

BREATHE • CALM • RELEASE

mindful

DIGITAL GUIDE

*How to*  
**MEDITATE**  
*with* **ANXIETY**



# Find Your Ground

Emotions can challenge us and disrupt our composure every day—sometimes more than once, sometimes repeatedly. These familiar frenemies include: anxiety, fear, sadness.

Yes, frenemies. We know these feelings so well, they are like familiar friends we are used to hanging out with, but they also pester us. When we are in the grip of a difficult emotion, it can be hard to get perspective. We see the whole world through the lens of that particular emotion. If we're anxious, the future is always grim. When fearful, every possibility is a threat. When sadness grips us, there is no room for even a sliver of joy. Where does mindfulness fit into all of this?

Underlying each of our negative emotions is a kernel of truth, albeit one that has gotten out of hand. Affective psychologists, who study our emotional landscape, believe that all emotions have an adaptive purpose. Fear and

anxiety help us to respond rapidly to real threats, sadness slows things down and helps us adapt to loss.

By increasing our attention and focus, mindfulness practice can give us enough steadiness to curiously explore these emotions as they arise—without jumping to act on them or get pulled into their spiral. We may be able to separate the part of the emotion that contains an intelligent response from the part that has grown beyond its useful life and become excessive and destructive. Please take a bit of time to explore this precarious inner landscape with some of the best mindfulness teachers around today. May you find relief and insight in equal measure.

Barry Boyce  
Founding Editor

**mindful**  
healthy mind, healthy life

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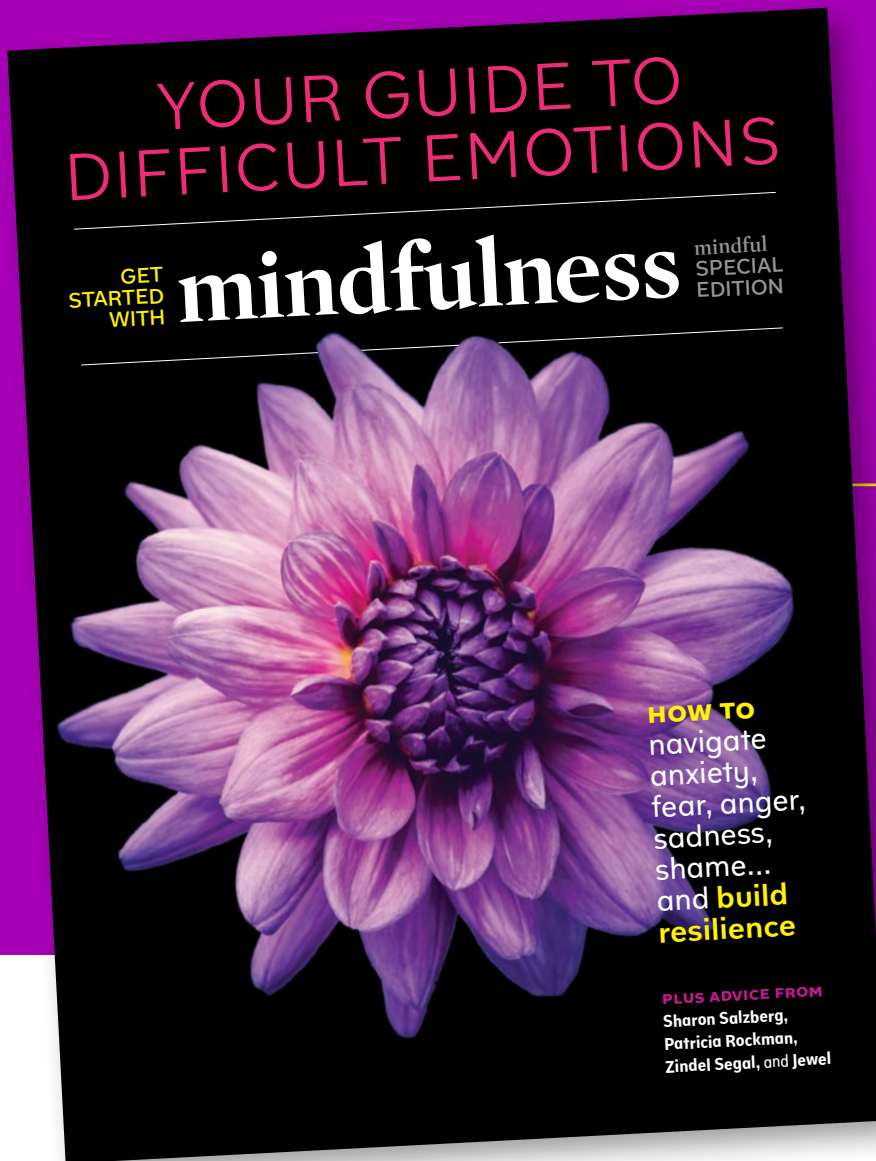


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SPECIAL EDITION

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# Learning to Meditate Through Difficulty

By Carley Hauck

When life begins to feel more intense than normal, it's important to remember to slow down, turn toward whatever you're feeling, and see the bigger picture. Take each day at a time.

Life is always in flux. Every thought, feeling, and moment is quickly changing into the next. In the moment, when something feels difficult, it seems like it will never pass. The practice is learning how to stay with and turn toward the difficulty.

**Carley Hauck, MA**, is the founder of Leading from Wholeness and works as an integrative life coach and wellness consultant with individuals and organizations.

## 1 Come into a comfortable sitting position.

Imagine something difficult that you are going through. It doesn't have to be the most difficult, but something moderately difficult. We want to practice with moderation before we move into the most difficult.

## 2 Recognize your desire to push away the difficulty,

to reach toward something that would soothe the difficulty in the moment (reaching out to someone, eating chocolate, distracting yourself with technology, etc.), or denying that this difficulty is actually happening.

## 3 Now turn toward it.

Breathe deeply in through your nose and out through your mouth a few times. Invite into your awareness a large figure of compassion and strength who envelops you in a blanket of love, acceptance, and security. It can be a big cloud of compassion, a large grandmotherly figure, or anything that feels loving and kind. Now, imagine this figure is holding you.

## 4 Turn fully toward your difficulty.

Face it, head on. There is no need to be scared. Feel this wise being enveloping you and speaking kindly to you: "It will be okay. You are okay. You are lovable. You are enough. You are not alone. We will get through this together." Let yourself offer and receive loving and kind statements as many times as you need until your mind and body can soothe and slow down.

**5 Each time you notice yourself reaching for the old familiar way of turning away from discomfort, try gently turning toward it.** The more you train the mind to acknowledge and name whatever difficulty is here, the less challenging it will feel.



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# Being With What Is

By Ed Halliwell

By practicing mindfulness, coming back to focus when the mind wanders, we are training in presence, irrespective of whether our experience is enjoyable. It's normal to feel some discomfort while meditating—be it a physical pain, a difficult emotion, or an unpleasant thought. By gently returning attention to the breath or the whole body, we learn to manage these experiences wisely, consciously moving attention to a centered place of steady presence, rather than reacting automatically.

And in the practice outlined here, we take the next step in undoing the habits of grasping and aversion by shifting attention gently toward the unpleasant experience. We practice this by “being with it,” neither getting sucked into the stories that drag us into rumination, nor trying to avoid the feeling of what is troubling us. Instead, we move attention compassionately into the experience. Remember to be gentle. If what comes up is overwhelming, this may not be the best practice for you right now. If in doubt, seek the guidance of an experienced mindfulness teacher.

**Ed Halliwell** is a mindfulness teacher and writer, based in Sussex and London, UK. He is the author of three books: *Into The Heart of Mindfulness*, *How To Live Well By Paying Attention* and (as coauthor) *The Mindful Manifesto* and teaches courses and retreats.

## 1 Take an upright, dignified, relaxed

**sitting posture**, and practice mindfulness of breathing for a few minutes. Follow this with a period of mindfulness of body practice, opening awareness to body sensations, as they arise.

## 2 Do you notice any unpleasant aspects of experience that are present at the moment?

Are you feeling discomfort or pain anywhere in the body? If so, where? Be aware of any tightness, pressure, restlessness, heat, throbbing, and so on. Bring attention gently to your thoughts. Are these pleasant or unpleasant? Notice any reactions to arising sensations or thoughts. Are you tending to pull away from them, get annoyed by them, ruminate on them, or are you reacting in some other way? Without buying into them or trying to stop them, simply notice these reactions with kindness and interest.

## 3 Now, turn your attention toward an unpleasant sensation, a

region of intensity in the body. With gentleness, direct the mind's eye to this area and tune into what you find. Allow yourself to feel whatever sensation is there, softly.

## 4 Imagine breathing into the sensation as

you inhale, and breathing out from it as you exhale, letting it be experienced with the rhythm and flow of the breath. Without trying to change it in any way; just offer it a kind space in which to happen. See if you can let go of any attempt to eliminate it or distract from it. Is the sensation moving at all, shifting in location, intensity, or quality? Notice any thoughts that arise in relation to the feeling, and let these pass through in the background of awareness, without trying to follow or stop them. Let go of trying to think your way out of the difficult experience. Just let it be, embracing it as compassionately as you can.

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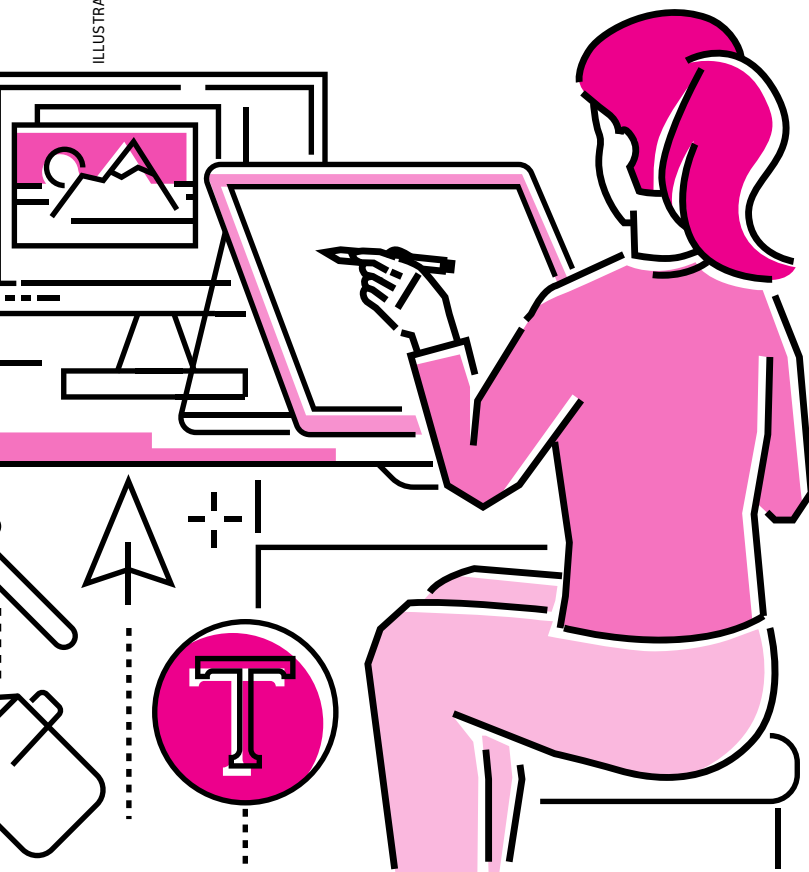
# Attitudes That Can Ease Anxiety

By Bob Stahl

There are certain attitudes that play an important role when working with anxiety mindfully. These attitudes are central to mindfulness, and fostering them will help you develop and sustain your practice. Take some time right now to slowly read the descriptions of the attitudes of mindfulness. After reading each one, pause and reflect upon what it means to you.

**Bob Stahl, PhD**, is coauthor of five books: *A Mindfulness-Based Stress Reduction Workbook*, *Living With Your Heart Wide Open*, *Calming the Rush of Panic*, *A Mindfulness-Based Stress Reduction Workbook for Anxiety*, and *MBSR Every day*.

- 1 Intention** is what sets you on the mindful path to gradually transform your anxiety and find more ease. By bringing intention to working with anxiety, you're developing persistence in seeing yourself as capable and resourceful.
- 2 Beginner's mind** is an aspect of the mind that's open to seeing from a fresh perspective. Meeting anxiety with curiosity can play an extremely important role in transforming your experience. New possibilities arise and this can help you challenge habitual anxious thoughts and feelings.
- 3 Patience** is a quality that supports perseverance and fortitude when feelings of anxiety are challenging. Patience offers a broader perspective, allowing you to see that moments of anxiousness will pass in time.
- 4 Acknowledgment** is the quality of meeting your experience as it is. You can acknowledge that anxiety is present and how much you don't like it, even as you apply patience.
- 5 Nonjudgment** means experiencing the present moment without the filters of evaluation. Stepping out of a judgmental mindset allows you to see more clearly.
- 6 Non-striving** is the quality of being with things as they are. (Note that non-striving relates to your present-moment experiences during meditation and doesn't negate the value of setting a wise intention to grow, learn, and change your relationship to anxiety.)
- 7 Self-reliance** is an important quality for developing inner confidence. With practice, you can learn to trust yourself and your ability to turn toward your anxiety.
- 8 Allowing** is similar to non-striving. It's a quality that gives space to whatever you encounter in the moment. For example, if anxiety comes up as you meditate, you can allow the feeling to be there.
- 9 Self-compassion** is a beautiful quality of meeting yourself with kindness. Bringing this quality into your experience of anxiety can be like being your own best friend, offering your hand in a moment when help is needed.
- 10 Balance and equanimity** are related qualities that foster wisdom and provide a broader perspective so that you can see things more clearly. From this perspective, you understand that all things change and that your experience is so much wider and richer than temporary experiences of anxiety.



# Calming the Rush of Panic

By Bob Stahl

Anxiety softens when we can create a space between ourselves and what we're experiencing. Stephen Covey reiterates Victor Frankl's powerful insight and possibility: "Between stimulus and response, there is a space. In that space lies our freedom and our power to choose our response. In our response lies our growth and our happiness."

When you react in ways that aren't mindful, they can gradually grow into habits that are detrimental to your health and well-being. Consequently, these patterns of reactivity further your suffering or distress. This is why it's so important to discern clearly the difference between reacting with unawareness and responding with mindfulness. When you become aware of the present moment, you gain access to resources you may not have had before. You may not be able to change a situation, but you can mindfully change your response to it.

In regard to panic, when you become mindful that you are in a state of panic, you can begin to respond to it in a way that lessens its intensity rather than inflaming or fueling it. As your practice of mindfulness deepens, you can gradually prevent panic attacks from even occurring and begin to feel much more deeply at ease within yourself and in the world.

So that you feel safe, before you begin to explore feelings of panic, here are some gentle suggestions regarding meditation and other practices. Please tread lightly. Meditations and other practices are meant to help you practice engaging with panic in safe and relatively comfortable surroundings. Know that you can stop at any time. Please take care of yourself in the best way you need to. Remember: easy does it; one step at a time. Slowly and gradually you can learn to live with more ease.

**1 Take a moment right now to be mindful of your breath.** Gently place your hands on your belly.

**2 Breathe normally and naturally.** When you breathe in, simply be aware that you're breathing in; when you breathe out, be aware that you're breathing out.

**3 Feel your belly rise and fall with your breath.** Now take two more mindful breaths and then continue reading.

Diaphragmatic or abdominal breathing helps regulate irregular breathing patterns fairly quickly. Often when you feel panicked, your breathing will become rapid, irregular, and shallow. You'll tend to breathe mostly in your chest and neck. When you shift to diaphragmatic breathing, this will help regulate the breath so you can begin to feel more balanced and relaxed.

*Adapted from Calming the Rush of Panic, by Bob Stahl PhD, Wendy Millstine NC.*





# A Mindful Breathing Practice

By Bob Stahl

Mindful breathing is part of the foundation of Mindfulness-Based Stress Reduction. It involves diaphragmatic or abdominal breathing, also known as belly breathing, which is very helpful in calming the body because it's the way that you naturally breathe when asleep or relaxed.

For this practice, find a quiet place where you can be undisturbed. Turn off your phone and any other devices that might take you away from this special time that you're giving yourself. Assume a posture in which you can be comfortable and alert, whether sitting in a chair or on a cushion or lying down.

## 1 Appreciate your time.

Take a few moments to congratulate yourself that you are taking some time for meditation.

## 2 Become aware of your breath.

Now bring awareness to the breath in the abdomen or belly, breathing normally and naturally.

## 3 Stay with your breath.

As you breathe in, be aware of breathing in; as you breathe out, be aware of breathing out. If it is helpful, place your hands on your belly to feel it expand with each inhalation and contract with each exhalation. Simply maintaining this awareness of the breath, breathing in and breathing out. If you are unable to feel the breath in your belly, find some other way— place your hands on your chest, or feel the movement of air in and out of your nostrils.

**4 Just be.** There's no need to visualize, count, or figure out the breath. Just being mindful of breathing in and out. Without judgment, just watching, feeling, experiencing the breath as it ebbs and flows. There's no place to go and nothing else to do. Just being in the here and now, mindful of your breathing, living life one inhalation and one exhalation at a time.

## 5 Feel what your body is doing naturally.

As you breathe in, feel the abdomen or belly expand or rise like a balloon inflating, then feel it receding or deflating or falling on the exhalation. Just riding the waves of the breath, moment by moment, breathing in and out.

## 6 Acknowledge your wandering mind.

From time to time, you may notice that your attention has wandered from the breath. When you notice this, just acknowledge that your mind wandered and acknowledge where it went, and then bring your attention gently back to the breath.

## 7 Be where you are.

Remember, there is no other place to go, nothing else you need to do, and no one you have to be right now. Just breathing in and breathing out. Breathing normally and naturally, without manipulating the breath in any way, just being aware of the breath as it comes and goes.

## 8 Acknowledge your time.

As you come to the end of this meditation, congratulate yourself that you took this time to be present and that you are directly cultivating inner resources for healing and well-being. Let us take a moment to end this meditation with the wish "May all beings be at peace."

ILLUSTRATION BY BOYKO.PICTURES / ADOBESTOCK



# A Meditation on Anxious Emotions

By Bob Stahl

This practice involves deep investigation into the causes of anxious feelings. Through this practice, you can discover the storylines that tend to trigger and drive your emotions. Although it may sometimes feel as though your anxiety comes out of nowhere, it usually has a source—typically some combination of conditioning, self-stories, memories, thoughts, and buried emotions.

Because this practice involves intentionally exploring the experience of anxiety, it can be challenging. Before you do this practice, take time to consider whether you're feeling up to it, listening to your inner voice to determine whether it feels right for you at this time.

**1 Begin with a brief mindful check-in,**

taking a few minutes to acknowledge how you're feeling in your body and mind.

**2 Now gently shift your attention to the breath.**

Bring awareness to wherever you feel the breath most prominently and distinctly. If your mind wanders, just acknowledge wherever it went, then return to your breath.

**3 Now reflect on a specific experience of anxiety.**

It doesn't have to be an extreme experience, perhaps something that you'd rate at 5 on a scale of 1 to 10. Recall the experience in detail, as vividly as you can.

**4 As you imagine the experience, be mindful of how the anxiety feels**

in your body. Your only job right now is to feel and acknowledge whatever physical sensations you're experiencing.

**5 Now feel into any emotions that emerge:**

anxiety, fear, sadness, anger, confusion. Let these emotions be. There's no need to analyze them or figure them out. Bringing awareness to your anxiety may sometimes amplify your anxious feelings. This is normal, and the intensity will subside as you acknowledge what you're experiencing.

**6 Continue feeling into the anxiety,**

just allowing any sensations in the body and mind to be, cultivating balance and the fortitude to be with things as they are. The fact that you're acknowledging anxiety rather than turning away from it is healing.

**7 As you continue to acknowledge your physical sensations and emotions, they may begin to reveal a host of memories,**

thoughts, feelings, and physical experiences that may have created limiting definitions of who you think you are. You may begin to see more clearly into how these old patterns of conditioning have driven your anxiety.

**8 Now gradually transition back to the breath,**

breathing mindfully in and out. Slowly shift your awareness from your breath to sensing into your heart. Take some time to open into your heart with self-compassion, acknowledging your courage in engaging with your anxiety.

**9 As you're ready to end this meditation,**

gradually open your eyes and return to being present in the environment around you.

*Adapted from A Mindfulness-Based Stress Reduction Workbook for Anxiety by Bob Stahl PhD, Florence Meleo-Meyer MS, MA, and Lynn Koerbel MPH.*

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# MAKE PEACE WITH YOUR **ANXIOUS BRAIN**

The latest research in neuroscience is revealing how mindfulness can help rewire—and calm—ancient brain networks tied to stress, anxiety, and overwhelm.

**By Barbara Paulsen**



It's there when I wake up. Something's wrong. I haven't opened my eyes yet. A minute ago I was sleeping. But now I'm awake and it's there, lurking: Something's wrong. My breathing tightens. I stretch my legs beneath the sheets. I feel my heart beating. The sense of creeping fear is diffuse, elusive, hard to pin down. It's like catching sight of something from the corner of my eye. Something's wrong.

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Only nothing is wrong. I know that. I've experienced these bouts of dread for as long as I can remember. It's familiar, which does not help me hate it any less.

Explaining chronic anxiety to someone who doesn't experience it is like trying to describe a color they've never seen. I have friends who are surprised I suffer from anxiety. After a lifetime of learning to compensate, to push myself beyond my six-year-old fear of joining the Girl Scouts, I do not come across as a nervous Nellie. I am outgoing, talkative, adventurous. One spring, I planned a Class IV whitewater rafting trip with my husband for three days in the summer. I started dreading it the minute after I booked it.

I go for long periods when anxiety leaves me alone, and I forget the tightness of its grip. But when it comes back, triggered by stress or worry about an upcoming challenge, it sticks around, greeting me every morning like some noxious troll who won't shut up. *Something's wrong*, it insists, or more accurately, something is *about to go terribly wrong*. I know this thought is irrational, but that doesn't stop the spiral of anxiety that ensues. Nerves twitch under my skin. I scroll my list of things to do and feel uneasy, even about the tasks I'm (supposedly) looking forward to. When days begin like this, happiness is not on my agenda.

## Too Much of a Good Thing

All animals react when confronted with danger, and that's a good thing. The so-called fight-

or-flight response, also known as the stress response, helps animals either move away from a threat or fend it off. Anxiety—the ability to anticipate danger—is even more of a good thing. Anxious humans who avoided areas rife with predators or saved food in anticipation of crop failure had a better chance of staying alive to pass on their genes. And make no mistake, that's all evolution cares about. It doesn't care that we exquisitely anxious humans might survive but be miserable a lot of the time, massaging our worry beads down to nubs. Let's face it, in the modern world, with far fewer real threats in our environment, many of us are suffering from too much of a good thing.

Too much anxiety robs you of your capacity for joy. When everyday worry becomes chronic, it can flip over into one of several flavors of debilitating emotional disorders. Some sufferers develop specific phobias—agoraphobia, claustrophobia, social anxiety. Others, like me, suffer from generalized anxiety disorder, a free-floating emotional malady. The National Institute of Mental Health estimates that one in five Americans have had some kind of anxiety disorder in the past year. In turn, anxiety can lead to sleep disturbances, panic attacks, hypochondria, depression.

With so much misery at stake, it's a relief to learn that lots of smart people have figured out how to ease anxiety. Whether you suffer from occasional worry or have a full-blown anxiety disorder, it's possible to become fully engaged in life again. In the last three decades, scientists have decoded the spiral of reactions that, over time, build an anxious brain. Turns out, I've wired my





PHOTO BY PROSLIGN / ADOBESTOCK

own brain to be anxious. The good news is I'm learning to rewire it—and you can, too. The more we know about how anxiety actually works, the better we get at beating back the troll. Or at least making it behave.

## Nothing to Fear But Fear Itself

To understand anxiety, you've got to start with fear, because anxiety is like fear run amok. Neuroscientists now know there are two distinct pathways in the brain that trigger the fight-or-flight response. Here's the most direct one: You encounter something in your environment—a man running toward you with a knife, a car veering into your lane on the highway—and a part of your brain called the thalamus sends visual information directly to an almond-shaped structure called the amygdala. That's the control center for the fight-or-flight response. When the amygdala detects a threat, it triggers a surge of

## TO UNDERSTAND ANXIETY, YOU'VE GOT TO START WITH FEAR, BECAUSE ANXIETY IS LIKE FEAR RUN AMOK.

adrenaline and an increase in blood pressure, heart rate, and muscle tension—to prepare you to act. A few weeks ago, as I rode my bike home, I suddenly braked, turned my handles sharply to the left, and barely avoided being hit by a car that had run a stop sign. I never saw it coming. But my amygdala did, and it may have saved my life.

Here's the modern glitch in that evolutionarily brilliant response: "We don't go into fight or flight just when we're being chased by a bear," says Adrienne Taren, a neuroscientist and emergency-room physician at the University of Oklahoma. "We're getting it every time our email pings or we're sitting in traffic. Our amygdala is just going and going and going." That constant barrage of low-level alarm is what we call stress.

So where does anxiety come in? Because we're such imaginative creatures, we can get stressed out by simply *thinking* about something that may go wrong. The part of the brain that worries about a future event we're anticipating is the



prefrontal cortex, and that's where the second pathway to anxiety starts—the one that creates that flurry of anxious thoughts you can't seem to control. Worried thoughts in the cortex trigger a stress response in the amygdala, which explains why we can freak out about things that aren't even happening. "I think of the amygdala as sitting there watching cortex television," says Catherine Pittman, a clinical psychologist and coauthor of *Rewire Your Anxious Brain*. "You can be on your back porch, looking at the beautiful trees, but you're thinking, 'How am I going to pay my mortgage with these medical bills? They're going to take my house away!'" Your anxiety spikes even though nothing around you is dangerous."

It's important to realize that the cortex can't create anxiety on its own. It can only activate the stress response when it gets the amygdala involved. The amygdala, on the other hand, can bypass the cortex, detect threats in the environment, and react, quickly. When I swerved to avoid being hit by that car, my amygdala took over while my cortex was still figuring out what was happening. Similarly, when a veteran feels anxious at what sounds like gunfire, it's because his amygdala has gone into overdrive. The amygdala is constantly sweeping the scene, comparing our current experiences with associations learned long ago and some that are probably hard-wired. When it finds a match, it compels us to react, even if the current situation really isn't all that threatening.

The cortex is like a parent who intervenes to prevent a child from acting on his or her impulses. It acts as a check for when the amygdala overreacts, recognizing, for instance, that what sounded like gunfire was actually a car backfiring and promptly tamping down the anxiety. Sometimes, though, the amygdala's response is so overpowering that it drowns out the voice of the cortex. That's anxiety in overdrive.

The neuroscientist whose work led to the realization that anxiety arises from two distinct neural pathways is Joseph LeDoux, the director of the Emotional Brain Institute at New York University. His discovery of a direct neural pathway to the amygdala overturned the conventional wisdom that the cortex played the starring role in creating anxiety and instead placed the amygdala at center stage. This revolutionary development has enormous implications for why some anxiety treatments work better than others—and for why mindfulness approaches are now getting so much attention.

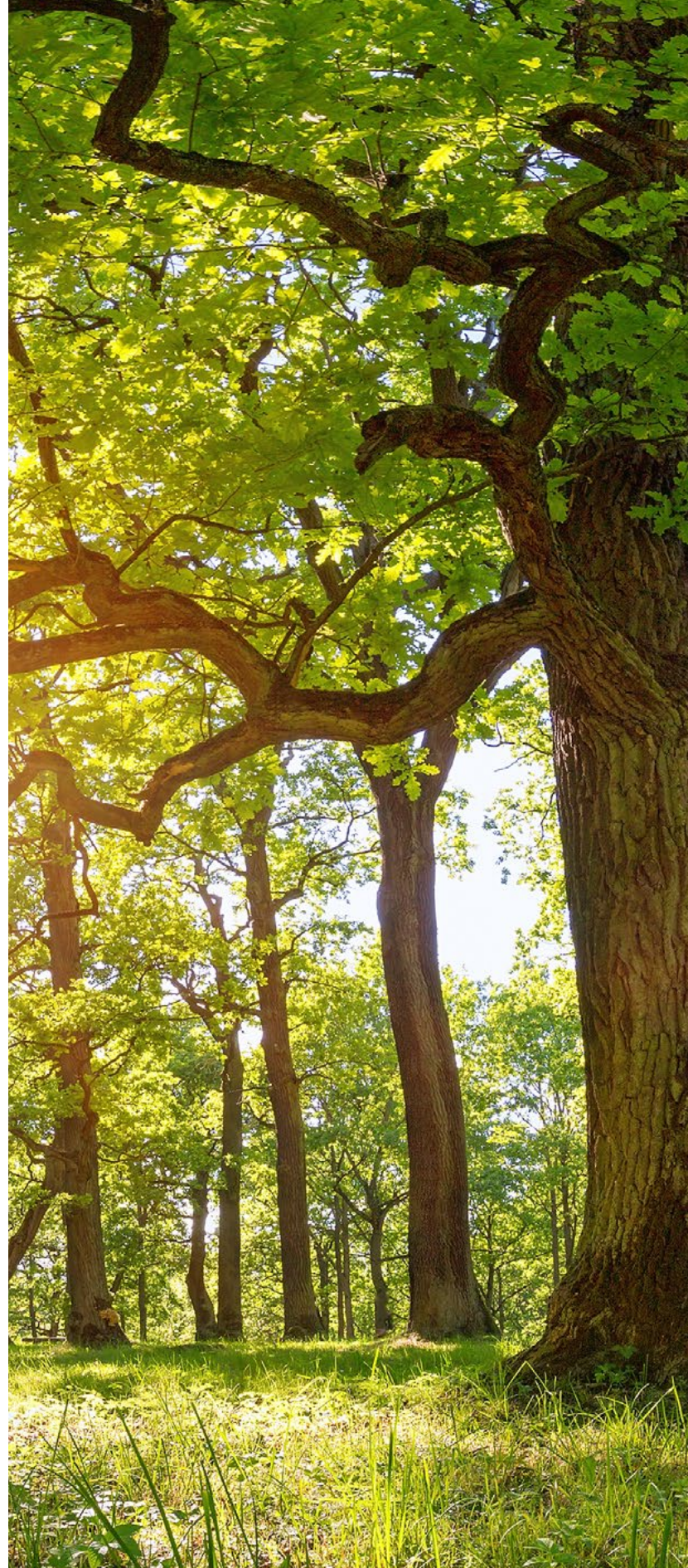


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# BECAUSE WE'RE SUCH IMAGINATIVE CREATURES, WE CAN GET STRESSED OUT BY SIMPLY THINKING ABOUT SOMETHING THAT MAY GO WRONG.

## Getting to the Amygdala of the Problem

In the 1960s, people who suffered from anxiety would have been advised, taking a cue from Freud, that they needed to uncover the unconscious forces driving their fears. By the '70s a more pragmatic approach had taken hold: Learn to change the thoughts and behaviors that lead to anxiety. Cognitive therapy has proven successful in helping people interrogate the negative thoughts underpinning their worries: *Are people really judging me so harshly when I give a presentation? And what's the worst that can happen if they are?* Patients learn to question whether their thoughts are realistic or if they're catastrophizing based on scant evidence.

We now know that cognitive therapy is effective at tackling anxiety that originates from thoughts in the cortex. But it does nothing to tackle anxiety that arises from reactions in the amygdala itself. "Your thoughts can't change the way the amygdala reacts through using logic or reasoning with it," says Pittman, who is also a professor at Saint Mary's College in Notre Dame, Indiana. "The amygdala only learns through experience."

So how do you target the amygdala directly? One way is through behavioral, or exposure therapy, which helps the amygdala "unlearn" associations it's made between danger and particular experiences—like encountering strangers, loud voices, boarding a plane, or driving a car. Behavioral therapy uses the gradual, repeated exposure to whatever's causing anxiety as a way to help the amygdala learn a more neutral association between the experience and our reaction to it.

Another way to treat amygdala-based anxiety is to simply calm down that part of the brain.

Medications are one option. Xanax and its other incarnations are members of a class of drugs known as benzodiazepines. "They basically put the amygdala to sleep," says Pittman. And that works. But if your goal is to lessen anxiety over the long haul, taking benzodiazepines will impede your progress. "What is learning?" asks Pittman. "It's neurons firing repeatedly so that new connections form. Neurons have to fire to rewire. So if you give someone a medicine that prevents neurons from firing, how is the amygdala going to learn?" Alternatively, the reason that another class of drugs—the selective serotonin reuptake inhibitors known as SSRIs—have proven helpful for anxiety is that they appear to help neurons form new connections. "SSRI's promote more communication between neurons," says Pittman. "People start to be able to think outside the box a little."

But drugs aren't the only—or the best—way to calm down the amygdala. There's also the so-called relaxation response. It's the "rest and digest" antidote to "fight or flight." Using MRIs, scientists can now see how, just as the amygdala revs up during stress, it calms down when people employ the deep breathing exercises that prompt the relaxation response.

And that's part of the reason that mindfulness shows so much promise for treating anxiety. Sitting quietly and focusing on the breath activates the relaxation response. But mindfulness-based meditation combines relaxation with something more: a nonjudgmental attitude toward emotions that arise, an acceptance of whatever happens. What the new brain research suggests is that, by combining the relaxation response with a cultivation of paying attention to our thoughts, we can address both of the pathways that lead to anxiety at the same time.

## How Mindfulness Changes the Brain

Adrienne Taren began studying mindfulness because she was interested in stress. Studies have shown that mindfulness makes people less reactive to stress and better at regulating their emotions. But as a researcher at Carnegie Mellon back in 2012, Taren wanted to know what was happening in their brains. Her first study compared a group of people—not meditators—who exhibited mindfulness as a personality trait with another group with high stress levels. The results were striking. People who scored highly for

mindfulness had smaller amygdalas than those who reported high stress. “The assumption is that a larger amygdala is more active,” she says. “If you have a smaller amygdala, you aren’t so stress reactive.”

The next question: Can people who aren’t mindful by disposition rewire their brains to become less reactive to stress? Taren enrolled high-stress, unemployed people in a three-day retreat, where half were taught relaxation strategies. The others were trained in a condensed Mindfulness-Based Stress Reduction program. “We wanted to find out if there’s something specific about mindfulness that’s causing these effects,” says Taren, “not just that stressed-out people relaxed and felt better.” Taren measured the amygdala size of both groups, and after just three days of mindfulness training, the meditation group had smaller amygdalas. That suggested they’d actually made their brains more resistant to stress.

Perhaps even more significant, Taren found that the mindfulness training had weakened the connection between the amygdala and an area called the anterior cingulate cortex, a frontal region responsible for executive functions like decision making and paying attention. Decoupling the stress center from the logic center allowed people to feel more distance from their anxiety, which made it more manageable. “You’re able to just observe those emotions, which damp-

ens the stress response that keeps the front of the brain from working,” she says.

Taren’s work echoes a growing body of research from neuroscience labs across the country suggesting that mindfulness causes brain changes in both the amygdala and the cortex. Neuroscientists are the first to say that they don’t completely understand the significance of these changes. But for now, they do know that breath-focused meditation seems to help people’s amygdalas become less reactive to their own self-critical beliefs. It also makes them less likely to see social encounters as threatening. When people with generalized anxiety disorder are shown pictures of emotional faces—happy, angry, or neutral—their amygdalas react to the neutral faces more fearfully than to the angry ones. “They perceive them as threatening because they don’t know what the person is thinking,” says Sara Lazar, a neuroscientist at Harvard University. “So they go on high alert.” Lazar found that, after mindfulness training, their amygdalas became less dense—the neurons were like trees that had been pruned—and no longer reacted to neutral faces as threatening.

Mindfulness training also changes the way the prefrontal cortex responds to anxiety. “Anxious people have that voice in their head 24/7, going: ‘What if? What if? What if?’” says Lazar. “Normally we completely identify with that voice, but mindfulness helps us step back and change our

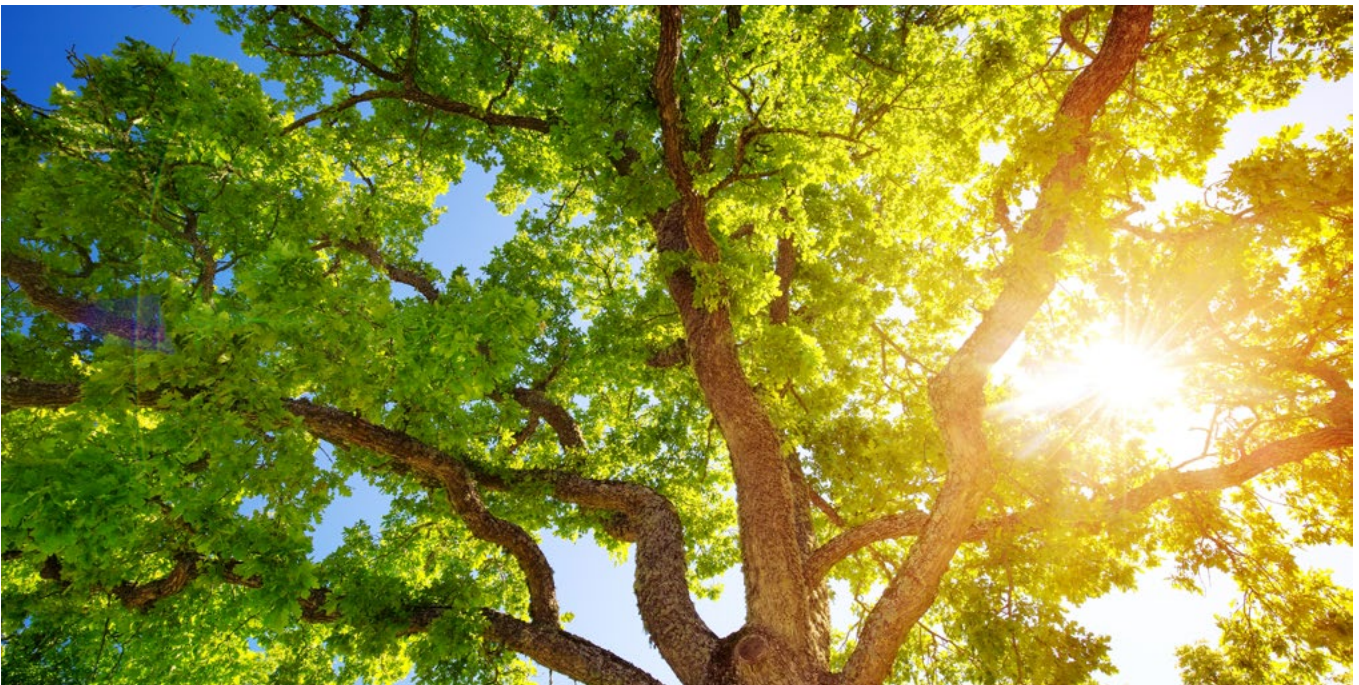


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relationship to it.” Mindfulness works differently from cognitive therapy, which aims to change thought patterns to short-circuit worry. Instead of trying to eradicate anxiety, mindfulness gets you outside of it so it’s just an experience you’re having. That distance helps you endure experiences you find stressful or scary so your amygdala can learn a new way to react.

Adrienne Taren became interested in mindfulness from the perspective of a stress researcher. But when she saw the changes it evoked in the brain, she began a practice of her own. “I’m the Type A kind of overachiever who developed an anxious personality,” she says.

Mindfulness has helped her in the emergency room, where she needs to stay in the moment and make good decisions. It also helped after a painful bike accident. Taren is an off-road cyclist who rides on gravel for hundreds of miles, for fun. After healing from her extensive injury, she panicked when she tried to mount the bike for a competition. Her natural reaction was to suppress her anxiety. But her mindfulness training helped her see another way. “I started talking to my anxiety. I was like, ‘Hello, we’re going to be together for the next 20 miles.’ I was able to picture my anxiety as this little bubble of emotion floating along beside me,” she says. “It was almost comforting.”

## A Little Fear Goes a Long Way

Around the same time my fear of joining the Girl Scouts was keeping me up at night, a little girl was born in a Midwestern town with a rare genetic disease. By the time she reached adulthood, the disease had entered her brain, destroying her amygdala. That woman, now known as Patient S.M., helped scientists discover the key role the amygdala plays in anxiety and fear. S.M. feels no fear from external threats.

To me, that sounded like a dream come true. When I first developed a mindfulness practice, I secretly hoped I could shrink my almond-shaped amygdala down to a peanut. To live fearlessly, able to take risks, pursue adventures, connect with other people without holding back out of worry that my body’s nervous system might betray my uncertainties? Sign me up.

But over the last year or so, my goal has shifted. Extinguishing anxiety is no longer what I’m after. Instead, when anxiety arises, I simply pay attention to its physical manifestations, and slowly—not because I’m wishing it away—my

## WITH SO MUCH MISERY AT STAKE, IT’S A RELIEF TO LEARN THAT LOTS OF SMART PEOPLE HAVE FIGURED OUT HOW TO EASE ANXIETY.

worry recedes. It sounds crazy, but having started on this journey to do everything I could to obliterate anxiety, I’ve learned to value the role it plays in my life. It helps me be more compassionate with myself. It reminds me to trust other people. And that leads us back to Patient S.M.

She has no fear, so her curiosity knows no bounds. She is aggressively social and wants to interact with every stranger she meets. “She has zero personal space,” says Justin Feinstein, a neuroscientist at Laureate Institute for Brain Research in Tulsa, who’s studied her extensively. “There’s no bubble. She has no discomfort looking you in the eye even if you’re a total stranger.” When Feinstein took S.M. to an exotic pet store, she held a snake and closely examined it, rubbing its scales and stroking its flicking tongue. She wanted to touch a large dangerous snake—asking to do so 15 times—despite being told it might bite her.

S.M.’s story offers a lesson in the crucial balancing act between letting our curiosity lead us to new encounters and heeding the fear that makes us avoid them. She’s been the victim of assault many times—had a knife held to her throat, been held at gunpoint—because she is unable to recognize threatening situations. To be sure, living without an amygdala is dangerous. But for those of us with the opposite problem, whose amygdalas see threats all around us? We might benefit from paying more attention to our curiosity, the antithesis of fear.

In the weeks before our rafting trip, my greatest anxiety was of fear itself. I worried what I’d do if my body betrayed me, gasping for breath and panicking. I’d prepared for months, with daily meditation, but even so, my anxiety as we drove to the meet-up point was high. I used every tool in my box: I sang songs on the radio to distract me. I awoke at our campsite by the river the next morning and meditated. Then I took a half tablet of Xanax.

That first day on the river, I bonded with the four Hawaiian men in our boat. As we crashed over



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Adrienne Taren, neuroscientist and  
emergency-room physician

the rapids, I observed “me” in the boat, too busy to feel anxious as we paddled like crazy. My vantage point had shifted: Instead of feeling buffeted by each rapid, I just saw myself paddling down the river. I didn’t once panic...even on one particularly gnarly rapid when we crashed into a boulder and my husband somersaulted out of the boat. He was

OK. And—I realized—I was too. For the next two days I meditated in the morning, but I didn’t reach for the Xanax. My amygdala was learning there was nothing to fear. My sensations of anxiety had changed to excitement. By the last day, I felt like I could paddle on whitewater every day.

I won’t lie: I’ve awoken anxious many days since that trip. But there’s a distance to my angst that wasn’t there before. I’ve noticed that the physical experience of anxiety doesn’t have to spiral out of control, that it can even make me feel more alive. I call this the Anxiety Paradox: By allowing myself to feel anxious, to not succumb to the desire to “just make it go away,” anxiety somehow lessens its grip on my psyche. And that opens up a space to let joy in. ●

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#### ABOUT THE AUTHOR

**Barbara Paulsen** is a freelance writer, editor, and podcast producer. She was formerly the longtime award-winning story development editor at *National Geographic*.



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