Medical Xpress

New research explores the effects of cannabidiol on general health

January 31 2024, by Carlos José Pérez Sámano

Credit: Pixabay/CC0 Public Domain

For 20 years, Laura Stewart, Ph.D., a professor in the Department of

Kinesiology, Nutrition and Dietetics, at the University of Northern Colorado, has been exploring how exercise improves the immune system. Over the last decade, however, her interests shifted to focus on the relationship between cannabidiol (CBD) and immune function. It's a topic that fascinates the scientist, as she has found that there is a big difference between what the public understands about cannabis (marijuana) and CBD, and what science has proven.

"Although companies that sell products with claims about any cannabis component should be supported by research, there is a lot of information that is shared by the general public on social media that is far from what actual research has found," said Stewart.

Stewart chose to focus her research on components of the cannabis plant and its impact on the immune system shortly after moving to Colorado in 2014, the same year recreational marijuana use became legal in the state.

CBD or cannabidiol, is the second most studied ingredient in cannabis after tetrahydrocannabinol (THC). According to an article in Harvard Health Publishing, CBD is an essential component of medical marijuana, and it can also be derived from the hemp plant or manufactured in a laboratory. As of 2018, Congress made hemp legal in all 50 states, and consequently, CBD derived from hemp is also legal.

According to Peter Grinspoon, MD, cannabis specialist at Massachusetts General Hospital, the strongest scientific evidence about the health benefits of CBD has been found in the treatment of childhood epilepsy syndromes such as Dravet syndrome and Lennox-Gastaut syndrome. Animal studies and self-reports or research in humans also show that CBD can be useful for anxiety, insomnia, chronic and neuropathic pain.

However, the claims about what CBD can do in terms of improving general health is where Stewart sees most of the misinformation, for

what she sees as two primary reasons. On one hand, most of the marketing claims around benefits of cannabis consumption are not backed by science. And if there is research behind those claims, the regulations on how to present them are very minimal. The second reason for people having an exaggerated idea of the benefits of cannabis consumption is the unregulated public opinion on the matter.

"All kinds of people from all kinds of backgrounds are recommending people to use CBD for a variety of reasons on all types of social media. And those opinions are unregulated because we are talking about people's right to free speech," said Stewart.

"However, a lot of the information that users share is not scientifically proven. People talk about their anecdotal responses with the use of it and, unfortunately, a lot of this content is getting people to try things and pay for things that we have zero amount of research behind," the researcher continued.

A 2018 report from the World Health Organization states that there are numerous CBD products —including medicinal products, such as pills and capsules for various diseases/symptoms, lotions, oils, foods, drinks, shampoos, cosmetics, etc.—that are being manufactured and distributed without regulatory oversight and often with unverified contents.

With two decades of experience investigating the impact of exercise and botanicals on the immune system, Stewart began to examine the impact of both cannabis and CBD on the immune system.

Her first studies conducted between 2016 and 2019 examined how cannabis impacted the immune system for users and non-users, specifically as it relates to exercise performance.

"We surveyed people who are physically active and then we moved more

into some cross-sectional studies that explored the potential differences between cannabis users and non-users when it came to their health and fitness," said Stewart. "In those projects, we looked at males and females separately and evaluated basic health measures like blood pressure, heart rate and body composition."

In general, Stewart said there weren't many differences between the cannabis and the non-cannabis users in both young males and females except for power tests. Power tests consist of going as fast as possible on a lab bike for 30 seconds.

Stewart's findings indicated that some cannabis users couldn't maintain as much power as non-users. In other words, the use of cannabis adversely affected power. Since the population surveyed was small, Stewart said the results weren't statistically significant, but it was an interesting factor to be considered by coaches, athletes and the general population.

"The next study, which started in 2021, involved a clinical trial which involved daily CBD consumption for eight weeks. We saw some potential for natural killer cells, which are part of the immune system. We saw that they might be potentially enhanced in their ability to kill cancer cells," said Stewart. "We also found some interesting differences between groups in their ability to feel awake after sleeping."

In her most recent study, Stewart examined the potential effect of CBD on healthy people. The UNC researcher was contacted by a global beverage company to evaluate the potential impacts of regular CBD consumption on general health. This study was published in *Brain Behavior and Immunity Integrative*.

"The brand had the intention to launch a drink with some CBD, so they contacted us to conduct a clinical trial before moving forward with it,"

said Stewart. "They wanted to evaluate whether CBD had any effect on aspects of physical health, mental health, cognitive and focus ability."

Stewart's research found that the daily use of CBD for eight weeks in healthy individuals didn't affect any of the physical and mental health indicators she was measuring.

These nine years' worth of work have not only resulted in new findings for each study, but they also helped to create more internal and external partnerships.

With the support of the College of Natural and Health Sciences' dean, Kamel Haddad, UNC established a brand new Complementary Health and Integrative Physiology Center (CHIPC) on campus last year. This center will help to further research cannabis and other natural substances and their impact on health and to create collaboration between academia and private companies.

A future study that will come from this center includes partnering with a pharmaceutical grade CBD company to evaluate the impact of this substance on veterans.

"CHIPC epitomizes two of our college's priorities: Innovation in the science of health care; and connecting with our regional STEM partners," said Haddad. "I am thrilled that the launch of NHS's newest center has already delivered on these two priorities."

"Cannabis is a very interesting plant, and we are still finding a lot more about its potential to impact mental and physical health," said Stewart. "I am very excited to share this news with the general public and my commitment to further research in the area."

More information: Arjun Ramani et al, Daily Cannabidiol and L-

Theanine Beverage Consumption Does Not Alter Anxiety, Fatigue, Cognitive Function, or Natural Killer Cell Function: A Randomized, Controlled Trial in Healthy, Young Adults. *Brain Behavior and Immunity Integrative* (2024). DOI: 10.1016/j.bbii.2024.100045

Provided by University of Northern Colorado