

DIABETES MELLITUS

This information sheet is for your general information and is not a substitute for medical advice. You should contact your physician or other healthcare provider with any questions about your health, treatment or care.

What is diabetes mellitus?

Diabetes mellitus is a chronic, progressive condition in which impaired insulin production leads to high blood glucose levels. Insulin is a hormone produced in the pancreas, which helps to regulate (lower) the level of blood glucose. If you suffer from diabetes, your blood glucose level, commonly referred to as blood sugar, is too high.

There are two common forms of diabetes:

1. *Insulin dependent diabetes mellitus (type 1 diabetes)* develops when there is a severe lack of insulin in the body.
2. *Non-insulin dependent diabetes mellitus (type 2 diabetes)* develops when the body still produces insulin, but the cells do not respond optimally to insulin.

Causes of diabetes

Diabetes may occur at any age. Factors associated with the development of diabetes include:

- a family history of diabetes;
- an age greater than 40;
- obesity and weight gain; and
- genetic determinants, such as certain population groups, e.g. Asians.

Complications of diabetes

Poorly-controlled diabetes leads to complications that involve the following areas:

Eyes

Damage to the small blood vessels in the retina (inner layer of the eye) may lead to blindness.

Kidneys

With time, poorly-controlled diabetics experience changes in the kidney structure, which prevents them from functioning well.

Nerves

Due to the effects of high blood glucose on blood vessels supplying nerves and the nerves themselves, problems such as decreased sensation in the hands and feet, muscle and limb weakness occur.

Heart

Angina and heart attacks may occur due to the effects of the blood sugar on heart blood vessels, as well as the effects on the control of blood cholesterol.

Brain

Strokes may occur due to the effects of high glucose levels on the blood vessels in the brain.

Infections

Diabetics are prone to infections as a result of the effects on their immune system. Common infections are oral and vaginal candidiasis (thrush) and foot infections.

Treatment of diabetes

At present there is no known cure for diabetes. It can, however, be successfully controlled, allowing diabetics to lead a perfectly normal life. The foundation of diabetes management rests on these factors:

Exercise

Regular exercise not only improves general wellbeing, but also enhances the body's sensitivity to insulin. Exercise lowers the levels of blood glucose, aids healthy weight control and lowers blood pressure. Exercise should take place on a regular and predictable basis, particularly in the case of individuals on insulin. Consult your doctor before starting any exercise programme.

Well-balanced diet

The diabetic diet is a normal, healthy diet that is high in fibre and low in sugar and fat. Food directly affects blood glucose levels as well as the amount of fat (cholesterol) in the blood.

Medication

If you have diabetes, it is essential that you have sufficient knowledge of the condition and its treatment. Type 1 diabetes, for instance, is treated with insulin injections, a well-balanced diet and exercise. Combinations of diet, exercise and tablets are used to treat type 2 diabetes. Insulin may be required in some cases.

Blood glucose (sugar) monitoring

Measuring your blood glucose level regularly forms an important part of the effective management of diabetes. Blood glucose testing proves to be more accurate than urine glucose testing. You can monitor your glucose by testing it yourself with a home monitor (the blood glucose strip measurement) and/or having it tested at a laboratory (the HbA_{1c} test).

The table below provides guidelines for the optimum and acceptable blood glucose levels; the blood glucose strip measurement (expressed as mmol/l) after fasting, or the required two hours after a meal:

Test		Optimum	Acceptable
Finger-stick blood glucose measurement	After fasting	4 – 6mmol/l	6 – 7mmol/l
	Two hours after a meal	4 – 8mmol/l	8 – 10mmol/l
HbA _{1c} (%)		Equal to or less than 7%	7.1% to 7.5%

References

1. Council for Medical Schemes: CDL Algorithms.
2. LAMB, WH. 11 March 2004. Emedicine: Diabetes mellitus type 1.
3. Merck Manual, 18th edition.

