

Type 1 Diabetes

A plain-English guide for you and your family

WHAT IS HAPPENING

Your pancreas has tiny islands of cells called beta cells, and their one job is to watch blood sugar and release insulin — the key that unlocks your body's cells so sugar can go in and feed them. In Type 1 diabetes, the immune system mistakes those beta cells for invaders and destroys them, so the pancreas stops making insulin. Without insulin, sugar piles up in the blood but can't get into cells to give them energy. The first signs are usually peeing a lot (because the kidneys dump the extra sugar and water follows it out), being very thirsty (to replace the lost water), losing weight even while eating (because cells are starving and the body burns muscle and fat for fuel), and feeling exhausted. In kids, the first visit to the doctor is often diabetic ketoacidosis (the acid crisis of missing insulin) — an emergency where the body makes toxic acids called ketones because it's burning fat desperately for energy. Once beta cells are gone, they don't grow back, so the person needs insulin shots or a pump every day for life, plus close glucose monitoring and regular check-ups to protect the eyes, kidneys, nerves, and heart from high sugar over time. It's not caused by eating too much sugar or by anything the family did wrong — it's an autoimmune condition, often triggered by a combination of genes and an unknown environmental spark.

What you might feel

- Drinking huge amounts of water all day (polydipsia)
- Peeing much more often than usual, including at night (polyuria)
- Losing weight fast without trying
- Feeling very tired and weak
- Always hungry (polyphagia)
- Blurry vision
- Fruity-smelling breath, fast deep breathing, belly pain, confusion (signs of diabetic ketoacidosis (the acid crisis of missing insulin) or DKA)
- Usually starts in childhood, teens, or young adults (most often under age 30)
- Blood test shows antibodies against pancreas cells (GAD, IA-2, or insulin antibodies)

- Family history of type 1 diabetes or other autoimmune diseases like thyroid problems or celiac disease

Call the doctor right away if...

- Fruity breath smell, very fast breathing, severe belly pain, vomiting, or confusion (diabetic ketoacidosis — a life-threatening emergency)
- Blood sugar above 250 mg/dL with ketones in urine or blood
- Severe confusion, not waking up, or seizure (dangerously low or high blood sugar)

What the care team will do

- Check blood glucose immediately with fingerstick or continuous glucose monitor reading, and assess mental status
- If blood glucose is below 70 mg/dL and patient is awake, give 15 grams of fast-acting carbohydrate like juice or glucose tablets, then recheck in 15 minutes
- If blood glucose is above 250 mg/dL, check urine or blood ketones and assess for signs of diabetic ketoacidosis (the acid crisis of missing insulin): belly pain, vomiting, rapid deep breathing, fruity breath, or confusion
- Review the patient's insulin regimen including types, doses, and timing, and confirm they know how to count carbohydrates and match bolus insulin to meals
- Teach or reinforce continuous glucose monitor use and interpretation of glucose trends, arrows, and alerts
- Assess feet for cuts, blisters, redness, or loss of sensation, and teach daily foot checks and proper footwear
- Verify the patient has a current glucagon emergency kit, and teach family or roommates how to inject it and when to call 911
- Check when the patient last had hemoglobin A1c, urine microalbumin, dilated eye exam, thyroid-stimulating hormone, and celiac antibodies, and schedule any overdue screenings

Medicines you may be given — and why

Basal insulin (long-acting, e.g., glargine, detemir, degludec)

Insulin is the key that unlocks your cells so glucose (sugar) from food can go inside and be turned into energy. In type 1 diabetes, the immune system has destroyed the beta cells in the pancreas (the insulin factory), so the body can make almost no insulin on its own. Basal insulin replaces the steady, background level of insulin a healthy pancreas normally drips into the

blood all day and night to keep your baseline blood sugar stable between meals and while you sleep. It acts slowly and smoothly, not in a big spike, so it covers your body's baseline needs.

Bolus insulin (rapid-acting, e.g., aspart, lispro, glulisine)

Bolus insulin is the quick-acting insulin you take right before or at the start of a meal to handle the spike in blood sugar that happens when carbohydrates (bread, rice, fruit, sweets) are broken down into glucose and flood into your bloodstream. Because your pancreas cannot release insulin in response to food anymore, you calculate how many grams of carbs you are about to eat (carb counting), then give yourself the matching dose of rapid insulin to cover that meal. It works fast and then fades quickly, mimicking the normal mealtime insulin burst a healthy pancreas would deliver.

Insulin pump with continuous glucose monitor (CGM) and closed-loop system (automated insulin delivery, 'artificial pancreas')

An insulin pump is a small computerized device you wear on your body that delivers rapid-acting insulin through a tiny tube under your skin, replacing the need for multiple daily injections. A continuous glucose monitor (CGM) is a sensor you wear that checks your blood sugar every few minutes and sends the reading to the pump. In a closed-loop (hybrid or full) system, the pump and CGM talk to each other: when your sugar starts to rise, the pump automatically gives a little more insulin; when it starts to drop, the pump slows or stops the insulin. This mimics a real pancreas much better than fixed doses, keeping your blood sugar steadier day and night with less guesswork.

Glucagon (emergency injection or nasal spray, e.g., GlucaGen, Baqsimi)

Glucagon is a hormone that does the opposite of insulin: it tells your liver to break down stored glycogen (a starch made of chained glucose) and dump glucose into your bloodstream, quickly raising blood sugar. In a healthy person, the pancreas releases glucagon when sugar drops too low. In type 1 diabetes, you carry a glucagon kit for emergencies—if your blood sugar crashes so low that you pass out or cannot swallow, someone else can give you the glucagon injection (or puff the nasal spray) to wake you up by spiking your sugar fast. It is a rescue medicine, not a daily drug.

Where this information comes from

- American Diabetes Association Standards of Care 2024
- CDC Diabetes Basics
- Cochrane review on diagnosis and management of type 1 diabetes
- JDRF (Type 1 Diabetes Research Foundation) clinical guidelines

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