A Halloween Scare Can Sharpen the Brain

Frightening situations can trigger a fight-or-flight reaction that energizes the system and trains people to beware of actual threats.

By BY ALENE DAWSON

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Halloween is the time to indulge those seemingly pathological cravings to get scared out of your skull. Who in their right mind would subject themselves to blood-splattery horror movies or haunted houses blaring high-pitched screams while serving bowls of grapes dressed as slimy, edible eyeballs? Lots of us, and experts say good can actually come from these predilections.

**Fear protects us**

"People think being afraid is a bad thing, but the reason we evolved to be afraid is that the world is pretty dangerous and we've evolved very powerful systems that automatically force us to do our natural defensive and protective behaviors," says Michael Fanselow, a UCLA behavioral neuroscientist.

Some fears are learned; others are encoded in our DNA: Rotting flesh (we're looking at you, zombies), snakes, blood, heights — even our tiny-brained ancestors understood these were unsafe. And the fear prompted immediate responses, Fanselow says.

**Horrors train us**

A headless horseman likely won't decapitate you on Sunset Boulevard, and it's doubtful a goblin will eat your liver for dinner, but Fanselow suggests that, like the original Grimm's Fairy Tales, scary films are a tutorial to beware of actual threats.

Watching horror movies, "you have more control, your automatic fear responses are still strong but not completely taking over, so what we learn is more how to face and deal with our fears," Fanselow says. "If you know you're going into a dangerous environment, like a combat situation, it's good to have a lot of training and experiences that are similar but aren't quite so dangerous, so we learn to behave adaptively."

**Women like frights**

"Female moviegoers may enjoy horror or slasher films featuring a 'final girl' character … the last female character to survive. She confronts and often kills the murderer or villain," says Martha Lauzen, executive director of the Center for the Study of Women in Television and Film. 🡪

Sixty percent of the "Paranormal Activity 4" audience was younger than 25, and half was female. Lionsgate exit polling showed the audience for the gory "Saw 3D" was just 56% male. And for "Saw IV," 52% were female.

Stanford professor of communication James T. Hamilton, author of "Channeling Violence: The Economic Market for Violent Television Programming," isn't surprised. "I found in my research men 18 to 34 were the largest consumers of violence, but next were women 18 to 34," he says.

**Fears teach youth**

A major brain area driving the fear response is the amygdala, and it's usually the prefrontal cortex that allows reaction control. Risk-taking spikes in teenage years and early adulthood, when people have to face dealing with dangers on their own.

"The brain changes physically when we learn, and young adulthood is when the parts of our brain that provoke and control our fears need experiences in order to learn and come into balance," Fanselow says.

**Thrills 'juice' the brain**

Arousing situations, "whether joyful or frightful, juice up the brain," says Joseph LeDoux, a neuroscientist and director of New York University's Emotional Brain Institute and author of "The Emotional Brain."

Horror movies energize the system: Hearts pump faster, blood pressure rises and dopamine releases, as does norepinephrine (which readies the body for flight-or-fight response) and endorphins (which kill pain), Fanselow says.

But experts agree that children's brains are too vulnerable for scary movies.

And some adults are vulnerable too. "There have been case reports of people having stress symptoms after watching 'The Exorcist,' " says Richard J. McNally, a Harvard psychology professor. "But these folks already had histories of mental disorders and thus were vulnerable."

And many people want nothing to do with Halloween frights. "Genetics, epigenetics, upbringing and all the other individual experiences they've had probably all contribute," LeDoux says. "It's a matter of degree."

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