

Can magic mushrooms help to beat anorexia?

A trial using psilocybin to tackle eating disorders yielded promising results. The scientists and subjects involved talk to Helen Rumbelow

In *Alice's Adventures in Wonderland* young Alice meets a caterpillar sitting on a mushroom. She is unhappy with her tiny size and begs for help. The caterpillar tells her to eat different sides of his magic mushroom and she will change. Alice experiments with crazy results but soon “held the pieces of mushroom and set to work very carefully nibbling . . . until she had succeeded in bringing herself to her usual height”.

I had this in mind when Ava told me her story. Ava — not her real name — went into a trial clinic one morning last summer with a raging eating disorder. When asked to have breakfast to give her fuel for the experimental treatment she was about to undergo, her reaction was “horrified”. She forced it down and logged every calorie on her calorie-counting app, with her anorexia-brain promising herself she would later work it off her skeletal frame. The last thing Ava ate as an anorexic was two capsules of psilocybin, or “magic mushrooms”. Six hours later she woke up from the trip and called for juice and a sandwich. She felt cured.

“I asked for food immediately,” Ava tells me on a Zoom call, 18 months after this single dose. “I was starving — I realised I was literally starving. I ate a sandwich and juice, I would never have had bread or juice, such ‘empty calories’. They were delicious.”

Did you put the sandwich calories into your app, I ask.

“I did not. I got groceries on the way back from the hospital. I had dinner with my mum and it was a normal meal. I have not restricted once since.”

Ava works as a lawyer; she is professionally cautious. Aged 32 she had never taken any drugs and the thought of hallucinating away her eating disorder seemed pure fantasy. It turned out to be “the most important experience of my life”. This, I say, is as close as psychiatric pharmaceuticals get to a miracle.

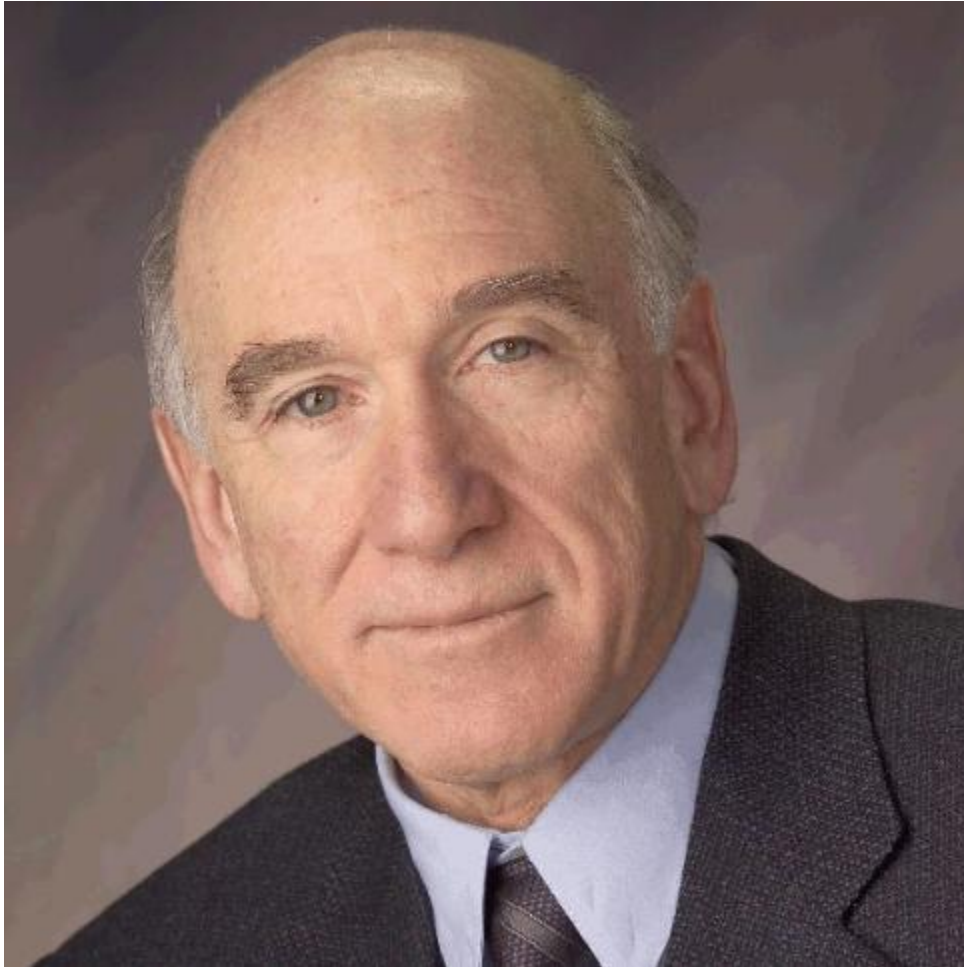
“It felt like a miracle,” she agrees. “And also, like I cheated because it was so easy.”

In *Alice’s Adventures in Wonderland* the mushroom is a tool for Alice to alter her perceptions, at first scary, and then, once she is in control, powerful. Could magic mushrooms turn out to be the first medicine for eating disorders? Research literature is littered with failed “breakthroughs” from promising but tiny studies. Recent years have also been full of hype around the potential for psychedelic drugs [to combat anxiety, depression](#) and addiction. But there are specific reasons that Ava’s experience in the 21st century’s first trial to use hallucinogenic drugs to treat anorexia is so exciting to those in the field.

First, anorexia is the most lethal psychiatric disorder, with four times the danger of death than major depression. Second, anorexia is notoriously hard to treat: one study found only about a third of anorexia patients recover after nine years. Third, the NHS has no drugs on offer as a first-line treatment.

Only one woman had been treated with “magic mushrooms” in a hospital before Ava’s trial last year. This story goes back to Paris in the late 1950s. Roger Heim was then a botanist obsessed with the power of mushrooms to “see god”. He obtained spores from a Mexican shaman, and arranged for the extraction of the active ingredient: a first in modern medicine. Soon, experimentation with psilocybin at the Sainte Anne hospital in Paris began, and one morning in 1959 a woman called Henriette B consented to try it.

At 35, Henriette was severely anorexic, hospitalised many times for dangerously low weight. After taking psilocybin she had the most dramatic mood reversal of all the patients with various other mental health disorders in the experiment, an “indisputable” therapeutic effect, said her doctors. Henriette went home happy and restored her health. The effects ultimately didn’t last and neither did the research. Psilocybin studies were soon outlawed across the western world.



Walter Kaye: “Malnutrition has a very powerful effect on the serotonin system . . . and that may play a role in why antidepressants haven’t been very effective”

In 2021 a UK startup called Compass Pathways, which has led the push to research the use of psilocybin for depression, launched a new line of inquiry. Compass has supported a burst of phase one pilot studies using psilocybin to treat anorexia, picking up 62 years after Henriette left off. Small groups of a dozen or so patient volunteers were tested at centres at Imperial College London, the hub of British research into medical psychedelics; and University of California at San Diego, among several others.

The UC San Diego team had the first results, presented this year, and Ava and everyone I speak to in this article was involved in their pilot. However, each centre has witnessed signs promising enough for Compass to support the first phase two randomised control trial into psilocybin and anorexia, now recruiting for 60 volunteers at four research institutes, including a call-out for patients to be involved at King's College London.

Walter Kaye, a professor of psychiatry at UC San Diego, is the lead investigator overseeing this international phase two trial. He took psilocybin once himself in one of the first wave of federally funded trials: as a healthy medical student he volunteered to be a control in a study looking at its effect on depression.

Unexpectedly, it affected him profoundly and “gave me a different point of view of what I wanted to do with my life”. He found his vocation in psychiatry. But psilocybin as medicine has been off limits for his entire professional career until now.

- **[Magic mushroom tablets cure patients of depression](#)**

There are several reasons that psilocybin seems promising for anorexia, says Kaye, who has published 300 articles on the illness. There is much left to understand, he says, but it is now believed anorexia is a biochemical disorder similar to depression. However, antidepressants have failed to help as their mechanism depends on the brain being well fed with glucose. This is not the mechanism of psilocybin.

“Malnutrition has a very powerful effect on the serotonin system,” Kaye says.

“Our data suggests that that may play a role in why antidepressants haven't been very effective. It's a hard system to move in anorexia.”

Another hallmark of anorexia is rigid thinking: “they tend to have perceptual distortions about body image and how much they're eating, and they tend to be inflexible,” says Kaye. Scans of patients' brains on psilocybin show them firing up in underused areas, associated with flexible or creative thinking.

“It turns out that psilocybin has actions that are opposite to what we’re seeing in people with anorexia. They can see themselves differently,” Kaye says.

Stephanie Knatz Peck is a clinical psychologist, working with Kaye at UC San Diego and devoted to eating disorders, who ran that first trial. As someone who recovered from an eating disorder as a young woman, Peck has a drive “to explore novel methods of treating such a difficult-to-treat disorder”. She senses the ticking clock of so many patients who have been dangerously ill for a decade or more. She concedes their pioneering trial was small, just ten patients, and “open label” which means everyone knew they were taking psilocybin and so susceptible to a placebo effect.



Stephanie Knatz Peck: “These are very preliminary results, but it was a good signal”

However, Peck says the results were “fascinating”. After this single 25mg dose of psilocybin four of the ten patients had their eating disorder markers fall into the normal range, and remain there for three months afterwards. Only one out of the ten patients registered no positive effects. “Most of those people had undergone multiple treatments or had anorexia for quite a while. As a scientist I have to say that these are very preliminary results. But it was a good signal.”

Peck has created a treatment model: counselling patients before their dose to use the expansive effects of the drug to imagine their lives without an eating disorder, something that people with anorexia find very difficult.

Phoebe, 24 — like Ava she wanted to remain anonymous — had what sounds to me a frightening experience as part of the San Diego trial. She told me she had never taken drugs and was afraid of “losing” her mind.

“I was nervous: obviously in college I knew people who took shrooms and had bad trips, and that really freaked me out. I always said I would never take hallucinogens for that reason.”

But Phoebe was desperate. She volunteered for the trial, took her dose at the clinic, and soon began to “go inside my brain. I saw a lot of things that were really tough.”

This included seeing a vision of herself on the bathroom floor after taking an overdose. “I essentially watched myself commit suicide, which was really intense. But I also heard the panic in the voice of someone banging on the door of the bathroom, and that made a deep impact.”

- [**My magic mushroom trip at a £13,000 psychedelic retreat**](#)

Phoebe relived real events too: such as school bullying (she was called a “whale” in primary school) and assault. These tipped her into full blown anorexia throughout university, often eating only 600 calories a day, despite all the usual therapies. After coming around from the drug Phoebe felt a significant shift.

“Seeing all those distressing things helped me realise that my disorder did not protect me from any of them. It isn’t the safety blanket I thought it was. Instead of providing safety, it harms.”

She saw that the painful parts of life were also part of its intensity that she was missing out on through the eating disorder. She is now a healthy weight and feels resilient.

“We have such a short time here in this universe — was I really going to cut it short by 75 per cent to weigh 25 per cent less? I hope I am putting it into words that convey it was one of the most profound experiences I’ve ever had because yes, all those traumas have impacted me, but this one experience tied all those good and bad experiences together and put them through a more meaningful lens.”

Ava, though, had the most instant response. Ava was also very sporty, a triathlete, who was always conscious of her weight, but lockdown spent working and living alone triggered a descent into 18 months of anorexia. She “lost that time of my life” and two and a half stone. Few people saw how little she ate or how thin she looked. She knew she was ill, but she says her brain was so starved she was unable to make rational decisions.

“I had heard that hospital treatment programmes make you put on weight, and I knew that would help my body but I was afraid. I wanted it but my eating disorder didn’t.”

This is why she felt this trial was so powerful for her. It changed her mind before she had to change her body.

“This drug altered how I felt about my body almost independently. It was like a gift, altering my perception for me in a way that I’m not sure I could have done on my own.”

During Ava’s “trip” she began to relive memories of her childhood, each accompanied by nausea, chest pressure and low heart rate. She was reassured to be with medics in a clinical setting, and started to feel that each time she resolved

each memory in a positive way, the unpleasant physical symptoms would subside. This felt like hard work.

“And it felt like a release: I understood that I was missing the whole point of every day, which was connection, to love and care for other people. The eating disorder had isolated me, and it wasn’t even serving me, just making me more self-absorbed. I went to wash my face as I had been crying a lot.”

At this point Ava stared in the mirror, and her world flipped, just like Alice in *Through the Looking Glass*. Now not only is she a healthy weight, she is closer to her family and friends than ever.

“All I saw were harsh angles and sunken eyes,” Ava says. “That was the first time I saw thinness that way, instead of a goal I was achieving, I looked gross and ill. I think I was finally seeing myself as others do.”