Stress: Unhealthy response to the pressures of life.

-Mayo Clinic

Letting stress get the best of you may be doing more harm than you think. Take control by understanding the stress response and how your body reacts.

Today's news includes round-the-clock coverage of natural and man-made disasters. Earthquakes and floods. Wars and terrorist attacks. Just 10 minutes of watching the news can make your stress level soar.

Compounding matters, you've got a big presentation in an hour, and you've hardly had a chance to prepare. Urgent e-mails keep popping onto your display screen, each one sending a stab of anxiety through your chest. As you frantically scribble notes for the presentation, your heart races, your palms sweat and your head pounds.

Physical reactions you experience when you're stressed are no accident. The human body developed these defense mechanisms to deal with the threat of predators and aggressors. But modern life is full of new threats. Your body's well-adapted defenses against physical dangers may not be as effective at dealing with the stress you feel while managing a huge workload, making ends meet, or taking care of an ill parent or child.

Instead of protecting you, your body's response to stress, if constantly activated, may make you more vulnerable to life-threatening health problems.

What is the stress response?

Stress response, often referred to as the "fight-or-flight" reaction, is your body's rapid and automatic switch into "high gear." It's easy to imagine how this reaction helps you deal with a physical threat. You need the energy, speed, concentration and agility either to protect yourself or to run as fast as possible.

When you encounter such a threat, the hypothalamus, a tiny region at the base of your brain, sets off an alarm system in your body. Through a combination of nerve and hormonal signals, this system prompts your adrenal glands, situated atop your kidneys, to release a surge of hormones â€” the most abundant being adrenaline and cortisol.

Adrenaline increases your heart rate, elevates your blood pressure and boosts energy supplies. Cortisol, the primary stress hormone, increases sugars (glucose) in the bloodstream, enhances the brain's use of glucose and increases the availability of substances that repair tissues.

Cortisol also curbs functions that would be nonessential or detrimental in a fight-or-flight situation. It alters immune system responses and suppresses the digestive system, the reproductive system and growth processes.

The complex alarm system also communicates with regions of the brain that control mood, motivation and fear.

Stress response working overtime.

The stress-response system is self-regulating. It decreases hormone levels and enables your body to return to normal once a crisis has passed. As levels of the hormones in your bloodstream decline, your heart rate and blood pressure return to normal, and other systems resume their regular activities.

But physical threats aren't the only events that trigger the stress response. Psychological "threats" â€” such as the stress associated with work, interpersonal relationships, major life changes, illness or the death of a loved one â€” can set off the same alarm system. The less control you have over these potentially stress-inducing events and the more uncertainty they create, the more likely you are to feel stressed. Even the typical day-to-day

demands of living can contribute to your body's stress response.

Also, many of our modern stressful circumstances, unlike most physical threats, tend to be prolonged. Consequently, you may be running on the fight-or-flight reaction longer than it's intended to operate. What's good for your body in a short-term crisis can be very harmful over long periods.

The long-term activation of the stress-response system â€” and the subsequent overexposure to cortisol and other stress hormones â€” can disrupt almost all your body's processes, increasing your risk of obesity, insomnia, digestive problems, heart disease, depression, memory impairment, physical illnesses and other complications.

Digestive system.

It's common to have a stomachache or diarrhea when you're stressed. This happens because stress hormones slow the release of stomach acid and the emptying of the stomach. The same hormones also stimulate the colon, which speeds the passage of its contents. Chronic hormone-induced changes can increase your appetite and put you at risk of weight gain.

Immune system.

Your immune system is a complex balancing act between components that operate as an all-purpose emergency crew and more specialized components that deal with specific disease agents. The immune system, like the hormone system, evolved so that it could quickly deal with physical threats. Indeed, cortisol is one factor that prompts the system to reprioritize its tasks.

These shifting priorities are essential for priming the immune system to respond quickly to injuries, like creating inflammation around a bite or puncture wound, but these changes are not beneficial in the long run. When you experience chronic stress, some features of your immune system may remain suppressed, making you susceptible to infections. Other features of the immune system may be permitted to run unchecked, increasing your risk of autoimmune diseases, in which your immune system attacks your body's own healthy cells.

Stress may also worsen the symptoms of an autoimmune disease. For example, stress can trigger lupus flare-ups.

Nervous system.

Certain byproducts of cortisol act as sedatives, which can contribute to an overall feeling of depression. If your fight-or-flight response never shuts off, the stress hormones may contribute to persistent and severe depression, as well as feelings of anxiety, helplessness and impending doom.

Such stress-induced depression often results in sleep disturbances, loss of sex drive and loss of appetite. It also may make you more vulnerable to developing certain personality or behavioral disorders.

Studies also suggest that chronic activation of stress hormones may alter the operation and structure of brain cells that are critical for memory formation and function.

Cardiovascular system.

Chronic activation of stress hormones can raise your heart rate and increase your blood pressure and blood lipid (cholesterol and triglyceride) levels. These are risk factors for both heart disease and stroke.

Cortisol levels also appear to play a role in the accumulation of abdominal fat, which gives some people an "apple" shape. People with apple body shapes have a higher risk of heart disease and diabetes than do people with "pear" body shapes, in which weight is more concentrated in the hips.

Other systems.

Stress worsens many skin conditions â€” such as psoriasis, eczema, hives and acne â€” and can trigger asthma attacks.

Individual reactions to stress.

Your reaction to a potentially stressful event is different from anyone else's. Some people are naturally laid-back about almost everything, while others react strongly at the slightest hint of stress â€” but most fall somewhere between those extremes.

Genetic variations may partly explain the differences. The genes that control the stress response keep most people on a fairly even keel, only occasionally priming the body for fight or flight. Overactive or underactive stress responses may stem from slight differences in these genes.

Life experiences may increase your sensitivity to stress as well. Strong stress reactions sometimes can be traced to early environmental factors. People who were exposed to extremely stressful events as children, such as neglect or abuse, tend to be particularly vulnerable to stress as adults.

Managing stress.

Stressful events are a fact of life, but you can take steps to manage the impact these events have on you. You can learn to identify what stresses you out, how to take control of some stress-inducing circumstances, and how to take care of yourself physically and emotionally when you face events you can't control.

These strategies can include exercise, relaxation techniques, healthy nutritional choices, social support networks and professional psychotherapy. The payoff of managing stress is peace of mind and â€” perhaps â€” a longer, healthier life.