

Los Angeles Times



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 From the Los Angeles Times

## Stress explained

December 1, 2008

Stress is what a person perceives as a threat, says Sarah Speck, a preventive cardiologist, and medical director of the Center for CardioVascular Wellness at Swedish Medical Center in Seattle.

When the brain senses a threat -- even if it's a non-physically threatening one, such as a manuscript deadline or a dwindling bank account -- it tells the body to release adrenaline and noradrenaline, the fight or flight hormones. Initially, these hormones create a surge of blood to the heart and brain, which is why we get a rapid heart beat. But in the aftermath of that surge, stress hormones constrict blood vessels, which reduce the amount of oxygen getting to the heart. That makes the heart work harder, raises blood pressure, and can cause angina and chest pain.

Under stress, the brain also triggers adrenal glands to increase production of cortisol, another stress hormone. Cortisol tells the body that it is under siege, and therefore needs to hoard calories and slow metabolism to prepare for danger. Over time, this can lead to weight gain.

Not all stress, however, is unhealthy. For instance, before you're about to testify in court, the physiological changes that accompany acute stress can enhance alertness and improve certain types of memory. Adrenaline surges do improve your reaction time. Even occasional stress isn't anything to stress about. Most people can weather a storm now and then.

Psychological stress occurs any time an event exceeds an individual's perceived ability to cope, which explains why some people crumble under deadline pressure, and others rise to the occasion with grace and vigor.

"If your primary relationship is good, you're not in financial stress and one of your parents dies, it's stressful, but you don't feel out of control," says Speck. "It's when you're going through a divorce, you lose your job and a parent dies, that can feel like too much."

Acute stress takes more of a toll on a chronically stressed person than it does on a non-stressed person, says Michael Irwin, director of the UCLA Cousins Center for Psychoneuroimmunology.

That's because stress hormones that build over a long period put a strain on the heart, weaken the immune system and trigger inflammatory responses, which set off a cascade of health problems.

The trick, says Speck, is to recognize that stress is a part of life, and that chronic stress left unmanaged has harmful physical effects. You also need to recognize when your body is under stress and know what behaviors do and don't reduce the harmful effects.

For instance, when stressed, people tend to withdraw socially, eat more poorly, abuse alcohol, smoke more, get less physical activity and sleep less. But research shows that exercise, adequate rest, taking care of yourself and interacting with friends and family are among the best ways to manage stress.

-- Marnell Jameson

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From the Los Angeles Times

## Stress-reduction therapy eases home, workplace pressure

Kent Garcia, in pain and under duress, was at his breaking point until he gave meditation a try. Now, he's healthier and happier.

December 1, 2008

Eighteen months ago, Kent Garcia felt he was ready to blow.

The 48-year-old Ventura resident felt pressured at work, where he often put in 12- to 14-hour days sitting at his computer working as a designer for a machine shop. At home, his stepson was having legal trouble and his teenage daughter was acting up. He and his wife were fighting about the kids.

As stress mounted, back pain and migraines flared, along with his temper. He started getting regular epidurals for his back pain and popping Imitrix, a potent migraine medication, 10 or more days a month. His Type 2 diabetes was worsening, along with his relationships with his family. His doctor encouraged him to enroll in a stress-reduction class.

"As soon as I learned how to let the tension go, wow! What a difference," he said.

Garcia now meditates daily, including on his breaks at work, does deep-breathing exercises when he begins to feel tense, and consciously reframes problems. "Now when my daughter acts up, I remind myself that she's not doing this to me, so I don't take it so personally."

As a result, he's healthier and happier at home.

His proof: In the two years before he took the class, he had nine epidurals to treat his back pain. In the year and a half since, he's only had to have two. His use of migraine medication dropped from 10 to 15 pills a month to eight pills a year. His diabetes numbers have improved, and he's getting along better with his family.

"I used to blow my stack. Now when I have a problem I don't explode," he said. "I take a few breaths and just wait and think about what's happening. I've stopped seeing everything as tragic."

-- Marnell Jameson

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From the Los Angeles Times

## Ways to relieve stress

When things get to be too much, exercise, sleep, deep breathing or going out can help, experts say.  
By Marnell Jameson

December 1, 2008

While not every stress reduction technique suits everyone, any incremental change -- a little more exercise, a little more sleep, a little deep breathing and a few more nights out with friends -- will help.

### Get moving

Evolution has conditioned us to respond to stress as a physical threat, which is why our bodies produce hormones that prepare us to flee from trouble or fight back physically. However, running or punching usually isn't appropriate in our daily routines, so those hormones accumulate. This is where exercise comes in.

Initially, an intense workout is a stressor, boosting the heart rate, blood pressure and adrenaline. But regular exercise leads to lower baseline heart rates, lower blood pressure and lower stress hormone levels when at rest. This makes occasional surges of stress easier to handle.

Vigorous exercise also increases the body's core temperature, meaning the body has to dilate its blood vessels (which stress hormones restrict) to let heat escape. That dilation lowers blood pressure and creates more capacity to circulate oxygen-rich blood.

Regular exercise will bring resting adrenaline rates down so the body has more room for the next flood of stress hormones, says Seattle-based preventive cardiologist Dr. Sarah Speck. Strong evidence also indicates that exercise helps reduce depression, which can accompany long-term stress.

### Sleep on it

Here's the paradox: When you're stressed, sleep often suffers. Yet a good night's sleep helps guard against the ravages of stress.

Even one night of tossing and turning raises the level of inflammatory cytokines, says Michael Irwin, director of the UCLA Cousins Center for Psychoneuroimmunology. Cytokines are chemical messengers, or proteins, that send messages between immune cells, and nerve and brain cells. Some promote inflammation; others are anti-inflammatory. A wide spectrum of conditions, including cardiovascular disease, arthritis, diabetes, certain cancers, obesity and functional decline, are linked to an increase in inflammatory cytokines. Experimental sleep deprivation has been found to alter immune responses and increase inflammation.

A study conducted at UCLA in 2006 looked at 30 healthy volunteers who spent four nights in a sleep lab. The first three, they slept from 11 p.m. to 7 a.m., to establish their baseline for inflammatory markers in their blood. The fourth, they stayed awake between 3 and 7 a.m. Just that one night of interrupted sleep induced a three-fold increase in inflammatory markers, the study found.

"High levels of inflammation are markers for an aging immune system. People who are chronically stressed and don't get enough sleep have a greater mortality risk and experience accelerated aging," Irwin says.

The prescription: six to eight hours of sleep a night. Fewer than 5 1/2 hours and inflammation markers rise along with associated health risks.

### Get out more

If you feel socially isolated and lack the emotional support of people around you, you're at an increased risk of mortality, illness and coronary disease.

In a paper published last year in the journal *Genome Biology*, biologists at UCLA found that the immune system's inflammatory response was much higher in cells from people who perceived themselves as socially isolated and lonely. Researchers studied gene expression in 14 individuals. Half the group had previously scored in the top 15% of the loneliness scale; the other half scored in the bottom 15. Across the board, the genes of the lonely group's members expressed higher inflammatory responses, and lower anti-inflammatory responses than those in the more social group.

"Genes can either be turned on or turned off," says Irwin. "In socially isolated people, genes that turn on inflammation were more likely to be on, and those that suppressed inflammation were more likely off."

Social networks also help people cope with disaster. Researchers in Louisiana looked at how people's networks reduced the stressful effects after Hurricane Katrina devastated the area in 2005. "People who had better social support fared much better," says Jeanne Hurlbert, lead investigator and professor of sociology at Louisiana State University.

In telephone interviews conducted right after Katrina with residents of two New Orleans-area parishes, 49% of those who said they had enough people to help them only some of the time reported a high level of distress. (High distress was defined as experiencing each day at least two of several symptoms: such as feeling that you couldn't get going, feeling sad, having trouble sleeping, feeling that everything was an effort, feeling that

## Chill out

The counterpoint to intense physical activity -- deliberate relaxation -- also mitigates stress. That's because the nervous system has two arms, one sympathetic and one parasympathetic. Stress excites the sympathetic arm, which makes heart rate, blood pressure and stress hormones rise. The parasympathetic arm is the relaxing one. It begins its work when people do calming activities such as meditation, deep breathing or enjoying a sunset.

Jay Winner, a family practice physician and director of the stress management program at Sansum Clinic in Santa Barbara, teaches classes that help people relax through mindfulness, breathing techniques and meditation.

"Stress often causes problems because you let it," says Winner, also the author of "Take the Stress Out of Your Life." "You control your thoughts. But too many of us let our thoughts control us."

Mindfulness is the ability to deliberately focus on the present moment and to appreciate it. When people are mindful, they feel less urgency.

Practicing mindfulness and meditation trains the brain to focus -- whether on a mantra or a moment, says Irwin. That conscious activity improves the brain's attention span. People who know how to rein in distracting thoughts, which are often worries, and concentrate on the task at hand have a powerful defense against stress.

Studies have shown that during meditation, heart rates, blood pressure and stress hormones drop, and that people who meditate regularly have lower baselines of stress.

"Breathing is underrated," says Speck. People who do breathing exercises religiously produce fewer stress hormones, trigger fewer inflammatory cytokines and lower their blood pressure and heart rates. When we get stressed, we use only the upper third of our lungs, and breathing gets shallow. We don't give our bodies enough oxygen, which causes it to produce more stress hormones and makes the heart beat faster to circulate what little oxygen there is.

To reverse that, Speck recommends pausing for two to five minutes twice a day and breathing four counts in, four counts out.

## Find love

Love is a powerful force. It works on the parasympathetic arm of the nervous system and has a relaxing effect. The idea that you're connected in a deep, intimate way buffers your response to stress. As proof, studies show that adrenaline and cortisol levels are lower in married people, and that married people live longer than single people. "Married people are at less risk, but if you're in a marriage filled with conflict, that's worse than being single," says Irwin.

In a study of 90 newlywed couples, researchers at Ohio State University had couples fill out a questionnaire to determine what they disagreed about. Then they put the couples in a lab, got them to talk about these issues and took blood samples. Stress hormones rose during the arguments, but less so in couples who could laugh at their situations and not get hostile.

"When the interaction was positive, cortisol levels were lower," says Ohio State University psychiatry professor Janice Kiecolt-Glaser.

## Change perspective

Because stress is what you perceive to be a threat, changing your perceptions -- or reframing -- can keep stress levels down.

Kiecolt-Glaser teaches reframing to patients in cognitive behavioral training. "The ability to keep in mind that something won't matter in 24 hours or in one month keeps people from overreacting, or catastrophizing events."

The financial setbacks and job insecurities many are feeling right now are causing widespread angst. However, say experts, you control how you let that affect you. You can either perceive your losses as catastrophic, or use the situation to reframe your priorities, take stock of your nonfinancial assets, and focus instead on what you're grateful for.

Jameson is a freelance writer.

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