

PASS OR FAIL? WILL CANNABIDIOL OIL TEST POSITIVE FOR MARIJUANA?

- Q:** My patient tested positive for marijuana (THC) on an Aegis urine drug test after reporting use of a cannabidiol (CBD) oil product. Is this possible?
- A:** Although CBD itself will not be detected as THC on a urine drug test, it is possible for CBD products to contain THC given both are extracted from the marijuana (Cannabis) plant. The legal limit for the amount of THC allowed in CBD products is variable, ranging from 0.3% to 7% depending on state-specific regulations. Importantly, the manufacturing and purification processes for CBD products are not regulated by the Food and Drug Administration (FDA), leaving little opportunity for mandated CBD to THC ratios to be enforced. Additionally, some evidence suggests that CBD is converted to THC in the stomach after oral ingestion. Given these factors, it is possible for use of a CBD product to result in a THC-positive urine drug test.

Cannabis contains nearly 500 cannabinoid compounds, the most widely studied being THC and CBD.¹ Whereas THC is responsible for the characteristic “high” of marijuana, CBD has not been shown to have the same cognitive effects. CBD has been studied as a treatment for multiple disease states and health conditions, including bipolar mania, Huntington’s disease, inflammation, insomnia, multiple sclerosis, nausea, social anxiety disorder, schizophrenia, and seizures. As a result, more than 15 states have approved CBD products for medical use despite its federal classification as a Schedule I controlled substance.^{2,3}

State laws regulating the composition of CBD products are not uniform. Overall, most require the CBD product to be high CBD with low THC. Some states require no more than 0.3% THC be present in a CBD product, while others authorize THC content up to 7%.⁴ Of note, the product descriptions “medical marijuana,” “high CBD,” and “low THC” are often used interchangeably, and no standard definition exists for these individual terms.³ With regard to its use as a pharmaceutical product, CBD manufacturers are able to circumvent FDA regulation by avoiding the marketing of these products as food, drugs, or dietary supplements.³

One study has reported on the potential for CBD and THC to be present in urine after dosing 15 volunteers with high CBD/low THC oils, capsules, and cigarettes.² Fourteen of the fifteen volunteers tested positive for both CBD and the marijuana metabolite carboxy-THC, suggesting these CBD preparations contained enough THC to illicit a positive urine drug test result after use.

Another recent study investigated the potential for CBD to degrade into the more psychoactive component THC after oral ingestion.¹ Researchers exposed CBD solution to a simulated acidic stomach environment and assessed for the presence of CBD and THC by mass spectrometry over the course of 6 hours. THC was found to form from CBD within 2 hours of exposure to the acidic environment, suggesting oral ingestion of CBD may lead to systemic THC exposure. Notably, this study was performed in a simulated gastric environment and did not involve ingestion of CBD by actual patients; consequently, CBD and THC levels were not measured in the blood or urine of patients following CBD ingestion. Evidence for THC formation from CBD remains anecdotal, and further studies are needed to support this hypothesis.

Given the shared Cannabis source for both CBD and THC, lack of regulatory oversight for these products, possible formation of THC from CBD after ingestion, and evidence of the presence of carboxy-THC following use of CBD products, the potential exists for use of a CBD product to result in a THC-positive urine drug test.

Please call our clinical scientists at 1-877-552-3232 if you require additional information.

NOTICE: The information above is intended as a resource for health care providers. Providers should use their independent medical judgment based on the clinical needs of the patient when making determinations of who to test, what medications to test, testing frequency, and the type of testing to conduct.

REFERENCES:

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2. Wertlake PT, Henson MD. A urinary test procedure for identification of cannabidiol in patient undergoing medical therapy with marijuana. *J Pain Res.* 2016;9:81-5.
3. Mead, A. The legal status of cannabis (marijuana) and cannabidiol (CBD) under U.S. law. *Epilepsy Behav.* 2017;70:288-91.
4. 18 states with laws specifically about legal cannabidiol (CBD). ProCon.org. <https://medicalmarijuana.procon.org/view.resource.php?resourceID=006473>. Updated July 24, 2017. Accessed October 10, 2017.