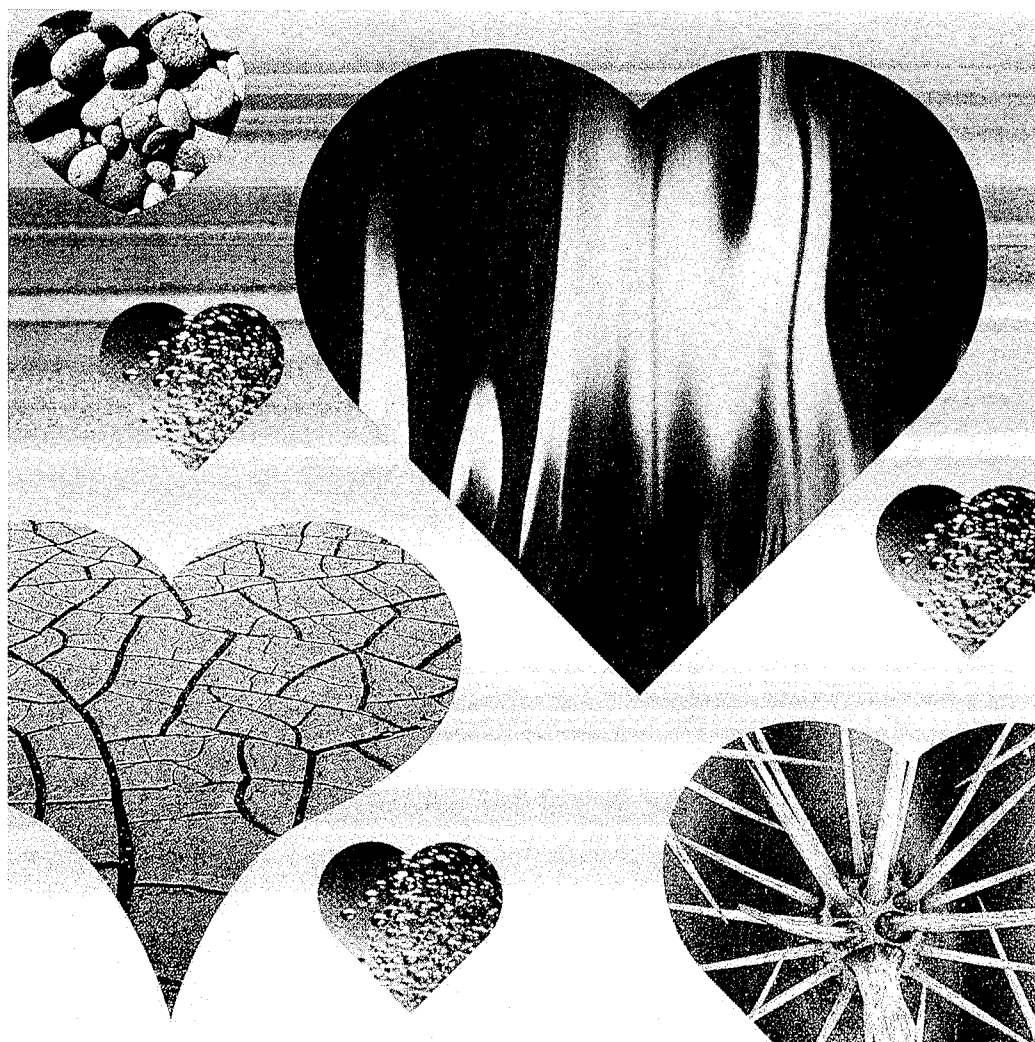


# For a Happy Heart

Depression, loneliness and anger all take a toll on your cardiac health. New research shows what can help.



BY ANNE UNDERWOOD

**T**HE JAPANESE HAVE A WORD for it—*karoshi*, or “death by overwork.” But can stress on the job really do you in? Finnish researchers decided to find out. The years 1991 to 1993 in Finland were as bad as it generally gets economically, with unemployment nearly tripling to 17 percent. Those who survived the downsizing had to assume greater work loads. During this period and for seven years afterward, Dr. Jussi Vahtera and psychologist Mika Kivimaki at the Finnish Institute of Occupational Health

in Helsinki followed municipal workers who survived the cutbacks in four towns—from the mayor on down to teachers, nurses and janitors. Their sobering conclusion appeared this February in the *British Medical Journal*. Kivimaki puts it bluntly: “The only difference in mortality was in cardiovascular deaths. Those in work units with the most downsizing suffered twice the death rate from heart attack and stroke.”

It should come as no surprise that emotions affect the heart—and not only in metaphorical terms. Suffer a fright, and your heart begins to pound. Get angry, and

your blood pressure rises. Thirty years ago scientists told us that men with type A personalities—hard-charging, competitive and hostile—were more likely to suffer heart attacks. That turned out to be only partly true. Upon further investigation, anger and hostility were a problem, but not simple ambition or competitive drive. Today, scientists are using high-tech instruments to elucidate the mind-body connections that damage the heart. They are searching out the genes that increase our vulnerability to cardiac trouble. And they are applying an understanding of all these mechanisms to help point the way to nonsurgical treatments that may help trim our soaring medical bills.

If belligerence puts people at risk, science increasingly shows that a life of quiet desperation does, too. Study after study has now confirmed that factors like social isolation, depression and poor marital relations can contribute to heart disease. Patients who are depressed at the time of bypass surgery are more than twice as likely to die in the next five years as patients without clinical depression, although their disease is of comparable severity. Heart-attack survivors who live by themselves die at twice the rate of those who live with others. “They’re heartbroken in more ways than one,” says Dr. Herbert Benson, president of the Mind/Body Medical Institute in Boston and coauthor of *Mind Your Heart: A Mind/Body Approach to Stress Management, Exercise, and Nutrition for Heart Health*. “In a major study in the *Lancet* this month, researchers surveyed more than 11,000 heart-attack sufferers from 52 countries and found that in the year before their heart attacks, the patients had been under significantly more stress—from work, family, financial troubles, depression and other causes—than some 13,000 healthy control subjects. “Severe stress didn’t pose as great a risk as smoking,” admits Dr. Salim Yusuf of McMaster University, senior investigator on the study. “But it was comparable to risk factors like hypertension and abdominal obesity. That’s much greater than we thought before.”

At every stage of heart disease, state of mind appears to play a role. It's most obvious in the later phases, where one can easily tally up heart attacks and deaths. "During the 1991 gulf war, fewer fatalities in Israel were due to Scud missiles than to [heart attacks] among frightened elderly people," says Stanford University stress expert Robert Sapolsky. During the 1994 L.A. earthquake, he points out, there was a similar spike. But thanks to high-tech scanning devices, scientists are now able to show that psychosocial factors play a role in the initial phases of the disease process as well. Psychologist Timothy Smith of the University of Utah is using CT scans to detect tiny calcium deposits in coronary arteries, an early sign of arterial damage. At the Society of Behavioral Medicine this year, he reported that couples with no history of heart trouble who were hostile or domineering in their interactions over money, kids, in-laws and household chores were more likely to have this type of damage. "The more strained their relationships, the more severe this silent atherosclerosis tended to be," he adds.

If there's a common explanation for these various effects, it may lie in the stress response. The classic stress condition is the fight-or-flight syndrome, which primes the body to flee from an attacker. The heart shifts into high gear and blood pressure rises, as the body speeds delivery of oxygen and glucose to muscles. Glucose and fatty acids flood the bloodstream for emergency fuel supplies. Platelets in the blood become more "sticky" to aid clotting in the case of a wound. That's perfect for a zebra sprinting from a lion, as stress expert Sapolsky puts it in the new edition of his book "Why Zebras Don't Get Ulcers."

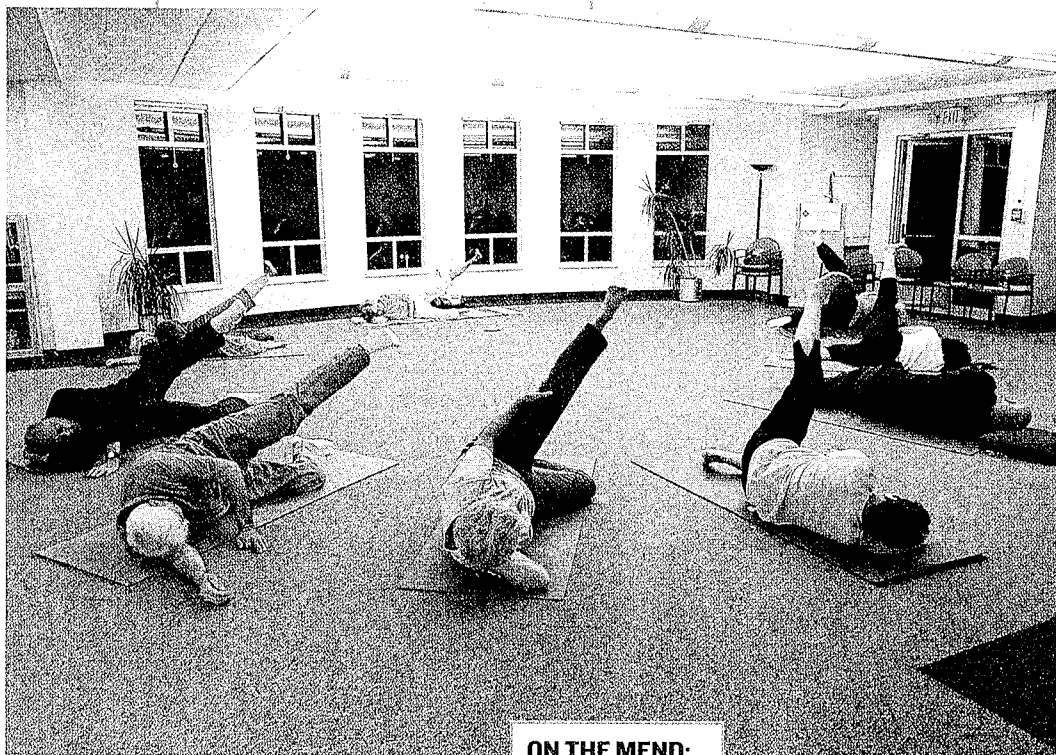
But when the body responds the same way to everyday stressors like honking horns and looming deadlines, the cardiovascular system suffers. Chronic high blood pressure damages blood vessels, leading to inflammation and plaque formation. Excess glucose and fatty acids in the bloodstream can further damage arteries and veins. As if that's not bad enough, turbulent

## Soothing the Heart

Science shows that nurturing the psyche can help the cardiovascular system, too.

- **Be an optimist:** In a forthcoming study, Karen Matthews at the University of Pittsburgh finds that optimistic women have less thickening of the carotid arteries.
- **Think calming thoughts:** A study in Utah found lower increases in blood pressure during a stressful task when subjects contemplated a close friend beforehand.
- **Cultivate friendships:** Multiple trials show that strong social networks help reinforce good health habits and reduce heart-damaging stress.

low-fat diet), a stringent diet and regular exercise are two pillars of his approach. But stress management is equally important, he insists. Stress reducers like yoga, meditation and group sharing have direct effects on cardiac risk, lowering levels of stress hormones and helping to relax arteries. They also have indirect effects. Participants gain a sense of well-being that helps them stick to a diet and exercise plan. And when their resolve falters, they have each other for support. "You can always call another member when you need help resisting a pastrami sandwich," says John Coleman, a retired MIT physicist who's participating in a spinoff program in Massachusetts. In



**ON THE MEND:** Healing Your Heart in Lynn, Mass., uses exercise as one stress buster

blood flow can rupture a plaque, with the resulting blood clot leading directly to a heart attack or stroke. And that's not all. When blood comes pounding back to the heart with extra force, it causes muscle tissue in the heart's receiving chamber to thicken—leading to an asymmetry in the heart that can produce potentially fatal irregular heartbeats.

The implications are dramatic—not only for our risks of developing heart disease, but also for treating it. Although a number of doctors are using lifestyle programs to help heal heart disease, Dr. Dean Ornish, president of the nonprofit Preventive Medicine Research Institute in Sausalito, Calif., has the most published work in this area. Not surprisingly (coming from the nation's leading proponent of an ultra-

fact, all the elements of the program bolster one another. If stress reduction makes you more likely to exercise, a half hour on the treadmill, in turn, lowers stress and depression. "Diet and exercise alone are like a two-legged stool," says Dr. Redford Williams, director of the Behavioral Medicine Research Center at Duke University. "It's more stable with the third leg, stress management."

But does it really work? In one trial, patients who adopted Ornish's radical lifestyle changes reduced their atherosclerosis in one year and showed even greater improvements at five years, while those on standard care grew steadily worse. "Patients in our studies showed a 91 percent reduction in angina in a few weeks to a few months without the trauma or expense of angio-

**LT** Log on for a Live Talk on mind & body, Wednesday, Sept. 22, at noon, ET, at [Newsweek.com](http://Newsweek.com) on MSNBC

plasty or bypass," says Ornish. This should logically translate into cost savings, and studies suggest that it does. In one set of published results, Mutual of Omaha applied the Ornish program to 194 heart patients—and saved \$30,000 per patient over the next three years, compared with 139 patients on standard care. Medicare is now studying the program and a similar one under Benson's direction at the Mind/Body Medical Institute; the government will start providing coverage if officials conclude that they can reduce medical bills.

Of course, the ultimate cost saver would be prevention. Genetic profiling may help one day by pinpointing the people who could benefit the most from these measures. Williams at Duke is studying a gene that affects metabolism of the neurotransmitter serotonin. Those with a particular variation in this gene have greater changes in heart rate and blood pressure in response to stress, putting them at increased risk of heart trouble. "Three papers have now shown they have a higher incidence of heart attacks," says Williams.

No one is entirely risk-free, however. Given that heart disease is still the nation's leading killer, we could all benefit from an ounce of the prophylactic stuff. Major lifestyle changes may elude those without a gun to their hearts. But even 10 minutes of meditation a day can help with prevention; doctors say consistency of practice is more important than duration. And we can all gain by nurturing close relationships. "Simply looking at the picture of someone you love can help dampen stress responses," says Smith at the University of Utah. In a study this month, he reported that thinking about supportive friends for a few minutes before a stressful test helped participants minimize increases in heart rate and blood pressure. Cardiologist Harvey Zarren, medical director of the Healing Your Heart program at Union Hospital in Lynn, Mass., used to apply a simple version of this technique when he rode in the ambulance with heart patients. He would ask the patient to discuss the thing in life he or she loved most. As if by magic, high blood pressure fell and abnormal heart rhythms diminished. Unlike colleagues, says Zarren, "I never had a cardiac arrest in the ambulance."

It only goes to show, as the Bible stated long ago in Proverbs 17:22, "A cheerful heart is a good medicine." And that's reason for all of us to take heart. ■

## Cut Stress—Cut Sugar

### Relaxation exercises may keep diabetes in check

BY MARY CARMICHAEL

**C**ompared with other methods of managing diabetes—strict diets, insulin injections, vigilant blood-sugar monitoring—Richard Surwit's technique seems too easy to be true. It doesn't involve pills or shots. It doesn't technically require a doctor's supervision. And if you're a diabetic reading this, you can start treatment right now, just by taking a deep, relaxing breath. Feel better?

If Surwit is right, you should. By lowering stress, he argues, patients with diabetes, particularly type 2, can keep their illness in

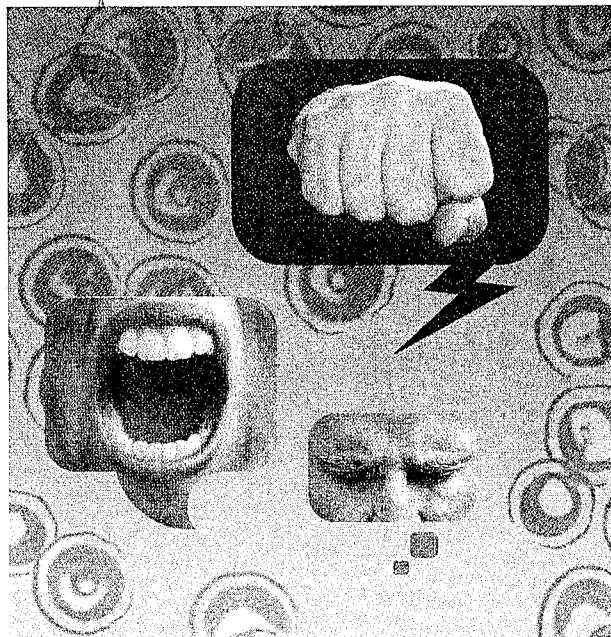
hospitalized. The endocrinologist was at a loss to help his patient; after one week of bio-feedback and muscle relaxation with Surwit, she was stable enough to leave the hospital.

Today relaxation is used to combat everything from asthma to labor pains, but there's a stumbling block for diabetic patients: most insurance companies won't pay for Surwit's therapy, classifying it as experimental. Nonetheless, other doctors are starting to pick up the idea, using it in conjunction with more conventional remedies. And this year Surwit has made the treatment widely available in a different manner; he published a book this spring. "The Mind-Body Diabetes Revolution" focuses on easy relaxation techniques, particularly cognitive behavioral therapy and progressive muscle relaxation.

"Almost everybody can learn it," Surwit says of the latter, "and it only takes a week or so." Progressive muscle relaxation is just what it sounds like, a sequence of tightening, then slackening, exercises that allows people to monitor their stress levels based on muscle tension. Cognitive behavior therapy, says Surwit, consists of "getting the person to evaluate how they emotionally respond to situations, and to reality-test their response"—in other words, teaching people to think rationally in the face of adversity.

If these sound like techniques nondiabetics could stand to learn, too, that's no coincidence. Surwit says he wanted to design a program similar to others found in a wide variety of self-help manuals. "What's in my book is not magic," he says, although he does have one piece of advice for do-it-yourself types: keep it simple. "Some people try techniques that require almost a religious commitment," he says. "This isn't something you have to go to an ashram in India for."

Surwit's techniques may have a broader medical application, helping physicians diagnose patients at genetic risk for diabetes, allowing them to prepare for it and perhaps ward it off. Patients who don't have diabetes, but do carry some genes for it, respond to stress similarly to diabetics. Native Americans in the Pima tribe, for instance, are extremely susceptible to the disease. Even healthy Pimas have high blood-sugar levels when they're under stress. In the future, patients worried about their genetic risk could undergo a glucose test under lab-induced stress to find out whether they have something to worry about—and then can calm down.



check. Stress raises the body's levels of cortisol and epinephrine and, via those hormones, the amount of glucose in the blood. Because diabetics cannot make enough insulin to metabolize the raised sugar levels, the sugar stays high long after the stress has ended.

Surwit, a psychologist, first stumbled on the principle 25 years ago. Mind-body medicine was in its infancy, and he was frankly more interested in its potential for preventing heart disease. But a colleague, a Duke University endocrinologist, came to him with a challenge: a woman with diabetes who couldn't keep her blood sugar low even with a rigorous diet and standard treatment. When her work or home life turned stressful, her glucose levels shot out of control, leaving her