



Corti  SLIM[®]

Cortisol's role in Weight Gain

The real reason we can't lose weight

Today's high-paced lifestyle is just not wreaking havoc on our day-timers, it is also placing our health at risk. This eBook is meant to educate, stimulate and motivate!

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**Cortisol Management in connection to
Human Stress and Weight**



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Introduction

Stress is entwined into our daily lives. The stress reactions of our body are fabricated so we could naturally fight and/or flee any life threatening situations. Today, hot weather, heavy traffic, meeting deadlines, and many other everyday situations trigger our body's stress response.

Our physiological agents, and also our body's hormones, arbitrate the stress reaction through short-term protective and adaptive effects and yet hasten pathophysiology when they are over-produced.

One such disadvantage and likely effect of chronic stress is weight gain.

Stress affects almost any part of the body and produce psychological symptoms including faintness, headache, heart tremors, weakened coordination, weakened resistance and weight gain. Weight gain is often supplementary with emotional eating and usually associated with people who do not include exercising into their lifestyles. These types of people are more prone to chronic stress.

The researchers however have found out that changes in the body that are triggered by stress, such as increased cortisol levels, do cause insulin resistance and weight gain.

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When a person is under stress, his/her body expels corticotrophin-releasing hormone and adrenalin. This reaction fuels the release of cortisol from the adrenal cortex. In turn, cortisol, a glucocorticoid, fuels glucose release into the bloodstream that creates an unwarranted discharge of insulin. Insulin is a fat-storage hormone of the endocrine system that predominate the stress signal from adrenalin to burn fat. The excess discharge of insulin gives the body the signal to hoard fat in the abdomen.



A recent U.S. study estimates that 10 to 25 percent of the population has insulin resistance, or hyper-insulinemia. 10 to 25 percentages may seem high, but there are numerous ways to persuade hyper-insulinemia. One widespread theory is that consumption of carbohydrate-rich food causes insulin resistance. Ponder about the sorts of food people yearn for when stressed—carbohydrate-rich and often sugary sodas and other comfort foods. Nevertheless, nutritionists pointed out that stress could still be part of this theory.

The cycle starts when stress drives the carbohydrate yearnings. Carbohydrates fuel the production of serotonin. Serotonin is known to be a contributor to feelings of well-being and happiness. The more carbs we eat, the happier we become. With this cycle, plus

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the hyper-insulinemic state we are in, creates the formula for weight gain. Thus, chronic stress becomes the biggest piece of puzzle for the 50 percent overweight and 29 percent obese Americans.

The stress reaction upsets insulin regulation and changes glucose absorption and fat storage. But to focus on these aspects and disregard the function of other organs by eating too many carbohydrates and/or starve our bodies from hoping that we will become lean and healthy is absurd. The body needs carbohydrates for energy, brain functionality, fiber and phytonutrients. The metabolic way of burning these carbohydrates in our body is what we needed corrected.

With already 16 million diabetic citizens comes yet another 21 million impaired-glucose-tolerant (IGT) patients. IGT is a disorder in which blood sugar reaction after a glucose load is compromised. IGT is a risk factor for emergent diabetes, and its major risk factors for IGT are the occurrence of intra-abdominal obesity. Stress also causes people with diabetes to have a hard time controlling their blood sugar. So the effect of stress and its influence on insulin regulation may accelerate the development of Type 2 diabetes.

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Stress leads to improper physical function

Stress is a response of the body to any kind of physical, mental and emotional demand that exceeds the adaptive resources of an individual. Stress can be both good and bad to our health.

Good, because it releases a norepinephrine, a “fight” hormone into our bloodstream which gives us more energy so we can react quickly when faced with physical danger.

We become more alert, concentration sharpens and our strength and dexterity increase. But when the nerve-racking state ends, the hormonal signals shift the stress response and the body returns to normal.



Bad, because too much stress can then release epinephrine, another “flight” hormone that has negative effects in humans which causes emotional and mental breakdown by draining your energy, changes your mood and decreases your ability to perform well. Not to mention the fact that it will eventually wear the body down and make you prone to illnesses.

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Billions suffer from 'high' levels of stress in a year and 87 percent of the Americans are diagnosed as suffering from long-term stress. The symptoms for those who are under this type of stress may find that their energy is depleted; appetite is constantly changing (either eating too much or skipping meals) and they have difficulty losing weight even when exercising and eating well.

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Stress compounds

Stress compounds include epinephrine, Norepinephrine and cortisol. All three hormones enable the body to react to vulnerabilities. Epinephrine upsurges heart rate and blood pressure, diverts blood to the muscles and speeds response time.

Cortisol (glucocorticoid), discharges glucose from the body reserves so that this essential fuel can be used to power the muscles and the brain.

Normally, cortisol also exerts a command to shut down the stress reaction after the threat has passed, acting upon the hypothalamus and causing it to stop producing the CRH or Corticotrophin-Releasing Hormone.

This stress circuit affects systems throughout the body. The hormones of the HPA or hypothalamic-pituitary-adrenal axis exert their effect on the autonomic nervous system- which governs the vital functions such as our blood pressure, digestion and heart rate.

The HPA axis also communicates with several regions of the brain, the limbic system- which controls motivation and mood, with the hippocampus- which plays an important part in memory formation as well as in motivation and mood, with the

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amygdala- which causes fear in reaction to danger, and with glandular systems- producing growth hormones, thyroid hormones and the reproductive hormones. Once triggered, the stress reaction shifts the hormonal systems regulating immunity, metabolism, reproduction and growth.

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Cortisol in connection to stress

Cortisol is an important hormone in the body that is secreted by the adrenal glands.

The main functions of cortisol are energy regulation and mobilization. The Cortisol's task is to regulate the body's energy level to meet its physiological demands. It does this by picking the right amount of carbohydrates, fats and proteins needed by our body. Cortisol activates energy by selecting the body's fat and distributes it throughout the tissues that need growth and repair. Be it through fasting, eating, exercising or any physical movement causes the body to release cortisol.

Under stressful conditions, cortisol can provide the body with protein for energy production by converting amino acids into useable carbohydrates in the liver. Cortisol also aids baby fat cells to grow up into mature fat cells and may act as an anti-inflammatory agent, overpowering the immune system during times of physical and psychological stress.

Cortisol directly affects fat storage and weight gain in strained, tensed and anxious individuals. Tissue cortisol absorptions are controlled by a specific enzyme that is located in fat tissues. It converts inactive cortisone to active cortisol.



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Normally, Cortisol is present in the body at higher levels in the morning. Even though stress is not the only reason why cortisol is secreted into the bloodstream, it has been labeled as the “stress hormone” because it is secreted in higher levels during the body’s fight or flight reaction to stress, and is responsible for numerous stress-related changes in the body.

While cortisol is a vital and helpful part of the body’s reaction to stress, it is imperative that the body’s recreation response will be activated so that the body’s functions can return to normal after a stressful event. Regrettably, in our current high-pressured culture, the body’s stress response is activated so often that the body does not always have a chance to return to normal, resulting to chronic stress.

Research now shows that prolonged stress is more critical when it activates the hypothalamus in the brain of the individual who suffers from it, making him/her more distraught and less optimistic. Cortisol is then released from the kidney’s adrenal cortex, causing adverse effects such as blood pressure and increasing belly fat. Some cellular and tissue shifts may occur when body tissues are exposed to high levels of cortisol. A high level of cortisol causes fat stores and excess circulating fat to be relocated and deposited deep in the abdomen.

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When this is left unchecked, it can develop into obesity. For example, the “fight” or “flight” stress responses cause the heart to beat faster and harder as well as release more free fatty acids into our body circulation. The “defeat” response to stress will then lead to body fat formation and collapse of tissues.

Take note, having too much cortisol in our body can slow our metabolism and this will eventually lead to more weight gain that makes dieting more difficult. When people are under chronic stress, they tend to have cravings for sweetened treats and yearn for salty and oily foods. Sodas, cakes and canned foods should be kept out of reach. An increased level of cortisol does not only make you crave junk foods, but excess anxious energy causes you to eat *more* than you normally would.

Prolonged stress can alter your blood sugar levels thus triggering your mood swings and increases mental and physical exhaustion. In addition to mood swings, people who are stressed and busy tend to make unhealthy meals at home, and go for fast foods instead.

Excessive stress even affects where our body accumulates fat, and that goes usually in our belly.

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Stress and abdominal weight

Stress affects almost any part of the body and produce physical, mental and emotional symptoms including allergies, dizziness, headache, heart palpitations, environmental sensitivity, impaired coordination, impaired immunity and weight gain.

In a healthy body, carbohydrates are converted to glucose and a blood glucose level of 60-120mg/dl is maintained without thought to the dietary consumption of



carbohydrate. In the glucose biased population, carbohydrates are readily altered to glucose and the pancreas responds to this shift in blood sugar by secreting an excessive amount of the hormone, insulin.

The Insulin's job is to eliminate the glucose from the bloodstream and help it enter the body cells. If successful, the blood glucose returns to normal regardless of the amount of carbohydrates consumed. If this system breaks down, a quick rise in blood glucose followed by an excess production of insulin ensues. The excessive insulin is not recognized by the body cells so is unable to remove the glucose from the bloodstream. The result is a stimulated appetite- an effect of increased blood insulin levels.

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Weight gain is often associated with emotional eating and the too-busy-to-exercise lifestyles of people under chronic stress. But researchers studied that an increase in cortisol levels not only contributes to weight gain but also causes insulin resistance.

Under stress, the body secretes corticotrophin-releasing hormone and adrenalin which fuels the release of cortisol from the adrenal cortex. During chronic stress, the cortisol (glucocorticoid) encourages glucose release into the arteries, which then produces unnecessary release of insulin. The Insulin is a hormone found in the endocrine system that stores fat and dominates the stress signal from adrenalin to burn fat. The extra release of insulin signals the body to store more fat in the belly.

Consider the types of food women crave when stressed—carbohydrate-rich and often sugary comfort foods. Stress makes the body crave for more carbohydrates. In combination with the hyper-insulinemic (insulin resistance) state that many people are in, produces the formula for weight gain. Chronic stress plays a big part in the weight dilemma that made 50 percent of people overweight and another 29 percent obese. Fast foods, processed foods and sugary treats are some of the common comfort foods that people gravitate towards and reach for when stressed.

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Stress response affecting cortisol release

A study at New York University has demonstrated that cortisol injections are associated with stimulated appetite, yearnings for sugar and weight gain. Women who release more cortisol consumed foods high in sugar and fat compared to stressed women who release less cortisol.

It has been thought that cortisol directly influences food consumption by binding to receptors in the brain (hypothalamus). The cortisol encourages an individual to eat food that is high in fat and/or sugar. The stress responses are complex and may trigger other hormonal paths, thus releasing the cortisol. The chronic release of cortisol combined with reformed tissue production leads to the increase of abdominal obesity in both men and women. Cortisol is supplementary to overindulging of fatty foods, craving sugary foods and drinks, and repositioning fat from the circulation to the inner abdominal area.

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Stress, cortisol and weight gain

A group of researchers studied the effects of stress on monkeys. The monkeys seemed to respond normally to stress, but were unable to “switch off” the stress reaction by secreting appropriate cortisol levels, thereby remaining in a state of prolonged stress arousal as compared to their peers.

Recently, Dr.Chrousos [1] and his coworkers discovered that recurrent insomnia is more than just struggling to fall asleep. The



researchers found that when compared to a group of people who did not have difficulty sleeping; the insomniacs had higher ACTH [2] and cortisol levels, both at night and in the first half of the evening. Furthermore, the insomniacs with high cortisol levels struggle more in falling asleep. It appears that the insomniacs have overdriven nervous systems. They are too alert in dealing with threats when they should be resting. Instead of prescribing sleeping pills, the researchers recommended the prescription of antidepressants to help tranquilize the stressed patients.

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After researching about the HPA axis for many years, Dr.Chrousos acknowledged that chronic stress should be dealt with seriously. “Persistent, unremitting stress leads to a variety of serious health problems,” Dr.Chrousos said. “Anyone who suffers from chronic stress needs to take steps to alleviate it, either by learning simple techniques to relax and calm down, or with the help of qualified therapists”.

Thankfully, today, a lot of natural herbs are discovered that contains nutrients that normalize and enrich the body's capacity to handle stress and its manifestations. One such supplement on the market today is [CortiSLIM Advanced](#). [CortiSLIM Advanced](#) contains [Vinpocetine](#), a derivative of the Periwinkle Plant, for increased [brain function and is an anti-inflammatory agent](#). [Raspberry ketones](#), for [increased metabolism and fat burning](#). [Cinnamon](#), which is high in [nutrients](#), regulates blood sugar, lowers cholesterol, etc. [Vitamin D3](#), a [multi-talented nutrient](#) for mood, pain, immunity, bone health and more!

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References

[1] Chrousos is a professor and chairman of the Department of Pediatrics at the Athens University Medical School in Greece. Previously, at the National Institutes of Health, he was chief of the Pediatric and Reproductive Endocrinology Branch of the National Institute of Child Health and Human Development and director of the Pediatric Endocrinology Section and Training Program. Chrousos has been professor of Pediatrics, Physiology and Biophysics at Georgetown University Medical School in Washington, D.C.

One of the world's most prominent clinical investigators, Chrousos has focused his research on neuroendocrinology. The interrelationships between the nervous system and the endocrine systems have a significant impact on mood disorders, sleep, pain perception and immune function.

[2] Adrenocorticotrophic hormone