

Diabetes:

A Dietitian's Perspective

by **Jaclyn Reutens**, *Clinical Dietitian*

What is diabetes?

Diabetes is a condition that affects the way your body uses glucose as energy from food. People with diabetes have a high level of glucose in their blood. This is due to either insufficient insulin being produced by the pancreas or body not accepting insulin it produces, called insulin resistance, or a combination of both. The other reason is that the body does not produce insulin.

What is insulin?

Insulin is a hormone that is responsible for getting glucose into your cells. When glucose is unable to get into the cells, blood glucose level remains high and circulated throughout the body causing damage to blood vessels and cells around the body. Complications such as gangrene, cataract and kidney problems, stroke and heart disease could arise if blood sugar levels persistently remain high.

Three types of diabetes

- **Type 1 diabetes** mellitus is an autoimmune disease whereby the pancreas does not produce or makes very little insulin and often begins in childhood. It is also known as insulin-dependent diabetes.
- **Type 2 diabetes** mellitus is a chronic disease that is usually diagnosed during adulthood where the pancreas produces insufficient amounts of insulin or the body is not responding efficiently to insulin. It is also known as non-insulin dependent diabetes.
- The third type is **gestational diabetes mellitus (GDM)** where it occurs during pregnancy, thought to be caused by pregnancy hormones blocking the use of insulin. It is usually diagnosed during the second or third trimester. Mothers who had GDM are prone to type 2 diabetes mellitus later on in life.

There is no cure for diabetes but it can be managed well with a proper diet and exercise. In the case for Type 1 diabetes mellitus, insulin is required. For all three types of diabetes, the goals of management are the same.

1. Keep blood glucose levels within the target range determined by your doctor.
2. Reduce the risk of heart disease and stroke as diabetic patients are prone to both.
3. Adhere to a healthy diet and exercise programme that is sensible and sustainable for the long term.



From a Dietitian's perspective

As a dietitian, I have been managing diabetic patients for the past 15 years. They are mostly referred by General Practitioners, endocrinologists and gynaecologists. I will share with you some common nutrition beliefs, practices and outcomes of my patients.

When someone is first diagnosed with diabetes, there are two common reactions when it comes to their diet. "I don't want to stop eating. I love food. Just give me the medication." or "Ok, I am not going to eat rice or carbo anymore." I must say that many do not always see me within the first month even though they were referred immediately upon diagnosis, it sometimes takes them months to walk into my clinic.

The former reaction is always a challenge that I embrace wholeheartedly. It does take time to change their mindset. By first making small dietary changes to their daily habits to show them that they do not have to forego "everything" is crucial to their lifelong commitment. This coupled with their improved daily glucose readings motivates them further. Sharing with them what could potentially happen to them health wise in the long term if they do not keep their sugar levels under control helps change their mind. With this group, I have to keep things simple and not overwhelm them with information to help manage their blood glucose levels well.

The latter reaction is a more positive reaction because they are ready for change. What they require though is proper guidance because their behaviour tends to be skewed. These individuals also tend to be avid information seekers. They surf the net, talk to friends, embark on diets for indefinite periods and are constantly trying to do their best to control their blood sugar level. However, they are not always getting the correct information thus the constant struggle. With this group, I dispense more nutrition information and am able to go deeper into the explanation of how certain foods affect blood glucose levels even down to the cellular level. I help to dispel myths and fine tune their nutrition knowledge on diabetes. They are usually successful in management of their condition once they understand the principles, tested out the diet and seen good results.

Then there is the in-between group where they go through phases of good discipline then completely go off-track with their diet. This group needs regular monitoring and I would have to call them up if they miss their follow up.

Common Myths vs Truth vs Reality

1. **Myth:** Complete avoidance of at least one or all carbohydrate foods mainly rice, noodles, bread, potato, pasta and cereals.

Truth: You need carbohydrates to live. All body cells require glucose, especially your brain.

Reality: They end up hungry shortly after their main meal resulting in snacking, on usually less healthy foods like cookies, chips, candies, curry puff, chocolate etc. They experience severe food cravings mainly for carbohydrate foods because they have deprived themselves. Frequent hypoglycemic episodes due to insufficient amounts of carbohydrates.

2. **Myth:** Forbidden to add sugar to tea or coffee. Avoid canned drinks, desserts, sweets and cookies for life.

Truth: While we encourage no added sugar as much as possible, the occasional dessert or sweet treat won't do much damage.

Reality: They get used to having their regular cups of tea and coffee unsweetened. They do get cravings for sweets and desserts and can overeat when they decide to give in to their desires.

3. **Myth:** Honey and artificial sweeteners to replace sugar.

Truth: Honey contains fructose which also raises blood glucose levels. Artificial sweeteners are safe for use although too much does not help with taming their sweet tooth.

Reality: Honey is often overused in teas, baking and added to warm water and lemon. No improvements seen in glycemic control. Overuse of artificial sweeteners.

4. **Myth:** Brown sugar is better than white sugar.

Truth: They are nutritionally similar. They contain the same amount carbohydrate and raises blood glucose to the same degree. The only difference is that brown sugar contains molasses which gives it its brown colour.

Reality: Diabetics truly believe that brown sugar is healthier than white sugar but there will not be any improvements in their glycemic control.



5. **Myth:** No more fruits because fruits have sugar.

Truth: Yes. Fruits contain fructose, a type of sugar. It can raise blood glucose levels but not as quickly as sucrose. The advice is to eat 1 serving of fruit at one time. Fruits also contain other beneficial nutrients such as vitamins, minerals, dietary fibre and a wide variety of antioxidants and phytochemicals.

Reality: Tendency to suffer from constipation because they have reduced fibre intake. Reduced intake of essential nutrients.

6. **Myth:** Eat the moment you feel a hunger pang to prevent hypoglycaemia.

Truth: Many things can trigger hunger; the smell of freshly baked bread when you walk past a bakery, watching a cooking show or boredom. But that is not a signal to eat. If you have followed a balanced diet, there is no real need to eat outside of your prescribed meals.

Reality: No weight loss and in fact, weight gain from unnecessary food intake. Worse, fat intake goes up, insulin resistance is raised and poorer glycemic control.

How you should approach your diet once you are diagnosed with diabetes?

1. Understand where carbohydrates are found in your foods. Use the Healthy Diet Pyramid as a guide.
 - a. Rice and alternatives such as cereal, bread, noodles, pasta and biscuits contain starch and cellulose which are types of carbohydrates.
 - b. Starchy vegetables like potato, sweet potato, pumpkin and yam also contain starch and cellulose.
 - c. All fruits contain fructose.
 - d. Meat and alternatives provide protein as well as carbohydrate in the form of lactose found in milk, yoghurt, and legumes contain cellulose and some starch.
 - e. Sucrose, the white sugar, is found in confectionery, desserts, cakes and sugary beverages.
2. Look at your current diet and see which areas need improvements in meeting your carbohydrate needs.
3. Look at ways to increase your dietary fibre intake which has a positive effect in glycemic control and weight control.
4. Reduce intake of saturated fat.
5. If you are overweight, try to lose weight until you are within the healthy weight range.
6. See a dietitian if you are in doubt.

The forgotten but very important nutrient for diabetic control

A neglected but very important nutrient with respect to diabetic control is fat. Fat, namely saturated fat causes insulin resistance. Insulin works by unlocking the door to allow glucose to enter

cells in the body. For this to happen, insulin attaches itself to the insulin receptor on the cell and a series of enzyme activations proceeds and glucose uptake is eventually completed. Insulin resistance occurs when saturated fat wraps around the insulin receptor and blocks the insulin signalling process. This then causes blood glucose levels to remain high.

Saturated fat is found predominantly in animal fats; chicken skin, beef fat, pork fat, lamb fat, mutton, hard cheeses, full cream milk, full fat yoghurt, ice cream, butter, lard, sausages, bacon, nuggets. Other foods such as mayonnaise, tartare sauce, creamy sauces and dressings, whipped cream, sour cream, palm oil which is disguised as 'vegetable oil' and the controversial coconut oil. Despite new evidence suggesting that coconut oil has potential health benefits, it is clear that it contains high amounts of saturated fat, and saturated fat is linked to an increased risk of heart disease and stroke. Diabetics should avoid coconut oil and coconut milk as often as they can.

Best dietary approaches

Carbohydrate Exchange.

One of the best ways to control diabetes and has worked well with my patients is the use of carbohydrate exchanges. One carbohydrate exchange is equivalent to 15g of carbohydrate. Diabetics can have anywhere from 10-15 exchanges, or even more a day. This number is determined by your ideal body weight and physical activity level. A dietitian will be able to calculate your required number of exchanges in a day and help you space it out evenly. Type 1 diabetics should be following this to complement their insulin regime.

Examples of 1 carbohydrate exchange:

- 2 heaped tablespoons or white or brown rice
- ½ cup of noodles or pasta
- 1 slice of bread
- 1 small apple
- 1 wedge of honeydew
- 6-8 grapes
- ½ medium sweet potato or potato
- ½ cup of legumes (beans, lentils)
- 1 glass (250ml) milk



My Healthy Plate

Another useful dietary approach which is also simpler is the My Healthy Plate concept. This works well for Type 2 diabetics and some women with GDM but not for Type 1 diabetics. This is when half your plate is half filled with vegetables (leafy and non-leafy), a quarter is filled with carbohydrate foods (rice, noodles, pasta, potato etc.) and a quarter is filled with protein foods (fish, chicken, beef, tofu, eggs, beans, lentils etc.).

Conclusion

Diet plays a very important role in the management of diabetes mellitus and helps prevent complications. Diabetics can lead a very normal healthy life as long as they are aware of their carbohydrate and fat intake, and keep their weight within the healthy weight range. Please note that every individual has their personal food preferences, lifestyle and activity level. There is no one size fits all diabetic diet. The principles remain the same but do allow for personal variation.

About the Author



Jaclyn Reutens is a dietitian and the founder of APTIMA Nutrition & Sports Consultants. Having 15 years of experience in the nutrition and dietetics field, she is a nutrition expert in the areas of weight management, diabetes, hypertension, heart disease and sports nutrition. She has contributed numerous nutrition articles for various magazines and newspapers such as Women's Weekly, Shape, Her World, Men's Health, Smart Parents Mind Your Body and The Straits Times.

A graduate from the Flinders University of South Australia in 2002, she holds a Bachelor of Nutrition and Dietetics. She is also a certified sports dietitian, awarded by the Sports Dietitians of Australia (SDA) after completing her post graduate at the Australian Institute of Sport. Formerly working at the Health

Promotion Board, she went on to work in the Gleneagles and Mount Elizabeth Medical Centres. She is currently practicing at Camden Medical Centre.