



Cannabis and Cognition in MS

Featuring: Dr. Anthony Feinstein

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There are a lot of unknown questions about the use of cannabis in medicine and this relates particularly to patients with multiple sclerosis. There are synthetic, uh, cannabis preparations on the market. The medication's made by pharmaceutical companies that can be taken as pills or as a—as an oral spray and then there's also the cannabis that's grown, either legally or illegally, depending on where you live. And the question is how might cannabis affect patients with multiple sclerosis. MS patients will tell you, subjectively, that cannabis helps their pain and it helps their spasticity. In some cases they say it can help their bladder dysfunction and it might help tremor. So there's robust well-replicated data that patients find cannabis, the cannabis manufactured by the pharmaceutical industry, helpful with respect to their symptoms.

The objective data are lacking so you see a disconnect between what patients are telling us and what you can measure objectively. You can't measure pain objectively, of course, so you have to accept that if someone says my pain is a lot better, they're feeling better.

One of the, uh, intriguing aspects of cannabis is what does it do to your cognition and we've focused on the, uh, the garden grown variety of cannabis, not the pharmaceutically made cannabis, and we've shown in a number of studies now that MS patients who smoke cannabis regularly, many times a week who've been doing it for a number of years, are more likely to have cognitive deficits than those who don't use cannabis. So if you're starting with a baseline prevalence of 40 to 60 percent of cognitive difficulties before you use cannabis and you then factor cannabis on top of that, you can see potentially why this could be more of a problem. So we found three—in three studies we found the same results, that you'll see more cognitive difficulties in the patients who smoke cannabis.

Now I recognize that the patients might be getting benefits from cannabis as well. If you've got someone in a lot of pain and they say that the cannabis is helping my pain, I'm not going to argue with them. Indeed, on occasion I will prescribe cannabis for my patients because I can do that in terms of Canadian law. But I think the patients need to be aware that, in theory, you might be at further risk for cognitive compromise.

So we recently completed a brain imaging study looking at functional MRI in patients who smoke cannabis, MS patients who smoke cannabis and those who don't and we gave these patients a working memory task. The two groups were very well matched. Their level of pre-morbid intelligence was the same. Their disease disability was the same. They had disease for the same duration, etc., so we matched them well on demographic and disease-related variables. The only difference between the two groups was one group smoked cannabis and the other group was completely naïve. We did not test our patients when they were high. So we wait 12 hours since they had their last joint and then we bring them in for testing and what we showed was that the group that smokes cannabis, once again, are more impaired on a working memory task but you see a different pattern of brain activation in the cannabis users and you see a more dysfunctional pattern of brain activation. So there appears to be an attempt at compensation, cerebral compensation going on, which early on when the problem is not too difficult works and then as a problem becomes more difficult to solve, breaks down and you actually see this on brain imaging as well. So this is where we're at.

Now the unanswered question, and I think it's a very important one, is what happens if an MS patient stops smoking cannabis? Does the cognition recover? If you go to the general population literature, the evidence suggests it does. Within about 28 days, you start seeing cognition return to probably where it was before the individual started to smoke cannabis. The one, uh, exception is likely to be adolescents who use cannabis very early on. But in people who start, you know, in adulthood and smoked a couple of joints now and then, the cognitive deficit you see appear to be recoverable but we don't know whether that's the case in multiple sclerosis patients so I think it's a study that needs to be done and I think in our data also need to be replicated by other research groups.