

Cannabis Precautions for Early Life Stages

By Dennis Colucci, AuD, MA

The legalization of cannabis has spawned a wildfire of health claims and benefits in the news, on social media, and online. Some have validity based on university-level studies and several FDA-approved clinical trials while others are unfounded or folk lores. At present, results from initial investigations, patient experiences, and anecdotal findings are dictating how THC (marijuana) and CBD (hemp) are being used and marketed. Basically, trial and error has led the industry to this point, but things are changing.

Fortunately for researchers, the signing of the 2018 Farm Bill placed hemp plants with high CBD and low THC (0.3% or less) off the list of controlled substance, although these are still regulated under the Federal Food, Drug, and Cosmetic Act. The Farm Bill has opened doors for more research into the safety and effectiveness of CBD. Although marijuana has been shown to have medicinal benefits, it is more difficult to obtain FDA clinical trial approval for these products. Research on the use of cannabis for hearing loss, tinnitus, and hyperacusis remains lacking, even though its uses in other areas of health care are being widely investigated with promising results. In fact, pharmaceutical companies and hundreds of scientists and major universities are conducting research, with few targeting the auditory and vestibular systems. With increased investigations into cannabis in brain research, research on cannabis for tinnitus and hyperacusis may soon be at the forefront.

Since audiologists see patients of all ages for hearing loss, auditory processing, and balance disorders—conditions that marijuana is known to affect—having basic knowledge of cannabis and its effects is important. When discussing their history, ask patients about cannabis use, especially those in their adolescence. An understanding of some of the factors related to the incorrect use or abuse of cannabis, especially in vulnerable populations, is essential.

EFFECTS OF MARIJUANA

The general effects of marijuana include the feeling of being high, which results from “the overactivation of areas in the brain.”¹ Other short-term effects include having sensations that affect one’s mood, body movement, thinking, and memory. Taking higher doses of marijuana can result in side effects such as



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hallucination, delusions, and psychosis. In some patients with schizophrenia, marijuana was found to worsen the condition and increase treatment resistance.² In seniors, interactions with medications such as warfarin have been reported.³ Although cannabis has many effects on the human body, none are more critical than those in the early stages of life. This has been confirmed by multiple studies showing how marijuana causes neurocognitive and psychiatric harm to children and adolescents.⁴

FETAL DEVELOPMENT

THC is unsafe for children and adolescents and can also adversely affect pregnancy and fetal development. This has been demonstrated in model human cells studies, which showed that THC, CBD, and CBN inhibit factors related to embryonic growth.⁵ Crume, et al., analyzed data on 3,207 pregnant mothers from the Colorado Pregnancy Risk Assessment Monitoring System, and found that 5.7 percent self-reported cannabis use during pregnancy and five percent did so during breastfeeding.⁶ In this study, prenatal cannabis use was associated with a 50 percent increase in the likelihood of a lower birth weight. In another study using urine tests to determine the presence of marijuana (THC), 22.6 percent of 2,173 expecting mothers tested positive for the drug. Similar to the



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study by Crume, et al., this study found that the infants had a lower birth weight (450 grams) compared with infants born to women who did not use cannabis.⁷ Notably, these studies may suggest that urine testing is more indicative of cannabis use than self-reporting. Other than low birth weight, pre- or post-natal cannabis use can also inhibit neurodevelopment.

INFANTS & CHILDHOOD DEVELOPMENT

According to the American Academy of Pediatrics, exposing a fetus, infant, child, or adolescent to THC poses a high risk and recommends avoiding the use of these products. In fact, they stated there is “evidence suggesting THC attaches to and essentially ‘hijacks’ and disrupts neurotransmitters in the brain that play a key role in the normal development of nerve cell networks.”⁸ Furthermore, according to Kimberly and colleagues, “the neurodevelopmental data in human and preclinical species suggest that prenatal exposure to THC may lead to subtle, persistent changes in targeted aspects of higher-level cognition and psychological well-being.”⁹ Although the long-term effects have not been widely reported, lower IQ scores have been seen in those who used the drug during adolescence and into adulthood.

ADOLESCENCE & QUALITY OF LIFE

The effects of marijuana on the adolescent brain are well known. During this period of life, the brain is under development, and because marijuana turns down neural firing, functionality is altered. According to information from the American Psychological Association, “[heavy] marijuana use in adolescence or early adulthood has been associated with a dismal set of life outcomes, including poor school performance, higher dropout rates, increased welfare dependence, greater unemployment and lower life satisfaction.”¹⁰ Because marijuana is psychoactive, it has direct effects on cognitive performance, leaving young adults who use marijuana impaired. It is well known that being high impairs attention, memory, and learning, making self-medicating or using marijuana recreationally detrimental to adolescents’ academic performance. Camchong and colleagues have found convincing longitudinal evidence that shows repeated exposure to cannabis during adolescence may have detrimental effects on the brain’s resting connectivity, intelligence, and cognitive function.¹¹


TOXICITY WARNING

Exposure to marijuana, especially through accidental ingestion, can affect infants, children, or even animals, and lead to intoxication, causing fear, physical impairment, vomiting, coma, development of neurologic symptoms, and more. In this eventuality, the child or animal should be taken to the emergency room as soon as possible. A French study has noted that “children are collateral victims of changing trends in cannabis use and a prevailing increase in THC concentration. Intoxicated children are more frequent, younger, and have intoxications that are more severe.”¹²

Although CBD is generally considered safe with few caveats, excessive amounts of CBD can cause temporary side

effects such as tiredness and diarrhea. Children should only take CBD with the guidance of a physician to prevent any developmental issue and the development of somnolence. CBD is not to be used as the new Benadryl, but with further research, it may help children with ADHD¹³ or anxiety issues.

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The origin of cannabis as a street drug (marijuana) explains its use pattern over (e.g., trial-and-error) decades of unregulated and unlicensed manufacturing and dispensing. Fortunately, states have been moving toward adopting regulations to transform cannabis into a regulated pharmaceutical-grade product for medicinal, nutraceutical, and recreational use, as well as into a food industry product. However, research is clear with regard to pregnant women, newborns, infants, children, and adolescents: These populations should not be exposed to cannabis products. Audiologists should remain vigilant when treating patients with a history of cannabis use, especially those who are vulnerable. 

References for this article can be found at <http://bit.ly/HJcurrent>.

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health workers. The WHO defines task shifting as “the rational re-distribution of tasks among health workforce teams... where appropriate, from highly qualified health workers to health workers who have fewer qualifications in order to make more efficient use of the available [health workers]” (WHO, 2010). For example, nurses would delegate some of the front-line non-specialized tasks to nursing assistants and community health workers, allowing them to engage in more specialized daily tasks. In audiology, we’re now beginning to understand the benefits of task shifting by delegating fewer specialized tasks to well-trained audiology assistants. Consequently, increasing the number of appropriately trained health workers helps address this shortage while improving accessibility of services in the context of chronic limitation of health professionals who have advanced skill levels.

Although we have to wait until May 2020 for the WRH to be published, we are assured that the WHO’s mission to provide a cohesive and consistent narrative on hearing care will help raise broader awareness and identify the next steps for global policymakers to achieve richer collaborations. 