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**VICE** World News

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# Wearable Psychedelics Could Soon Give Users Maximum Control Over Their Trip

Scientists are working on a pharmaceutical device to help give people the best possible experiences on the likes of DMT and LSD.



By [Gavin Butler](#)

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Picture this: you enter a pharmacy, hand over your doctor's prescription, and the pharmacist hands you back a small, lightweight, analog device, about the size of a pager. It is, the pharmacist explains, the equivalent of an insulin pump. After having it calibrated according to your recommended dosage, you go home, lift your shirt, attach the pump to your stomach and, at whatever frequency and intensity best suits your needs, receive a regular and recurrent dose of dimethyltryptamine (DMT), the so-called "spirit molecule." Or LSD. Or mescaline, the active ingredient in peyote.

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but that would be our target.”

Last year, the small California-based company announced that they were developing a wearable ketamine device that administers small doses of liquid ketamine subcutaneously – that is, into the layer of fat between your skin and muscle – via a tiny needle. That device, which is still in the development stage but slated for human trials in the first half of next year, is designed for the purpose of delivering pain relief to patients, specifically those experiencing acute postoperative pain following surgeries and other medical procedures.

### **Ketamine?**

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Importantly, it would allow individuals to continue using the drug medicinally in a controlled, at-home setting.

Peterson said the wearable ketamine pump was inspired by the global opioid crisis, and a desire to lower opioid addiction rates within the U.S. and globally by “creating a non-opioid therapy that patients can go home with.” But by October 2020, he and Becker realised that the device they’d created to address that particular problem – a wearable, tunable, slow-release drug pump – could be used to optimise the user experience in relation to a number of other substances,

“We realised that what we had done was to hack the problems that are associated with a whole host of other molecules,” Becker explained, “and a whole bunch of other possible repurposing projects came into our awareness.”

When he says “problems,” Becker is referring to the unpredictability of psychedelic substances, and the inherent difficulty in nailing down the exact dose needed to give a particular person a particular trip. The amount of time it takes for the drug to kick in; the length of time that the trip lasts; liver enzyme variability that leads to some patients having trips and other patients not – all of these factors can disrupt the user experience, and are difficult to adjust in real-time when the drug is being ingested orally, as is the case in most therapeutic contexts today.

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GAVIN BUTLER

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“When you swallow a bolus dose of something that doesn’t come on for an hour it’s very hard to get the dose right, and people’s liver enzymes are so variable that you can get 300 percent differences out of a given dose,” Becker explained. By way of analogy, he pointed to recreational situations where one person needs three

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The benefit of Bexson’s adjustable, subcutaneous device is that it allows the user to fine-tune their psychedelic experience. An individual will be able to guarantee what kind of trip they’re going to have; they can preprogram how intensely the effects are going to kick in, how long the experience will last, and how deep into it they’ll go. Depending on the substance, users might also be given the option of an attunement process where they can elect to turn up the rate of infusion or give themselves an additional bolus dose – within certain safety parameters and under the direction of healthcare providers – to bump them up to the appropriate level.

All of which, in theory, will give the patient and practitioner more control over the therapy, accounting for differences in patient sensitivity and drug metabolism while also allowing them to target certain psychic effects. For a class of substances that is already showing great promise in treating symptoms of PTSD, depression, and anxiety, that could have significant implications for the efficacy, safety and accessibility of psychedelic treatments.

“We really see [this method of delivery] as substantially increasing the safety and also probably increasing

Tech

phenylethylamine class, the mescaline 2CB class, and “some of the simpler scaffolds” like DMT – as well as the development of other potential delivery devices, like injector pens. Healthcare providers will be able to adjust the dosing increment and the time between doses, and program the devices to deliver the substance all in an hour, bit by bit, or in bolus fashion over the course of several days.

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“There’s just so much optionality,” he added, “it’s been a bit shocking how many things we could possibly do with all this.”

It’s still early days. Neither the wearable ketamine pump nor its psychedelic equivalents have been tested on human subjects, and the rollout of Bexson’s pharmaceutical tech for medical use among real, flesh-and-blood patients is pursuant to regulating bodies like the U.S. Food and Drug Administration (FDA) giving them the green light.

**“Our goals are to be much more in control of the dosing ... when we’re looking at a**

Peterson went as far as to suggest that a wearable psychedelic device for performance-enhancing microdoses, in the fashion of Silicon Valley's fabled techpreneurs, is something that could be on the cards down the line. He hastened to add, however, that "getting that FDA approval is a little further away than what we think about in terms of treating a disease or treating a disorder."

"We think we've got some of the best tech around that would maximise safety, [and] it'll be interesting to see how decriminalisation plays out," Peterson said. "[But] in the near-term we are a drug development company going down the regulatory pathway for medical use."

He feels confident that the company will be able to get its ketamine therapy over the line for pain management, and that "definitely some [psychedelics] are going to get approved" given their demonstrated potential to treat mental health conditions. Becker further speculated that the leading contenders on that front would be natural molecules like LSD and mescaline – those that have the most research to back up their efficacy. They're aiming for human trials in 2022 and FDA approval in 2025-26.

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GAVIN BUTLER

26.10.20



clinically of LSD, and I think some of the other phenylethylamines that might be long-lasting could be very interesting, including mescaline ... [But] I don't want to sound cavalier. We're really by the book in our company, so I'm excited about all of this but we see the long regulatory pathway ahead of ourselves in anything we're talking about."

Follow Gavin on [Twitter](#).

Correction: The story originally said psilocybin is one of the drugs the device is working on administering. We regret the error.

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