

DIABETES GLOSSARY

Adjunct therapy — A therapy or therapeutic regimen that is joined or combined with another treatment but is not an essential part of that treatment.

Alpha (α) cells — A type of cell in the islets of the pancreas that produce and release the hormone glucagon. Glucagon causes the liver and other tissues to release glucose (sometimes called blood sugar) into the bloodstream.

Amylin — A hormone produced by the beta cells in the pancreatic islets and secreted with insulin. Amylin regulates the timing of glucose release into the bloodstream by slowing the emptying of the stomach after eating.

Beta (β) cells — A type of cell in the islets of the pancreas that produce and release the hormone insulin. Insulin is a hormone that helps the body regulate and use glucose.

Blood glucose monitoring — A regular measurement of the amount of glucose in the bloodstream. A blood glucose meter is used to measure glucose levels in the blood, which helps to effectively manage diabetes.

Body Mass Index (BMI) — A measure used to evaluate body weight relative to height. BMI is used as a guide to determine if an individual is underweight, normal weight, overweight, or obese.

Combination therapy — When therapies are used simultaneously to treat a disease or condition. In type 2 diabetes, oral anti-diabetic drugs can be used in combination with diet and exercise, other oral agents, and insulin therapy.

DPP-4 — Dipeptidyl peptidase IV (DPP-4) is a naturally occurring enzyme that breaks down the incretin hormones GLP-1 and GIP. A new class of drugs based on DPP-4 inhibition are being developed for the treatment of type 2 diabetes. These compounds block the breakdown of the incretin hormones, such as GLP-1, and may increase the naturally produced levels in the bloodstream.

Diabetes — Diabetes mellitus occurs due to a combination of hereditary and environmental factors and usually is characterized by inadequate secretion or utilization of insulin, excessive urine production, and excessive amounts of sugar in the blood and urine, as well as hunger, thirst, and weight loss. Type 1 and type 2 diabetes are forms of diabetes mellitus. Diabetes insipidus is a disorder of the pituitary gland or kidney that is characterized by an intense thirst and large amounts of urine. Blood glucose levels are normal with diabetes insipidus.

Endocrine gland — An endocrine gland is a group of specialized cells that release hormones, such as insulin, into the blood.

Endocrinologist — A physician who specializes in caring for people who have disorders of endocrine glands. Type 1 and type 2 diabetes are endocrine disorders.

Fasting plasma glucose test — A test to determine pre-diabetes or diabetes in which a person's plasma (blood) glucose level is taken via a blood draw after fasting. A test result between 100 and 125 mg/dL confirms pre-diabetes, while a level of 126 mg/dL and above renders a diagnosis of diabetes. The accepted target for fasting plasma glucose level is 110 mg/dL or lower.

Gestational diabetes — A form of diabetes that can occur during pregnancy. Nearly 60 percent of women with gestational diabetes develop type 2 diabetes later in life.

GIP — Known as gastric inhibitory polypeptide, or glucose-dependent insulinotropic polypeptide, is an incretin hormone (gut hormone) produced in the intestine in response to food. The primary action of GIP is the stimulation of glucose-dependent insulin secretion.

GLP-1 — Glucagon-like peptide-1 is an incretin hormone (gut hormone) that is secreted by cells in the intestine in response to the ingestion of food. GLP-1 has been shown to increase insulin secretion by the beta cells and reduce glucagon secretion from the alpha cells. It also has been shown to increase the number and mass of beta-cells, providing promise as a means of preserving beta-cell function and, therefore, slowing the progression of type 2 diabetes. GLP-1 is rapidly degraded in the bloodstream by DPP-4, resulting in the short half-life of intact active GLP-1.

Glucose — A simple form of sugar, which is the end product of carbohydrate metabolism and the main source of energy for living organisms. Glucose levels in the bloodstream are controlled by the metabolic hormones, insulin and glucagon. Glucose is an essential fuel for the body; however, when glucose is elevated over the long term, it is "toxic" to the body and causes the complications associated with diabetes.

Glucose homeostasis — The ideal level of glucose in the bloodstream controlled and affected by the interplay of insulin, glucagon, amylin, incretin hormones, and other metabolic regulators.

Glucagon — A hormone, produced by the pancreatic alpha cells, that causes the liver and other tissues to release glucose into the bloodstream.

Glycemic control — Maintaining the appropriate level of glucose in the bloodstream. Achieving and maintaining glycemic control means an individual's HbA1c level consistently should be 6.5 or lower and fasting plasma glucose level consistently should be 110 mg/dL or lower.

Glycogen — A long chain of glucose molecules formed primarily in the liver and, to a lesser extent, the muscles. Excess glucose is stored as glycogen for use as needed. When glucose levels in the bloodstream are high, insulin causes glucose to be stored as glycogen. When glucose levels are low, glucagon causes glycogen to be broken down to release glucose into the bloodstream.

Glycosylated hemoglobin — Hemoglobin that is chemically linked to glucose. The degree of glycosylated hemoglobin is a long-term indicator of glucose levels in the blood. The measurement of glycosylated hemoglobin is HbA1c.

Half-life — Half of the amount of time that a chemical, whether naturally occurring or synthetic, remains intact and available and active in the bloodstream.

HbA1c — This is a measure of blood glucose over a two- to three-month period that shows the amount of glucose that binds to red blood cells (glycosylated hemoglobin). It is in proportion to the amount of glucose in the blood. HbA1c also is referred to as A1c, hemoglobin A1c, or glycosylated hemoglobin.

Hyperglycemic — A condition that occurs when too much sugar is circulating in the blood.

Hypoglycemic — A condition that occurs when too little glucose is in the blood.

Impaired glucose tolerance — IGT also is known as pre-diabetes. See "pre-diabetes."

Incretin hormones — Hormones released in the intestine in response to the ingestion of food. Incretin hormones, also called gut hormones, have recently been identified as critical to the hormonal regulation of glucose. GLP-1 and GIP are two incretin hormones that play a significant role in glucose metabolism. Incretin hormones are the focus of a new wave of research and potential new therapies for type 2 diabetes.

Insulin — A hormone made by the beta cells in the pancreatic islets that helps the body use glucose for energy. Insulin allows for the absorption of glucose by cells in the body and is secreted by the beta cells in response to elevated glucose in the blood. Insulin also causes excess glucose to be stored in the liver and muscles as glycogen.

Insulin resistance — When cells in the body are unable to respond to insulin, preventing glucose absorption and causing glucose levels to be elevated in the bloodstream.

Islet cells (islets of Langerhans) — Cells located in the pancreas that make hormones which help the body break down and use food.

Liver — The organ responsible for storing excess glucose as glycogen and metabolizing fat, carbohydrates, and protein. The liver is the largest gland in the body.

Monotherapy — Using one therapy to treat a disease or condition.

OAD — An acronym that stands for **O**ral **A**nti-**d**iabetic agent. OADs are oral diabetes medicines. There currently are five classes of OADs: sulfonylureas, meglitinides, biguanides, thiazolidinediones, and alpha-glucosidase inhibitors.

Obesity — A condition where there is an excess of fat in the body. Distinct from being only “overweight,” obesity occurs when the body mass index (BMI) is 30 or higher. Overweight occurs when BMI is between 25 and 29.9.

Oral glucose challenge — A test to determine pre-diabetes or diabetes in which a person fasts, then drinks a glucose-rich beverage, and two hours later the blood glucose level is measured. A postprandial (after a meal) measure of between 140 and 199 mg/dL is a diagnosis of pre-diabetes. A measure exceeding 200 mg/dL signals diabetes. An oral glucose challenge also is called an oral glucose tolerance test.

Pancreas — A large elongated gland located near the stomach that secretes digestive enzymes. Clusters of cells known as islets are made up of alpha, beta, and delta cells. The hormones insulin and glucagon are produced the beta cells and alpha cells, respectively.

Prandial — Related to a meal. Preprandial is before a meal; postprandial is after a meal.

Pre-diabetes — A condition in which blood glucose levels are higher than normal but are not high enough for a diagnosis of diabetes. The 41 million Americans who have pre-diabetes are at increased risk for developing type 2 diabetes, heart disease, and stroke. Pre-diabetes also is known as impaired glucose tolerance. Fasting plasma glucose between 100 and 125 mg/dL confirms pre-diabetes.

Type 1 diabetes — Previously called insulin-dependent diabetes mellitus, this is the form of diabetes in which the pancreas no longer makes insulin and, therefore, glucose cannot enter the cells to be used for energy.

Type 2 diabetes — Previously referred to as non-insulin-dependent diabetes mellitus, this is the disease state in which either the pancreas does not make enough insulin and/or the body is unable to use insulin correctly.