DIABETES MELLITUS

This information is brought to you by many of the Australian nutrition professionals who regularly contribute to the Nutritionists Network (‘Nut-Net’), a nutrition email discussion group.

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The following questions and answers address some of the relationships between diet, lifestyle, diabetes and health.

What is 'diabetes'? 

'Diabetes' is the abbreviated term for a condition known as 'diabetes mellitus'. There are two main forms of diabetes in the general population, type 1 and type 2. A third type, known as 'gestational diabetes' is associated with pregnancy. All forms of diabetes involve a reduced ability of the body to handle blood glucose (the type of sugar transported in the blood).

In normal health, blood glucose is maintained at a fairly constant level by the action of insulin, a hormone produced in the pancreas. Insulin stimulates the uptake of glucose, amino acids and fat (in the form of triglycerides) from the blood into the tissues for use. Insulin also promotes the storage of blood glucose in the liver and muscles. Thus insulin prevents the glucose level becoming too high in the blood. If insulin production is too low, or the insulin does not have its usual effect, blood glucose can climb to dangerous levels (a condition known as 'hyperglycaemia'). When blood glucose levels are high over long periods of time, damage to cells within the body can result.

What is the difference between type 1, type 2 and gestational diabetes?

Type 1 diabetes, previously known as 'juvenile-onset' or 'insulin-dependent diabetes mellitus' (IDDM), involves destruction of the cells of the pancreas that produce insulin, so people with type 1 diabetes have a deficiency of insulin. As a result, injections of insulin are required.

Type 2 diabetes, previously known as 'adult-onset' or 'non-insulin-dependent diabetes mellitus' (NIDDM), does not usually involve a deficiency of insulin production (at least not in the initial stages), rather, the body becomes resistant to the effects of insulin. While type 2 diabetes is at this early stage, lifestyle changes such as diet and exercise diet may be enough to control blood sugar levels with no (or minimal) need for medication. However, type 2 diabetes may progress to the stage where regular medication is also needed.
Gestational diabetes is usually only a temporary condition, affecting about 3% of pregnant women. Individuals who experience gestational diabetes have greater risk of developing type 2 diabetes in the future.

**How does having type 2 diabetes affect someone's health?**

Diabetes, unless treated appropriately, greatly increases the risk of a range of diseases, including heart disease, blindness, gangrene (leading to the need for limb amputations) and kidney disease. It is estimated that the risk of having a heart attack among people with type 2 diabetes is equal to that of someone without diabetes who has already experienced a heart attack.

**How widespread is type 2 diabetes?**

Just as the developed world is undergoing an epidemic of obesity, so also the incidence of type 2 diabetes is rapidly increasing. This is not a coincidence--obesity is the major risk factor for type 2 diabetes. From the early 1980s to 2000 there was a doubling of the rate of obesity in Australia. Paralleling this, the diabetes rate has at least doubled, and may even have trebled in the past 20 years. According to a press release issued by International Diabetes Institute in May 2000, it is estimated that about 7-8% of Australian adults (over the age of 25) now have type 2 diabetes, and 16% have its precursor, impaired glucose tolerance. But many people who have only recently developed diabetes are not yet aware of their condition. In fact it is estimated that in Australia 50% of sufferers are undiagnosed.

**Who is at greatest risk of developing type 2 diabetes?**

Until recently, type 2 diabetes was rarely seen other than in middle-aged and older people. Although it is now affecting younger people as well, risk does increase with age. Some population groups are also at increased risk including: Aboriginal and Torres Strait Islanders, Pacific Islanders, people from the Indian Subcontinent, people of Chinese origin, people of any race or background over 45 years who have high body fat levels and/or high blood pressure, women with polycystic ovary disease, women with previous gestational diabetes and people over 45 years with a family history of type 2 diabetes.

**If I don’t have diabetes, what can I do to reduce my chances of developing it?**

There is a strong relationship between a group of metabolic conditions known as the 'metabolic syndrome' or 'syndrome X' and risk of diabetes. The components of metabolic syndrome include obesity, high blood levels of triglycerides and 'LDL' (the 'bad' cholesterol), low blood 'HDL' (the 'good' cholesterol) and high blood pressure. These are also among the major risk factors for heart disease, so dietary and lifestyle advice for avoiding diabetes is pretty much the same as for reducing the risk of heart disease. In summary, the advice includes:

- Follow the dietary guidelines – most specifically, eat plenty of wholegrain cereal foods, legumes, vegetables and fruit and reduce intake of total fat, particularly saturated fat
- Reduce body weight (if overweight or obese)
If I have diabetes, how should I adjust my diet and lifestyle to help keep it under control?

First, always seek (and take) advice from your doctor and/or dietitian. Because no two people have identical metabolism, food preferences, cultures or nutritional requirements, personalised professional advice is essential. The advice provided here applies only generally--if you have diabetes, alterations to your diet and lifestyle need to be tailored by your health professional to your individual needs. The overall goal in treating diabetes is to maintain health and quality of life. The main dietary and lifestyle elements of this strategy will be:

- Keep blood glucose levels in the range 4-8 mmol/L, and as stable as possible. Continually high blood glucose levels increase the risk of complications including heart disease, blindness, kidney disease, and limb amputations.
- Lose some body weight (if overweight or obese).
- Optimise blood lipid levels (i.e. blood cholesterol, triglycerides).
- Maintain (or regain) normal blood pressure.
- Quit smoking (if you are a smoker).
- Take part in plenty of moderately-vigorous physical activity.

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