

Hormones

Are they affecting your weight?

We often hear people blaming their weight problems on hormones, but are they really directing the blame in the right direction? Are the problems really with their endocrine system, which controls hormones, or is the cause due to diet and lifestyle choices?

Most people have only a vague idea of the function of hormones, and little knowledge of specific hormones which may be affecting their hunger, appetite and weight. Here is a quick outline of some of the hormones which can affect your weight:

Leptin – a satiety hormone

Leptin is primarily produced in your fat cells, and tells you to stop eating. It's self-regulating, but unfortunately many of us override leptin by continuing to eat when we're no longer hungry! The result is leptin resistance. The good news is that you can overcome leptin resistance by exercising daily, losing weight and maintaining muscle. The bonus is that you'll probably feel less stressed.

Other satiety hormones include Cholecystokinin (CCK) and Pancreatic Polypeptide (PPY).

Ghrelin – a hunger hormone

When your stomach is empty it releases ghrelin, which makes it 'growl'. Foods containing fructose (eg fruit juice, corn syrup, soft drinks and almost all sweet-tasting foods) stimulate production of ghrelin, resulting in feelings of hunger and therefore higher calorie consumption. Skipping meals, eating too little, eating infrequently, or consuming too much fructose makes things worse by undermining your will power and causing ghrelin to make you crave fattening foods. Keep your tank topped up with healthy foods and avoid ghrelin's sabotaging effects.

Other hunger hormones include Neuropeptide Y (NPY) and Galanin.

Insulin – the energy/storage hormone

Insulin is secreted by the pancreas. It regulates glucose (sugar) levels and converts excess blood glucose into storable form in fat cells. High carbohydrate intake leads to high levels of blood glucose and then high levels of insulin. The body can develop a resistance

to insulin as a result of prolonged periods of excess sugar/carb intake. More insulin is needed to overcome this resistance and thus reduce blood glucose levels. More insulin means that more fat is stored and it is more difficult to move that fat out of storage to make it available as energy for daily activities.

Glugagon - the energy burning hormone

Along with insulin, glucagon is also released by the pancreas and has the opposing job to insulin – it helps to raise the levels of blood glucose. Insulin and glucagon work together to regulate the levels of blood glucose so that we remain healthy. Protein-rich foods help to lower blood glucose and cause more glucagon to be released in order to ensure the brain is supplied with glucose. Glucagon increases with carbohydrate restriction.

Cortisol – the stress hormone

Cortisol is the 'fear' hormone. In cave-man times cortisol helped man escape the hungry predator; today chronic stress leads to increased production of cortisol and insulin. Appetite increases, usually for high-calorie sweets and fats, and slows metabolism. This gives more energy and increases fat storage, and sends fat and inflammatory chemicals to the liver, leading to insulin resistance.

When you try to combat stress with food (and haven't we all done that!) you activate the reward centre of your brain, releasing serotonin and dopamine and making you feel good. Once this initial feel good system wears off, you'll tend to reach for the same food that produced the good feeling in the first place, and the cycle continues. Emotions like stress and anxiety make it more difficult to control your eating and your weight.

Adrenalin – the excitement hormone

Adrenalin suppresses appetite, increases the metabolic rate and assists in breaking down stored energy in fat cells. Unfortunately, the more fat in storage the lower the adrenalin levels; hence many overweight people have larger appetites than healthy weight people, making it more difficult to lose weight.

Hormones (cont ...)

Adiponectin – the energy hormone

Adiponectin enhances your muscles' ability to use carbohydrates for energy, boosts your metabolism, increases the rate at which your body breaks down fat, and curbs your appetite. The more body fat you have, the less adiponectin. Counter this by moving more and reducing carbohydrates so that the body relies on stored fat for energy.

Serotonin – the calming hormone

Low levels of the neurotransmitter serotonin can stimulate a desire for sweet foods, especially ones like chocolate. When we eat, insulin is released to metabolise sugar, which actually helps tryptophan (from which serotonin is made) to be absorbed into the blood stream. The increase in serotonin levels improves mood, makes you feel good, combats depression and helps you resist cravings, especially for sugars. Unfortunately this is temporary. All these positive effects then reverse, so the temptation is to consume more of the 'feel good' foods in order to regain those positive feelings. A cycle will develop. Dieters need to be aware of the drug-like effect of sweets and chocolate, where reliance develops due to the need to feel good.

Oxytocin – the social-bonding hormone

Oxytocin may decrease blood pressure and lower the effects of stress, and raise the levels of a substance that helps control your appetite. Research shows that increasing social interaction, touch and massage can help boost oxytocin levels. So, a relaxation session, having a coffee with a friend, and hugging someone will provide benefits to your health and your emotional well-being.

Thyroxine – the metabolism hormone

This is produced in the thyroid gland and controls the basal metabolic rate by regulating protein, fat and carbohydrate metabolism, and stimulating vitamin metabolism. Low levels of thyroxine means a slower metabolism, while higher levels means a faster metabolism.

Sleep and hormones

Your body needs at least 7½ hours of sleep every night to become rejuvenated; without this amount your body looks for other ways to compensate for you not secreting the feel-good chemicals **serotonin** and **dopamine**. It does this by craving sugary foods which give an immediate release of these chemicals, but remember this is a short-lived result and you quickly go back to feeling like you need another lift... the cycle continues if sleep is insufficient.

As you age, the body releases less of the sleep hormone **melatonin**, which results in the subsequent carb-cravings experienced by so many people.

Another hormone released during sleep is **Human Growth Hormone**. It increases breakdown of fat, increases muscle mass, improves immune function, and stimulates calcium retention which then increases bone strength.

Hormones do not act in isolation; they respond to cues in the body and in turn send cues which cause other hormones to act. As a rule, eating a healthy, balanced diet, avoiding or managing stress, exercising regularly, and getting enough sleep all contribute to the best possible functioning of your endocrine system, and of your body as a whole.