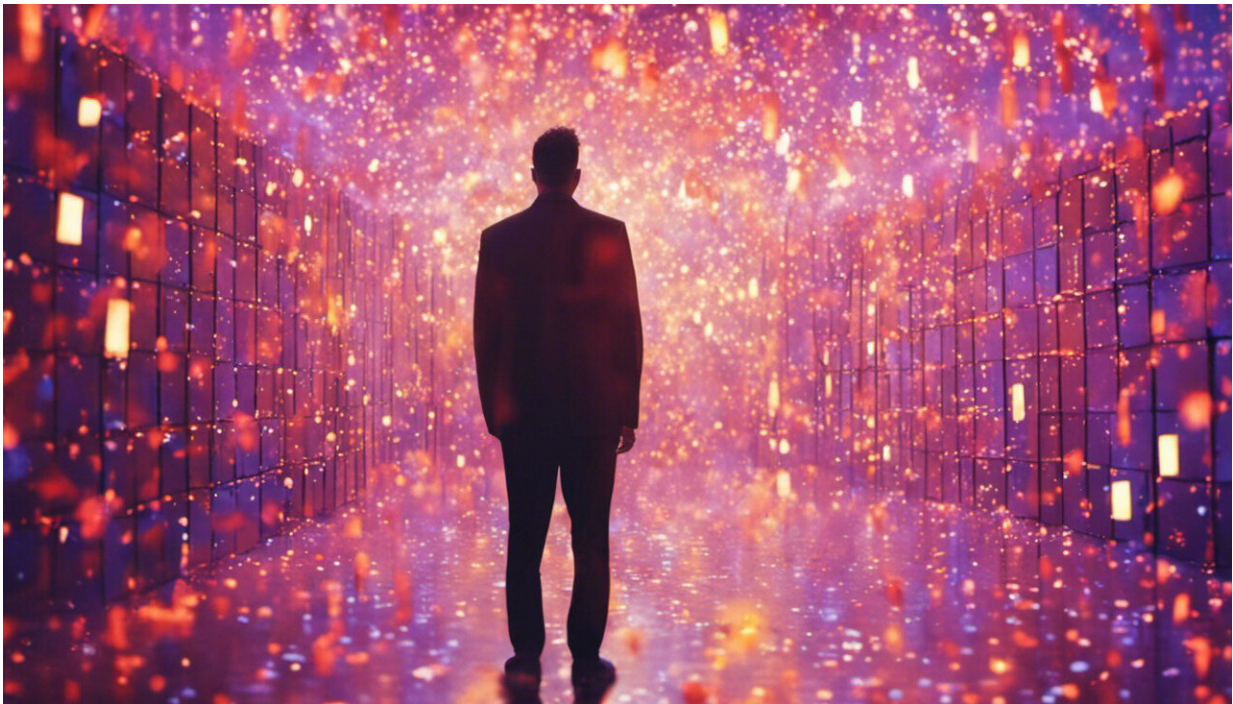


# How imagination can help people overcome fear and anxiety

December 10 2018, by Valerie Van Mulukom

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Credit: AI-generated image ([disclaimer](#))

Almost everyone has something they fear – maybe it's spiders, enclosed spaces, or heights. When we encounter these "threats," our hearts might begin to race, or our hands may become sweaty. This is called a threat fear response, and it exists to help us avoid potential pain.

Most of us only feel scared when a [threat](#) is present. But when the threat [fear response](#) happens even when a threat isn't present, it can lead to post-[traumatic stress disorder](#) (PTSD), phobias, or anxiety. These disorders may often be treated using [exposure therapy](#), but a [new study found](#) that something as simple as using your [imagination](#) can help people overcome fear.

## Overcoming fear

Many fear-related disorders are treated using [exposure therapy](#). This helps people "unlearn" a threat fear response by breaking the association between the "trigger" (an image or sound that causes the threat fear response) and harmful consequences of the threat, by presenting patients with the trigger but without the consequences.

For example, during [therapy](#), soldiers with PTSD might listen to loud noises using headphones without actual exposure to a combat situation. Eventually, the person learns to separate the trigger from the expected threat outcome, and the threat fear response is reduced or eliminated.

However, exposure therapy can't always be used for treatment, especially in cases where re-exposure could be overwhelming, or unethical (such as in cases of abuse). Some treatment methods, such as [guided imagery](#) (where therapists ask patients to form mental images to replace physical triggers), have been promising in treating fear disorders.

Imagination (the conscious simulation of something in our mind) allows patients to immerse themselves with a triggering stimulus in a controlled way, at their own pace, which is why it could be a promising new form of treatment.

## How does imagination work?

Imagination is the mental simulation of things and events that are not currently being perceived. When we see the world, we [construct a mental version](#) of what we're perceiving based on incoming sensory information and prior experience. These internal representations can become memories, or can be used to imagine future or fictitious scenarios.

Imagination uses brain regions like the [visual cortex](#) and auditory cortex (which give our brain information from what our senses are experiencing or have experienced), and memory retrieval regions like the hippocampus (which help us use previous experiences to predict what might happen next). It uses a [similar network of brain regions](#) as perception and memory do.

## **Imagination and fear**

When we encounter something we fear, we experience both a neural response (memory and sensory processing brain regions activate) and a physiological response to this potential threat, such as getting sweaty palms or a faster heartbeat. Imagining a threat stimulus activates emotional processes in response to the threat with a highly similar network of brain regions as when the threat stimulus is actually in front of us.

But because there's no immediate danger when the threat is imagined, repeatedly imagining it will help detach the stimulus from the expected threat since none appears. This weakens the brain's association between stimulus and expected outcome. As a consequence, it also reduces the neural and physiological effects that happen in response.

## **What researchers have found**

In order to study the impact of [using imagination as exposure therapy](#),

researchers taught 66 participants to fear a relatively innocuous threat, by being administered a small electric shock upon hearing either a low or high tone. Participants were then divided into three groups.

The first group was given traditional exposure therapy, where they listened to the same sounds again, without receiving a shock. The second group was asked to imagine hearing the same sounds, also without receiving a shock. Finally, the third group just listened to bird songs and rain (also without the shock), to test the effectiveness of exposure and imagination treatment.

Afterwards, the researchers played the same sounds associated with the threat (electric shocks) to the participants. Researchers measured whether the brains of participants in each group showed a threat fear response using [functional magnetic resonance imaging](#). They then used these measurements to compare which brain regions were activated during the tests – and how strong the response was – between the three groups.

The researchers found that using imagination to reduce threat fear response worked. When subjects were re-exposed to the threat, both their threat-related brain activity and physiological responses were reduced. These reductions were equally effective as those of the exposure therapy group. The third control group that listened to bird songs and rain still had the same threat fear response upon re-exposure.

## **The future of treatment**

This isn't the only research that shows imagination can have similar effects to the real thing. For example, merely imagining situations has been used to [increase happiness](#), help people feel [more connected](#) to significant others, and [increase trust](#) in strangers. What's more, imagination can be trained.

The possibilities for cognitive therapies using imagination are seemingly endless. And since it's a low-cost procedure (in terms of time, money, and risky outcomes), we look forward to seeing these interventions further developed and integrated into current therapies.

However, you shouldn't attempt imagination and guided imagery therapy on your own. Always follow the advice and guidance of professional medical experts. There is some evidence that using imagination in the case of uncertain memories of abuse can lead to [distorted, false memories](#) and increased negative symptoms.

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