CBD Oil: What Does a Toxicologist Want You to Know?

CBD stands for cannabidiol (pronounced can-uh-bid-EYE-all), a chemical extracted from the hemp plant. Hemp is very similar to the marijuana plant. Both fall under the same plant genus: cannabis. Marijuana contains CBD too, as well as an additional chemical called tetrahydrocannabinol, or THC, which gives marijuana its psychoactive properties. Hemp contains almost no THC.

CBD does not cause any of the psychoactive effects associated with marijuana. Neither hemp nor CBD can make a user ‘high.’

Is it legal?
The 2018 Farm Bill made it legal for farmers to grow hemp, although there are still many regulations and restrictions. Hemp fibers are used in textiles, paper, plastics, and other products. Hemp can also be used for grain. But most hemp is grown for its flowers which are the source of CBD. Laws about CBD are confusing and

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POISON TRIVIA
Urushiol is the sap produced by all parts of the poison ivy plant. It may cause an itchy, blistering rash when skin is exposed to it. How long can it remain active on a garden shovel?

A. 3 hours
B. 3 days
C. 1 year

Answer on pg. 4
vary by state, by locality, and by circumstance. The FDA has determined that products containing THC or CBD cannot be sold legally as dietary supplements, nor can they be sold between states. Whether or not foods and other products to which CBD has been added can be sold legally within a state depends on that state’s laws and regulations. Regardless, laws and regulations seem to be rarely enforced as consumers can easily purchase CBD products online and almost any place they buy groceries, medicines, or supplements.

Does it work?
Researchers have been looking at the possible therapeutic uses of CBD. The strongest scientific evidence so far is for its effectiveness in treating two childhood epilepsy syndromes: Dravet syndrome and Lennox-Gastaut. In numerous studies, CBD was able to reduce the number of seizures, and in some cases it was able to stop them altogether. Recently the FDA approved the first (and only) prescription CBD medicine for these conditions, Epidiolex (see below).

There is some evidence that CBD may help with other conditions, too, particularly chronic pain, inflammation, anxiety, and insomnia. However, it’s too soon to say for certain that CBD is effective therapeutically. Study results are inconclusive. “There is still a lack of quality studies done on humans, and a lack of long-term safety data,” says Dr. Heather Borek, medical toxicologist at the Blue Ridge Poison Center. What about all the people who claim CBD helped them? Dr. Borek cautions against relying on user claims alone that CBD is a “magic bullet” for all of

News and Notes

Coming soon! March 15-21, 2020 is National Poisoning Prevention Week. The BRPC will be honoring the week by inviting all pharmacies to include a magnet and information on safe drug disposal in every prescription filled during the week. If you are a pharmacist and want to participate, or if you want to distribute magnets at your school, place of business, or community, contact Education Coordinator Kristin Wenger at KLW2S@VIRGINIA.EDU or 434-982-4386. All supplies are free! You may also order them directly from our website: www.brpc.virginia.edu.

An FDA ban on flavored vapes went into effect this month. The ban aims to reduce soaring numbers of teens who are taking up vaping and becoming addicted to nicotine, even when they did not have a prior cigarette habit. Studies show that children and teens are attracted to the sweet, fruity, candy flavors which have been so popular. The ban, however, has a couple of loopholes. One: the ban does not apply to tobacco and menthol flavors. Two: the ban does not apply to disposable, un refillable devices. Wasting no time at all, new products have sprung up and are attracting huge numbers of young buyers. Leading the way are, among others, Puff Bar and Hype Bar, which are imported from China. The new disposable devices a) are cheaper, and b) contain a higher nicotine concentration than many of the refillable products they are replacing, such as the Juul®. Read the article in the New York Times.
those health conditions: “Such claims are compelling, but do not tell the whole story. Did a person’s health condition improve because of the CBD, or was it something else? Was it a placebo effect? Would the condition have improved on its own even without the CBD? Does the person making the claim have a financial stake in CBD products? Only careful, peer-reviewed research can give us reliable answers.”

Other questions that can only be answered by more scientific research include:

- Is it safe for children? Senior adults? People with pre-existing health conditions?
- What is an effective dose?
- Can you overdose on CBD?
- What are the possible side effects?
- CBD can be ingested, absorbed through the skin, vaped, smoked, and chewed as a gum. Do these methods all affect the body the same way?
- What are the long-term effects of using CBD?
- What other medications or products react poorly with CBD?
- Is CBD addictive?
- Can users develop a tolerance to CBD? Will they experience withdrawal?

Note that at this time, non-preservation CBD products are not approved by FDA for the diagnosis, cure, mitigation, treatment, or prevention of any disease. 

What could be the harm in trying it?
This is also difficult to answer without more studies. CBD products are not regulated. There is no oversight from the U.S. Food and Drug Administration (FDA) assuring that these products contain what they advertise on the label. Several studies have performed laboratory testing on random selections of products purchased both online and in person. Results showed that at least half of the time, the concentration of CBD found in a product was much higher or lower than the label said. Surprisingly, some samples were found to contain THC, the active compound in marijuana. This could lead to users experiencing unintended changes in mood, thought, or behavior; suffering injuries; or even failing urine drug screens.

Studies have also found that CBD products may be contaminated with harmful substances. Contaminants may include things that were added illicitly to increase the amount, weight, or potency of a product so it can be sold for more money. Contaminants may also include substances like pesticides, heavy metals such as lead and arsenic, molds, or bacteria which find their way into the product during poor production practices.

Are there any side effects?
Side effects of CBD have been reported and include nausea, fatigue, diarrhea, weight changes, and

Side by side: hemp (far left) and marijuana (immediate left). Taxonomically, the two are the same species of cannabis, but have been bred selectively into separate varieties which contain different amounts of cannabidiol and other chemicals.
Irritability. Some have experienced health effects serious enough to require hospitalization. It is not clear whether the side effects were from the CBD or from contaminants in the product.

The drug may interact with some over-the-counter (OTC) aids, dietary supplements, and CBD prescription medications, especially those that warn against consuming grapefruit. CBD may also disrupt an enzyme called cytochrome P450 complex. This disruption can affect the liver’s ability to break down toxins, increasing the risk of liver toxicity.

According to the American Association of Poison Control Centers (AAPCC), poison centers nationwide have seen an increase in calls about CBD cases, up from 3 in 2014 to 1,526 in 2019.

Bottom Line:
- CBD has been shown to help with some forms of childhood epilepsy.
- There may be other health benefits as well, but there may also be some risks. More research is needed.
- Since CBD products are unregulated, there is no way to know for certain what the purity or concentration of a particular product is, regardless of what its label says. (Note: this does not apply to the prescription drug Epidiolex which is highly regulated.)

Dr. Borek advises anyone who wishes to try CBD to first discuss it with their primary health care provider, taking care to list all their other medications and supplements so that known drug interactions can be avoided. If any unexpected symptoms arise, they should report them and seek medical advice. Users may also contact the Blue Ridge Poison Center for help: 1-800-222-1222.

Sources: