

Diabetes Mellitus

Diabetes is characterized by an elevated level of glucose (sugar) in the blood, due to decreased insulin production or decreased sensitivity to the insulin that is produced. If left uncontrolled, high levels of blood glucose will damage organs such as the kidneys, eyes, heart, nerves and major arteries. Ideal blood glucose levels range from 4-6 mmol/L. Diabetes is diagnosed when a person's glucose level is above 7 mmol/L. Diabetes is caused by a combination of factors including poor diet, certain medications or post trauma, being overweight (especially in the abdominal area), inactivity and/or a genetic component.

What is most worrisome is the amount of people who, without them knowing it, suffer from a condition called syndrome X or pre-diabetes. That is why it's advisable if someone suspects a blood glucose abnormality to go for a glucose tolerance test which will identify the presence of any abnormality.

If you have been diagnosed with type 1 or type 2 diabetes, firstly find a doctor that understands nutritional therapy. This should be done in collaboration with an endocrinologist. Secondly join the Diabetes Association in South Africa. Their website is <http://www.diabetessa.co.za>. Thirdly you need to see a dietician that will help you with a low GI/low GL appropriate diet.

Did you know?

Lifestyle interventions focusing on diet and exercise are often more effective than drugs in preventing and managing diabetes and are also much more cost effective. In fact, having someone with diabetes in the family can often lead to a healthy way of eating for the whole family and people with syndrome X can reverse the disease process completely!

Nutritional tips for managing diabetes:

1. Eat breakfast within 2 hours of waking every day

A balanced breakfast will kick start your metabolism and help stabilize your blood glucose levels. Ensure that your breakfast is made up of the following:

1. Slow releasing carbohydrate E.g.: high fibre cereal or seedloaf bread (about a fist full portion)
2. Lean protein or dairy (about a fist full portion or cup)

2. Keep the momentum by eating regularly

Eating every 3 . 4 hours will prevent dips in blood glucose and thus help to manage appetite and energy levels. Ideally a balance of slow releasing carbohydrate AND lean protein makes the perfect meal or snack.



Meal or snack examples:

Carbohydrate	Protein or dairy
1 medium fresh fruit	Fat free cottage cheese or plain yoghurt
1 thin slice seedloaf or rye bread	1 boiled or poached egg
High fibre crackers	1 small handful lean biltong
High fibre breakfast cereal (e.g.: low fat muesli)	Fat free milk or plain yoghurt

3. Gliding with the GI

The Glycemic Index provides a more user-friendly and revolutionary tool when planning meals suitable for the person with diabetes. The Glycemic Index of foods is simply a rating of foods according to their actual effect on blood glucose levels. In the past it was assumed that complex carbohydrates such as whole-wheat bread, brown rice and potato were digested and absorbed slowly, resulting in a slight rise in the blood glucose level. Simple sugars, on the other hand, were believed to be absorbed quickly producing a rapid rise in the blood glucose level. We now know that these assumptions were incorrect, and people with diabetes no longer need to avoid sugar, provided they use it **correctly**.

Foods that are digested and absorbed as glucose quickly are classified as HIGH GLYCAEMIC INDEX foods or fast release foods. They cause a rapid increase in blood glucose levels.

Constantly elevated blood glucose is detrimental for those with or without diabetes. In fact, research is now pointing to the over consumption of high glycemic index foods as the main culprit in the heart disease pandemic!

Foods that are digested and absorbed slowly are classified as LOW GLYCAEMIC INDEX foods or slow release foods. These foods assist in keeping blood glucose levels **constant** and produce small increases in blood glucose levels. These are the foods that require less insulin.

How can I use the GI?

Remember that the purpose of the GI is not to classify foods as either "good" or "bad". Those with diabetes can benefit from using the GI in combination with a low, fat, high-fibre, energy-controlled eating plan. To achieve good blood glucose control, every meal should consist mostly of the more slowly absorbed carbohydrates (low GI foods).



Follow these three easy steps to put together healthy main meals:

1. Choose about a fist full of low GI foods as the bulk of your meal. At least one must be a fruit or a vegetable. Low GI foods include: *apples; berries, oats; pears; beans, lentils, sweet potato; citrus fruits; barley; sweet corn; high fibre cereals, seedloaf bread or rye bread.*
2. Add a small portion of lean protein or dairy such as: *chicken, tuna in brine, fat free cottage cheese; fat free or low fat plain yoghurt, lean shaved chicken or turkey or an egg.*
3. Choose only one small portion of fat per meal. Give preference to natural fats such as: *raw, unsalted nuts, seeds, avocado & cold pressed plant oils such as olive oil.*
1 portion = 1 tablespoon nuts/seeds; 5 olives; ¼ avocado. 1 teaspoon of oil.

4. Fat attack

Reduce the total amount of fat in the diet. Choose low-fat foods; grill, boil, bake or steam foods rather than fry; remove all visible fat from chicken and meat prior to cooking, avoid processed meats such as polony and salami and use low fat or fat free dairy products, such as low fat cheese, milk and yoghurt. Avoid too much margarine / butter. (Avoid margarine and limit butter intake) Rather use hummus, fat free cottage cheese, mustard, or even small portion of mashed avocado or baked beans as a spread.

5. Staying fluid

Alcohol should be taken in moderation - no more than 2 drinks per day is recommended by the South-African Diabetes Association. Always consume alcoholic drinks with a meal or snack, and not on an empty stomach. Watch out for cocktails and mixes of alcohol that contain lots of sugar and alcohol and will dangerously elevate blood glucose levels! Be careful of fruit juices which are highly concentrated and will significantly increase blood glucose levels. If you must have fruit juice limit to 125ml . 250ml per day . always diluted in double the amount of water. Coffee may slightly increase blood glucose levels and should be kept to less than 3 cups daily. Have at least 2 litres (8 glasses) of water each day.

When it comes to alcohol the best thing you can drink here is one glass of red wine per day.

6. Diabetic foods

There is no need to buy the special, usually more expensive 'diabetic' foods. Many diabetic products such as diabetic chocolate and biscuits, are high in fat and fructose, and should, therefore be used with caution. They are unlikely to help with weight-loss or blood glucose control. The good news is that %normal+foods can fit in to a person living with diabetes!



7. Supplements

Along with following a low GI diet, introducing other dietary compounds to aid blood glucose control is definitely an option. Products to consider are the essential fatty acids found in salmon and flax seed, alpha lipoic acid, magnesium, vitamin C, vitamin E, carnosine, cinnamon and chromium picolinate to name but a few. It is very important though to start these nutritional supplements under the guidance of a health professional that understands their working and mechanism of action.

Other topical supplements are manna which is thought to improve blood glucose control.

8. Final notes

Know your physiological tolerance. This is the difference between your blood glucose levels before a meal and 2 hours after a meal. Ideally this difference should not be more than 3mmol/l. Therefore TESTING and knowing what impact meals and snacks are having on your blood glucose levels will lower your risk for complications significantly. It is highly recommended that you occasionally keep an accurate food record of everything you eat as well as testing before and after certain meals. Use these recordings and measurements with your dietician to ensure that your risk for any complications is minimized.

Disclaimer: The information contained in this document is not intended to replace the attention or advice of a physician or other health care professional. Anyone who wishes to embark on any dietary, drug, exercise, or other lifestyle change that is intended to prevent or treat a specific disease should first consult a qualified health care professional.

