

Stress So Bad It Hurts -- Really

"I think your real problem is stress," the doctor said when I complained that the muscle injections he was giving me hadn't relieved my neck and shoulder pain. "You can't blame me for everything that's hard in your life," he said.

My bursting into tears only seemed to confirm his diagnosis.

It's not like I hadn't heard this before. During earlier bouts of low-back pain, irritable-bowel syndrome and temporomandibular joint disorder, plenty of doctors have used the stress word with me. And each time, I've become indignant. It sounded like "it's all in your head" or "you're malingering."

That's an outdated view, says Christopher L. Edwards, director of the Behavioral Chronic Pain Management program at Duke University Medical Center. Decades ago, when doctors said a condition was psychosomatic, it was the equivalent of saying it wasn't real, since there was little evidence that the body and the brain were connected. "Now, we recognize that what happens in the brain affects the body and what happens in the body affects the brain," he says. That knowledge gives us the tools to try to manage the situation, he adds.

Dr. Edwards says his pain-management program in Durham, N.C., is seeing a rise in patients amid the current economic crisis: "There's a very strong relationship between the economy and the number of out-of-control stress cases we see."

From Stress to Pain

Psychological stress can turn into physical pain and illness in a number of ways. One is the body's primitive "fight-or-flight" mechanism. When the brain senses a threat, it activates the sympathetic nervous system and signals the adrenal glands to pump out adrenaline, cortisol and other hormones that prime the body for action. Together, they make the muscles tense up, the digestive tract slow down, blood vessels constrict and the heart beat faster.

That's all very useful for outrunning a mastodon. But when the threat is a tanking stock portfolio or an impending layoff, the state of alarm can last indefinitely. Muscles stay tense and contracted, which can make for migraine headaches, clenched jaws, knots in the neck and shoulders, and pangs in the lower back. Some of those body parts are already under pressure from long hours at the computer, restless sleep, grinding teeth and poor posture.

The Gut Brain

The digestive tract has its own extensive system of nerve cells lining the esophagus, stomach and intestines -- known as the gut brain -- that are extremely sensitive to thoughts and emotions. That's what creates the feeling of butterflies in the stomach. When anxiety persists, it can set off heartburn, indigestion and irritable-bowel syndrome, in which the normal movement of the colon gets out of rhythm, traps painful gas and alternates between diarrhea and constipation.



Peter Horvath

"Stress does not necessarily cause pain, but it exacerbates the [physical] situation that may already be there. It diminishes your ability to cope," Dr. Edwards says.

Stress also creates biochemical changes that can affect the immune system, making it under react to viruses and bacterial infections, or overreact, which can set off allergies, asthma and skin disorders like psoriasis and eczema. And stress can raise the level of inflammation in the body, which has been associated with heart disease. A recent study in the journal *Psychosomatic Medicine* found that stressful conditions even in the teenage years can raise the level of C-reactive protein, a marker for inflammation that increases the likelihood of cardiovascular problems later.

There are plenty of ways to short-circuit these harmful effects of stress. One of the best is physical exercise, which not only releases the feel-good neurotransmitters called endorphins, but also helps use up excess cortisol and adrenaline. Under stress, "there's a large amount of negative emotional energy in your system that is trying to find a way

to discharge," says David Whitehouse, a psychiatrist and chief medical officer for OptumHealth Behavioral Solutions, a unit of UnitedHealth Group Inc. He adds that "stress kills brain cells. The body responds by making new ones, and exercise can help activate them and make new connections between them."

Sleeping and Eating

Many experts also recommend getting plenty of sleep, eating regular, balanced meals and keeping up social connections -- all things that people tend to forgo in times of stress.

Biofeedback, once considered alternative medicine, is now accepted in mainstream medical circles as a way for people to reduce the impact of stress. Dr. Edwards runs a biofeedback laboratory at Duke, where patients monitor their heart rates, respiration, temperature and other vital signs and learn to control them with relaxation techniques. "The goal is that once we teach you to do that, you can use it the rest of your life," he says.

Another form of biofeedback is called Heart Rate Variability Training, which teaches people to adjust their breathing to maintain an optimum interval between heart beats that induces a feeling of calm throughout the body. "It's probably similar to what happens in yoga and meditation," says Dr. Whitehouse.

He adds that there is much new research going on in the field of "emotional resilience training" to help people learn to lower their anxiety levels and recover from setbacks. "People spend huge amounts of money, time and energy training their cognitive brains. What we now know is that the emotional brain can be trained as well to become more resilient," Dr. Whitehouse says.

In Your Head

Psychological stress can take a physical toll on many body systems, causing, for instance:

- Increased blood pressure
- Increased heart rate
- Muscle aches
- Digestive problems
- Weakened immune system
- Skin disorders
- Allergies, asthma
- Increased sensitivity to pain

To keep stress under control, try:

- Physical exercise
- Adequate sleep
- Regular, balanced meals
- Maintaining social connections
- Biofeedback
- Cognitive behavioral therapy

Emotions play a major role in how pain is perceived in the brain. In the 1960s, Ronald Melzack, a Canadian psychologist, and Patrick David Wall, a British physician, offered a groundbreaking theory after observing soldiers in World War II. "Two soldiers with nearly identical injuries from the same bomb blast would be sitting side by side in a hospital ward," Dr. Edwards explains. "One soldier would be saying, 'Hey doc, can you sew me up? I need to get back to my unit.' And the other would be crying, moaning and writhing in pain."

Drs. Melzack and Wall determined that chemical gates in the spinal cord control pain signals from the body to the brain, depending largely on patients' emotional states. Positive emotions diminished the perception of pain, while negative emotions kept the gates open -- sometimes continuing the pain even after the initial cause had disappeared.

Fear versus Fact

There's a growing consensus that cognitive behavioral therapy can be very effective at diffusing negative emotions. It works by examining, and challenging, the thoughts behind them. "We'd say, 'I understand your fear, but fear is not a fact. Let's look at the reality in your life,'" says Katherine Muller, a cognitive therapist and director of psychology training at Montefiore Medical Center in Bronx, N.Y.

It's no surprise that being told that pain is stress related feels like an affront, Dr. Muller says. "There's this idea among high-functioning people that 'I'm a good copper,' and these symptoms suggest that you're not," she says. Indeed, many successful people find that low levels of stress and worry help them function. "But in periods of high stress, that worry takes over and becomes the dominant feeling. You're still going to work. You're still doing stuff for your family, but it's taking a toll. And suddenly your body is saying, 'Whoa -- I can't take the tension any more,'" Dr. Muller says.

One technique she uses is to have patients keep a diary evaluating their stress level on a scale of zero to 10 several times a day and note what was happening at the time. Patterns may emerge -- that headache may set in every Thursday afternoon, after the staff meeting -- and there may be ways to change the situation. "The message I'm trying to send is that you are responsible for your own stress," says Dr. Muller. "The way you are looking at it and feeling about it is more up to you than you realize."

So is stress-related pain all in your head after all? "All pain, and all human experience, is in your head," says Dr. Edwards. But that's a message of hope, he adds, since there are now ways that weren't available 60 years ago to ease pain by managing thoughts and emotions.

All right. Sew me up, doc. I want to get back to my unit -- I think.