



About injecting insulin

*Information for those who wish to know more
about general diabetes care and insulin*

Caution: This publication contains depictions of blood, needles
and medical procedures related to diabetes self-care.



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General information about diabetes

What is diabetes mellitus? There are many forms, causes, and types of diabetes. The most common three are type 1 diabetes (formerly called Juvenile diabetes or insulin-dependent diabetes mellitus), type 2 diabetes (formerly called adult onset diabetes or non-insulin dependent diabetes mellitus), and gestational diabetes that occurs during pregnancy. Other forms of diabetes include cystic fibrosis related diabetes, latent autoimmune diabetes in adults (type 1.5 or slow onset diabetes), maturity onset diabetes of the young, and “bronze diabetes” caused by hemochromatosis.

People with all forms diabetes either no longer have the ability to properly use the insulin they make, do not make enough insulin, or cannot make any insulin at all on their own. For this reason people with diabetes check their blood sugar so that they can make adjustments in lifestyle, eating, medications, and insulin doses. Everyone who has type 1 diabetes must take insulin in order to live.

What does insulin do? Insulin is a hormone that is made by the beta islets cells in the pancreas. Insulin is one of the hormones that helps regulate blood sugars in the body. Blood sugar is always present in the blood stream. Insulin acts like a key to open cells in the body so that blood sugar can enter into cells. Without insulin blood sugar builds up in the blood stream and cells in the body begin to starve. Left untreated, high blood sugars can cause organ damage, blindness, coma, a potentially life-threatening state called diabetic ketoacidosis (DKA) and even death.

How is diabetes managed? There is no cure for diabetes type 1 or type 2. Both are managed with lifestyle adjustments and require checking blood sugars daily. Type 1 diabetes always requires insulin injections, while type 2 diabetes can sometimes be managed with oral medications and changes in lifestyle. Some persons with type 2 diabetes may also inject insulin, or another drug called BYETTA to help manage their blood sugars.

How often must a person with diabetes check their blood sugars? Most people with well-controlled, type 2 diabetes and who do not take insulin check their blood sugars on average 1-2 times daily. There are two main types of insulin schedules: conventional insulin therapy and intensive (or flexible) insulin therapy. Those who take insulin injections on “conventional” insulin therapy generally check blood sugars 4-5 times per day. But those on “flexible” or “intensive” insulin therapy, or who use an insulin pump may test as much as 10-12 times per day. People on insulin also usually test their blood sugars during the night, more frequently when they are sick, stressed, when traveling, during exercise, or whenever they feel “shaky.”



Information about injecting insulin for diabetes treatment

Insulin is not a cure for diabetes, but for many, including all persons with type 1 diabetes it is a necessary hormone replacement that must be injected daily in order for the person to live.

Insulin can be administered several ways including via a syringe, an insulin pen, insulin injector, intravenously (only done in a hospital setting), or an insulin pump. A new form of insulin can be inhaled, but its use is limited and usually does not replace the need for shots. Inhaled insulin is not currently FDA approved for use in children or persons with respiratory problems.



Insulin injector



Syringe injection



Insulin pens



Insulin pump



Inhaled insulin

There are different types of insulin

Not all insulin is the same or acts in the same way. Some act faster and longer than other types. Persons who use insulin pumps generally take only rapid acting insulin. Those on shots often need to take two types of insulin; a long acting insulin and a shorter, faster acting insulin. This requires two injections but in some cases, certain types of insulin can be mixed into one syringe. For those who use an insulin pen, the insulin either comes in a pre-filled, disposable cartridge, or a refillable cartridge.

Where is insulin injected?

Insulin must be injected under the skin via a syringe, pen, or an insulin pump. It is not injected into the vein except in a hospital setting. It can be injected into the stomach area, hips, thighs, buttocks, or fleshy part of the arm.



Insulin must be injected under the skin using a syringe or other method.



People who use an insulin pump wear a needle under the skin called a "canula." The canula must be changed every 2-3 days.



An insulin pen being used to inject insulin.

Other injections for diabetes treatment

There are two other types of injections commonly prescribed for diabetes treatment in addition to insulin: glucagon, and BYETTA.

Glucagon. Glucagon is a hormone that is injected with a syringe when a person with diabetes experiences severe hypoglycemia (low blood sugar). This hormone causes the release of energy stored mainly in the liver called glycogen and an effort to raise blood sugar. Glucagon should be carried, at all times, by anyone who takes insulin. If a person with diabetes cannot swallow or ingest a fast sugar food or becomes unconscious, an injection of glucagon may be necessary in order to save the person's life.



A glucagon kit should always be carried by people who take insulin. Kits usually come in orange or red containers.

BYETTA. Another type of injection that some persons with type 2 diabetes inject is called BYETTA (bye-A-tuh). This drug currently only comes in a pre-filled pen and is only FDA approved for treatment of type 2 diabetes. BYETTA may also be prescribed by some doctors for early treatment of latent autoimmune diabetes in adults (LADA), or pre-diabetes. BYETTA is never used by persons with type 1 diabetes.



BYETTA only comes in a pen and is prescribed for type 2 diabetes.