

Economic woes, daily stress take toll on health

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'Tis the season of economic woes, snarling traffic and taxi queues, of noisy neighbors and whining children. It just feels like a normal day and it is inevitable, isn't it?

But these little pressures keep on adding up like building blocks, slowly crippling biological mechanisms and later on exacting a heavy toll on the body.

For many, being "stressed out" is simply a state of mind. But for the last decade, numerous studies have shown the profound effects of psychological stresses on health. It has been identified as culprit when the body goes awry – from skin allergies and common colds to heart diseases and cancer.

Stress in itself is not harmful. People are capable of dealing with life's stresses and stress hormones are instrumental in activating the body's defenses in times of need, said [Bruce McEwen](#), director of the neuroendocrinology laboratory at the [Rockefeller University](#) in New York.

When the body perceives stress and danger, for instance, it undergoes a chain reaction that triggers the release of various stress hormones, including adrenaline and cortisol, from the adrenal glands above each kidney to catch up with the challenge.

This is manifested by faster heart rate, increased blood pressure and glucose and respiration that eventually lead to the so-called "fight" or "flight" reaction.

"Allostasis is often thought of as the fight-or-flight response because, taken to the extreme, it prepares for just those two eventualities. The main idea is to get maximum energy to those parts of the body that need it the most," McEwen wrote in his book, "[The End Of Stress As We Know It.](#)"

Once the threat is over, stress hormones return to normal levels. Yet sometimes, stress becomes more severe, cortisol remains elevated in the bloodstream for too long and the brain perceives stress even if it is not really there.

Such condition referred to as "allostatic load" by McEwen, results from the "wear and tear" arising from over-activity or under-activity of allostatic systems and causes the body to react as if it is in a constant state of stress.

Several studies have pointed out that higher levels of allostatic load can lead to suppression of the immune system, making people more susceptible to infection and various diseases.

At the onset of fight-or-flight response, for instance, adrenaline causes the heart to pump faster and drive oxygen to the large muscles of the arms and legs. When activated too often, the surge can damage and clog the blood vessels in the arteries, leading to atherosclerosis.

"Too many sudden escalations in blood pressure can trigger myocardial heart attacks in blood vessels that have become clogged," McEwen reported.

[Cortisol](#) releases glucose into the blood to provide energy during stress time. But when it remains elevated for a longer period, and coupled with high insulin levels, it sends fat into storage at the waist rather than the hips or buttocks, a [Yale University](#) study in non-overweight women suggested.

"Greater exposure to life stress or psychological vulnerability to stress may explain their enhanced cortisol reactivity," lead author [Elissa Epel](#) said, adding that belly fat has been linked to heart disease, diabetes and cancer.

Another study also linked high levels of cortisol to the shrinkage of nerve cells in the hippocampus, the region in the brain that signals the adrenal glands when to stop producing chemicals needed in times of chronic stress. Continued

exposure to stress hormones can kill these cells that are linked to aging and memory processing, said [Robert Sapolsky](#), neuroscientist at [Stanford University](#).

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Moreover, scientists from the [University of California in Los Angeles](#) found recently that cortisol suppresses immune cells' to activate their telomerase, the enzyme responsible for the replication of telomeres. Telomeres are tiny clocks in every cell that shorten each time the cell divides.

This may explain why the cells of people under chronic stress have shorter telomeres, a characteristic linked to a range of diseases, including HIV, osteoporosis, heart disease and aging, said study author [Rita Effros](#).

"We are testing therapeutic ways of enhancing telomerase levels to help the immune system ward off cortisol's effect. If we are successful, one day a pill may exist to strengthen the immune system's ability to weather chronic emotional stress," she said.

On the other hand, a subsequent lack of sufficient cortisol may also lead to imbalances in the body. This happens when an "initially threatening experience becomes business as usual," eventually shutting down stress responses, McEwen said.

The most immediate result is that the immune system, without cortisol's steadying hand, runs wild and reacts to things that do not really pose a threat to the body."

Inflammatory diseases like allergies and asthma are two common manifestations of low cortisol level, which causes the system to react wildly in warding off things that are not really harmful, such as dust or cold.

And so what's the best thing to do to avoid stress? McEwen's advice is simple: regular exercise and proper diets can lower stress levels and counteract allostatic load.