Cortisol Health Facts

Cortisol, the body's major stress hormone, can be considered analogous to an in-built alarm system. It is produced by adrenal glands which are small triangular organs located on top of the kidneys. This hormone affects certain areas of the brain that control fear, mood, and motivation.

Cortisol has many functions in the body, including but not limited to:

- Managing the body's usage of fats, proteins, and carbohydrates
- Reducing inflammation
- Controlling the circadian rhythm (sleep/wake cycle)
- Increasing blood glucose levels
- Regulating blood pressure
- Enhancing energy levels to improve stress management and the restoration of balance later

How does cortisol work?

The levels of cortisol in the body are continuously monitored by the hypothalamus and the pituitary gland present in the brain. Whenever the levels of cortisol in the body do not match its requirement, these structures send signals to the adrenal glands, directing them to increase or decrease cortisol production as needed.

Most cells in the body contain receptors for cortisol so they respond to changes in its levels. Different cells use the hormone in different ways. Depending upon the situation you are in, your body's requirement for cortisol will vary; for example, when under stressful conditions, cortisol decreases the functioning of systems that are not immediately essential for survival, such as the digestive system, the reproductive system, and the immune system. The growth process is also slowed in the presence of high cortisol levels.

Stress and Cortisol Levels

Usually, cortisol levels return to baseline after a stressful event has passed, returning the functioning of the systems to normal. The heart rate and blood pressure are reduced and other systems also return to their normal function.

What happens if the stress doesn't go away? The damaging effects of cortisol then outweigh its benefits and a number of health problems ensue. These include:

- Anxiety
- Heart disease
- Amnesia and problem concentrating
- Headache
- Insomnia
- Weight gain
- Impaired digestion

Cortisol Overproduction

Cortisol production can increase uncontrollably when a tumor in the adrenal glands keeps producing the hormone or when a pituitary tumor constantly keeps producing signals that tell the adrenal glands to produce cortisol. This condition – called Cushing's Syndrome – manifests in the form of rapid weight gain, diabetes, muscle weakness, and rapidly bruising skin.

Cortisol Underproduction

Cortisol underproduction occurs in a condition called Addison's disease. The symptoms of the disease appear over time and include:

- Lethargy
- Progressively worsening muscle weakness
- Skin symptoms such as darkening of scars and folds
- Nausea and vomiting
- Loss of appetite
- Diarrhea
- Decreased blood pressure

If these symptoms appear, a healthcare professional should be consulted as soon as possible to ensure that the levels of cortisol in the body are normal.