What you need to know about...

INSULIN

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Insulin is a peptide hormone secreted into the blood by the islets of Langerhans of the pancreas. It was discovered in the early 1920s by a Canadian team led by Frederick Banting.

INSULIN

Insulin has three main functions:

1. Allows glucose to pass into cells for use as energy;
2. Suppresses excess production of sugar in the liver and muscles;
3. Suppresses the breakdown of fat for energy.

Insulin is generally caused by administering too much insulin or eating too little food for the amount of exercise taken.

Diabetic hypoglycaemia, neuropathy, change in insulin formulation or long-term use of human insulin.

Severe untreated hypoglycaemia can lead to coma, seizures and death.

STORAGE

Unopened insulin vials should be stored in a refrigerator.

Freezing can destroy insulin.

Open insulin, whether in vials or in pens, can be safely kept at room temperature for up to one month.

Hypoglycaemia

Consistently high blood glucose can lead to increased risk of a range of serious complications in the long term such as microvascular complications including retinopathy, nephropathy, proteinuria and neuropathy.

Treatment of diabetes focuses on maintaining acceptable blood glucose levels to prevent hypoglycaemia or hyperglycaemia.

Diabetes UK: www.diabetes.org.uk

Diabetes Insight: www.diabetes-insight.info

Insulin Dependent Diabetes Trust: www.iddtinternational.org.uk

A boy with diabetes self-administers insulin (right); insulin granules (shown in green) in a beta cell of the pancreas (far right)

Insulin Dependent Diabetes Trust: www.iddtinternational.org.uk

WHAT IS IT?

Insulin is a peptide hormone secreted into the blood by the islets of Langerhans of the pancreas.

It was discovered in the early 1920s by a Canadian team led by Frederick Banting.

WHAT DOES IT DO?

Insulin has three main functions:

1. Allows glucose to pass into cells for use as energy;
2. Suppresses excess production of sugar in the liver and muscles;
3. Suppresses the breakdown of fat for energy.

The inability to produce sufficient insulin is known as diabetes mellitus.

There are two types of diabetes:

1. Type 1 in which little or no insulin is produced and usually appears before the age of 40;
2. Type 2 is often called maturity-onset diabetes. It usually occurs after the age of 40 and is linked with obesity.

WHAT ARE THE TYPES AND DELIVERY OF INSULIN?

Insulin used to treat diabetes can come in three preparations:

1. Human sequence (created by modifying porcine insulin using enzymatic or recombinant DNA methods);
2. Porcine or bovine, although bovine is seldom used.

It is available in a number of formulations, classified by their onset of action:

1. Those with a relatively rapid onset of action;
2. Those with intermediate action;
3. Those with a slower onset of action but which last for longer periods.

Patients are prescribed insulin according to individual needs and may require a mixture of different types for different times of the day.

Insulin is generally given by subcutaneous injection into the thighs, buttocks, or abdomen.

Most patients now use injection pens, although some still prefer a conventional syringe and needle.

REFERENCE


WEB SITES

Children With Diabetes (US): www.childrenwithdiabetes.com/d_0n_110.htm

Diabetes Insight: www.diabetes-insight.info

Diabetes UK: www.diabetes.org.uk

Insulin Dependent Diabetes Trust: www.iddtinternational.org.uk

NHS Direct: www.nhsdirect.nhs.uk

Nottingham Diabetes: www.nottinghamdiabetes.nhs.uk/insulin.html

treatment of diabetes

Insulin injections, diet and exercise, all monitored by frequent checks of blood glucose levels.

Type 2 diabetes can normally be controlled by a combination of diet, exercise and oral hypoglycaemic drugs but if severe, insulin injections may be required.

A boy with diabetes self-administers insulin (right); insulin granules (shown in green) in a beta cell of the pancreas (far right)

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