

**The Primitive Brain:  
The Neuroscience Behind Anxiety and Panic Disorder**  
by Heather Pidcock-Reed

I'll always remember the first time my brain tried to convince me that I was dying. I was a junior in high school, hanging out in my bedroom with a friend and getting ready to head to rehearsals for our spring musical. Out of nowhere, I began to feel a sensation that could only be described as being suffocated. My palms started to feel sweaty. I couldn't catch my breath. Sharp pains shot through my chest. My heart pounded so hard that it felt as if it were going to burst through my chest. My stomach churned violently and I began shivering as cold chills overcame my body. As my friend yelled for my parents, the only thing running through my mind was, "This is it. I'm having a heart attack. I'm dying."

By the time my mother made it upstairs to my room, the feeling was gone. While it felt like eons, it had lasted about five minutes. When I told her what had happened, my mother, thinking of her cousin who had died of a heart attack at the age of 22, rushed me to the emergency room where they ran a barrage of tests. Only to be told that there was nothing wrong with me. My heart was fine. Everything was fine. I was a perfectly normal, healthy 17-year-old girl.

This was the start of a long and arduous journey towards my diagnosis. For the first couple of months after "the incident," I was fine. Then it happened again. And again. They became more frequent over time. Until, almost two years after the first attack, I was diagnosed with [Generalized Anxiety Disorder](#). It took another two years before the [panic disorder](#) diagnosis was added to that.



There are an estimated six million people with anxiety disorders in the United States. It's unclear how many people actually suffer from panic disorder. It's easy to misdiagnose, plus many people who experience symptoms are afraid to seek help for fear of being called crazy, a hypochondriac, or both. Panic disorder is often diagnosed along with some form of [anxiety](#) disorder.

What exactly is panic disorder?

Image 1: *Panic Attack Word Cloud*

Panic disorder is diagnosed when someone has repeated [panic attacks](#). A panic attack often consists of physical symptoms like chest pains, numbness, stomach pain, nausea, sweating, hot or cold chills (sometimes both), dizziness, and being unable to catch your breath. This usually lasts anywhere from five minutes to half an hour, sometimes up to an hour, but rarely longer than that. During this time, you feel like you're [going to die](#).

The long-term effects of anxiety and panic disorders are devastating. Many times, people have a difficult time leaving their homes. It causes poor performance (and attendance) at work and school. It takes its toll on personal relationships. It can change your personality. In my case, I went from a bubbly person who loved to be onstage performing in front of people, to someone who was terrified to leave the house. I became anxious about going out and having panic attacks in public. I became anxious about being anxious, so I stayed home all of the time. This caused severe depression to set in as I became further isolated from society. Anxiety and panic disorder literally stole my life from me.

“When someone suffers from one of these disorders, it’s completely debilitating,” says [Todd Farchione](#). Farchione is a clinical psychologist at the Center for Anxiety and Related Disorders at Boston University. “Partly just because people recognize that what they’re experiencing is irrational, but, they’ve learned to respond in a certain way in those situations so it’s a natural response to those experiences. It can be frightening.”

These frightening experiences can be blamed on the [amygdala](#). The amygdala is the part of the brain responsible for our emotions. It’s linked to our responses of fear and aggression. Once upon a time, in a more primitive world, it kept our ancestors from being eaten by a hungry saber-toothed tiger. Those pesky physiological effects would pump adrenaline through our ancestor’s systems, giving them the ability to run away or stay and fight (in other words, the classic fight or flight response).

If you’ve ever given a presentation, been onstage, or had a big job interview, odds are you’ve experienced the amygdala at work. The butterflies in the stomach, feeling a little breathless, the sweaty palms. Feeling anxious is a perfectly normal response to fear or nervousness.

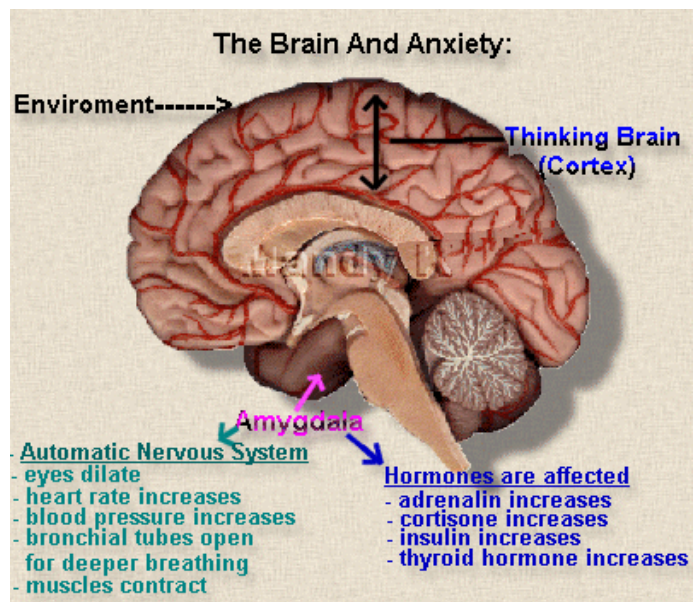


Image 2: *The amygdala contributes to anxiety*

Most people are able to take a few deep breaths and move on with life. Those of us with anxiety or panic disorders have trouble controlling those responses.

A recent [study](#) conducted at the Wellcome Trust Center for Neuroimaging at University College London found that an area of the brain called the periaqueductal gray provokes some of these hyperactive responses. Dean Mobbs, the lead researcher on the study, writes, “When our defense mechanisms malfunction, this may result in an overexaggeration of the threat, leading to increased anxiety and, in extreme cases, panic.”

While these physical responses are just fine and dandy in a genuinely dangerous situation, for a person who has an anxiety or panic disorder, they sometimes seem to occur for no apparent reason. Often, stress can trigger the physiological symptoms and bring about anxiety or panic attacks, as the primitive part of the brain misfires and misinterprets that stress as being something life threatening. This triggers the panic attack. Basically, your brain goes into hyperactive mode, causing your nervous system to go into overdrive and is unable to shut out the physiological responses to whatever the perceived threat may be.

## DEVELOPMENT OF PANIC CYCLE

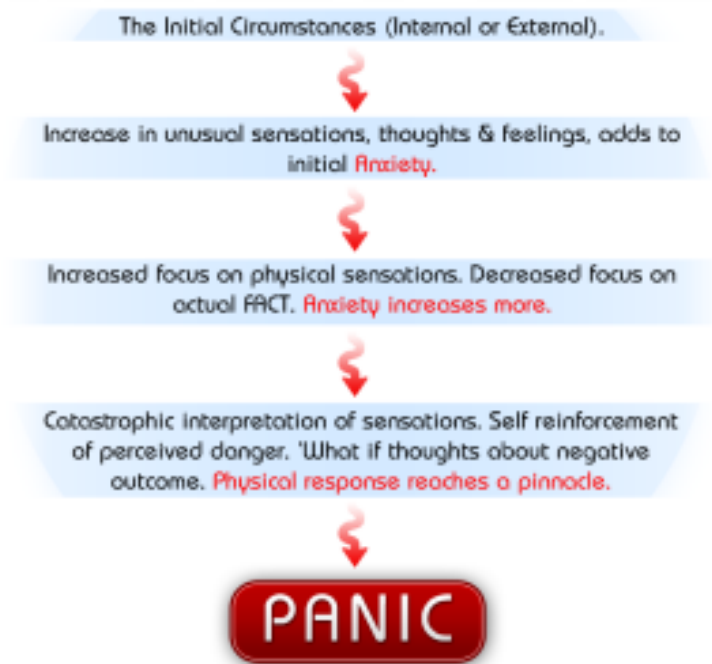


Image 3: How the brain spirals into a panic attack

These “false alarms” occur in situations where it’s perfectly normal to have an anxious or nervous response to something. Sometimes they happen in situations where the brain is picking up on subtle things that *could* be interpreted as a threat. Other times they happen because your brain is associating a particular place or activity with previous situations where you had a panic attack. For example, I had one of my worst panic attacks at a restaurant. Going out to eat remains a potential trigger for a panic attack. While you may think it’s all in your imagination, often times, it’s not. You

are responding to something in your environment that is causing your amygdala to go in hyperactive mode.

There is no magic cure for anxiety and panic disorders. There is, however, hope for those of us who have brains that continue to misfire in this manner. I've found a lot of success with a combination of [cognitive behavioral therapy](#) and medication. Cognitive behavioral therapy is an approach where your therapist helps you to become aware of certain patterns in your thinking and helps you to train yourself (and that pesky misfiring brain) to respond in different ways. The therapy has helped me recognize when attacks are about to happen and given me the tools to begin to "think myself down." Exercise, meditation, and keeping a well-balanced diet are also helpful.

**CBT THERAPY**

*Cognitive Behavioral Therapy*

Cognitive-Behavioral Therapy is a type of evidenced-based psychotherapy that teaches specific techniques and strategies for reducing or eliminating certain types of unpleasant emotions such as anxiety, fears, anger, and feelings of depression.

**What does Cognitive-Behavioral Therapy Involve?**

Appointments with your therapist.

Reading and assignments in between sessions.

CBT Therapy started in the 1960's with Dr. Aaron Beck at the University of Pennsylvania.

**CBT generally takes between 10 to 20 sessions to be effective.**

CBT helps to change thoughts, feelings and behaviors.

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Image 4: Therapy can help!

The most important thing is that we don't ignore our symptoms and hide ourselves away from the world. With proper treatment and management, you can get your life back.

Image Sources:

Image 1: <https://thefamilyinstitute.wordpress.com/tag/stress-management/>

Image 2: <http://www.oocities.org/hotsprings/4670/thebrainandanxiety.html>

Image 3: <https://freudforthought.wordpress.com/tag/anxiety/>

Image 4: <http://lifecounselor.net/cognitive-behavioral-therapy/>