

# Magic mushrooms may one day treat anorexia, but not just yet

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Anorexia nervosa is a severe mental health disorder where people fear weight gain. Those with the disorder have distorted body image and hold rigid beliefs their body is too big. They typically manage this through

restricted eating, leading to the serious medical consequences of malnutrition.

Anorexia has [one of the highest death rates](#) of any mental illness. Yet there are [currently no](#) effective drug treatments and the outcomes of psychotherapy (talk therapy) are [poor](#). So we're desperately in need of new and improved treatments.

Psilocybin, commonly known as magic mushrooms, is one such novel treatment. But while it shows early promise, you won't see it used in clinical practice just yet—more research is needed to test if it's safe and effective.

## **What does treatment involve?**

The treatment involves the patient taking a dose of psilocybin in a safe environment, which is usually a specifically set up clinic. The patient undergoes preparation therapy before the dosing session and integration therapy after.

Psilocybin, extracted from mushrooms, is a psychedelic, which means it can produce altered thinking, sense of time and emotions, and can often result in hallucinations. It also has the potential to shift patients out of their rigid thinking patterns.

Psilocybin is not administered alone but instead with combined structured psychotherapy sessions to help the patient make sense of their experiences and the changes to their thinking. This is an important part of the treatment.

## **What does the research show?**

Research [has shown](#) improved effects of psilocybin-assisted psychotherapy after [one or two dosing sessions](#), a couple of weeks apart. Most research to date has targeted depression.

Psilocybin has been found to [increase cognitive flexibility](#)—our ability to adjust our thinking patterns according to changing environments or demands. This is one of the ways researchers believe psilocybin might improve symptoms for conditions such as depression and [alcohol use disorder](#), which are marked by rigid thinking styles.

People with [anorexia](#) similarly struggle with rigid thinking patterns. So researchers and clinicians have recently turned their attention to anorexia.

In 2023, a [small pilot study](#) of ten women with anorexia was published in the journal *Nature Medicine*. It showed psilocybin-assisted psychotherapy (with 25mg of psilocybin) was safe and acceptable. There were no significant side effects and participants reported having valuable experiences.

Although the trial was not a formal efficacy trial, 40% of the patients did have significant drops in their eating disorder behavior.

However, the trial only had one dosing session and no long-term follow up, so further research is needed.

A recent [animal study](#) using rats examined whether rigid thinking could be improved in rats when given psilocybin. After the psilocybin, rats gained weight and had more flexible thinking (using a reversal learning task).

These positive changes were related to the serotonin neurotransmitter system, which regulates mood, behavior and satiety (feeling full).

Brain imaging studies in humans [show](#) serotonin disturbances in people with anorexia. Psilocybin-assisted psychotherapy is showing promise at modifying the serotonin disturbances and cognitive inflexibility that have been shown to be problematic in anorexia.

Research with animals can provide unique insights into the brain which can sometimes not be investigated in living humans. But animal models can never truly mimic human behavior and the complex nature of chronic mental health conditions.

## **What's next for research?**

Further [clinical trials](#) in humans are very much needed—and are underway from a research team at the University of Sydney and ours at Swinburne.

Our trial will involve an initial 5mg dose followed by two subsequent doses of 25mg, several weeks apart. An initial low dose aims to help participants prepare for what is likely to be a new and somewhat unpredictable experience.

Our trial will examine the usefulness of providing psychotherapy that directly addresses [body image](#) disturbance. We are also investigating if including a family member or close friend in the treatment increases support for their loved one.

Data from other mental health conditions has suggested that not everyone sees benefits, with some people having bad trips and a deterioration in their mental health. So this treatment won't be for everyone. It's important to work out who is most likely to respond and under what conditions.

New trials and those underway will be critical in understanding whether

[psilocybin](#)-assisted psychotherapy is a safe and effective treatment for anorexia, and the optimal conditions to improve the patient's response. But we are some way off from seeing this treatment in the clinic. One of the big issues being the cost of this intervention and how this will be funded.

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