

Harvard Business Review

www.hbr.org



July 2003



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We all know that too much stress hurts our health, our relationships, and our productivity at work. The good news: New research reveals that controlling stress is easier than you thought.

Pull the Plug on Stress

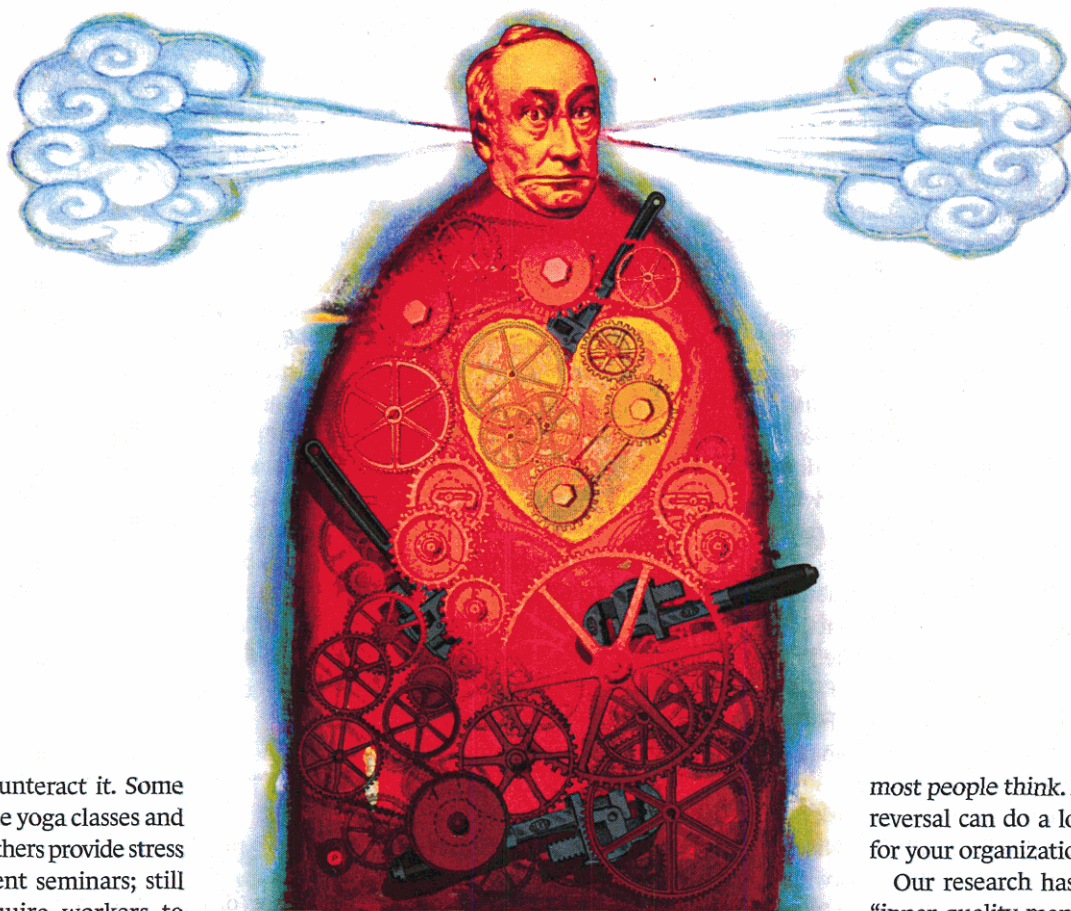
by Bruce Cryer, Rollin McCraty, and Doc Childre

THESE DAYS, stress is even more rampant than it was in 1983, when *Time* magazine declared it to be “the epidemic of the eighties.” Stress is growing: According to a survey by CareerBuilder, an on-line recruitment site, the overall percentage of worker stress increased by 10% between August 2001 and May 2002. And stress hurts the bottom line: In 1999, a study of 46,000 workers published by the Health Enhancement Research Organization, or HERO, revealed that health care costs are 147% higher for those individuals who are stressed or depressed, independent of other health issues.¹ The study, which included employees from Chevron, Hoffman-La Roche, Health Trust, Marriott, and the states of Michigan and Tennessee, also found that health care costs generated by stress and depression exceeded those stemming from diabetes and heart disease—both stress-related illnesses.

But what exactly *is* stress? Generally speaking, “stress” refers to two simultaneous events: an external stimulus called a stressor, and the emotional and physical responses to that stimulus (fear, anxiety, surging heart rate and blood pressure, fast breathing, muscle tension, and so on). Good stressors (a ski run, a poetry contest) inspire you to achieve.

In common parlance, though, stress usually refers to our internal reaction to negative, threatening, or worrisome situations—a looming performance report, a dismissive colleague, rush-hour traffic, and so on. Accumulated over time, negative stress can depress you, burn you out, make you sick, or even kill you. This is because, as our research shows, negative stress is both an emotional and a physiological habit.

Of course, many companies understand the negative impact of cumulative stress and do their best to help em-



employees counteract it. Some offer on-site yoga classes and massage; others provide stress management seminars; still others require workers to take a vacation every year.

The problem is that the overall company culture, exacerbated by the stress in people's private lives, works against such approaches. Stressed-out employees are unwilling to take precious time away from work, even for an hour, to partake of amenities that they – and their bosses – generally regard as optional. Moreover, those who use the employee wellness programs are the ones already most willing to confront their stress head-on. Those in the greatest need often don't show up.

Since 1991, we have studied the mind-body-emotion relationship – specifically, the physiological impact of stress on performance, both at the individual and organizational levels. (Thoughts and

most people think. And stress reversal can do a lot of good for your organization.

Our research has spawned “inner quality management,” a system of tools, techniques,

and technology that organizations can use to reduce employee stress and boost overall health and performance. In this article, we'll use the story of someone we'll call Nigel, a senior executive with whom we worked, to describe how these techniques reduce stress in the real world. Among the things Nigel learned was a specific technique for lowering his body's stress response within a minute or two. Like Nigel, you can practice this technique virtually anywhere, even during a tense meeting or while laboring under a tight deadline. By doing so, you can reverse the toxic effect that stress has on your body, your mind, your mood, and your overall effectiveness and productivity.

emotions have different types of physiological responses, so we distinguish between thoughts, which are generated by the mind, and emotions, which are produced throughout the body.) Our goal, in large part, has been to decode the underlying mechanics of stress. We've sought to understand not only how stress works on a person's mind, heart, and other body systems but also to discover the precise emotional, mental, and physiological levers that can counteract it. Having worked with more than 50,000 workers and managers in more than 100 organizations, including Boeing, BP, Cisco, Unilever, Bank of Montreal, and Shell, we've found that learning to manage stress is easier than

Nigel's Story

When we first met Nigel, he was a mess. A 52-year-old engineering executive at a global oil company in Britain, Nigel was irritable, pale, and occasionally short of breath. He had dark circles under his eyes, and he complained of stomach problems. In fact, he was under a terrific amount of stress. His company was in the grips of powerful geopolitical and competitive pressure. It also faced internal challenges resulting from global restructuring efforts, the intense demands to develop new sources of oil, and a string of acquisitions. In addition, one of Nigel's managerial reports was making his life difficult, and his division's performance was dropping. Unending international travel, combined with family concerns involving aging parents and a troubled teenager, took their toll. Though he had endured this situation for years, Nigel had no idea how much the unrelenting stress had affected his health and performance.

He did have a hint, however. For 15 years, Nigel had suffered from high cholesterol and high blood pressure. Since both conditions are significant risk factors for heart disease and stroke, Nigel's physician prescribed a straightforward, but not so simple, treatment: Reduce your stress.

But how? The work environment was such that Nigel didn't feel he could afford to take time out to exercise or time off to recuperate from stress. He also doubted that such strategies would provide lasting solutions. In fact, on those occasions when he was able to take time

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away from the office, he felt so flattened by exhaustion that he wound up getting sick. Moreover, even when he did manage to relax, he correctly guessed that his blood pressure would shoot up again as soon as he returned to work. He didn't know what to do, and that sense of hopelessness discouraged him even more. Secretly, he even nursed fantasies about having a heart attack – at least if

Accumulated over time, negative stress can depress you, burn you out, make you sick, or even kill you.

he landed in a hospital he could finally get some rest. Then, of course, he would chide himself for entertaining such ideas, knowing how much his company, his colleagues, and, most of all, his family depended on him.

Physiologically speaking, here's what was happening to Nigel. As Daniel Goleman, Richard Boyatzis, and Annie McKee explain in their article "Primal Leadership: The Hidden Driver of Great Performance" (HBR December 2001), the brain's mood-management center contains two limbic systems: first, the open-loop system that depends on connections to other people, and second, the closed-loop, self-regulating system that transmits neurological, hormonal, blood pressure, and electromagnetic messages among organs within the body. In Nigel's case, constant stress had hijacked his closed-loop limbic system. This kept the emotional center of the brain, the amygdala – the locus of emotional memory – stuck in a perpetual state of fight or flight so that he never had a chance to fully recover.

The amygdala's primary job is to eavesdrop on incoming sensory information, looking for a match between the memory of a previous experience and an event in the here and now. For example, if a colleague ignored

or was curt with Nigel, his amygdala remembered the negative experience; then, when he received an e-mail from the same colleague, he would misread its intent as threatening because his brain had found a match.

Every time Nigel felt threatened, his automatic fight-or-flight response set off a chain reaction of roughly 1,400 biochemical changes. For example, cortisol, the so-called stress hormone, would flood his autonomic nervous system. Scientists have found cortisol to be a major culprit in heart disease and diabetes. Worst of all, Nigel's body had, over the years, adapted to living in a perpetual state of stress. Simply put, his brain constantly strived to maintain a match to stressful patterns, which kept his blood pressure and cortisol levels constantly set at high. That's why taking a vacation never really seemed to help him.

To stop this physiological chain reaction, Nigel needed to find a way to manage his stress from moment to moment and day by day. We taught him to practice a technique we call "freeze-frame." It is based on the concept that conscious perception is like watching a movie, and

Heart Rhythms

Results of a laboratory heart-rate variability analysis show how different emotions affect heart rhythms. So-called negative emotions such as frustration cause more chaotic heart rhythms, part of a physically harmful chain reaction. However, focusing on a positive emotion such as appreciation creates smooth (and beneficial) patterns. Negative emotions create cortical inhibition, or "chaos," whereas positive emotions generate cortical facilitation, or "coherence." When physiological coherence occurs, the brain associates it with feelings of security and well-being. That's why simply taking several slow, deep breaths can quickly diminish the feeling of stress – breathing modulates heart rhythms.

we perceive each moment as an individual frame. When a scene becomes stressful, the technique allows you to freeze that perceptual frame and isolate it in time so you can observe it from a more detached and objective viewpoint – similar to pausing the VCR for a moment. Here are the five steps of the freeze-frame technique:

Recognize and disengage. Take a time-out so that you can temporarily disengage from your thoughts and feelings – especially stressful ones.

Breathe through your heart. Shift your focus to the area around your heart. Now feel your breath coming in through that area and out your solar plexus.

Invoke a positive feeling. Make a sincere effort to activate a positive feeling.

Ask yourself, “Is there a better alternative?” Ask yourself what would be an efficient, effective attitude or action that would de-stress your system.

Note the change in perspective. Quietly sense any change in perception or feeling and sustain it as long as you can.

Once Nigel mastered these steps, he was able to block the immediate stress

response and, as a result, to get his mind, heart, and body systems to work in sync again. Within weeks of first studying the technique, Nigel conquered his habitual stress: His blood pressure returned to normal and stayed there, and his depression cleared. Nigel began to regain control of his life and take pleasure in his work. Within six months, he had become an effective leader again. Here’s what he did.

STEP ONE

Recognize and Disengage

Nigel was introduced to a computer-based heart monitor, which, like a bio-feedback program, revealed the impact of stress on his cardiovascular system in real time. The monitor showed him how, when he was caught in the grip of a stressful emotion, his heart responded by beating more rapidly and irregularly. (The exhibit “Heart Rhythms” shows the correlation between different emotional states and heart rhythms.)

Seeing his own chaotic heart patterns convinced Nigel that he needed to make some changes – and soon. He began his stress reduction program with one small

project: He focused on Martin, the exasperating manager who reported to him. Though Martin had started out as an effective manager, he had fallen behind on several deliverables, forcing the rest of Nigel’s team to pick up the slack. In addition, Martin had an irritating personal style. He talked too much, constantly about himself and always in a tone that alternated between whining and bragging. When he made presentations in group meetings, Martin would drone on without ever appearing to get to the point. Twice, Nigel became so irritated that he actually shouted at Martin to “get on with it!”

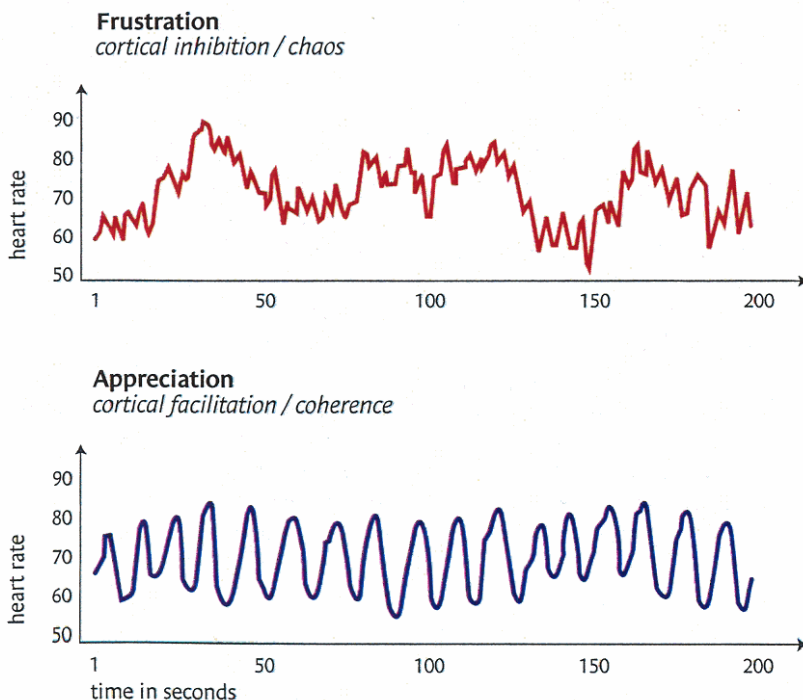
Nigel noticed that he felt irritated – and had the physical signs of stress, particularly a knot in his stomach – whenever he saw or spoke with Martin. To disengage from this stressful reaction, Nigel would recognize the stomach knot and then push a mental button, as if pausing his mental VCR. In other words, Nigel learned to freeze the irritation he felt whenever he thought of Martin. (This ability to instantaneously switch mental gears is something we practice all the time, just as we jump from mulling over an e-mail message, scanning the next item on our to-do list, and listening to a presentation.) Our research on stress response has shown that this simple process of recognizing and disengaging interrupts the amygdala’s ability to match patterns and helps us gain objectivity.

STEP TWO

Breathe Through Your Heart

After freezing the stressful moment, Nigel consciously focused his attention on his heart. At the same time, he inhaled deeply for about five seconds, imagining the breath flowing in through his heart; he then exhaled for about five seconds, visualizing the breath flowing out through his solar plexus. In the process, he began letting go of the negative emotion Martin had aroused in him.

Though many stress management techniques involve shifting one’s attention to a sound, phrase, or the breath, numerous studies have shown that you can produce physiological change by

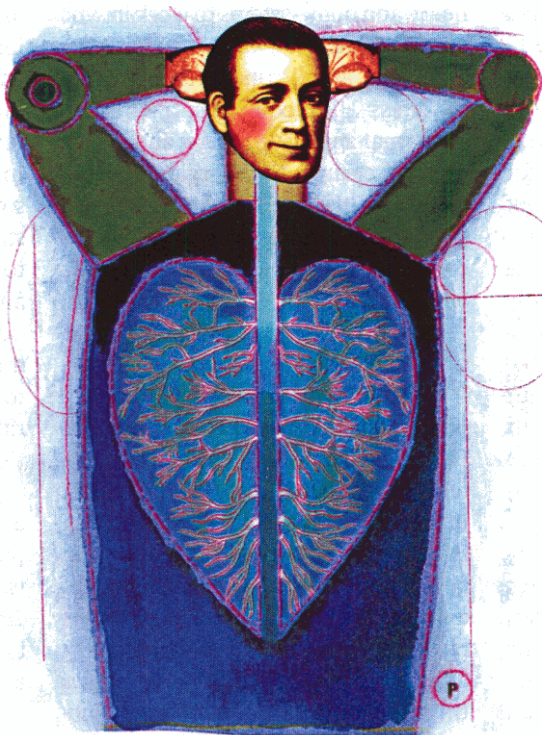


focusing on a specific part of the body as well. For example, bio-feedback studies have demonstrated that by focusing on one of your hands, you can change its temperature without affecting your other hand's. In our lab, we've observed that the mere act of focusing one's attention on one's heart actually produces a specific, physiologically calming effect. That's because the heart—the most powerful organ in the body, whose rhythms affect the functioning of all others—sends far more information to the brain than vice versa.

Breathing techniques work because they modulate the heart rhythm pattern. By breathing at the ten-second rhythm, you coax the system into “coherence,” a term used in physics to describe the ordered distribution of power within a wave. The more stable the frequency and shape of the waveform, the more coherent the system becomes. In physiological terms, coherence describes the degree to which respiration and heart rate oscillate at the same frequency. When physiological coherence occurs, the brain associates it with feelings of security and well-being. That's why simply taking several slow, deep breaths can quickly diminish the feeling of stress. (Shifting perception and behavior, however, requires more than regulated breathing, as we'll see.)

The combination of focusing on his heart and practicing the breathing exercise immediately diminished Nigel's feeling of stress because his amygdala had stopped running the physiological show. He felt calmer after practicing the heart focus and breathing step, and his stomach didn't feel as if it were tied up in knots. That made sense physiologically, because the gut also has an extensive neural system that functions independently of the brain, and focused attention affects its rhythms as well.

In the beginning, Nigel made a point of breathing and focusing whenever he felt the most stress—particularly on his



nightmarish daily commute and while listening to voice-mail messages from Martin. He would even practice the technique before meetings with Martin, and he began to notice his stress reaction diminish. As he practiced, Nigel noticed that he began to feel neutral, rather than aggravated, in the face of stressful experiences.

STEP THREE

Invoke a Positive Feeling

Nigel found this step to be both easy and effective. He focused on one of two images that made him feel good: playing with his kids in the woods behind their home, and powder skiing in the Alps. He tried to relive these experiences by recalling as much as he could the sound of his children's squeals of laughter, the smell of the pine, the coolness of the breeze, the crunch and splash of fresh snow under his skis. The longer he recalled the feelings these experiences evoked, the better he felt.

“The power of positive thinking” is a cliché, of course. But our research indicates positive feelings have a powerful physiological effect, pushing us to

perform better. In the act of remembering a feeling, Nigel's amygdala was reliving a good experience, matching the emotion he felt in the past to the actual occurrence in the present. And because his amygdala was becoming conditioned to the new emotional response, Nigel felt better physically—over time and with practice.

After six weeks, Nigel's blood pressure returned to normal. His sleep also gradually became deeper and more refreshing, his energy levels rebounded, and his overall cardiovascular function improved by 65%. Nigel also discovered that by learning to modulate his heart rhythms, he increased his ability to think clearly. The cortical regions of the brain responsible for decision making, strategic thinking, creativity, and innovation were no longer blocked by the negative stress response.

STEP FOUR

Ask Yourself, “Is There a Better Alternative?”

Each time he completed the first three steps, Nigel felt more neutral, less worried, and even more creative. The reason: Nigel's closed-loop limbic system was becoming coherent. In that state, Nigel was able to remain emotionally and physically balanced, even in the face of significant stressors. That's because his body was no longer focused on its own survival.

Now, Nigel was able to take a more objective approach to dealing with Martin. When Nigel began to feel irritated or annoyed with Martin, he would just sit quietly for a while, not trying to think about anything. Then he would ask himself the question, “What could I do right now to reduce my stress?”

By considering that question, Nigel opened himself up to two possibilities: first, that he could work with, not merely react to, Martin; second, that he hadn't considered every possible way of dealing with Martin. Before learning to

manage his stress, Nigel had felt that his problem with Martin was mostly a matter of mismatched “chemistry.” Once he learned to reduce his emotional stress, Nigel saw that Martin negatively affected other people as well. But instead of dwelling on the feeling of irritation that this triggered or trying to force a solution, he just asked the question and waited for an answer to come to him. He said the feeling was like “going for a long drive in the country.”

In sympathizing with the rest of the team, Nigel engaged his open-loop limbic system – the “interpersonal limbic regulation” that, as Goleman and his colleagues show, allows leaders to intuit and affect the moods of those around them. During the next group meeting with Martin, Nigel observed the team members’ discomfort as Martin began to drone on. For the first time, Nigel suspected that all Martin really wanted was acknowledgment. Then Nigel realized he had literally been *feeling for* Martin. That awareness allowed Nigel to react with a completely different tone from the one he had used before. Calmly and gently, he said, “Martin, your argument is well thought-out and thorough. Now I’d like to hear from some of the others.” Having been acknowledged, Martin smiled – and Nigel saw that it was possible to work with him in a new way.

STEP FIVE

Note the Change in Perspective

The moment the meeting was over and Nigel returned to his office, he realized that Martin wasn’t the lost cause he had assumed he was. Nigel sat back in his chair and now tried to imagine a solution to the problem. He decided to keep Martin in the department and honor his earlier contributions to the team but would begin to work with him directly, coaching Martin to modulate his style.

During his next meeting with Martin, Nigel practiced steps one through three. Martin didn’t notice anything, but Nigel did. For the entire meeting, Nigel felt remarkably clearheaded. The tight-chested, tense feeling that had characterized him at previous meetings was


gone. Ultimately, Martin agreed to be coached – and, instead of engaging in a hostile interaction, he and Nigel felt mutual appreciation and relief.

This final step in the process allowed Nigel to see the larger results of what he had learned. In counteracting his stress, he had brought his closed-loop system into coherence; by putting what he had learned into practice with his team, he had done the same with his open-loop system. Over the next six months, Nigel brought the techniques into his strategic-planning process. In the end, he became better at all kinds of management skills, from budgeting to hiring, and his team performed much better, too.

Breaking the Stress Habit

Our work with executives and managers in North America, Europe, and Asia has shown us that the most highly pressured individuals can break the stress habit, even when doing so feels impossible, by practicing the steps we’ve outlined. In one study, more than 1,000 individuals at five companies learned to practice the freeze-frame technique. The number of

people reporting high stress at these companies dropped 69%; the number of people reporting any stress symptoms fell by 56%.

While we teach managers to engage in all these steps, you may find some more useful than others, depending on your needs, circumstances, and preferences. With practice, the first three steps become automatic. As they do, and you expand to steps four and five, you may see surprising increases in your ability to not only deal with stress but also to achieve better personal and team performance. Indeed, transforming your reactions to stress is the first and most essential ingredient of effective leadership – as essential a skill as hiring, firing, strategy development, and fiscal responsibility. Transform your stress, and you transform your world. 

1. HERO is a national, research-oriented, not-for-profit coalition of organizations with common interests in health promotion, disease management, and health-related productivity research.

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“Now that the merger is complete, I’ll flip you for the CEO position.”