Understanding diabetes

Diabetes is a condition characterised by elevated blood glucose levels, commonly known as blood sugar. Glucose serves as the primary source of energy for your body. While your body can produce glucose, it also comes from the foods you consume.

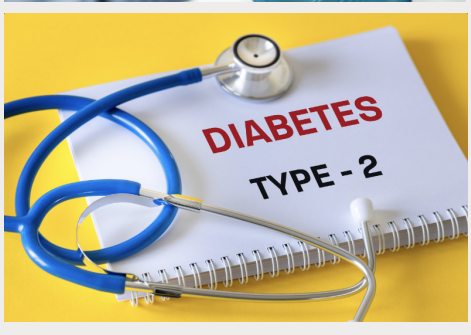
Insulin, a hormone produced by the pancreas, facilitates the entry of glucose into your cells for energy. In individuals with diabetes, the body either doesn't produce enough insulin or cannot use it effectively. As a result, glucose remains in the bloodstream instead of reaching the cells.

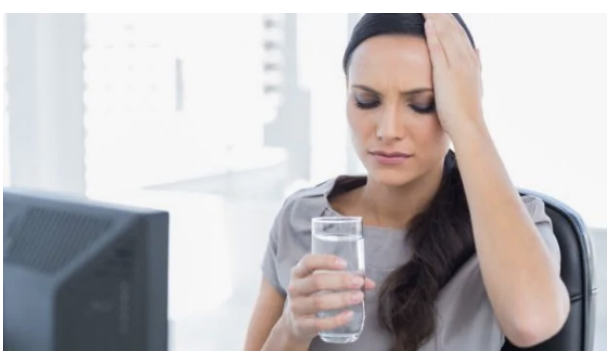
Read more: https://www.nhs.uk/conditions/diabetes/

What are the different types of diabetes?

- **Type 1 Diabetes:** An autoimmune condition where the body attacks insulin-producing cells in the pancreas. It is usually diagnosed in children and young adults.
- **Type 2 Diabetes:** In type 2 diabetes, the body's cells do not effectively use insulin, and the pancreas may not produce enough insulin to maintain normal blood glucose levels. This is the most common form of diabetes. Risk factors for developing type 2 diabetes include being overweight or obese and having a family history of the condition. It can occur at any age, including childhood.
- **Gestational Diabetes:** Develops during pregnancy and usually goes away after childbirth, but increases the risk of developing type 2 diabetes later.
- **Prediabetes:** Occurs when blood glucose levels are elevated but not high enough for a type 2 diabetes diagnosis. Individuals with prediabetes face an increased risk of developing type 2 diabetes and heart disease compared to those with normal glucose levels.

Learn more:
https://diabetesjournals.org/care/article/47/Supplement_1/S20/153954/2-Diagnosis-and-Classification-of-Diabetes





Symptoms

Symptoms of diabetes include:
- Increased thirst and urination
- Extreme fatigue
- Blurred vision
- Unexplained weight loss
- Slow-healing sores or frequent infections

Causes and risk factors

Blood sugar levels are regulated by insulin, a hormone produced by the pancreas. When you digest food, insulin helps move glucose from the bloodstream into cells for energy. In diabetes, the body struggles to convert glucose into energy due to insufficient insulin or ineffective use of insulin.

While type 1 diabetes cannot be prevented through lifestyle changes, you can lower your risk of type 2 diabetes by maintaining a healthy diet, exercising regularly, and achieving a healthy weight.

Risk factors for type 2 diabetes include:

- Being overweight or obese
- Poor dietary habits
- Family history of type 2 diabetes
- Long-term use of certain medications, such as steroids
- High blood pressure
- Previous gestational diabetes during pregnancy.

Other causes of diabetes

Genetic mutations:
- Monogenic diabetes caused by single gene mutations (e.g., neonatal diabetes, MODY).
- Often inherited but can occur spontaneously.

Other diseases:
- Cystic Fibrosis: Thick mucus can damage the pancreas, affecting insulin production.
- Hemochromatosis: Excess iron buildup can damage the pancreas.

Hormonal disorders:
- Cushing's Syndrome: Excess cortisol can lead to insulin resistance.
- Acromegaly: Overproduction of growth hormone.
- Hyperthyroidism: Increased thyroid hormone production.

Pancreatic damage:
- Conditions like pancreatitis, cancer, or trauma can impair insulin production.
- Removal of the pancreas leads to diabetes due to loss of beta cells.

Certain medicines:
- Some medications can harm insulin-producing cells or disrupt insulin function, including certain diuretics, anti-seizure drugs, and glucocorticoids.
- Statins may slightly increase diabetes risk but offer significant heart health benefits.

To diagnose diabetes, one of the following criteria must be met:

1. HBA1C level of 6.5% or higher.
2. Fasting plasma glucose (FPG) of 126 mg/dL or higher, with fasting defined as no caloric intake for at least 8 hours.
3. A 2-hour plasma glucose (PG) level of 200 mg/dL or higher during an oral glucose tolerance test (OGTT) with a 75 g glucose load.
4. A random plasma glucose level of 200 mg/dL or higher in an individual with classic symptoms of hyperglycaemia or a hyperglycaemic crisis.

Diabetes treatment:

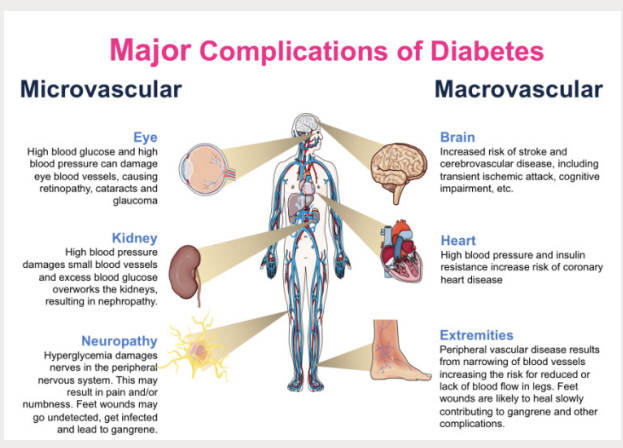
Diabetes treatment encompasses lifestyle changes such as maintaining a balanced diet rich in whole grains, fruits, and vegetables, along with at least 150 minutes of moderate exercise weekly and weight management to enhance insulin sensitivity. Regular blood sugar monitoring is crucial for effective management. For type 1 diabetes, insulin therapy is essential, while type 2 diabetes may involve oral medications like Metformin or non-insulin injectables, with insulin as needed. Education on self-management and support from healthcare professionals are important for better control, alongside regular health check-ups to monitor complications and overall health.

Effects of diabetes on the body:

High blood sugar levels lead to several complications, including:

1. **Heart and blood vessel damage:** Increased risk of cardiovascular diseases, stroke, and chronic kidney disease.
2. **Nerve damage (Diabetic Neuropathy):** Can cause numbness, tingling, burning sensations, and digestive issues.
3. **Kidney damage:** Over time, diabetes can impair kidney function, potentially leading to the need for dialysis or transplant.
4. **Eye damage:** High blood sugar can harm eye blood vessels, increasing the risk of glaucoma, cataracts, and even blindness.
5. **Foot damage:** Prolonged high blood sugar can cause nerve and blood vessel damage, leading to numbness and increased risk of ulcers and infections.
6. **Skin and mouth conditions:** Higher susceptibility to skin infections, mouth infections, and gum disease.
7. **Osteoporosis:** Type 1 diabetes can increase the risk of brittle bones and fractures.
8. **Alzheimer's disease and dementia:** Poor blood sugar control may affect the risk of cognitive decline and brain cell damage.

These complications primarily occur when diabetes is untreated. However, diabetes can be managed and often prevented through a healthy lifestyle and proper treatment, allowing individuals to reduce or avoid these issues.



Living with diabetes:

Living with diabetes requires a proactive approach to health. Regular check-ups, staying informed about the latest research, and connecting with support groups can make a significant difference in managing the condition effectively.

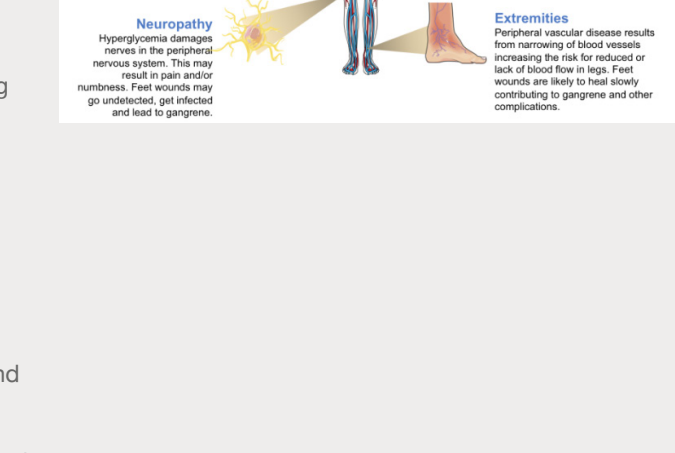
Practical tips for managing blood sugar levels:

1. **Exercise regularly:** Physical activity helps your body use insulin more efficiently. Aim for at least 150 minutes of moderate exercise per week, such as walking, cycling, or swimming.
2. **Manage carbohydrate Intake:** Be mindful of the types and amounts of carbohydrates you consume. Opt for whole grains, fruits, and vegetables over refined carbs.
3. **Stay hydrated:** Drinking water helps regulate blood sugar levels by flushing out excess glucose through urine.
4. **Eat more fibre:** Fiber slows the absorption of sugar and helps control blood sugar levels. Include plenty of vegetables, fruits, legumes, and whole grains in your diet.
5. **Know your team:** Be familiar with how and when to contact your diabetes healthcare team.
6. **Choose low glycemic foods:** Foods with a low glycemic index (GI) cause a slower rise in blood sugar levels. Examples include whole grains, legumes, and non-starchy vegetables.
7. **Get enough sleep:** Poor sleep can affect insulin sensitivity. Aim for 7-8 hours of quality sleep each night.
8. **Track your blood sugar levels:** Regular monitoring can help you understand how different foods and activities affect your blood sugar. Follow your health care provider instruction.
9. **Prepare for appointments:** Create a list of topics you'd like to discuss during your appointments. Also, be sure to schedule your annual screenings, including eye, kidney, and heart check-ups.

Maintaining your blood sugar within the target range is crucial for effective diabetes management. This target refers to the optimal levels you strive to achieve. Typical targets include:

- Before meals: 80 to 130 mg/dL
- Two hours after meals: Less than 180 mg/dL

Your specific targets may vary based on factors such as your age and any additional health conditions. It's important to consult with your healthcare team to determine the most appropriate targets for your individual needs.



For more information, visit:

Living with Diabetes | Diabetes | CDC
Diabetes - Symptoms and causes - Mayo Clinic
Diabetes treatments
Diabetes management | taking care of your diabetes | Diabetes UK
Good to Know: Diabetes and Your Emotional Well-Being | Clinical Diabetes | American Diabetes Association