degradation pathway," *EMBO J*, 33:668-85, 2014.
- A. Bara et al., "Sex-dependent effects of in utero cannabinoid exposure on cortical function," *eLife*, 7:e36234, 2018.
- A.M. Smith, et al., "Effects of prenatal marijuana on response inhibition: An fMRI study of young adults," *Neurotoxicol Teratol*, 26:533-42, 2004.
- X. Wang et al., "In utero marijuana exposure associated with abnormal amygdala dopamine D2 gene expression in the human fetus," *Biol Psychiatry*, 56:909-15, 2004.
- A.F. Scheyer et al., "Maternal cannabinoid exposure during lactation alters the development trajectory of prefrontal cortex GABA-currents in offspring," *bioRxiv*, doi.org/10.1101/336735, 2018.
- T.L. Crume et al., "Cannabis use during the perinatal period in a state where legalized recreational and medical marijuana: The association between maternal characteristics, breastfeeding patterns, and neonatal outcomes," *J Pediatr*, 197:90-96, 2018.