

## **Article 12 – Weight loss Part Two: The Role of Insulin in Keeping the Fat on.**

In the previous article on weight loss I wrote about the relationship between muscle mass, keeping the metabolic rate up, healthy eating habits, exercise and maintaining a healthy weight. This article will discuss one of the major contributors to weight gain; changes in the way the body uses a hormone called insulin.

Insulin is the hormone produced by the pancreas which allows glucose to move from the blood stream into our cells. Once the glucose is in the cells it is converted to energy unless there is too much for current requirements, in which case it will be stored as fat. Without insulin, our cells could not access glucose which is their main energy supply so insulin is vital for our survival, and provided insulin levels are kept within normal parameters everything trucks along nicely. However if a situation arises where the insulin levels are allowed to get too high, the way the body works with the insulin will change and this will affect our ability to use glucose and maintain a healthy weight. To understand how insulin levels can get too high it is necessary to understand what triggers insulin release and what happens when high levels of insulin are fed into the blood stream on a regular basis.

The trigger for insulin release is glucose. Whenever we eat a meal or snack, that food will be converted into glucose, amino acids, various types of fat or a combination of these. The ratios will vary depending on what we have eaten. Some foods will turn into glucose very slowly which means that the release of insulin in response to them is also slow, and this is what serves our bodies best because it keeps insulin levels down and ensures that our bodies are kept supplied with fuel for a long period of time. Other foods will be converted to glucose very quickly, and the resulting dump of glucose into the blood stream will cause correspondingly large amounts of insulin to be released as the body tries to get the blood sugar levels down again quickly. In this way, insulin acts to protect us because high levels of sugar in the blood can cause damage to any cell membrane that it comes into contact with. This protective measure is great, and will work well provided we don't call on it too regularly. The problem arises when we eat foods which increase our blood sugar too quickly which is the case when we choose to eat things like baked goods made with white flour, sweet cereals, desserts, and refined or sugary foods and beverages, and do this on a daily basis. The human body was never designed to cope repeatedly with highly concentrated sweeteners such as sugar, or refined grain products such as white flour.

Unfortunately when insulin levels respond to a spike in blood sugar, the hormone will often do too good a job of clearing it out, leading to the opposite problem known as reactive hypoglycaemia. A person with reactive hypoglycaemia may experience the need for a nap not long after eating a meal or sweet foods, may feel irrational irritability when hungry, or may experience sweet cravings which if indulged, will lead to another blood sugar surge, then another insulin spike which then creates a vicious cycle. (It is interesting to note that the reason reactive hypoglycaemia may result in the need for a nap is because the brain is very sensitive to any shortage of blood glucose, and by shutting you down for a short period of time, it allows time for the liver to convert stored sugar (glycogen) into glucose to get the blood sugar back up again. This is why a 10 minute power nap will often restore a person's energy).

A pattern of reactive hypoglycaemia or blood sugar disturbance can go on for years before the way insulin works in the body is noticeably affected, and ultimately this cycle of bouncing blood sugar will result in higher and higher levels of insulin being released. Eventually the ability of the cells to react appropriately to the insulin

starts to change and the insulin becomes less and less effective. This is because cells which are consistently exposed to high levels of any hormone will gradually become desensitized to that hormone. When this happens, higher and higher levels of hormone are required to get the job done which leads to a cycle of increasing hormone levels and the ever-decreasing sensitivity of cells to it. In the case of insulin, this eventually leads to a condition called insulin resistance (where weight gain around the middle is usually pronounced) which is the precursor to non-insulin dependant diabetes, and if left unchecked, may result in damage to the beta-cells of the pancreas which is where insulin injections become necessary.

When there has been no damage to the pancreatic cells the body can usually be resensitised to insulin and insulin levels can be brought back under control. Until this is done, it will be almost impossible to shift the weight gain around the abdomen. There are several things which will help to do this. The two most important and effective measures are diet and exercise. Good blood sugar control is vital, gained through eating healthy slow-releasing foods and eating small amounts of that food 5-6 times through the day. It pays to use a set of glycaemic index charts and these are available through the clinic. It is essential to combine this with exercise which increases the amount of muscle on the body which then acts as a fat-burning engine 24 hours a day. Doing one without the other will not make much of an impact because both are required to reduce insulin levels and resensitise the body to insulin. (I also recommend referring to my previous article for more specifics on the diet and exercise front).

Supplements can be helpful. However contrary to what you may have seen advertised, there are no miracle cures. Vitamins, minerals and herbs can be very effective in ensuring correct glucose metabolism, thyroid, digestive and adrenal function which can all have a role in weight gain, and to speed up the process of insulin re-sensitisation. However, unless diet and exercise are also addressed the desired weight loss will not happen as no supplements will ever make up for poor lifestyle choices and will not change the way the body handles insulin on their own.

The most important vitamins and minerals for glucose metabolism and healthy thyroid function are vitamin A, the B vitamins, chromium, magnesium, zinc, iodine, selenium and manganese. Selenium, magnesium and iodine are deficient in our soils so supplementation with these is usually necessary, and magnesium, zinc, chromium and manganese are usually low in people who get sugar cravings. Vitamin A and the omega 3 essential fatty acids ensure that our cell receptors take up all hormones including thyroid hormone and insulin effectively. As far as the thyroid is concerned, a deficiency of either of these nutrients will mean that even if plenty of thyroid hormone is available, the cells won't be able to use it very well. This will result in a drop in metabolic rate, less ability to burn food for energy and therefore more being stored as fat. (My next article will go into the thyroid gland and its role in more detail).

Chronic stress can affect the way the body uses insulin. The body's main tool to cope with long term stress factors whether they are pain, allergy, lack of sleep, emotional stress or any other form of stress is cortisol. High cortisol levels are known to increase insulin resistance which then contributes to weight gain. This explains why one of common side effects with prolonged corticosteroid drug use is weight gain. High cortisol levels will also often interfere with the conversion of one of the thyroid hormones to its most active form, which then will affect the person's metabolic rate negatively. Again and again I have found that it is vital to treat the adrenals when addressing insulin resistance.

At the clinic we regularly run a series of three short workshops on how to lose weight healthily and avoid a rebound. The program looks at all of the things related to good blood sugar control, how to get the fat-burning process going and how to get the metabolism working properly again, with the development of a personal program for each participant based on their individual needs. Please contact Ngaire at the clinic if you are interested in participating in one and would like an outline of costs etc...

**For further help please contact us at The Self Heal Clinic on 06 304 8177. We are open Tuesday, Thursday, Friday and Saturday.**