Cannabis Breast Milk – Cannabinoids in Conception & Breastfeeding

Cannabis Breast Milk?

Is there evidence to support the claim that scientists have discovered cannabinoids, similar to cannabis in breast milk? The answer is Yes – absolutely!

The human body contains cannabinoid receptors specifically designed to process cannabinoids.

Cannabis medications work so efficiently because of the endocannabinoid system (ECS), which is present in all humans and many animals.

This system consists of a series of receptors that are configured only to accept cannabinoids, especially tetrahydrocannabinol (THC) and cannabidiol (CBD).

- **Not enough research has been done on cannabinol (CBN) and cannabigerol (CBG) plus over 100 others, to know much about their mechanisms of effect.**
- **Cell membranes in the body are naturally equipped with these cannabinoid receptors. When activated by cannabinoids they help protect cells against viruses, harmful bacteria, cancers, and many other malignancies.**
- **The first discovered cannabinoid receptor was termed CB1. Subsequently, a second receptor was found and naturally enough this was called CB2.**
- **The CB1 receptor is concentrated in the central nervous system, but is found in other tissues as well, including liver, gut, uterus, prostate, adrenals, and the cardiovascular system.**
- **CB2 tends to be localized in the immune cells.**

Of the cannabinoids derived from the cannabis plant, THC, which is the most potent psychoactive, binds to both CB1 and CB2 receptors.

Cannabidiol (CBD) binds to none of theses receptors and has no psychoactive effect. It is still not fully understood how CBD is utilized and it is thought to react with an as yet undiscovered CB receptor, or perhaps even by a completely different mechanism entirely.

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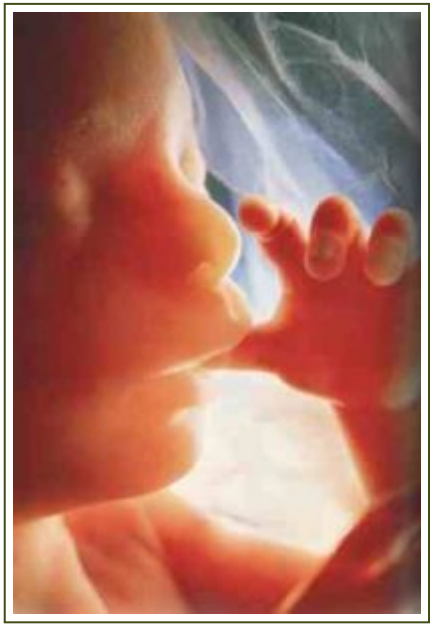
> "Interestingly, endocannabinoids are present in breast milk, 2-AG levels being much higher than those of anandamide." *(Cannabis and endocannabinoid modulators: Therapeutic promises and challenges – Igor Grant, Rael Cahn).*

Cannabinods and their role in conception and pregnancy



Cannabinoids play a fundamental role in a healthy conception and successful pregnancy. A 2006 report from the Pediatrics Department at Vanderbilt University characterized endocannabinoids as "an emerging concept in female reproduction." Their research discovered: a cannabinoid sensor mechanism to influence crucial steps during early pregnancy.

After intercourse the newly fertilized embryo must attach itself to the lining of the uterus. Without becoming attached to the uterine wall, which forms the umbilical cord, there will be no pregnancy.

Multiple roles for the endocannabinoid system during the earliest stages of life: pre- and postnatal development.

For the embryo to become attached to the lining of the uterus, a particular amount of one specific endocannabinoid, called anandamide, is vital.

This cannabinoid uses the CB1 receptors that are on the blastocyst (fertilized egg) – the same type of receptors that the herbal cannabinoid THC uses.

The Vanderbilt research shows that if there is not enough anandamide (or too much), the embryo will not become attached to the uterine lining. It takes a specific amount

> Cannabinoids not only play a role in the

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of cannabinoids to activate a certain number of CB1 receptors in order for the fertilized egg to safely attach itself to the uterus.

Cannabinoids and the human uterus during pregnancy.

> first responses of the body to fertility, but they also play a role in other aspects of pregnancy as well.

Until the fertilized egg attaches itself to the lining of the uterus, there is no viable pregnancy; just a fertilized egg. The life of the egg and the beginning of a viable pregnancy, depends on a healthy endocannabinoid system (ECS).

This process is accomplished because there are CB1 receptors on the blastocyst – that is, on the fertilized egg itself – and the cannabinoid anandamide on the endometrium – the inner lining of the uterus.

A 2004 study published in the American Journal of Obstetrics and Gynecology concluded:

> "Both endogenous and exogenous cannabinoids exert a potent and direct relaxant effect on human pregnant myometrium, which is mediated through the CB1 receptor."

This basically means that the middle layer of the uterine wall, the "myometrium," is modulated by cannabinoids. These uterine CB1 receptors are activated by endocannabinoids (also by herbal cannabinoids).

In addition to conception, a 2004 report showed that endocannabinoids activate the oral motor musculature necessary for stimulating feeding (see below). The same 2004 study also stated:

> "Anandamide has neuroprotectant properties in the developing postnatal brain."

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Hardwiring the brain: endocannabinoids shape neuronal connectivity.

In 1995, there was lab research on mice that showed that the mammalian endocannabinoid system (ECS) is involved in signaling within the uterus. Throughout pregnancy and during nursing the endocannabinoid system (ECS) delivers relief and neuroprotection to mother, fetus, and baby.

Human cannabinoid receptors

If the body naturally has cannabinoid receptors it must then produce its own cannabinoids or there would have been no sound biological reason to develop them. Research indicates that the human body has in fact evolved to both produce and utilize its own cannabinoids, so it comes as no surprise that these endogenous compounds are transferred to the infant via cannabinoids in breast milk

According to the findings of several major scientific studies, human mothers naturally produce cannabinoids in breast milk and furthermore these cannabinoids are vital for proper infant development. They are classified as a specific type of neuromodulatory lipid.

> If the body naturally has cannabinoid receptors it stands to reason that it must then produce its own cannabinoids.

Research suggests that one of the main functions of these cannabinoids in breast milk is to help a newborn child to feed by stimulating the suckling process.

Scientific testing has shown that the CB1 receptor in particular is essential in the development of the feeding response in baby mice.

When the CB1 receptor is removed or blocked in laboratory conditions baby mice do not suckle milk from the mother and die.

Is a pretty harsh experiment for the baby mice, but this demonstrates the importance of the cannabinoids and their receptors in infant development and indicates that cannabinoids in breast milk play a critical role in infant survival by controlling milk ingestion.

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This has led to further research in the clinical application of cannabinoids in treating human infant mortality, particularly in the care of babies who are born prematurely.

The medical implications of these developments are far reaching and suggest a promising future for cannabinoids in paediatric medicine for conditions including 'non-organic failure-to-thrive' and cystic fibrosis.

Human breast milk has been traditionally considered sterile; however, recent studies have shown that along with the cannabinoids in breast milk, it also contains and supplies a completely natural cocktail of probiotic bacteria (commensal and mutualistic) to the infant gut.

Along with stimulating your babies feeding response these compounds also protect the infant against infections and contribute to the maturation of the immune system, among many other yet to be scientifically proven functions.

Observations of how babies act after being fed show that they exhibit symptoms of cannabinoid use. As well as the essential function of stimulating an infants appetite, cannabinoids also help to calm and relax the baby.

> Without cannabinoids in breast milk, infants would not be stimulated with a desire to feed.

Cannabinoids are not present in baby formula, which makes it seriously inferior to breast milk.

There are opposing views on cannabinoids in breast milk and in particular cannabis use during pregnancy. Thomas W. Hale PHD; who specializes in drug exposure during pregnancy and breastfeeding, states:

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"Studies in breastfeeding mothers have demonstrated that there is significant and documented risk to the infant based on human experience, or it is a medication that has a high risk of causing significant damage to an infant.

The risk of using the drug in breastfeeding women clearly outweighs any possible benefit from breastfeeding. The drug is contraindicated in women who are breastfeeding an infant."

However he doesn't cite any credible or conclusive trials and contradicts Grant & Cahn – *(Clin Neurosci Res. 2005; 5(2-4): 185–199. doi: 10.1016/j.cnr.2005.08.015),* the Pediatrics Department at Vanderbilt University and Dr. Melanie Dreher *(Rush Medical Centre Chicago).*

He also simply ignores several other peer reviewed studies including the Canadian OPPS extensive research program (see below). Of the studies Hale references one was conducted with 27 women. Another with even less, citing only **16 women,** which in our humble opinion is unscientific and quite frankly ridiculous.
Furthermore, neither of these studies found indicators of harm. Indeed, the first study Hale cites with the 27 women who used cannabis every day while breastfeeding found:

> Even the studies with actual data were out of date, out of context, or unsupportive of Hale's conclusions.

"No differences in either growth, mental or motor development."

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Women are constantly shamed and stigmatized for using cannabis during pregnancy or breastfeeding, no matter how responsibly or infrequently they use. There is still a common perception that it is extremely dangerous and irresponsible to ingest THC while breastfeeding, thanks to idiots like Hale.

Joelle Puccio is a perinatal nurse at a Seattle childbirth center. The hospital had no policy on substance exposure during breastfeeding, so she wrote one. At the committee's final review, despite her extensive research, she was ignored. She argued, but it was agreed that the best thing to do was follow the established expert. Puccio stated:

> "All the managers agreed that we had to go by Hale and not by my literature review, which is the exact right thing for them to do most of the time. It's just that in this instance, Hale is wrong."

Her policy was going to include a recommendation that cannabis use was not a contraindication for breastfeeding. Her own research on the subject yielded little evidence of risk – arguing that it has massive benefits for infants and mothers alike.

Cannabis use during pregnancy and breastfeeding

Dr. Melanie Dreher studied women using cannabis during their entire pregnancy, and then evaluated the babies one year after birth..

She focused on a group of Jamaican women who smoked cannabis during pregnancy and those who didn't. She states:

> "It seems to make no difference in terms of exposure during pregnancy. We looked at these children again at age five, both groups of children,

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and could find absolutely nothing that linked their development with their exposure during pregnancy."

She expected to see a difference in the babies as far as birth weight and neurological tests, but there was no difference whatsoever. The differences that the researchers did notice, that are as yet unexplained are that the babies of the women who had smoked cannabis daily during their pregnancy, socialized more quickly, made eye contact more quickly and were easier to engage.

The Ottawa Prenatal Prospective Study (OPPS)

PPS has produced several reports that have examined the link between prenatal exposure to cannabis and subsequent child development.

Neither in a 5-6-year-old group follow-up, nor in the 9-12-year-old group follow-up checks did they note any relationship between prenatal marijuana exposure and various school achievement measures.

In a study of a large cohort of Australian women presenting for public prenatal care at a large hospital between 2000 and 2006,

Hayatbakhsh and colleagues (2011) reported that use of cannabis during pregnancy significantly predicted negative birth outcomes.

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These included low birth weight, preterm birth, small size for gestational age and admission to the neonatal intensive care unit.

In contrast, the OPPS did not observe any differences in growth measures at birth between newborns born to cannabis using mothers and non-users (Fried & O'Connell, 1987).

Moreover, the results found only weak evidence suggesting that any maternal use of cannabis during pregnancy was associated with either a reduction in birth weight or low birth weight (English, Hulse, Milne, Holman & Bower, 1997).

High dose exposure to THC

Although some studies have failed to detect longer-term impacts on adult behavior, the majority tend to show that chronic high dose exposure of developing rats to THC can produce learning and performance deficits of a type that is similar to that found in animals with certain types of hippocampal injury.

The hippocampus is critical for the formation of certain types of memories. Hippocampal-lesioned animals fail to exhibit spatial awareness (don't understand their surroundings), contextual (not understanding the meaning or importance of things) and relational associations (not understanding how things are connected or related).

It is important to understand that these experiments are conducted on mice and rats. The proportion of the developing animals' time exposed to such large amounts of THC must be noted when considering relevance to the human situation.

Rodents must typically be dosed for 3–6 months (20% of their life). In human terms, considering a life expectancy of 70 years, this would translate into a child or adolescent being exposed daily at high doses for 7–14 years of their developing life, a highly unlikely scenario.

There is little doubt that cannabioids occur naturally in human breast milk and that they have a specific function. It remains to be seen what effect using cannabis during

> Despite cannabis compounds being

pregnancy can have on your baby, but the evidence does tend to support the hypothesis that moderate consumption is not harmful and according to Dreher's extensive research may actually be of benefit.

> benign they should not be used to excess.

It stands to reason that if our bodies naturally produce cannabinoids they must be of benefit to us. It is improbable that we would evolve to produce cannabinoids and a complex endocannabinoid receptor system if the compounds are harmful to our systems.

The best advice we can conclude from the available evidence is moderate cannabis use during pregnancy will not harm the developing fetus. Cannabis use during breastfeeding seems equally as tenable.

If you need any further advice or help on cannabis and pregnancy or any related matter please use the contact form provided. We try to answer all emails within 24 hours and are happy to help and advise on all aspects of medical marijuana treatments in complete confidence.

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