

# Blood Sugar Levels.

## The highs & lows.

### What everyone should know

On average, the population eats 50kg of sugar every year. Many people eat far too much refined sugar – that is white, brown or raw sugar, honey, sucrose, glucose, molasses and syrup. Most of this sugar (70%) is contained in foods like soft drinks, confectionery, breakfast cereals, “health” bars, biscuits, beer and wine. It is the addiction to sugar that affects our weight, energy levels, mood, ability to deal with stress and overall health.

### What is blood sugar level?

Carbohydrates in our diet are broken down and digested in the digestive tract into simple sugars, namely glucose.

Glucose is the fuel used for energy by our brain and our body. The glucose is absorbed into the blood stream (from the digestive tract,) and it is the amount of glucose in the blood at any one time that is referred to as “blood sugar level”.

Carbohydrates can be complex – such as whole grains, oatmeal and vegetables, or simple – such as beer, sugar, white flour, pasta, biscuits, sweets etc. It is the speed at which they are broken down and absorbed into the blood stream that affects our blood sugar level.

### What happens to Glucose in the blood?

Your body aims to keep your blood sugar level as even as possible at all times. After a meal the blood glucose level goes up significantly, and this stimulates the pancreas to release insulin. Insulin is an hormone that allows the glucose to move from the blood into the body cells to be used for energy. This results in a decrease in blood sugar level and signals the body to eat again to increase the level.

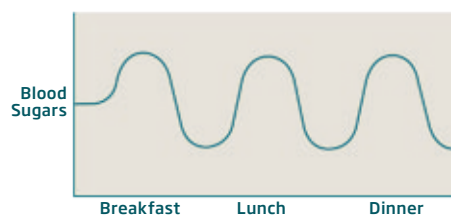
### Symptoms include:

• tiredness	• confusion
• mood swings	• anxiety
• cravings	• constant worrying
• irritability	• a tendency towards depression
• headaches	• allergies
• water retention & bloating	• insomnia
• a lack of concentration	• excess thirst
• forgetfulness	• excess sweating

### and then confusion sets in

This repeats itself and for an individual “normal” person, who balances their blood sugar level and energy requirements well, their blood sugar curve might look like Figure 1:

Figure 1



### What is poor blood sugar balance?

It's the sugar blues! You know that late morning or afternoon feeling of tiredness, irritability and difficulty in concentrating?

It's due to a roller coaster effect of your blood sugar level rising too steeply and then dropping too low, and it's caused by eating a diet high in refined carbohydrates, chocolate, tea, coffee, cigarettes and sugars.

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### What does this do to the body?

- The pancreas eventually becomes exhausted. It can no longer cope with the glucose overload in the blood and insulin production wears out. This results in continuously high blood sugar levels and can lead to diabetes
- Similarly, the body's cells can become worn out and no longer activated by insulin = insulin resistance. This results in HIGH insulin AND HIGH glucose in the blood.

### High insulin levels

- convert excess sugar into fat
- actually promote fat storage
- inhibit the breakdown of fat
- can lower thyroid function
- impair protein breakdown
- suppress immune function

Therefore, high insulin levels are a key factor in weight gain ("eating so little and not losing weight"), and can lead to obesity, diabetes and cardiovascular problems.

- Finally, the adrenals can become exhausted, as they respond more slowly. Constant adrenal stress can upset other body systems, and hormone balances, and lead to reduced thyroid activity, a slower metabolism, a weakened immune system and constant tiredness

### So how do you balance blood sugar levels?

#### 1. Eat 3 small meals plus 2-3 snacks

- this prevents the blood sugar level dropping too low at any time, and overeating at meal times

#### Healthy snack ideas:

- a piece of fruit (apple or pear is best) with a small handful of nuts or pumpkin seeds
- rice cakes with almond / hazelnut butter (not peanut butter), or hummus
- yoghurt and fruit
- vegetable sticks and hummus, yoghurt dip, guacamole, or fresh salsa
- If you are on the move a lot, carry with you fresh or dried fruit, with nuts and seeds.

#### 2. Eat some protein with each meal or snack

- protein slows the digestion process, and hence, regulates a more even insulin response as the glucose is absorbed into the blood at a slower rate
- sources of protein include nuts and seeds, eggs, yoghurt, milk, chickpeas, beans, quinoa, soya, lean meat, poultry and fish
- proteins are used in the body for structure, repair, growth and hormone production.

It is important to also watch portion sizes - a good guide is the "plate-clock" guide:



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### 3. Always eat a good breakfast

- breakfast boosts the metabolism after resting overnight, and ensures a steady blood sugar level through out the morning
- oats with fruit, nuts and seeds plus milk/rice milk and yoghurt are ideal.

### 4. Avoid refined, processed food and sugar

- This includes white bread, white rice etc, ready-made meals and other processed foods
- Be aware and read labels - sugar comes in various forms: sucrose, glucose, fructose, brown sugar, molasses, invert syrup, corn syrup and honey
- Is used to 'bulk' out most ready-made food and jars etc
- Do not substitute sugar with sweeteners - they do not encourage you away from a sweet taste, and have been shown to have negative effects in the body
- Alternatively, eat a whole food diet containing whole grains which are slower releasing carbohydrates, and plenty of vegetables and fruit. Fruit does contain natural sugar, but varying amounts of the slower releasing sugar fructose; also the fibre content of the fruit is complex and slows the rate of digestion and absorption.

All fruit and vegetables are full of vitamins, minerals and anti-oxidants, and help maintain general health, balanced blood sugar levels and a strong immune system.

### 5. Avoid stimulants - Tea, Coffee, Alcohol, Cigarettes & Fizzy Drinks

- All disturb insulin production and function, playing havoc with blood sugar levels
- They are energy's greatest enemy!
- Alternatives include coffee substitutes (eg. Caro) and herbal teas of which there is a wide range and can be found in many supermarkets and health food store.

**NOTE:** When coming off stimulants and radically changing your eating habits, you may get withdrawal symptoms for the first few days as your blood sugar level begins to stabilise e.g. headaches.

### 6. Increase Fibre

- Complex carbohydrates, fruits and vegetables all contain fibre and are digested more slowly, which slows down the release of sugars into the blood. They are also important for regular bowel movements and the removal of toxins from the body.

### 7. Increase exercise and decrease stress

- Important for improving glucose tolerance and weight loss strategies



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### Why? This is what happens...

A person is sugar-sensitive if their blood sugar level shows extreme peaks and valleys.

**Figure 2** shows your blood sugar level rising immediately after breakfast - it rises too quickly.

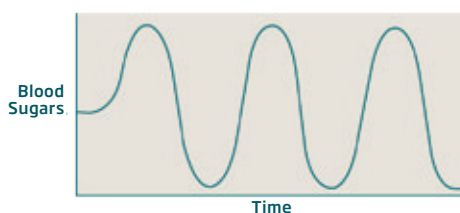
The pancreas produces vast amounts of insulin to push the glucose into cells and lower the blood sugar level. But the effect is too dramatic causing a steep drop in blood sugar.

The blood sugar level drops too low (= hypoglycaemia) causing tiredness, lack of concentration and irritability (**Figure 3**). You automatically look for something to raise your blood sugar level quickly, whether it is a chocolate bar, coffee, wine, or cigarette - causing it to dramatically shoot up again. These constant wild fluctuations in blood sugar level are the cause of many symptoms listed above as well as mood highs and lows. They also cause an increase in sodium retention, leaving you feeling bloated.

**Figure 2**



**Figure 3**



### So what happens next?

The adrenal glands are activated. If blood sugar level drops too low, even for a few minutes, the adrenal glands kick-in to boost the blood sugar level back up. At the same time you reach for something sweet to boost your blood sugar level, and what happens? The blood sugar level dramatically spikes again. This causes an influx of insulin to lower the blood sugar level, and the roller coaster effect continues and gets worse (**Figure 4**).

The adrenal glands are not designed for this constant stress and over stimulation. However your body's over reaction to sugar only causes you to need more sugar as your blood sugar level continually drops into that low danger zone. Therefore the more sugar you eat, whether it be refined carbohydrates or sweets, the more you crave.

**Figure 4**

