

# When seizures aren't epilepsy: Understanding a misdiagnosed condition

By Dolores Tropiano, ASU News  
April 28, 2026

Body stiffening, rhythmic jerking or shaking, staring spells and even loss of consciousness seem like definite signs of an epileptic seizure.

But for thousands of people who experience these symptoms, they are something else entirely.

These episodes that are real, involuntary and often debilitating are known as functional seizures, or dissociative functional seizures, because there is no epileptic-based brain activity behind them.

Often born out of stress or trauma, they can be a medical mystery to the sufferer and those that are sought out for help. Patients sometimes spend years searching for a solution.

That's what led Arizona State University Associate Professor [Nicole Roberts](#) to begin studying functional seizures, which she says sit at the crossroads of neurology and psychology.

Roberts, who teaches in ASU's [School of Social and Behavioral Sciences](#), has published [prior papers](#) on the subject and will be presenting her latest research at the Functional Neurological Disorders Society conference in June.

As part of National Stress Awareness Month this April, Roberts talks about her research, which explores how the brain, behavior and emotion intersect in ways medicine is only beginning to understand.

*Note: Answers have been edited for length and clarity.*

**Question: What are non-epileptic or “functional” seizures?**

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Nicole Roberts and researchers in the ASU Emotion, Culture, and Psychophysiology Lab are also working on a [wearable tech device to help police officers monitor their stress levels in the field](#).

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**Answer:** There's a debate about what this phenomenon is. But basically people are having behaviors that look like an epileptic seizure. So they might be flailing or losing consciousness or staring off into space, and they're not fake and they're not voluntary. They're uncontrolled. But there is no EEG based evidence of a seizure in the way you'd see with epilepsy.

If you bring someone into the monitoring unit and you are able to catch one of these episodes behaviorally, when you look at the EEG, there is no seizure activity.

So it's considered a psychological condition in the way a panic attack without a heart attack would be — or even in a condition like schizophrenia, where you're hearing voices and there are no voices, but it's internally generated.

**Q: You mentioned the word “debate.” What about functional seizures is being debated?**

**A:** The older thinking was that people were faking it or that they were hysterical. They used to be called “hysterical seizures” or stress seizures. So the debate is even in the name.

We now know that while people with functional seizures might show higher levels of cortisol and less cardiovascular regulatory flexibility, for example, you can't necessarily point to one particular thing and say that is the cause of it. That leaves it up for interpretation when someone goes to see a health care provider.

As in other clinical disorders, physiological signals and their mapping to symptoms can vary from person to person.

**Q: How common are functional seizures, and how are they diagnosed or misdiagnosed?**

**A:** There are different prevalence estimates, but one way to think about it is anywhere between 5 and 22% of the people in epilepsy clinics — and even up to 40% in epilepsy monitoring units — actually have non-epileptic seizures.

Because the symptoms often so closely resemble epilepsy, many patients are first treated for epilepsy, sometimes for years before testing — such as video EEG monitoring — reveals the episodes are non-epileptic.

People go to the neurologist and they are given medication. It doesn't work and then they are given different medications, and that doesn't work either.

It takes an average of seven years to receive the correct diagnosis because people think it's treatment-refractory epilepsy. It can take quite a while to realize it's actually not even epilepsy at all.

**Q: What causes these seizures?**

**A:** There isn't a single cause. They're linked to how the brain processes stress, emotion and bodily awareness.

Emotions can play a significant role, especially difficult ones like shame or trauma. In some cases, people may have so much trouble recognizing or processing these feelings that they disconnect from them and they can show up physically. There's a very high prevalence of trauma in this population, but not everyone has had trauma or remembers trauma.

But that's not the whole story — each case is different. Rather than being “all psychological” or “all neurological,” they reflect a complex interaction between brain function and lived experience.

**Q: How are they treated?**

**A:** Treatment usually involves therapy, including cognitive behavioral therapy or trauma-focused approaches. Patients may also learn grounding techniques and ways to better interpret physical sensations and emotional states. Many people see improvement with the right care.

**Q: What do researchers want people to understand about functional seizures?**

**A:** This is a tricky condition to navigate, but we are gaining a better understanding of it each day. The medical community is starting to become more aware of functional seizures and related conditions, and needs to work together — along with the psychological community — to improve patient care.

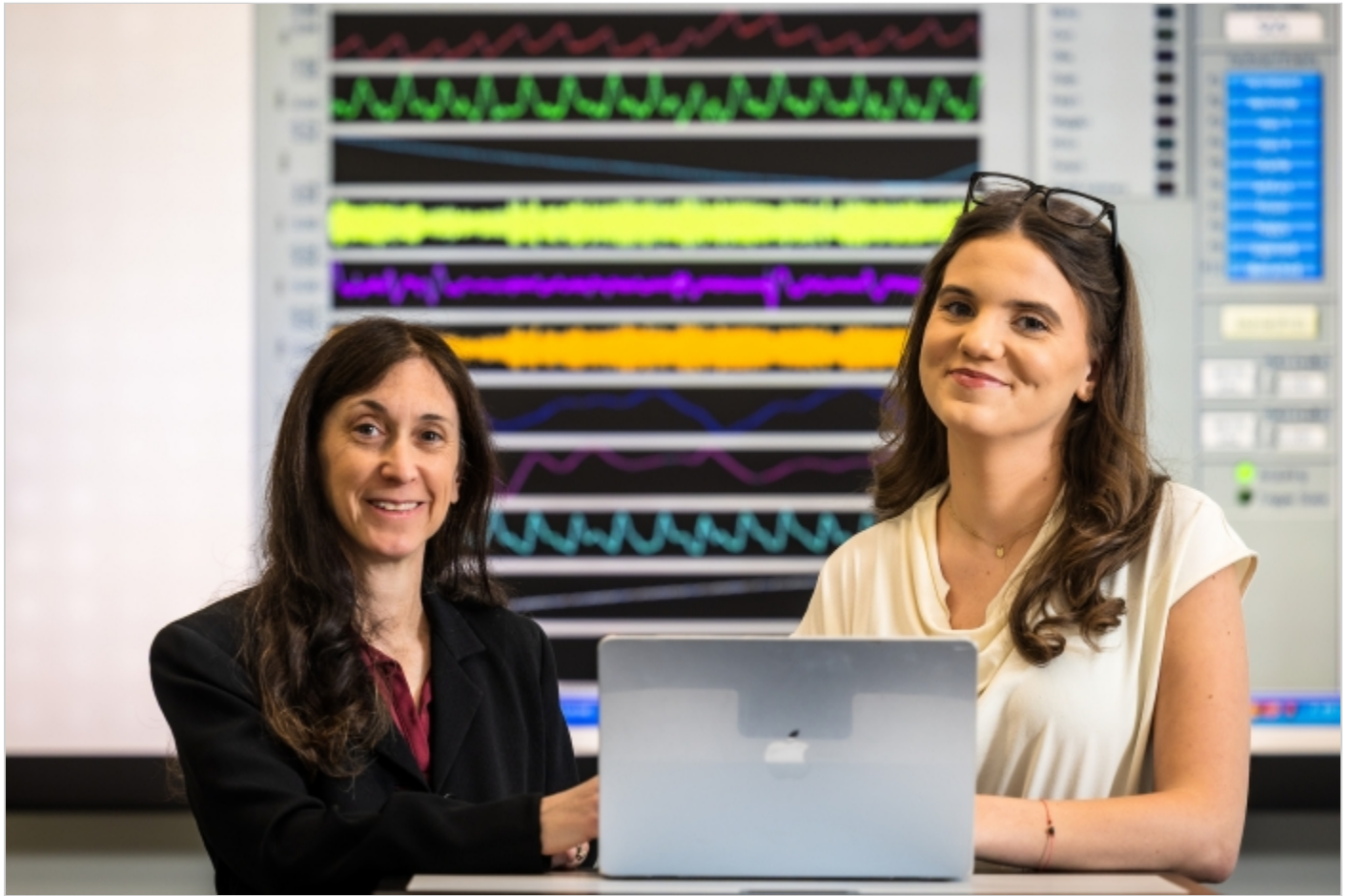
What happens is that anti-epileptic medication is not an appropriate treatment for functional seizures — it doesn't work — so neurologists refer them to psychologists. But psychologists don't know how to address FS either. They worry the person will need medical attention that the psychologist can't provide.

Even if the neurologist says it's not an actual seizure, it's only seizure-like symptoms, the fear — and more importantly the lack of available information about FS — can prevent psychologists from tackling it. And most psychologists have heard of conversion disorders, but most have not heard of functional neurological disorders because it's still a pretty new term. Plus, as mentioned earlier, the terminology keeps changing as our understanding evolves.

Ultimately, researchers want people to know that this is a real, treatable condition — not a character flaw or something imagined. It reflects how the brain and body interact, and it deserves the same level of attention and care as other conditions.

*This story originally appeared on [ASU News](#).*

## **Main image**



ASU Associate Professor Nicole Roberts (left) and psychology graduate student Leila Hoti discuss stress-related seizure data on Wednesday, April 22, at the Health Futures Center in north Phoenix. One of Roberts' research areas is studying non-epileptic seizures that can occur in people as a stress response. Photo by Charlie Leight/ASU News