

Marijuana's Impact on Pregnant Women and Their Children

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The science is incomplete, but the public health message is clear: To have the healthiest baby possible, avoid using marijuana, alcohol, and tobacco during your pregnancy.

The fact that marijuana use is now legal in Washington State does not mean it's a safe drug. In fact, as more states consider legalization and more research is being done, more questions about marijuana safety arise.

The health risks of marijuana use are not the same for all people. A group of special concern is pregnant and parenting women because of the potential short-term and long-term effects of marijuana use during pregnancy on the baby, and the potential effects in the home environment of a mother's continued marijuana use.

Assessing the Risks is Complicated

Assessing the risks of prenatal marijuana use is not straightforward because it is so difficult to isolate the effects of the marijuana from the effects of alcohol, tobacco, drugs, and other risk factors in the mother's environment. For example, most pregnant women who use marijuana also use tobacco, alcohol, or other drugs that have harmful (and often long-term) effects on the developing child^{1,2}. Pregnant women who smoke tobacco, drink alcohol, and use other drugs are two to three times more likely to also use marijuana². In addition, human and animal research studies indicate that lifestyle factors (e.g., nutrition, health status, exposure to violence, social support networks) also play a critical role in determining the effects of marijuana³.

Assessing risks of marijuana use during pregnancy is also complicated because most studies rely on the mothers' self-report, which may be an underestimate of actual use, and which doesn't take into account the strength of the marijuana used. Marijuana is stronger now than it was in the past. THC is the main chemical compound in marijuana, and THC levels are up to 7 times higher than they were in the 1970s and 1980s^{4,5}. This means that infants and children assessed in the earlier research studies were exposed to lower "doses" of THC. Therefore, those early study findings about the potential harmful effects of marijuana may not accurately reflect the risks of marijuana use in today's world.

How Common is Marijuana Use During Pregnancy?

After tobacco and alcohol, marijuana is the most commonly used drug during pregnancy⁶. A national survey of nearly 90,000 women found that about one in ten (10.9%) pregnant women used marijuana in the past year, with 3.9% using it in the past month. Among pregnant women who used marijuana in the past year, 16.2% used almost daily.

Does Marijuana Cross the Placenta?

The placenta provides nutrients and oxygen to the fetus through the mother's bloodstream, and THC crosses the placenta rapidly⁷. THC concentrations found in the fetus are about one-third of the levels found in the mother^{3,8}. Marijuana can stay in the mother's body and be detected in her urine for weeks⁷, depending on potency, frequency of use, the mother's metabolism, and other factors.

What are the Possible Effects of Marijuana Use during Pregnancy on the Infant?

Stillbirth. Pregnant women who smoke marijuana have over two times the risk for stillbirth compared to women who do not smoke marijuana during pregnancy⁹. Tobacco smoking and exposure to second-hand smoke during pregnancy also increase risk for stillbirth.

Growth. Effects have been reported for decreased birth weight and small gestational age; findings vary depending on study design and whether other prenatal drug use is taken into account¹⁰⁻¹⁴.

Sudden Infant Death Syndrome (SIDS). Marijuana use by the mother during pregnancy has not been associated with SIDS¹⁵. Studies report conflicting results due to the difficulty in documenting maternal and paternal substance use and other factors.

Neurobehavior. Most studies report some subtle effects on the brain functioning of newborns exposed prenatally to marijuana. Effects may include a poor ability for the infant to regulate itself, and poor habituation (the ability for a baby to quickly decrease its sensitivity to noise, light, etc., and thus avoid overstimulation). Other effects include higher levels of irritability, excitability, and increased startle response and tremors^{11,16-18}.

Meta-analysis. A recent summary of 24 studies on the effects of marijuana use during pregnancy reported some increase in maternal anemia, decrease in infant birth weight, and an increase in placement of newborns in the neonatal intensive care unit compared to babies whose mothers did not use marijuana during pregnancy. In terms of study design, most of these studies relied on self-report of marijuana use during pregnancy, and no information was available on potency, dose, timing, or frequency of use. While none of the studies included women who used other illicit drugs, most included women who used alcohol and/or tobacco during pregnancy. Thus it is not clear to what extent outcomes were related to marijuana use alone, or a combination of marijuana, alcohol, and tobacco¹⁹.

What are the Possible Long-term Effects on Children as They Grow Up?

Behavior, cognition, and academic achievement. Research indicates that prenatal marijuana exposure is associated at 10 years of age with inattention and impulsivity²⁰ and with subtle learning and memory deficits²¹. Prenatal marijuana exposure does not appear to affect overall IQ, but it has been associated with underachievement in reading and spelling at age 10 years²².

Executive function. Executive function is a higher order neurological process that includes the ability to organize stored information and integrate it with new incoming information, plan, weigh options, anticipate consequences, follow step-by-step directions, solve problems, and be cognitively flexible. Regions of the prefrontal area of the brain are responsible for executive functioning, and development of these regions continues after pregnancy and into late adolescence, so some aspects of executive functioning may be affected by prenatal marijuana exposure while others are not³. Longitudinal studies show that prenatal marijuana exposure is associated with deficits in some important aspects of executive functioning in adolescents, for example problem-solving skills requiring sustained attention and visual memory, analysis, and integration²³⁻²⁷.

Mother-child attachment and interaction. A baby learns to develop healthy, positive, emotional attachments with others by interacting with a mother who notices, understands, and responds to the baby's signals and ways of communicating. Successful mother-baby attachment requires back-and-forth, two-way interaction. However, if the infant's brain function has been affected by prenatal drug or alcohol exposure, the baby may not be able to read the mother's expressions and signals accurately, or be able to respond appropriately. He or she may have difficulty focusing and keeping attention, or may become overstimulated, irritated, and hard to console. At the same time,

when a busy new mother with competing demands uses marijuana to relax or relieve pain, the effects on the mother (for example, disorientation or drowsiness) may distract her even further. Depending on the mother, and her reaction to the marijuana and other substances she may be using, her ability to be mentally and emotionally available to her baby may be compromised. In other words, whether a baby's neurologic system is impaired by prenatal substance exposure, or the mother's attention and functioning are affected by ongoing substance use, the critical work of mother-baby attachment and emotional development may be influenced.

Child Protective Services. Can children be removed from custody if a parent uses marijuana? The Washington State Children's Administration (CA) includes marijuana in their definition of substances, and CA does not have separate policy on marijuana use. Child Protective Services (CPS) only accepts referrals on substance abuse after the child is born (not on prenatal substance abuse) and only if there is a report that the parent's substance use allegedly caused injury to the child or impacts the parent's ability to safely parent their child.

CA screens for marijuana in reports of abuse or neglect, and decisions are based on whether the parent is able to safely care for the child while using substances. Substance abuse reports are usually screened as neglect, not abuse. Child welfare workers or others with a mandate to report child neglect or abuse may want to review the *Guidelines for Testing and Reporting Drug-Exposed Newborns in Washington State*.³⁸

Marijuana DUI. Washington State law requires that if a person is arrested for driving under the influence of marijuana and the driver's child under the age of 16 is in the car, CPS will be notified. CPS will conduct an interview with the parent and do a home visit to assess the child's welfare and whether there is risk of harm to the child. Cases are handled differently depending on whether the parent has had previous CPS referrals.

Use of marijuana by children. In 2015 there were 272 calls into the Washington Poison Center for exposures to marijuana products, and nearly half of these (46%) were regarding children under age 19 (most calls involved youth age 13 to 19 years). The most common clinical effects noted in these cases were drowsiness, lethargy, and rapid heart rate, and most cases were managed and treated in the emergency room, or on site in the home²⁸. In WA State, accidental marijuana ingestion by a young child (e.g. by eating marijuana cookies) could be grounds for a report to CPS of neglect.

Research in Colorado found that after medical marijuana was legalized there was a significant increase in the number of young children admitted to emergency rooms due to unintentional marijuana ingestion, usually in the form of "edibles" such as candy, soft drinks, or baked goods. Most of the children showed central nervous system effects such as lethargy, drowsiness, or unsteadiness²⁹.

Breastfeeding. Breastfeeding is usually an ideal choice for infant feeding, but if the mother is using marijuana the risks to the infant outweigh the benefits. THC can accumulate in the mother's breast milk in high concentrations, and THC can be found in the urine of breastfeeding infants for up to three weeks. Babies exposed to marijuana through breastfeeding may show signs of sedation, reduced muscle tone, and poor sucking. Risks vary widely (for example, some studies have found decreased child motor development at one year of age), and effects on the baby depend on contaminants in the marijuana, as well as amount and potency of the marijuana being used³⁰. The American Academy of Pediatrics advises that women who use marijuana should not breastfeed³¹.

Marijuana Smoke. Smoking marijuana, whether in joints, pipes, bongs, vapes, or other devices that heat marijuana, can harm the lungs. The smoke from marijuana contains many of the same toxins and carcinogens as tobacco smoke³²⁻³⁵. In addition, marijuana smokers tend to inhale deeply and hold their breath, so they may be exposed to more tar per breath compared to cigarette smokers³⁶. Secondhand marijuana smoke contains many of the same toxins and carcinogens found in marijuana smoke that is directly inhaled, in similar amounts if not more³³. Although there is currently no data on the health effects of

breathing secondhand marijuana smoke, the American Lung Association cautions that it has the potential to cause harm, especially among vulnerable children who are exposed³⁷.

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