



## Listen to Your Heart Rate

Biofeedback is gaining ground as a stress-management tool

By Deborah Kotz

Because she was planning to get pregnant, Janelle (who preferred not to give her last name) decided last year to go off powerful medication for stress-induced migraines in favor of a more fetus-friendly therapy. With sensors attached to her fingertips, neck, and abdomen, she spent 20 sessions learning to relax her muscles and slow her breathing and heart rate while watching a computer monitor for proof of the desired result. Eventually, she was able to do the work on her own. “The migraine pain doesn’t go away completely,” says

the 39-year-old from Bethesda, Md., who has remained off medication since her son’s birth two months ago. “But it’s been greatly reduced, and I’m able to deal with it better.”

Like meditation and yoga, the biofeedback method that Janelle now swears by is enjoying a sort of renaissance; while it’s been around for some 40 years, a growing body of research has brought it to the mainstream, indicating that it can relieve some hard-to-manage conditions exacerbated by stress. Many major hospitals and clinics, including Harvard’s Brigham and Women’s Hospital and Duke University Medical Center, now offer biofeedback to people with hypertension and jaw pain as well as headaches, for example. And new pocket-size gadgets have hit the market that let you do it yourself (box, Page 60).

Biofeedback’s major appeal is that one series of sessions purportedly teaches a set of skills you can use for life—without side effects. And it’s pre-emptive. “Biofeedback teaches you to identify early signs that stress is starting to get to you and to bring that stress reaction down before it causes physical symptoms,” explains Frank Andrasik, a professor of psychology at the University of West Florida in Pensacola who serves as editor-in-chief of the journal *Applied Psychophysiology and Biofeedback*.

Instructions on a computer screen tell you when to inhale and exhale, for example so that you practice slowing down, ideally to about six breaths per minute. The point is to calm your body’s autonomic nervous system, which raises your blood pressure and heart rate when you’re stressed. One important effect: an increase in your “heart rate variability,” those subtle moment-to-moment fluctuations in the pace of your heartbeat. Research suggests that lower variability is associated with a higher risk of dying from heart disease. Tall, even waves cross the computer screen as your breathing slows and the stress response calms; the waves are short and spiky when you’re on edge. Sensors also detect an increase in your hand’s skin temperature, a sign you’ve lowered the level of “fight or flight” stress hormones that shunt blood away from your extremities and have entered a state practitioners call “focused calm.” The key is to practice so that you get there automatically when the traffic jams or the boss screams.

In part, biofeedback’s resurgence stems from technological advances that provide instant, easy-to-understand information, says social worker Mary Lee Esty, head of the Neurotherapy Center in Bethesda, where Janelle was



TUNED IN. The point is to regulate the body's stress response.

treated. One computer software program displays an open-mouthed smiling dolphin when all systems are calm and then jumbles the photo if breathing becomes uneven or rapid. “The timing of the feedback is absolutely critical to learning what feels right,” Esty explains.

Still seeking proof. Whether biofeedback actually teaches permanent skills remains unproven. But some long-term studies suggest that patients are still employing the techniques successfully years later. And though there’s evidence that the therapy works better than sham treatments to lower stress-related aches and pains, it hasn’t been tested against standard treatments like aspirin for tension headaches -- though for many people, like Janelle, getting off medication is the goal. A study published last year in the *Journal of Alternative and Complementary Medicine* found that people with mild hypertension who had four weekly sessions of biofeedback experienced a significantly greater lowering of their blood pressure than those who had stress reduction training without the feedback.

Evidence is stronger, Andrasik says, that biofeedback helps with non-stress-related conditions like chronic constipation and urinary incontinence, where it’s used to retrain the muscles involved in waste elimination. A newer technique called neurofeedback, which uses scalp sensors to measure brain waves, appears promising for helping restore normal brain wave function disrupted by head injuries, post-traumatic stress disorder, and severe migraines.

**Tall, even waves cross the monitor as your breathing slows; the waves are short and spiky under stress.**

The biggest caveat for many people will be lack of insurance coverage. While Aetna and Kaiser Permanente cover biofeedback for certain stress-related conditions, many companies don’t. The Neurotherapy Center’s five session treatment plan for stress costs about \$500; Janelle’s 20 sessions -- typical for migraine patients -- cost her \$2,000 out of pocket.

If you proceed, be sure your practitioner is certified by the Biofeedback Certification Institute of America, since anyone can hang out a shingle; typically, certified practitioners are also licensed psychologists. Realize, too, that long-term success often rests, literally, in the hands of the patient. Psychologist Deborah Stokes, who practices biofeedback in Alexandria, Va., tells her patients to practice warming their hands--using a \$20 home device from Bio-Medical Instruments--for 20 minutes a night between sessions. Janelle says she still occasionally practices the techniques she learned and called on them during childbirth. “It really helped me focus,” she says. “I was able to give birth without an epidural.”