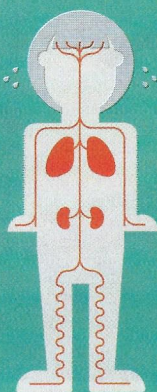


# FEAR FACTOR

Your pal popping up in a zombie mask to scare the bejeebers out of you? Not cool. But how your body handles fright is quite amazing.

BY GINA ROBERTS-GREY ILLUSTRATIONS BY MATTIAS MACKLER

## YOUR BODY ON FEAR



**Thunk!** You hear a noise downstairs...what was that? The fright sends off a lightning-fast chain of events in your body.



### ALERT, ALERT

Two "OMG!" messages are sent out: One zips to the amygdala—your brain's fast-acting emotion center—while a much slower alert travels to the prefrontal cortex, the thinking region of your brain.



### WAKE UP!

The amygdala helps activate your fight-or-flight response, cuing your adrenal glands (located above the kidneys) to release stress hormones into the bloodstream. Now you're hyperalert.



### I SPY...

This shot of hormones stimulates your eyes, dilating your pupils while also tightening muscles to pull your peepers wide open. Your field of vision is enhanced, making it easier to ID the trouble.



### FEAR FINALE

Once you're no longer at risk, your noggin sends out an "All clear!" signal to stop releasing mega-amounts of stress hormones, and your body starts to return to normal.



### DANGER DEBATE

The prefrontal cortex finally gets the memo. If it decides there's a rational reason for the sound, the fight-or-flight response shuts down. If not, it negotiates how to stay safe.



### ON END

A reflex causes the hairs on your arms and legs to stand up—a.k.a. goose bumps. This benefits cats (it makes them appear larger to predators) but is useless to us less fuzzy humans.



### GO TIME

It will take extra oxygen to face the potential intruder head-on (or sprint away), so your heart starts to pump faster, causing your blood pressure and breathing rate to spike.

**18% OF U.S. ADULTS** say that they have been in the presence of a ghost, while almost one in three people feel like they've had some sort of contact with the dead. Talk about America the Boo-tiful!





## WHY WE'RE SCARED OF THE DARK

You can thank our early ancestors, who were vulnerable to predators at night. Our brains haven't learned to shake the evolutionary anxiety that comes with darkness, and while we no longer freak out about lurking saber-toothed cats, many people still have a sense of dread once the lights go off.

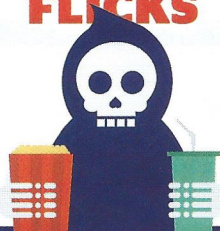


## Hooked on Thrills

Why do some of us love a gut-clenching horror movie while others spend half of it with our hands over our eyes? It's because we have different responses to the mix of chemicals that are released when we're frightened. Certain people get a can't-wait-to-do-that-again physical kick from this surge, making thrills—whether from a sky-high roller coaster or an eerie haunted house—a positive experience. But if you don't have this rush, there may be no upside to being spooked. It's just plain pee-your-pants terrifying.

Genetics and how your brain is wired influence which reaction you'll have. And because one of the main chemicals released, dopamine, can leave you wanting more, some people *do* become fear junkies. But it's actually not the scare that keeps you coming back—it's the anticipation. Dopamine activity peaks at the moment just *before* the stomach-lurching drop of the roller coaster. Wish that you had a better scare tolerance? Humans can adapt quickly, so introducing yourself to small doses of a safe thrill (say, watching a network TV version of something creepy) can help you find the fun in fright.

## TOP FRIGHT FLICKS



These movies pulled in a scary amount of money.

\$293.5 million

The Sixth Sense

\$260 million

Jaws

\$232.9 million

The Exorcist

\$155.4 million

What Lies Beneath

\$140.5 million

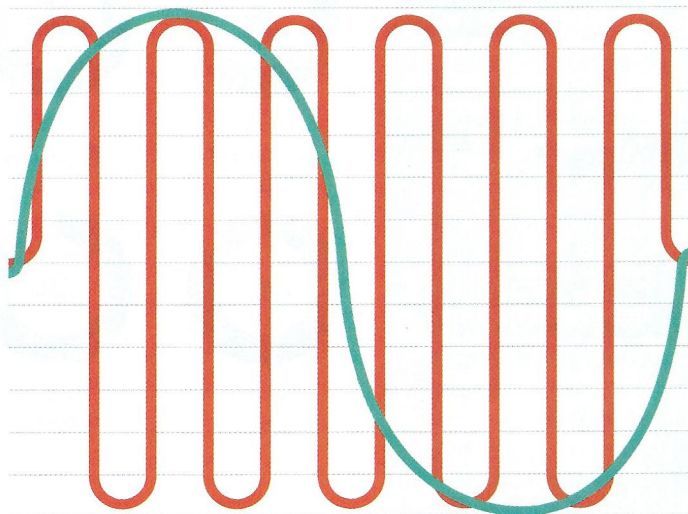
The Blair Witch Project

## Everyone Hears You Scream

It's true: Nothing screams danger more than a scream itself. Unlike most other sounds, shrieks have a unique fluctuation of loudness that flips on the brain's fear circuitry, says a recent New York University study. While the volume of normal conversation may rise and fall four to five times per second, the volume of your "Eek, a water bug!" screech fluctuates a rapid 30 to 150 times per second (known as roughness). The only other sounds that are similarly jarring to the brain? Car and house alarms—smart.

- Talking
- Screaming

The "rougher" the noise, the scarier it sounds.







**FEAR OR PHOBIA?**

It's normal for a run-in with a spider to make you jumpy, but if it leaves you absolutely paralyzed with terror or gets in the way of everyday life (you refuse to go into your bedroom because you saw a cobweb on the ceiling), that could be a phobia. Experts can help by treating you with desensitization therapy, where you take baby steps to confront what you're afraid of. (First you'll look at images of a spider, for example, then hold a plastic toy spider, next watch a video of spiders scuttling about, and eventually face a real live specimen in person.) Click to [locator.apa.org](http://locator.apa.org) to find a psychologist in your area.

### 3 STEPS TO REIN IN PANIC



#### BREATHE

Feeling scared? Deep, steady inhalations will help slow the production of panic-inducing hormones, lowering your heart rate and promoting muscle relaxation—*ahh*.



#### TALK YOURSELF DOWN

Remember that your body's fear response is 100% normal and is in place to protect you from potential danger. So embrace those sweaty palms, racing heart, all of it!



#### MASSAGE YOUR EAR

Gently rubbing from the top to the lobe may stimulate the brain's vagus nerve, which is responsible for helping to restore a feeling of calm after a fight-or-flight response.

## A Healthy Dose of Terror

Your fear response does more than keep you safe in the face of danger.

### ✓ IT'S A BOND BOOSTER

Rock climbing with a friend or watching *Rings* (the big horror movie this Halloween) with your partner could bring you closer. And thanks to the chemicals that flood your body when you're scared, memories of the event are more vivid. That's why your recollection of bungee jumping with your college BFF sticks out more than any night spent studying.

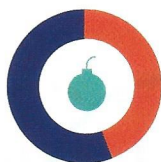
### ✓ IT CAN UP YOUR GAME

Whether you're giving a speech at a wedding or you spot a fin while swimming in the ocean, feeling scared can improve your performance by heightening concentration. The result: You'll nail the toast or swim faster than you ever thought possible.

### ✗ IT'S NOT ALL GOOD NEWS

The flood of adrenaline that helps your heart rev up so you can flee a spooky situation can be toxic in large amounts. It can even lead to a heart attack, especially if you already have cardiovascular trouble. Never use that Grim Reaper mask on Granny!

## These Are a Few of the Scariest Things



44.4%  
Terrorist  
Attacks



33%  
Reptiles



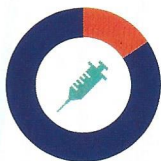
31.4%  
Tornadoes



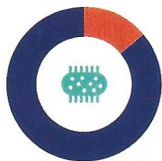
28.4%  
Public  
Speaking



27.4%  
Heights



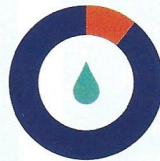
18.5%  
Needles



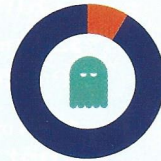
16.5%  
Germs



15.2%  
Flying



12.2%  
Blood



9.7%  
Ghosts

SOURCES: Diana Greene-Chandos, M.D., professor and director of neuroscience critical care, Ohio State University Wexner Medical Center; Margee Kerr, Ph.D., sociologist and author, *Scream: Chilling Adventures in the Science of Fear*; Gail Saltz, M.D., associate professor of psychiatry, Weill Cornell Medicine; Richard Wright, M.D., cardiologist, Providence Saint John's Health Center; Chapman University survey