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Insulin Sensitivity, insulin resistance and insulin unresponsiveness.

There are over 400 million Diabetics in the world. Two million diabetics in Sri Lanka

Studies done by Sri Lanka diabetic association and Kins College London have found that 20% of Sri Lankans have abnormal blood sugar levels.

Primary risk factor for diabetes…….

If you have diabetes or want to know about diabetes, the two words- insulin sensitivity and resistance- must be well understood to understand and control diabetes.

Insulin resistance and insulin sensitivity are two sides of the same coin. If you have insulin resistance, you have low insulin sensitivity. Conversely, if you are sensitive to insulin, you have low insulin resistance. While insulin resistance is harmful to your health, insulin sensitivity is beneficial in non-diabetics.

Your insulin sensitivity determines the amount of insulin your body needs to maintain healthy blood sugar levels. The more severe your body's insulin resistance is, the less sensitive to insulin you are.

When you have insulin resistance, your cells do not respond to insulin appropriately. Insulin is the hormone that moves energy-rich glucose from the foods you eat into your cells, so this resistance leaves you feeling low on energy, hungry, and at risk for developing type 2 diabetes.

How do you reverse insulin resistance in prediabetes?

Long hours pounding the pavement or the treadmill can increase the amount of cortisol you release and make you more resistant to insulin. Instead, lift weights or try high impact interval training to improve your metabolic profile in your body. It's all down to a hormone called cortisol.

THE RELATIONSHIP BETWEEN HIGH CORTISOL AND INSULIN RESISTANCE

Cortisol is a steroid hormone produced by the adrenal glands, which sit on top of each kidney. It is released when the body is subjected to stress or danger.

Stress can lead to high cortisol and insulin resistance and high blood sugar levels by interfering with insulin action via several mechanisms, including the direct inhibition of insulin from the pancreas, impaired glucose uptake in the liver, and disruption of insulin signalling in the muscle.

A slow, steady walk for a few hours a day at intervals will produce less cortisol, and you are more likely to be insulin sensitive to maintain a normal blood sugar range.

If you need to, physical activity and losing weight may help your body respond better to insulin. Taking small steps, such as eating healthier foods and moving more to lose weight, can help reverse insulin resistance and prevent or delay type 2 diabetes in people with prediabetes.

Exercise is the best way to become more insulin-sensitive, as muscle contractions increase the glucose receptors on your cell walls – allowing more sugar to be utilised as energy.

Non-diabetics have very low or no insulin resistance, and their blood sugar levels are well maintained at healthy levels.

People with diabetes have various levels of insulin resistance, and blood sugar levels need to be controlled with diet, exercise, medication and keeping your weight within the normal range for your age.

In an average non-diabetic person, the pancreas well controls the requirement of insulin to control your blood sugar level.

As soon as dietary carbs are digested and absorbed as glucose, or fructose from fruits, in the gut, the blood sugar tends to rise from the fasting 5.5mmol/L within the first hour over eight mmol/L, by signalling the pancreas to produce more insulin. The pancreas starts working by producing insulin into the bloodstream to courier the blood sugar to the liver, and muscles and store sites like the fat cells, bringing down the blood sugar level within two-three hours.

In a person having diabetes, this standard mechanism may not work due to the resistance of the insulin secreted by the pancreas, thereby seeming to keep the blood sugar raised without dropping.

Insulin resistance is a precursor to type 2 diabetes.

This is due to insulin resistance when average insulin concentrations produce a less than usual biological response.

There is a build-up of glucose in your blood in insulin resistance, and the pancreas tries to cope by producing more insulin. People with insulin resistance are often producing more insulin than healthy people.

People with insulin resistance cannot handle common carbohydrates in their diet. They need to oversecrete insulin in response to eating carbs, and they are less likely to feel satisfied after a meal; therefore tend to overeat. That means carbohydrates need to be restricted in the diet to reduce insulin resistance, increasing your dietary blood sugar.

Consequently, people with insulin resistance tend to eat more food and put on weight.

Therefore, losing weight is essential to make your insulin more sensitive.

Typically, the leaner and more active a person, the more sensitive their cells are to insulin. (Known as insulin sensitivity.) This means they need less insulin to move glucose out of their bloodstream.

This is why fit people "tolerate" carbs better than sedentary folks. They usually even benefit from more carbs to aid performance and recovery.

People who are obese—particularly those with higher amounts of visceral fat (the deep abdominal fat that surrounds several vital organs)—are more likely to be insulin resistant.

Losing excess body fat in such people often resolves insulin resistance.

How can you become insulin sensitive when you have an insulin-resistant problem?

Exercise is the best way to become more insulin-sensitive, as muscle contractions increase the glucose receptors on your cell walls, allowing more sugar to be utilised as energy (instead of it just ending up going into storage as fat).

Eat a plant-based high, protein diet, exercise daily, and make your insulin resistant situation into a more insulin sensitive situation. Then, you may be able to get rid of your antidiabetic drugs.

In conclusion, if you have diabetes, you have an insulin resistance problem.
By eating a sensible, low carb diet, daily exercise, and losing weight, you can revert your insulin resistance to an insulin-sensitive situation.
That is how your revert your diabetes situation to a non-diabetic one.
You cannot cure diabetes, but you can reverse it.
I hope you will benefit from this video talk.
Stay safe, and Goodbye for now.