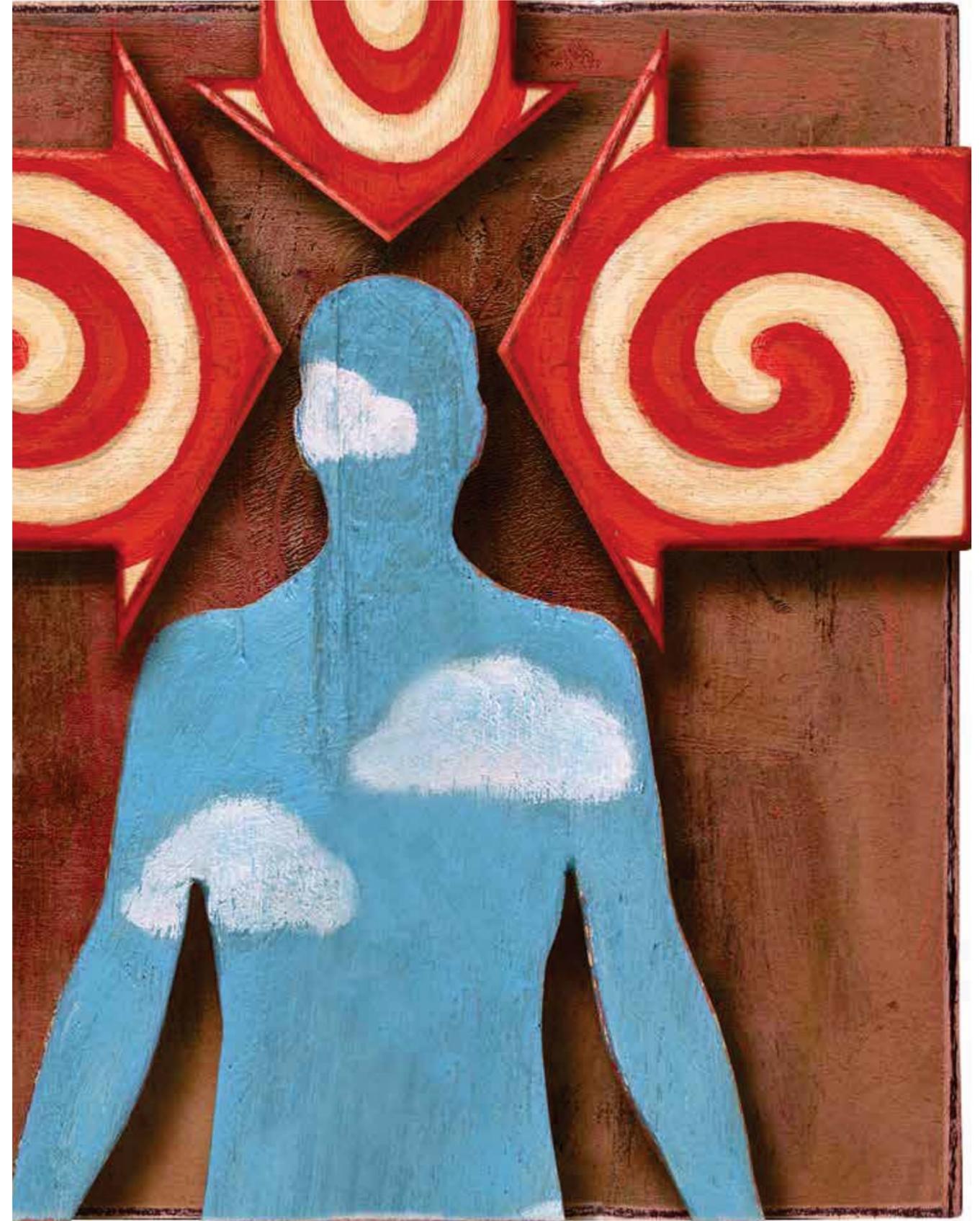


*f*UTURE

# THE RES

Stressful events don't have to be major to matter. According to a decade-long study by Penn State professor and stress expert David Almeida, our future health depends on how we handle minor setbacks every day. By Mary Murphy · Illustrations by Maria Rendón





**H**ow was your day today? Your answer might be more important than you think. • There's a well-documented link between major life events, like the death of a loved one, divorce, or loss of a job, and long-term physical health. But what about a traffic jam, a disagreement with a friend, a chaotic day at work? How do life's little hassles—and how we cope with them—affect our health and well-being? • That's what David Almeida, professor of human development and family studies at Penn State and the faculty affiliate for the Penn State Center for Healthy Aging, wanted to find out.

Almeida and his colleagues asked more than 2,000 people to report their moods for eight days during two periods: once in 1995 and again in 2005. They also gathered saliva samples to determine how much cortisol, the hormone released during stress, each person produced. The result, published in the October 2012 issue of the *Annals of Behavioral Medicine*: People who dwelled on daily stressors were more likely to suffer from chronic health conditions a decade later.

We talked to Almeida about his findings, what they mean for the field of stress research, and what we can do today to prevent stress from taking a physical toll tomorrow.

#### How did you become interested in stress?

I worked my way through college by working in childcare, and I became very interested in the difference between the conflicts mothers and fathers have with their kids. Mothers report more conflict than fathers, and they also report being more warm and loving than fathers. I was very curious about why that was. I found it simply depended on how much time fathers spent with their kids. If fathers spent as much time with their kids as mothers, then they were equally warm and loving. Obviously, daily stress is a big theme in the study of parenting, and I found it fascinating, so in 1993, I went to University of Michigan to train in daily diary studies.

#### What's a daily diary study?

This is the type of study I do, and the neat thing about these studies is that instead of focusing on how people differ from each other, the focus is on days, and how days differ from each other. In the past, stress research was more concerned with weeks, months, or even years. The focus of my research is trying to characterize what makes a good day, what makes a bad day, and who's likely to have more of each.

#### Does that make the results more accurate?

Yes, that's one of the advantages. People have what's called a "memory bias." Oftentimes, when you ask someone to recall over a week, they'll recall over longer periods. And it's also very difficult for people to average over time. But the real benefit of daily diary studies is that you're able to get within a person, and follow them over time, and you can see how stressors unfold.

#### What prompted the idea for a 10-year study on daily stressors?

In 1993, the MacArthur Foundation was funding a huge study on mid-life in the United States, called the MIDUS study. I went to this group of researchers and said, "If you really want to know about mid-life, you want to know about the type of days people have." They agreed to let me design a daily diary study—the largest ever—that I could piggy-

back off of their national study. I got funding from the National Institutes of Health, with the goal of trying to determine how individual days affect a person's long-term health. We interviewed 2,022 people, ages 34 to 84, every night for eight consecutive nights, first in 1995 and then in 2005.

#### What kind of questions did you ask?

They were 20-minute conversations, and we asked, mainly, "How was your day?" How you spent your time, how much work you got done, whether you received any social support. We wanted to know about specific moods, physical health symptoms, like stomachaches or headaches, and then a lot of questions about daily stressors that you might have had. On four of those days, the subjects were asked to collect saliva and send it in to us. This allowed us to link the self-reports of stress to a biological indicator of stress, the presence of the stress hormone cortisol in saliva. We were then able to look at and compare good days versus bad days in this national sample.

#### Were the results what you expected?

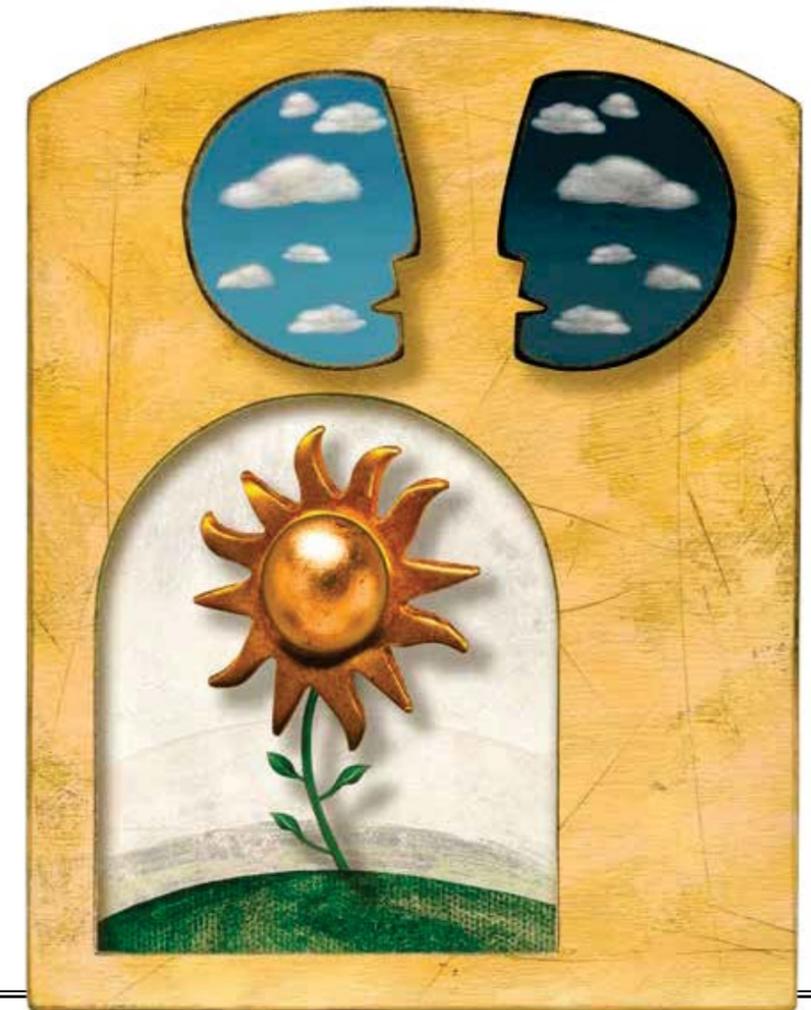
Honestly, I was surprised. I got into this thinking that it was fairly simple—that exposure to stressful events was going to determine health and well-being. I thought people who had more frequent arguments, more frequent work overloads, more frequent problems at home, were the ones who were going to be least healthy. But what we found was that the exposure to the stressors didn't make much difference at all. It was people's emotional reactions to them. Some people had extreme numbers of daily stressors in their lives, but they let

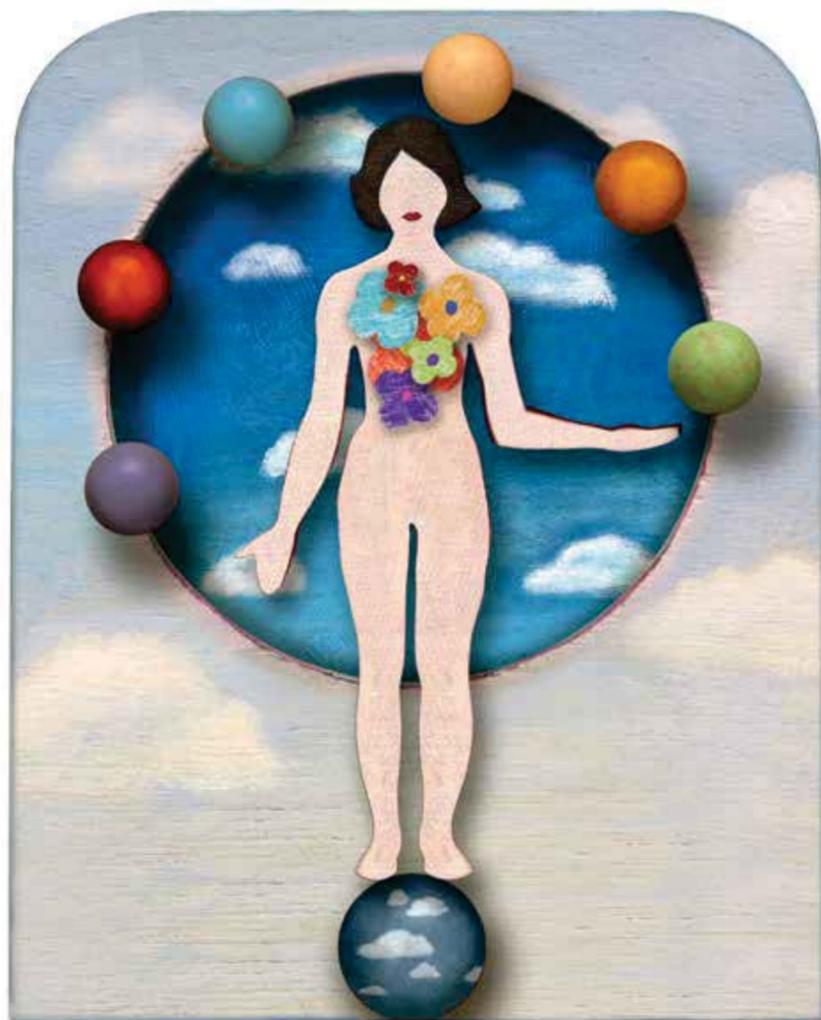
the stressors sort of slide off their backs. Ten years later, they were fine. But people who had even minor stressors, who got really upset by them, were the ones who were most at risk for psychological as well as physical problems in 2005, especially chronic illnesses, like diabetes, arthritis, and heart disease.

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#### How does emotional stress create physical problems?

It's a direct physiological path. When you become agitated in face of a stressor, your body recognizes that there's a challenge. That





“fight or flight” response signals your body to release cortisol and other hormones to meet the challenge. These hormones increase your blood sugar, speed up your heart rate, and give you a surge of energy. If you’re still dwelling on this stressor by the end of day, your body is still activating. Having powerful hormones coursing through your system is taxing. It creates wear and tear. It actually drains your energy.

Plus, there’s the indirect consequence of what people do to cope with the stressor.

**“Having powerful hormones coursing through your system is taxing. It creates wear and tear. It actually drains your energy.”**

how we saw our parents react to stress. The other piece is our social station in life: our jobs, whether or not we’re parents. And interpersonal tensions, especially those involving family members, are more likely to evoke

Cortisol production affects glucose levels and makes us crave sugar and fat—typical “comfort foods”—so people will turn to junk food. Some people abuse substances to cope: smoking or drinking alcohol. And all of these things dramatically affect the quality of your sleep, which we know is so important for overall health.

**Why do some people face more daily stressors than others?**

Younger people have more interpersonal stressors that come with starting careers. Women tend to have more stressors than men. As people grow older, they in general have less exposure because they’re retired or not as active. But it’s a person’s reactivity—the emotional response—that matters. Actually, one of the surprising results we found was that people who experience more daily stressors also have more positive events in their lives.

**The same things that bring stress can bring happiness.**

Exactly. Happiness and stress come from opening up to more life experiences

in general. I think anyone with children would probably attest to this. Kids are a source of both immense joy and immense frustration.

**What determines how a person responds to stress?**

Part of it is how we’re brought up, how safe and secure we felt as children,

high reactivity than something like deadline pressure at work.

**If we’re aware of our response to stressors, can we change it?**

Absolutely. First, it’s important to figure out what creates a reaction for you and try to avoid it. It sounds obvious, but it can be as simple as avoiding contact with a neighbor who irritates you. There are plenty of triggers we can’t get rid of, though. The best thing to do when you feel yourself reacting is to engage in some kind of physical activity. Physically, we’re cavemen living in a world of modern stressors. Our ancestors developed the “fight or flight” response to fight off predators or run away, so our bodies expect us to deal with stress in an active way. Today, obviously, we don’t solve most problems physically, but we still need to purge these hormones. It’s as easy as going for a walk. I do this myself, and it truly works.

**What if that’s not possible?**

Try to mentally distract yourself. The most damaging part is the ruminating hours and hours afterward. But that doesn’t mean you should distract yourself from a stressor that can be solved. You can’t exactly walk away from your crying 3 year old or angry boss. Try to resolve the issue, if you can, and then let it go.

**Who will benefit from these findings?**

My hope is that researchers will start to consider daily stressors and reactivity in their own research. Practitioners, like doctors and psychologists, will be more aware of the types of daily stressors people experience in particular, so they can help offer interventions. I think it’s important for the public to hear about these findings, as well. Oftentimes, when researchers have a finding, they’re a little bit cautious about getting the word out, because they don’t want it to be misconstrued. But this is straightforward, and knowing the impact of daily stressors can help so many people.

**Do you ever get sick of hearing people talk about how stressed they are?**

*[Laughs]* There’s no denying that the term “stress” is used far too often. I think a challenge for researchers is to rein it in and put boundaries on what “stress” is, because once we start doing that, then we can treat it scientifically. Linking stress to a biological basis for health and well-being is key. People are starting to understand the connection—that stress is really about how our bodies adapt to challenge. It’s not all in your head. ■

## Stress Busters

David Almeida offers tips on how to stress less, one day at a time:

**Get physical**

Vigorous exercise is best, but a short walk can help, too. “Anything that gets your heart rate up,” says Almeida, who prefers group cycling classes.

**Breathe deep**

When you find yourself dwelling on a stressful situation, switch mental gears and concentrate on breathing slowly and deeply for several minutes. The increased oxygen flow to the brain has a calming effect.

**Avoid triggers**

Identify people or situations that create an emotional response, and do your best to avoid them. Skip social events that make you anxious, for example, or distance yourself from friends who pick fights.

**Cut the junk**

Stress hormones create cravings for high-fat, high-sugar foods, which cause energy levels to spike and then plummet. And for a lot of people, says Almeida, eating poorly is a stressor in itself. “It’s a downhill spiral.”

