



Is your Blood Sugar balanced? - July 2009

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What are Blood Sugar levels?

Glucose is the medical term for blood sugar. When the word "level" is used, clinically that indicates an amount. Therefore, "blood sugar level" is the amount of glucose that is in the blood. When a sample of your blood is taken from you at the laboratory, it's possible to measure the amount of sugar (glucose) in that sample, regardless of the size.

What should normal blood sugar levels be?

The ideal values are:

- 4 to 7mmol/l before meals
- Less than 10mmol/l 90 minutes after a meal
- Around 8mmol/l at bedtime.

Consistent elevated levels of blood sugar above 10 are commonly referred to as "pre-diabetic" and can mean that your body may be becoming intolerant to glucose or resistant to the effects of insulin (a natural hormone released by the pancreas to keep blood sugar levels "in check").

How does Insulin work?

When you eat a meal consisting of refined carbohydrates (foods that have been processed and removed most of the nutrients) e.g. white bread, cakes, biscuits, chocolates, sweets, desserts: these types of foods are broken down very quickly and will flood the bloodstream. If there are large amount of sugar in the bloodstream, then large amounts of insulin is

released from the pancreas to remove the sugar (glucose) from the bloodstream and take it too the cells. Most cells of the body have insulin receptors, which bind the insulin to the cell. When a cell has insulin attached to its surface, the cell activates - it's a bit like a lock & key, if the key fits then the cell is designed to allow the glucose (sugar) from the blood stream to enter the cell, which then in turn gives us energy. Any excess glucose will be stored in the Liver and over and above what the body needs will be stored as fat.

Refined carbohydrates will give us a quick boost of energy but are not sustainable, so our blood sugar will then drop quite quickly and we will crave more glucose, so the cycle is repeated. Over time consuming these types of foods in large amounts can have an affect on the insulin receptors on our cells and they no longer work properly.

If this mechanism fails and sugar remains in the bloodstream where it is not meant to linger (blood glucose is highly regulated), this could result over time in damage to the tiny blood vessels in the:

- Eyes - Retinopathy (eye disease),
- Kidneys - Nephropathy (kidney disease),
- Nerve endings - Neuropathy (nerve disease),
- Cardiovascular disease - heart attack, high blood pressure, stroke and problems caused by poor circulation and greater risk for developing type 2 diabetes

What is Type 2 diabetes?

Without insulin, you can eat lots of food and actually be in a state of starvation since many of our cells cannot access the calories contained in the glucose very well without the action of insulin. It is common to develop insulin resistance (type 2 diabetes) rather than a true deficiency of insulin (type 1 diabetes) where the body is not producing insulin and insulin injections are needed daily.

With Type 2 diabetes, the levels of insulin in the blood are similar or even a little higher than in people without diabetes. However, many cells of people with type 2 diabetes respond sluggishly to the insulin they make and therefore their cells cannot absorb the sugar molecules well. This leads to an ongoing elevated blood sugar level. Occasionally people with type 2 diabetes will need insulin shots, but most of the time other methods of treatment will work.

By keeping the blood sugar level stable, you significantly reduce your risk of these complications.

However the good news is - if we eat unrefined carbohydrates e.g. brown rice, brown pasta, wholegrain bread, oats, pulses - kidney beans, lentils, etc.: these types of food are broken down slowly, releasing insulin slowly and sustaining blood sugar & energy levels constantly, which enables the body to burn fat. Thus preventing the highs and lows of blood sugar created by unrefined foods.

Balancing Insulin is key to maintaining body weight and if your blood sugar is constantly on a roller coaster then it is very difficult to loose weight.

What Lifestyle changes can we make?

- Switch from refined carbohydrates to unrefined carbs.
- Exercise everyday by increasing your physical activity and make it part of your daily routine.
- Always have breakfast to stoke your 'fire' at the beginning of the day and keep it burning throughout the day by eating regular meals.
- Decrease portion sizes. Look at your plate. Think 9" diameter vs. 12" diameter. Now divide your plate in half. One half should be non-starchy (green) vegetables/salad; the other half should be a combination of some protein (such as fish, lean meat, or poultry) and "good" carbs (such as whole grain/multi-grain noodles, rice, beans, sweet potato or a bread).

Dietary Suggestions

- Eat 3 main meals a day and healthy snacks mid-morning and mid-afternoon. Keep meals small.
- Healthy snacks - oak cakes, rice cakes, dips - humus, fruit, raw vegetables, nuts, seeds, and smoothies.
- Breakfast - wholegrain bread, porridge, muesli, yogurts, fruit, crushed seeds (linseed, sesame, pumpkin, sunflower), eggs.
- Lunch - salads (mixed with lots of colours, peppers, lettuce, cucumber, onions, tomatoes) with organic fish, meat, pulses. Some fruit.
- Avoid concentrated fruit juice but dilute them half/half.
- Dinner - not to be eaten late - Organic vegetables, fish, meat, tofu, rice, pasta, fruit.
- Reduce alcohol, caffeine and try alternatives herbal teas, fruit juice, smoothies, water.

Supplement

Invest in a good supplement, which will help to balance blood sugar:

- MetaglyceamX - Metagenics
- Vyta-Myn - Biocare