

National Diabetes Information Clearinghouse

The Diabetes Dictionary



U.S. Department
of Health and
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NATIONAL INSTITUTES OF HEALTH

NIDDK | NATIONAL INSTITUTE OF
DIABETES AND DIGESTIVE
AND KIDNEY DISEASES

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Some terms listed have many meanings; only those meanings that relate to diabetes are included. Words that appear in ***bold italic*** are listed elsewhere in the dictionary.

Information in this dictionary is not a substitute for a visit to your doctor. Talk with a health professional if you have a problem with your diabetes.

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Pronunciation Guide

This pronunciation guide uses letters and letter combinations, rather than phonetic symbols, to stand for the various sounds in the English language.

Vowels

a	cat, bat
ah	father
air	pear, hair
ar	park
ay	say, came, weigh
aw	saw, bought
e	bet, set
eh	(used at the <i>end</i> of a syllable or when standing alone) examples: meadow (MEH-doh) enemy (EH-nuh-mee) <i>but</i> diet (DY-et)
ee	feet, neat
i	sit, igloo
ih	(used at the <i>end</i> of a syllable or when standing alone) examples: chicken (CHIH-ken) miracle (MIHR-ih-kuhl) <i>but</i> picnic (PIK-nik)
ihr	near, here
y	fire, idol
eye	(used at the <i>beginning</i> of a syllable or when standing alone) examples: iron (EYE-urn) chloride (KLOR-eyed) <i>but</i> silent (SY-luhnt)

o	hot, cot
oh	coat, home
oo	food, rude
or	tore, soar, for
oi	soil, boy
ou	now, couch
u	put, foot
uh	about, sum, china
ur	hurt, alert
yoo	use
yoor	cure

Consonants

b	bat, job
ch	chop, itch
d	dig, bed
f	fur, tough, calf
g	grape, big
h	happy
j	joke, nudge
k	kite, car, tack
l	lip, sell
m	move, jam
n	not, knee
ng	ring
p	play, hop
r	rain, fur
s	set, tips
ss	bus, guess, fence
sh	shy, fish
t	toy, boat
th	breath
v	vine, have
w	walk, where
y	yes
z	zip, jazz, has
zh	measure

acanthosis nigricans (ak-an-THOH-siss) (NIG-rih-kanz): a skin condition characterized by darkened skin patches; common in people whose body is not responding correctly to the *insulin* they make in their *pancreas*, a condition called *insulin resistance*. This skin condition is also seen in people who have *pre-diabetes* or *type 2 diabetes*.

acarbose (A-kahr-bohss): an oral medicine used to treat *type 2 diabetes*. Acarbose slows down the digestion of foods high in *carbohydrate*, such as rice, bread, milk, and fruit. The result is a slower and lower rise in *blood glucose* throughout the day, especially right after meals. Acarbose belongs to the class of medicines called *alpha-glucosidase inhibitors*. (Brand name: *Precose*.)

ACE inhibitor (ayss) (in-HIB-ih-tur): an oral medicine that lowers *blood pressure*. ACE stands for angiotensin-converting *enzyme*. For people with *diabetes*, especially those who have *protein (albumin)* in the *urine*, it also helps slow down *kidney* damage.

acesulfame potassium (AY-see-SUHL-faym) (poh-TASS-ee-uhm): a dietary sweetener with no *calories* and no nutritional value. Also known as acesulfame-K. (Brand name: *Sunett*.)

Actoplus Met (AK-toh-pluhss) (met): the brand name of an oral medicine used to treat *type 2 diabetes*; a combination of *pioglitazone* and *metformin*.

Actos (AK-tohss): see *pioglitazone*.

acute (uh-KYOOT): describes something that happens suddenly and for a short time. Opposite of *chronic*, or long-lasting.

acute renal failure (uh-KYOOT) (REE-nuhl) (FAYL-yoor): sudden and temporary loss of *kidney* function. See *chronic kidney disease*.

adhesive capsulitis (ad-HEE-siv) (KAP-soo-LY-tiss): a condition of the shoulder associated with *diabetes* that results in pain and loss of the ability to move the shoulder in all directions.

adult-onset diabetes (uh-DUHLT-AWN-set) (DY-uh-BEE-teez): former term for *type 2 diabetes*.

A

AGEs (AY-JEE-EEZ): stands for advanced glycosylation end products. AGEs are produced in the body when *glucose* links with *protein*. They play a role in damaging *blood vessels*, which can lead to diabetes *complications*.

albumin (al-BYOO-min): the main *protein* in blood. Over several years, people who are developing diabetic *kidney disease* leak small amounts of albumin into the *urine*, a condition called microalbuminuria. As kidney disease progresses, more albumin leaks into the urine, a condition called macroalbuminuria or *proteinuria*. As the amount of albumin in the urine increases, the *kidneys'* ability to filter the blood decreases.

albuminuria (al-BYOO-min-YOO-ree-uh): a condition in which the *urine* has more than normal amounts of a *protein* called *albumin*. Albuminuria may be a sign of *nephropathy*, or *kidney disease*. See *albumin*.

alpha cell (AL-fuh) (sel): a type of cell in the *pancreas*. Alpha cells make and release a *hormone* called *glucagon*. The body sends a signal to the alpha cells to make glucagon when *blood glucose* falls too low. Then glucagon reaches the *liver*, where it tells the liver to release *glucose* into the blood for energy.

alpha-glucosidase inhibitor (AL-fuh-gloo-KOH-sih-dayss) (in-HIB-ih-tur): a class of oral medicine for *type 2 diabetes* that slows down the digestion of foods high in *carbohydrate*, such as rice, bread, milk, and fruit. The result is a slower and lower rise in *blood glucose* after meals. (Generic names/Brand names: *acarbose/Precose; miglitol/Glyset*.)

alternative site testing: using areas of the body other than the fingertips for *blood glucose monitoring*.

Amaryl (AM-uh-ril): see *glimepiride*.

amputate (AM-pyoo-tayt): to cut a part, such as a foot, from the body.

amylin (AM-ih-lin): a *hormone* formed by *beta cells* in the *pancreas*. Amylin regulates the timing of *glucose* release into the bloodstream after eating by slowing the emptying of the stomach.

amylin mimetic (AM-ih-lin) (mih-MET-ik): a type of injectable medicine for *diabetes* that mimics the effect of the hormone *amylin*. This medicine helps food move more slowly through the stomach and helps keep the *liver* from releasing stored *glucose*. (Generic name/Brand name: *pramlintide acetate/Symlin*.)

amyotrophy (uh-my-OT-roh-fee): a type of *neuropathy* resulting in pain, weakness, or wasting in the muscles.

anemia (uh-NEE-mee-uh): a condition in which the number of red blood cells is less than normal, resulting in less oxygen carried to the body's cells. Anemia can cause extreme fatigue.

angiopathy (AN-jee-OP-uh-thee): any disease of the *blood vessels* (*arteries, capillaries, veins*) or *lymphatic vessels*.

antibodies (AN-tee-BOD-eez): *proteins* made by the body to protect itself from foreign substances such as bacteria or viruses. People get *type 1 diabetes* when their bodies make antibodies that destroy the body's own *insulin*-making *beta cells*.

A1C (AY-WUHN-SEE): a test that measures a person's average *blood glucose level* over the past 2 to 3 months. Hemoglobin is the part of a red blood cell that carries oxygen to the cells and sometimes joins with the *glucose* in the bloodstream. Also called *hemoglobin A1C* or *glycosylated hemoglobin*, the test shows the amount of glucose that sticks to the red blood cell, which is proportional to the amount of glucose in the blood. Results are given as a percentage or as an average glucose value, called an *estimated average glucose*.

Apidra (uh-PEE-druh): see *insulin glulisine*.

ARB (arb): an oral medicine that lowers *blood pressure*. ARB stands for angiotensin receptor blocker. For people with *diabetes*, especially those who have *protein* (*albumin*) in the *urine*, it also helps slow down *kidney* damage.

A

arteriosclerosis (ar-TIHR-ee-oh-sklur-OH-siss): see *atherosclerosis*.

artery (AR-tur-ee): a large *blood vessel* that carries blood with oxygen from the heart to all parts of the body.

aspartame (ASS-par-taym): a dietary sweetener with almost no *calories* and no nutritional value.

atherosclerosis (ATH-ur-oh-sklur-OH-siss): clogging, narrowing, and hardening of the body's large *blood vessels*, also called *arteries*. Atherosclerosis can lead to *coronary heart disease*, *heart attacks*, *peripheral arterial disease*, *strokes*, and *transient ischemic attacks*. It can also damage the arteries that go to the *kidneys*.



A healthy blood vessel



A narrowed blood vessel

athlete's foot (ATH-leets) (fut): a fungal infection of the skin on the foot, also called *tinea pedis*. The fungus is common in people with *diabetes*, the elderly, and people with an impaired *immune system*. The skin may peel, crack, bleed, or cause pain. Some people have no symptoms and do not know they have an infection. The affected skin is also more vulnerable to bacteria that cause *cellulitis*.

Common Types of Athlete's Foot

- moccasin, which affects the soles of the feet
- interdigital, which affects the skin between the toes
- inflammatory or blistering, which affects the soles and sides of the feet

autoimmune disease (AW-toh-ih-MYOON) (dih-ZEEZ): a disorder of the body's *immune system* in which the immune system mistakenly attacks and destroys *body tissue* it believes to be foreign.

A-B

autonomic neuropathy (AW-toh-NOM-ik) (noo-ROP-uh-thee): a type of *neuropathy* affecting the lungs, heart, stomach, intestines, bladder, or genitals.

Avandamet (uh-VAN-duh-met): the brand name of an oral medicine used to treat *type 2 diabetes*; a combination of *rosiglitazone* and *metformin*.

Avandaryl (uh-VAN-duh-ril): the brand name of an oral medicine used to treat *type 2 diabetes*; a combination of *rosiglitazone* and *glimepiride*.

Avandia (uh-VAN-dee-uh): see *rosiglitazone*.

background retinopathy (BAK-ground) (RET-ih-NOP-uh-thee): a type of damage to the *retina* of the eye marked by bleeding, fluid accumulation, and abnormal dilation of the *blood vessels*. Background retinopathy is an early stage of *diabetic retinopathy*. Also called simple or nonproliferative retinopathy.

basal rate (BAY-suhl) (rayt): a continuous supply of low levels of longer-acting *insulin*, as used in *insulin pumps*.

beta cell (BAY-tuh) (sel): a cell that makes *insulin*. Beta cells are located in the *islets* of the *pancreas*.

biguanide (by-GWAH-nyd): a class of oral medicine used to treat *type 2 diabetes* that lowers *blood glucose* by reducing the amount of *glucose* produced by the *liver*. This type of medicine also helps treat *insulin resistance*, a condition in which the body doesn't use *insulin* the way it should. (Generic names/Brand names: *metformin/Glucophage, Glucophage XR, Riomet*.)

B

blood glucose (bluhd) (GLOO-kohss): the main *sugar* found in the blood and the body's main source of energy. Also called *blood sugar*.

blood glucose level (bluhd) (GLOO-kohss) (LEV-uhl): the amount of *glucose* in a given amount of blood. In the United States, blood glucose levels are noted in milligrams per deciliter, or *mg/dL*.

blood glucose meter (bluhd) (GLOO-kohss) (MEE-tur): a small, portable machine used by people with *diabetes* to check their *blood glucose levels*. After pricking the skin with a *lancet*, one places a drop of blood on a test strip in the machine. The meter then displays the *blood glucose* reading.



Blood glucose meter

blood glucose monitoring (bluhd) (GLOO-kohss) (MON-ih-TUR-ing): checking *blood glucose levels* by using a *blood glucose meter* or blood glucose test strips that change color when touched by a blood sample in order to manage *diabetes*.

blood pressure: the force of blood exerted on the inside walls of *blood vessels*. Blood pressure is expressed as two numbers. For example, a blood pressure result of 120/80 is said as “120 over 80.” The first number is the *systolic pressure*, or the pressure when the heart pushes blood into the *arteries*. The second number is the *diastolic pressure*, or the pressure when the heart rests.

blood sugar: see *blood glucose*.

blood sugar level: see *blood glucose level*.

blood urea nitrogen (BUN) (bluhd) (yoo-REE-uh) (NY-troh-jen): a waste product in the blood that comes from the breakdown of *protein*. The *kidneys* filter blood to remove *urea*. As kidney function decreases, the BUN level increases.

B

blood vessels (bluhd) (VESS-uhlz): tubes that carry blood to and from all parts of the body. The three main types of blood vessels are *arteries*, *capillaries*, and *veins*.

BMI: see *body mass index*.

To find BMI: Multiply body weight in pounds by 703. Divide that number by height in inches. Divide that number by height in inches again. Find the resulting number below.



18 and below is underweight.



19 to 24 is normal.



25 to 29 is overweight.



30 and above is obese.

body mass index (BMI): a measure used to evaluate body weight relative to a person's height. BMI is used to find out if a person is underweight, normal weight, *overweight*, or obese.

body tissue: a group of cells in the body that performs a specific function.

bolus (BOH-luhss): an extra amount of *insulin* taken to cover an expected rise in *blood glucose*, often related to a meal or snack.

borderline diabetes (BOR-dur-lyn) (DY-uh-BEE-teez): a former term for *type 2 diabetes* or *pre-diabetes*.

brittle diabetes (BRIH-tuhl) (DY-uh-BEE-teez): a term used when a person's *blood glucose level* moves often from low to high and from high to low.

BUN (BEE-YOO-EN): see *blood urea nitrogen*.

bunion (BUHN-yuhn): a bulge on the first joint of the big toe, caused by the swelling of a fluid sac under the skin. This spot can become red, sore, and infected.

Byetta (by-YAY-tuh): see *exenatide*.

C

callus (KAL-uhss): a small area of skin, usually on the foot, that has become thick and hard from rubbing or pressure.

calorie: a unit representing the energy provided by food. *Carbohydrate, fat, protein,* and alcohol provide calories in the diet. Carbohydrate and protein have 4 calories per *gram*, fat has 9 calories per gram, and alcohol has 7 calories per gram.

Candida (KAN-did-uh): a fungus that is normally found in the body but commonly becomes overgrown in people with *diabetes*. Overgrowth is due to increased sugar in the body and a weakened *immune system*. Use of antibiotics or birth control pills also increases the risk of candida overgrowth. *Candida* overgrowth can lead to infection, causing itching, skin lesions, or rash. Some common areas of infection are in or around the mouth, armpits, groin, vagina, and nails.

CAPD (SEE-AY-PEE-DEE): see *continuous ambulatory peritoneal dialysis* under *dialysis*.

capillary (KAP-ih-lair-ee): the smallest of the body's *blood vessels*. Oxygen and *glucose* pass through capillary walls and enter the cells. Waste products such as carbon dioxide pass back from the cells into the blood through capillaries.

capsaicin (kap-SAY-ih-sin): an ingredient in hot peppers that can be found in ointment form for use on the skin to relieve pain from diabetic *neuropathy*.

carbohydrate (KAR-boh-HY-drayt): one of the three main nutrients in food. Foods that provide carbohydrate are *starches*, vegetables, fruits, dairy products, and *sugars*.



Sources of carbohydrate

carbohydrate counting (KAR-boh-HY-drayt) (KOUN-ting): a method of meal planning for people with diabetes based on counting the number of *grams* of *carbohydrate* in food.

cardiologist (KAR-dee-OL-oh-jist): a doctor who treats people who have heart problems.

cardiovascular disease (KAR-dee-oh-VASS-kyoo-lur) (dih-ZEEZ): disease of the heart and *blood vessels* (*arteries, capillaries, and veins*).

carpal tunnel syndrome (KAR-puhl) (TUHN-uhl) (SIN-droh-m): a common form of *neuropathy* occurring with *diabetes*. Symptoms of carpal tunnel syndrome include nighttime hand tingling and pain and numbness and weakness in the hand and wrist that sometimes radiates up the arm. Carpal tunnel syndrome often affects both wrists and occurs more often in women than men.

cataract (KAT-uh-rakt): clouding of the lens of the eye.

CCPD: see *continuous cycling peritoneal dialysis* under *dialysis*.

CDE: see *certified diabetes educator*.

celiac disease (SEE-lee-ak) (dih-ZEEZ): the inability to digest and absorb *proteins* called gluten found in wheat, rye, and barley. Celiac disease causes damage to the lining of the small intestine and prevents absorption of nutrients. Also called celiac sprue, gluten intolerance, and nontropical sprue.

cellulitis (SEL-yoo-LY-tiss): a skin infection caused by bacteria that gets into the skin through a wound. Cellulitis may develop from skin problems such as *ulcers*, eczema, psoriasis, or a fungal infection like *athlete's foot*. People with *diabetes*, *peripheral arterial disease*, or a weakened *immune system* may develop cellulitis. If not treated with antibiotics, the infection can spread to the blood or lymph nodes and cause death.

cerebral vascular disease (seh-REE-bruhl) (VASS-kyoo-lur) (dih-ZEEZ): damage to *blood vessels* in the brain. Vessels can burst and bleed or become clogged with fatty deposits. A *stroke* results when blood flow is interrupted and brain cells die or are damaged.

C

certified diabetes educator (CDE) (SER-tih-fyd) (DY-uh-BEE-teez) (EH-juh-KAY-tur): a health care professional with expertise in *diabetes* education who has met eligibility requirements and successfully completed a certification exam. See *diabetes educator*.

CGMS: see *continuous glucose monitoring system*.

Charcot's foot (SHAHR-kohz) (fut): a condition resulting from nerve damage in which the joints and soft tissue in the foot are destroyed.

cheiroarthropathy (KY-roh-ar-THROP-uh-thee): see *limited joint mobility*.

cheiropathy (ky-ROP-uh-thee): see *limited joint mobility*.

chlorpropamide (klor-PROH-puh-myd): an oral medicine used to treat *type 2 diabetes*. Chlorpropamide lowers *blood glucose levels* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Chlorpropamide belongs to the class of medicines called *sulfonylureas*. (Brand name: *Diabinese*.)

cholesterol (koh-LESS-tur-ol): a type of *fat* produced by the *liver* and found in the blood. Cholesterol is also found in some foods. The body uses cholesterol to make *hormones* and build cell walls.

chronic (KRON-ik): describes something that is long-lasting. Opposite of *acute*.

chronic kidney disease (CKD) (KRON-ik) (KID-nee) (dih-ZEEZ): any condition that causes reduced *kidney* function over a period of time. CKD is present when a patient's *glomerular filtration rate* remains below 60 milliliters per minute for more than 3 months. CKD may develop over many years and lead to *end-stage renal disease*.

circulation (SUR-kyoo-LAY-shuhn): the flow of blood through the body's *blood vessels* and heart.

CKD: see *chronic kidney disease*.

claudication (CLAW-dih-KAY-shuhn): see *intermittent claudication*.

coma (KOH-muh): a sleeplike state in which a person is not conscious. A coma may be caused by *hyperglycemia* (*high blood glucose*) or *hypoglycemia* (*low blood glucose*) in people with *diabetes*.

combination diabetes pill (KOM-bih-NAY-shuhn) (DY-uh-BEE-teez) (pil): a pill that includes two different medicines.

combination therapy: the use of different medicines together to manage *blood glucose levels*.

complications (KOM-plih-KAY-shuhnz): harmful effects of *diabetes* such as damage to the eyes, heart, *blood vessels*, nervous system, teeth and gums, feet and skin, or *kidneys*. Studies show that keeping *blood glucose*, *blood pressure*, and *LDL cholesterol* levels close to normal can help prevent or delay these problems.

congenital defects (kon-JEN-ih-tuhl) (DEE-fekts): problems or conditions that are present at birth.

congestive heart failure (kon-JESS-tiv) (hart) (FAYL-yoor): the type of *heart failure* in which loss of the heart's pumping power causes fluid to build up in the body.

constipation (KON-stih-PAY-shuhn): a condition in which the stool becomes hard and dry. A person who is constipated usually has fewer than three bowel movements in a week. Bowel movements may be painful.

continuous ambulatory peritoneal dialysis (kon-TIN-yoo-uhss) (AM-byoo-luh-TOR-ee) (PAIR-ih-toh-NEE-uhl) (dy-AL-ih-siss): see *continuous ambulatory peritoneal dialysis* under *dialysis*.

continuous cycling peritoneal dialysis (kon-TIN-yoo-uhss) (SY-kling) (PAIR-ih-toh-NEE-uhl) (dy-AL-ih-siss): see *continuous cycling peritoneal dialysis* under *dialysis*.

continuous glucose monitoring system (CGMS) (kon-TIN-yoo-uhss) (GLOO-kohss) (MON-ih-TUR-ing) (SISS-tuhm): a small sensor inserted below the skin that measures *blood glucose levels* approximately 12 times an hour.

continuous subcutaneous insulin injection (kon-TIN-yoo-uhss) (SUHB-kyoo-TAY-nee-uhss) (IN-suh-lin) (in-JEK-shuhn): see *insulin pump*.

C

conventional therapy: a term used in clinical trials where one group receives treatment for *diabetes* in which *A1C* and *blood glucose levels* are kept at levels based on current practice guidelines. However, the goal is not to keep blood glucose levels as close to normal as possible, as is done in *intensive therapy*. Conventional therapy includes use of medication, meal planning, and exercise, along with regular visits to health care providers.

coronary artery disease (KOR-uh-nair-ee) (AR-tur-ee) (dih-ZEEZ): see *coronary heart disease*.

coronary heart disease (KOR-uh-nair-ee) (hart) (dih-ZEEZ): heart disease caused by narrowing of the *arteries* that supply blood to the heart. If the blood supply is cut off, the result is a *heart attack*.

C-peptide (SEE-PEP-tyd): a substance the *pancreas* releases into the bloodstream in equal amounts to *insulin*. A test of C-peptide levels shows how much insulin the body is making.

C-reactive protein (SEE-ree-AK-tiv) (PROH-teen): a substance produced in the *liver* in response to injury or inflammation. Elevated levels of C-reactive protein are associated with a higher risk of *heart attack* and *stroke*.

creatinine (kree-AT-ih-noon): a waste product from meat *protein* in the diet and from the muscles of the body. Creatinine is removed from the body by the *kidneys*; as *kidney disease* progresses, the level of creatinine in the blood increases.

creatinine clearance (kree-AT-ih-noon) (KLIHR-ants): a test that measures how efficiently the *kidneys* remove *creatinine* and other wastes from the blood. Low creatinine clearance indicates impaired kidney function.

CSII (continuous subcutaneous insulin injection) (SEE-ESS-EYE-EYE): see *insulin pump*.

D

dawn phenomenon (dawn) (fuh-NOM-uh-non): the early-morning (4 a.m. to 8 a.m.) rise in *blood glucose*.

DCCT: see *Diabetes Control and Complications Trial*.

debridement (day-breed-MAW): removal of dead or infected tissue from a wound. Debridement can be done with *enzymes*; mechanically, such as in a whirlpool; or through surgery.

dehydration (dee-hy-DRAY-shuhn): the loss of too much body fluid through frequent urinating, sweating, diarrhea, or vomiting.

dermopathy (dur-MOP-uh-thee): disease of the skin.

dextrose (DEKS-trohss): simple *sugar* found in blood that serves as the body's main source of energy. Also called *glucose*.

DiaBeta (dy-uh-BAY-tuh): see *glyburide*.

diabetes (DY-uh-BEE-teez): a condition characterized by *hyperglycemia* (*high blood glucose*) resulting from the body's inability to use *blood glucose* for energy. In *type 1 diabetes*, the *pancreas* no longer makes *insulin*; therefore, blood glucose cannot enter the cells to be used for energy. In *type 2 diabetes*, either the pancreas does not make enough insulin or the body is unable to use insulin correctly. Also called *diabetes mellitus*.

Diabetes Control and Complications Trial (DCCT) (DY-uh-BEE-teez) (kon-TROHL) (and) (KOM-plih-KAY-shuhnz) (TRY-uhl): a study by the National Institute of Diabetes and Digestive and Kidney Diseases conducted from 1983 to 1993 in people with *type 1 diabetes*. The study showed that *intensive therapy* compared with *conventional therapy* significantly helped prevent or delay *diabetic retinopathy*, *kidney disease*, and *nerve disease*. Intensive therapy included multiple daily *injections* of *insulin* or the use of an *insulin pump* with multiple *blood glucose* readings each day.

D

diabetes educator (DY-uh-BEE-teez) (EH-juh-KAY-tur): a health care professional who teaches people who have *diabetes* how to manage their condition. Some diabetes educators are *certified diabetes educators* (CDEs). Diabetes educators are found in hospitals, physician offices, managed care organizations, home health care, and other settings.

diabetes insipidus (DY-uh-BEE-teez) (in-SIH-puh-duhss): a condition characterized by frequent and heavy urination, excessive thirst, and an overall feeling of weakness. This condition may be caused by a defect in the pituitary gland or the *kidney*. In diabetes insipidus, *blood glucose levels* are normal.

diabetes mellitus (DY-uh-BEE-teez) (MEH-luh-tuhss): see *diabetes*.

Diabetes Prevention Program (DPP) (DY-uh-BEE-teez) (pre-VEN-shuhn) (PROH-gram): a study by the National Institute of Diabetes and Digestive and Kidney Diseases conducted from 1998 to 2001 in people at high risk for *type 2 diabetes*. All study participants had *impaired glucose tolerance*, also called *pre-diabetes*, and were *overweight*. The study showed that people who lost 5 to 7 percent of their body weight through a low-*fat*, low-*calorie* diet and moderate physical activity—usually walking for 30 minutes 5 days a week—reduced their risk of getting type 2 diabetes by 58 percent. Participants who received treatment with the oral diabetes drug *metformin* reduced their risk of getting type 2 diabetes by 31 percent.

diabetes self-management (DY-uh-BEE-teez) (self-MAN-uhj-ment): see *self-management*.

D

diabetic diarrhea (DY-uh-BET-ik) (DY-uh-REE-uh): loose stools, fecal incontinence, or both that result from an overgrowth of bacteria in the small intestine and diabetic *neuropathy* in the intestines. This nerve damage can also result in *constipation*.

diabetic eye disease (DY-uh-BET-ik) (eye) (dih-ZEEZ): see *diabetic retinopathy*.

diabetic gastropathy (DY-uh-BET-ik) (gass-TROP-uh-thee): see *gastropathy*.

diabetic ketoacidosis (DKA) (DY-uh-BET-ik) (KEE-toh-ASS-ih-DOH-siss): an emergency condition in which extremely high *blood glucose levels*, along with a severe lack of *insulin*, result in the breakdown of body *fat* for energy and an accumulation of *ketones* in the blood and *urine*. Signs of DKA are nausea and vomiting, stomach pain, fruity breath odor, and rapid breathing. Untreated DKA can lead to *coma* and death.

diabetic myelopathy (DY-uh-BET-ik) (MY-uh-LOP-uh-thee): damage to the spinal cord found in some people with *diabetes*.

diabetic nephropathy (DY-uh-BET-ik) (neh-FROP-uh-thee): see *nephropathy*.

diabetic neuropathy (DY-uh-BET-ik) (noo-ROP-uh-thee): see *neuropathy*.

diabetic retinopathy (DY-uh-BET-ik) (RET-ih-NOP-uh-thee): damage to the small *blood vessels* in the *retina*. Loss of vision may result. Also called *diabetic eye disease*.

diabetogenic (DY-uh-BET-oh-JEN-ik): causing *diabetes*. For example, some drugs cause *blood glucose levels* to rise, resulting in diabetes.

diabetologist (DY-uh-beh-TOL-uh-jist): a doctor who specializes in treating people who have *diabetes*.

Diabinese (dy-AB-ih-neeZ): see *chlorpropamide*.

diagnosis (DY-ag-NOH-siss): the determination of a disease from its signs and symptoms.

D

dialysis (dy-AL-ih-siss): the process of cleaning wastes from the blood artificially. This job is normally done by the *kidneys*. If the kidneys fail, the blood must be cleaned artificially with special equipment. The two major forms of dialysis are *hemodialysis* and *peritoneal dialysis*.

- **hemodialysis** (HEE-moh-dy-AL-ih-siss): the use of a machine to clean wastes from the blood after the *kidneys* have failed. The blood travels through tubes to a dialyzer, a machine that removes wastes and extra fluid. The cleaned blood then flows through another set of tubes back into the body.



Hemodialysis

- **peritoneal dialysis** (PAIR-ih-toh-NEE-uhl) (dy-AL-ih-siss): cleaning of the blood by using the lining of the abdominal cavity, or belly, as a filter. A cleansing liquid, called *dialysis solution*, is drained from a bag into the abdomen. Fluid and wastes flow through the lining of the abdominal cavity and remain “trapped” in the dialysis solution. The solution is then drained from the abdomen, removing the extra fluid and wastes from the body. The two main types of peritoneal dialysis are *continuous ambulatory peritoneal dialysis* and *continuous cycling peritoneal dialysis*.
- **continuous ambulatory peritoneal dialysis (CAPD)** (kon-TIN-yoo-uhss) (AM-byoo-luh-TOR-ee) (PAIR-ih-toh-NEE-uhl) (dy-AL-ih-siss): a form of peritoneal dialysis that needs no machine. With CAPD, the blood is always being cleaned. The *dialysis solution* passes from a plastic bag through a catheter and into the abdomen. The dialysis solution stays in the abdomen with the catheter sealed. After several hours,

D

the person using CAPD drains the solution back into a disposable bag. Then the person refills the abdomen with fresh solution through the same catheter to begin the cleaning process again.

- **continuous cycling peritoneal dialysis (CCPD)** (kon-TIN-yoo-uhss) (SY-kling) (PAIR-ih-toh-NEE-uhl) (dy-AL-ih-siss): a form of peritoneal dialysis that uses a machine. This machine automatically fills and drains the *dialysis solution* from the abdomen. A typical CCPD schedule involves three to five exchanges during the night while the person sleeps. During the day, the person using CCPD performs one exchange, draining the dialysis solution after an entire day.

dialysis solution (dy-AL-ih-siss) (suh-LOO-shuhn): a cleansing liquid used in the two major forms of *dialysis*—*hemodialysis* and *peritoneal dialysis*. Dialysis solution contains *dextrose*, a *sugar*, and other chemicals similar to those in the body. Dextrose draws wastes and extra fluid from the body into the dialysis solution.

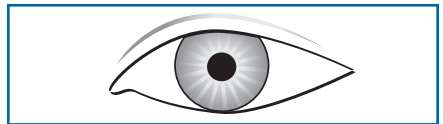
diastolic pressure (DY-uh-STOL-ik) (PRESH-ur): the *blood pressure* when the heart rests.

dietitian (DY-uh-TISH-uhn): a health care professional who advises people about meal planning, weight control, and *diabetes* management. A registered dietitian (RD) has met certain requirements.

dilated eye exam (DY-lay-ted) (eye) (ek-ZAM): a test done by an eye care specialist in which the pupil—the black center—of the eye is temporarily enlarged with eyedrops to allow the specialist to see the inside of the eye more easily.



Dilated eye



Undilated eye

D

dipeptidyl peptidase-4 inhibitor (dy-PEP-tih-dil) (PEP-tih-dayss-FOR) (in-HIB-ih-tur): see *DPP-4 inhibitor*.

DKA: see *diabetic ketoacidosis*.

D-phenylalanine derivative (DEE-FEN-il-AL-uh-neen) (duh-RIV-uh-tiv): a type of oral medicine for *type 2 diabetes* that lowers *blood glucose levels* by helping the *pancreas* make more *insulin* right after meals. (Generic name/Brand name: *nateglinide/Starlix*.)

DPP: see *Diabetes Prevention Program*.

DPP-4 inhibitor (DEE-PEE-PEE-FOR) (in-HIB-ih-tur): a class of oral medicine used to treat *type 2 diabetes* that lowers *blood glucose* by helping the body make more *insulin* when it's needed. This type of medicine also helps keep the *liver* from putting stored blood glucose into the blood. (Generic name/Brand name: *sitagliptin phosphate/Januvia*.)

Duetact (DOO-uh-tak): the brand name of an oral medicine used to treat *type 2 diabetes*; a combination of *pioglitazone* and *glimepiride*.

Dupuytren's contracture (doo-pwee-TRENZ) (kon-TRAK-chur): a condition associated with *diabetes* in which the fingers and the palm of the hand thicken and shorten, causing the fingers to curve inward.

duration: in referring to *insulin*, the length of time during which insulin keeps lowering *blood glucose levels*. Duration may also refer to the length of time a person has had *diabetes*, which determines a person's risk of developing diabetes complications.

eAG: see *estimated average glucose*.

edema (eh-DEE-muh): swelling caused by too much fluid in the body.

electromyography (EMG) (ee-LEK-troh-my-OG-ruh-fee): a test used to detect nerve function. Electromyography measures the electrical activity generated by muscles.

EMG: see *electromyography*.

endocrine gland (EN-doh-krin) (gland): a group of specialized cells that releases *hormones* into the blood. For example, the *islets* in the *pancreas*, which secrete *insulin*, are endocrine glands.

endocrinologist (EN-doh-krih-NOL-uh-jist): a doctor who treats people who have *endocrine gland* problems such as *diabetes*.

end-stage renal disease (ESRD) (END-STAYJ) (REE-nuhl) (dih-ZEEZ): total and permanent *kidney failure*. When the *kidneys* fail, the body retains fluid. Harmful wastes build up. A person with ESRD needs treatment to replace the work of the failed kidneys.

enzyme (EN-zym): *protein* made by the body that brings about a chemical reaction—for example, the enzymes produced by the gut to aid digestion.

erectile dysfunction (ee-REK-tyl) (diss-FUHNK-shuhn): the inability to get or maintain an erection for satisfactory sexual intercourse. Also called *impotence*.

ESRD: see *end-stage renal disease*.

estimated average glucose (ESS-tuh-may-ted) (AV-ur-ij) (GLOO-kohss): also called *eAG* or average *glucose*; another way to report the results of an *A1C* test. The *A1C* test measures average glucose levels over the past 2 to 3 months. In the past, results were reported as a percentage. Results reported as an *eAG* are given as *mg/dL*, the same units used for self-monitoring of blood glucose with a *blood glucose meter*. For example, results of an *A1C* test can be reported as an *eAG* of 126 *mg/dL*, which is equal to 6 percent.

euglycemia (YOO-gly-SEE-mee-uh): a normal level of *glucose* in the blood.

E-F

exchange lists: one of several approaches for *diabetes* meal planning. Foods are categorized into three groups based on their nutritional content. Lists provide the serving sizes for *carbohydrates*, meat and meat substitutes, and *fats*. These lists allow for substitution for different groups to keep the nutritional content fixed.

exenatide (eks-EN-uh-tyd): an injectable medicine for *diabetes* that mimics the effect of incretin *hormones*, a type of *gastrointestinal* hormone. This medicine helps food move more slowly through the stomach and helps keep the *liver* from releasing stored *glucose*. (Brand name: *Byetta*.)

fasting blood glucose test (FASS-ting) (bluhd) (GLOO-kohss) (test): a check of a person's *blood glucose level* after the person has not eaten for 8 to 12 hours—usually overnight. This test is used to diagnose *pre-diabetes* and *diabetes*; it is also used to see whether people with diabetes are keeping blood glucose levels on target.

fat: 1. one of the three main nutrients in food. Foods that provide fat are butter, margarine, salad dressing, oil, nuts, meat, poultry, fish, and some dairy products. 2. excess *calories* are stored as body fat, providing the body with a reserve supply of energy and other functions.



Sources of fat

F-G

fluorescein angiography (flor-ESS-ee-in) (AN-jee-OG-ruh-fee): a test to examine **blood vessels** in the eye that is done by injecting dye into an arm **vein** and then taking photos as the dye goes through the eye's blood vessels.

focal neuropathy (FOH-kuhl) (noo-ROP-uh-thee): a type of **neuropathy** in which a single nerve or a group of nerves is affected, producing sudden weakness or pain.

fructosamine test (frook-TOHSS-uh-meen) (test): measures the number of **blood glucose** molecules linked to **protein** molecules in the blood. The test provides information about a person's average **blood glucose level** for the previous 3 weeks.

fructose (FROOK-tohss): a **sugar** that occurs naturally in fruits and honey. Fructose has 4 **calories** per **gram**.

GAD65 (GAD-SIKS-tee-FYV): see **islet cell autoantibodies**.

gangrene (GANG-green): the death of **body tissue**, most often caused by a lack of blood flow and infection. Gangrene can lead to amputation.

gastrointestinal (GASS-troh-in-TESS-tin-uhl): related to the stomach and intestines.

gastroparesis (GASS-troh-puh-REE-siss): a form of **neuropathy** that affects the stomach. Digestion of food may be incomplete or delayed, resulting in nausea, vomiting, or bloating, making **blood glucose** control difficult.

gastropathy (gass-TROP-uh-thee): a form of **neuropathy** that affects the stomach. Symptoms may include nausea, discomfort, a feeling of fullness, and vomiting. The stomach may be delayed in emptying, called **gastroparesis**.

GDM: see **gestational diabetes mellitus**.

G

gestational diabetes mellitus (GDM) (jess-TAY-shuhn-uhl) (DY-uh-BEE-teez) (MEH-luh-tuhss): a type of *diabetes* that develops only during pregnancy and usually disappears upon delivery but increases the mother's risk of developing diabetes later in life. GDM is managed with meal planning, physical activity, and, in some cases, medication.

GFR: see *glomerular filtration rate*.

gingivitis (JIN-jih-VY-tiss): a condition of the gums characterized by inflammation and bleeding.

gland: a group of cells that secrete substances. *Endocrine glands* secrete *hormones*. Exocrine glands secrete salt, *enzymes*, and water.

glaucoma (glaw-KOH-muh): an increase in fluid pressure inside the eye that may lead to vision loss.

glimepiride (gly-MEP-ih-ryd): an oral medicine used to treat *type 2 diabetes*. Glimepiride lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Glimepiride belongs to the class of medicines called *sulfonylureas*. (Brand name: *Amaryl*.)

glipizide (GLIP-ih-zyd): an oral medicine used to treat *type 2 diabetes*. Glipizide lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Glipizide belongs to the class of medicines called *sulfonylureas*. (Brand names: *Glucotrol*, *Glucotrol XL*.)

glomerular filtration rate (GFR) (gloh-MAIR-yoo-lur) (fil-TRAY-shuhn) (rayt): the rate at which the *kidneys* filter wastes and extra fluid from the blood, measured in milliliters per minute.

glomeruli (gloh-MAIR-yoo-ly): plural of *glomerulus*.

glomerulus (gloh-MAIR-yoo-luhss): a tiny set of looping *blood vessels* where the blood is filtered in the *kidney*.

glucagon (GLOO-kuh-gon): a *hormone* produced by the *alpha cells* in the *pancreas*. Glucagon raises *blood glucose*. An injectable form of glucagon, available by prescription, may be used to treat severe *hypoglycemia*.

Glucophage, Glucophage XR (GLOO-koh-fahj): see *metformin*.

glucose (GLOO-kohss): one of the simplest forms of *sugar*.

glucose gel (GLOO-kohss) (jel): pure *glucose* in gel form used for treating *hypoglycemia*.

glucose tablets (GLOO-kohss) (TAB-lets): chewable tablets made of pure *glucose* used for treating *hypoglycemia*.



Glucose tablets

glucose tolerance test (GLOO-kohss) (TOL-ur-uhnss) (test): see *oral glucose tolerance test*.

Glucotrol, Glucotrol XL (GLOO-kuh-trohl): see *glipizide*.

Glucovance (GLOO-koh-vanss): the brand name of an oral medicine used to treat *type 2 diabetes*; a combination of *glyburide* and *metformin*.

glyburide (GLY-buh-ryd): an oral medicine used to treat *type 2 diabetes*. Glyburide lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Glyburide belongs to the class of medicines called *sulfonylureas*. (Brand names: *DiaBeta*, *Glynase PresTab*, *Micronase*.)

glycemic index (gly-SEE-mik) (IN-deks): a ranking of a *carbohydrate*-containing food, based on the food's effect on *blood glucose* compared with a standard reference food.

glycemic load (gly-SEE-mik) (loh-d): a ranking of a *carbohydrate*-containing food, based on the food's *glycemic index* and the amount of carbohydrate in a typical serving.

G-H

glycogen (GLY-koh-jen): the form of *glucose* found in the *liver* and muscles; the main source of stored fuel in the body.

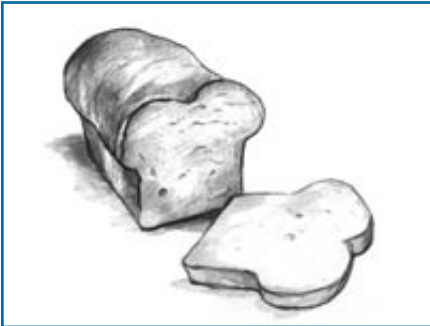
glycosuria (GLY-koh-SYOO-ree-uh): the presence of *glucose* in the *urine*.

glycosylated hemoglobin (GLY-koh-SY-lay-ted) (HEE-moh-GLOH-bin): see *A1C*.

Glynase PresTab (GLY-nayz) (PRESS-TAB): see *glyburide*.

Glyset (GLY-set): see *miglitol*.

gram: a unit of weight in the metric system. An ounce equals 28 grams. In some meal plans for people with *diabetes*, the suggested amounts of food are given in grams.



One slice of bread has 15 grams of carbohydrate.

HDL cholesterol (AYCH-DEE-EL) (koh-LESS-tur-ol): stands for *high-density lipoprotein cholesterol*, which is a *fat* found in the blood that takes extra *cholesterol* from the blood to the *liver* for removal. Sometimes called “good” cholesterol.

heart attack: a condition in which the *blood vessels* to the heart become totally or partially blocked by fatty deposits. When the blood supply is cut off or reduced, oxygen and other needed supplies can’t get through. Then heart muscle can die. Also called a *myocardial infarction*.

heart failure: a *chronic* condition in which the heart cannot pump blood properly.

hemodialysis (HEE-moh-dy-AL-ih-siss): see *dialysis*.

hemoglobin A1C test (HEE-moh-GLOH-bin) (AY-WUHN-SEE) (test): see *A1C*.

heredity (huh-RED-ih-tee): the passing of a trait from parent to child.

HHNS: see *hyperosmolar hyperglycemic nonketotic syndrome*.

H

high blood glucose (hy) (bluhd) (GLOO-kohss): see *hyperglycemia*.

high blood pressure: see *hypertension*.

high-density lipoprotein cholesterol (HY-DEN-sih-tee) (LIP-oh-PROH-teen) (koh-LESS-tur-ol): see *HDL cholesterol*.

HLA: see *human leukocyte antigens*.

home glucose monitor (hohm) (GLOO-kohss) (MON-ih-tur): see *blood glucose meter*.

honeymoon phase: temporary remission of *hyperglycemia* that occurs in some people newly diagnosed with *type 1 diabetes*, when some *insulin* secretion resumes for a short time—for example, a few months—before stopping again.

hormone: a chemical produced in one part of the body and released into the blood to trigger or regulate particular functions of the body. For example, *insulin* is a hormone made in the *pancreas* that tells other cells when to use *glucose* for energy. Synthetic hormones, made for use as medicines, can be the same or different from those made in the body.

Humalog (YOO-muh-lawg): see *insulin lispro*.

Humalog Mix 50/50 (YOO-muh-lawg) (mix): see *pre-mixed insulin*.

Humalog Mix 75/25 (YOO-muh-lawg) (mix): see *pre-mixed insulin*.

human leukocyte antigens (HLA) (HYOO-man) (LOO-koh-syt) (AN-tih-jens): *proteins* located on the surface of the cell that help the *immune system* identify the cell either as one belonging to the body or as one from outside the body. Some patterns of these proteins may mean increased risk of developing *type 1 diabetes*.

Humulin (YOO-myoo-lin): see *pre-mixed insulin*.

Humulin 70/30 (YOO-myoo-lin): see *pre-mixed insulin*.

Humulin N (YOO-myoo-lin): see *NPH insulin*.

Humulin R (YOO-myoo-lin): see *regular insulin*.

H

hyperglycemia (HY-pur-gly-SEE-mee-uh): higher than normal **blood glucose**. Fasting hyperglycemia is blood glucose above a desirable level after a person has fasted for at least 8 hours. Postprandial hyperglycemia is blood glucose above a desirable level 1 to 2 hours after a person has eaten.

hyperinsulinemia (HY-pur-IN-suh-lin-EE-mee-uh): a condition in which the level of **insulin** in the blood is higher than normal. Caused by overproduction of insulin by the body. Related to **insulin resistance**.

hyperlipidemia (HY-pur-LIP-ih-DEE-mee-uh): higher than normal **fat** and **cholesterol** levels in the blood.

hyperosmolar hyperglycemic nonketotic syndrome (HHNS) (HY-pur-oz-MOH-lur) (HY-pur-gly-SEE-mik) (non-kee-TOT-ik) (SIN-droh-m): an emergency condition in which one's **blood glucose level** is very high and **ketones** are not present in the blood or **urine**. If HHNS is not treated, it can lead to **coma** or death.

hypertension (HY-pur-TEN-shuhn): a condition present when blood flows through the **blood vessels** with a force greater than normal. Also called **high blood pressure**. Hypertension can strain the heart, damage blood vessels, and increase the risk of **heart attack**, **stroke**, **kidney** problems, and death.



Checking blood pressure

hypoglycemia (HY-poh-gly-SEE-mee-uh): also called **low blood glucose**, a condition that occurs when one's **blood glucose** is lower than normal, usually below 70 **mg/dL**. Signs include hunger, nervousness, shakiness, perspiration, dizziness or light-headedness, sleepiness, and confusion. If left untreated, hypoglycemia may lead to unconsciousness. Hypoglycemia is treated by

H-I

consuming a *carbohydrate*-rich food such as *glucose tablets* or juice. Hypoglycemia may also be treated with an *injection* of *glucagon* if the person is unconscious or unable to swallow. Also called an *insulin reaction*.

hypoglycemia unawareness (HY-poh-gly-SEE-mee-uh) (uhn-uh-WAIR-ness): a state in which a person does not feel or recognize the symptoms of *hypoglycemia*. People who have frequent episodes of hypoglycemia may no longer experience hypoglycemia's typical warning signs.

hypotension (HY-poh-TEN-shuhn): *low blood pressure* or a sudden drop in *blood pressure*. Hypotension may occur when a person rises quickly from a sitting or reclining position, causing dizziness or fainting.

IA-2A (EYE-AY-TOO-AY): see *islet cell autoantibodies*.

IAA (EYE-AY-AY): see *islet cell autoantibodies*.

ICA512 (EYE-SEE-AY-FYV-WUHN-TOO): see *islet cell autoantibodies*.

ICA (EYE-SEE-AY): see *islet cell autoantibodies*.

IDDM (EYE-DEE-DEE-EM): see *insulin-dependent diabetes mellitus*.

IFG (EYE-EF-JEE): see *impaired fasting glucose*.

IGT (EYE-JEE-TEE): see *impaired glucose tolerance*.

immune system (ih-MYOON) (SISS-tuhm): the body's system for protecting itself from viruses and bacteria or any foreign substances.

immunosuppressant (IM-yoo-noh-soo-PRESS-uhnt): a drug given to stop the natural responses of the body's *immune system*. Immunosuppressants are given to prevent organ rejection in people who have received organ *transplants* and to patients with *autoimmune diseases*.

I

impaired fasting glucose (IFG)
(im-PAIRD) (FASS-ting)
(GLOO-kohss): a condition in which a *fasting blood glucose test* shows a level of *glucose* higher than normal but not high enough for a diagnosis of *diabetes*. IFG, also called *pre-diabetes*, is a level of 100 to 125 *mg/dL*. People with pre-diabetes are at increased risk for developing *type 2 diabetes*, heart disease, and *stroke*.

impaired glucose tolerance (IGT)
(im-PAIRD) (GLOO-kohss)
(TOL-ur-uhns): a condition in which *blood glucose levels* are higher than normal but are not high enough for a diagnosis of *diabetes*. IGT, also called *pre-diabetes*, is a level of 140 to 199 *mg/dL* 2 hours after the start of an *oral glucose tolerance test*. People with pre-diabetes are at increased risk for developing *type 2 diabetes*, heart disease, and *stroke*. Other names for IGT that are no longer used are “borderline,” “subclinical,” “chemical,” or “latent” diabetes.

implantable insulin pump
(im-PLANT-uh-buhl) (IN-suh-lin) (puhmp): a small pump placed inside the body to deliver *insulin* in response to remote-control commands from the user.

impotence (IM-puh-tens): see *erectile dysfunction*.

incidence (IN-sih-dens): a measure of how often a disease occurs; the number of new cases of a disease among a certain group of people for a certain period of time.

incontinence (in-KON-tih-nens): loss of bladder or bowel control; the accidental loss of *urine* or feces.

incretin mimetic (IN-krit-in) (mih-MET-ik): a type of injectable medicine for *diabetes* that mimics the effect of incretin *hormones*, a type of *gastrointestinal* hormone. This medicine helps food move more slowly through the stomach and helps keep the *liver* from releasing stored *glucose*. (Generic name/Brand name: *exenatide/Byetta*.)

inhaled insulin (in-HAYLD) (IN-suh-lin): a type of *insulin* under development taken with a special device that enables the user to breathe in insulin through the mouth.

injection (in-JEK-shuhn): inserting liquid medication or nutrients into the body with a *syringe*.

injection site rotation (in-JEK-shuhn) (syt) (roh-TAY-shuhn): changing the places on the body where *insulin* is injected. Rotation prevents the formation of *lipodystrophies*.

injection sites (in-JEK-shuhn) (syts): places on the body where *insulin* is injected.

insulin (IN-suh-lin): a *hormone* that helps the body use *glucose* for energy. The *beta cells* of the *pancreas* make insulin. When the body cannot make enough insulin, insulin must be taken by *injection* or other means.

insulin adjustment (IN-suh-lin) (uh-JUHST-ment): a change in the amount of *insulin* a person with *diabetes* takes based on factors such as meal planning, physical activity, and *blood glucose levels*.

insulin aspart (IN-suh-lin) (ASS-part): a rapid-acting *insulin* with an *onset* of 15 minutes, a *peak* at 30 to 90 minutes, and a *duration* of 3 to 5 hours. (Brand name: *NovoLog*.)

insulin-dependent diabetes mellitus (IDDM) (IN-suh-lin-duh-PEN-dent) (DY-uh-BEE-teez) (MEH-luh-tuhss): former term for *type 1 diabetes*.

insulin detemir (IN-suh-lin) (DET-ih-mihr): a long-acting *insulin* with an *onset* of 1 hour, no *peak*, and a *duration* of 20 to 26 hours. (Brand name: *Levemir*.)

insulin glargine (IN-suh-lin) (GLAR-jeen): a type of long-acting *insulin* with an *onset* of 1 hour, no *peak*, and a *duration* of 20 to 26 hours. (Brand name: *Lantus*.)

insulin glulisine (IN-suh-lin) (gloo-LY-seen): a type of rapid-acting *insulin* with an *onset* of 15 minutes, a *peak* at 30 to 90 minutes, and a *duration* of 3 to 5 hours. (Brand name: *Apidra*.)

insulin infuser (IN-suh-lin) (in-FYOO-zur): a device for taking *insulin* in which a small tube is inserted just below the skin and remains in place for several days. Insulin is injected into the end of the tube.

insulin lispro (IN-suh-lin) (LISS-proh): a type of rapid-acting *insulin* with an *onset* of 15 minutes, a *peak* at 30 to 90 minutes, and a *duration* of 3 to 5 hours. (Brand name: *Humalog*.)

I

insulinoma (IN-suh-lih-NOH-muh): a tumor of the *beta cells* in the *pancreas*. An insulinoma may cause the body to make extra *insulin*, leading to *hypoglycemia*.

insulin pen (IN-suh-lin) (pen): a device for injecting *insulin* that looks like a fountain pen and holds replaceable cartridges of insulin. Also available in disposable form.

insulin pump (IN-suh-lin) (puhmp): an *insulin*-delivering device about the size of a deck of cards that can be worn on a belt or kept in a pocket. An insulin pump connects to narrow, flexible plastic tubing that ends with a needle inserted just under the skin. Users set the pump to give a steady trickle or basal amount of insulin continuously throughout the day. Pumps release *bolus* doses of insulin at meals and at times when *blood glucose* is too high, based on doses set by the user.

insulin reaction (IN-suh-lin) (ree-AK-shuhn): when the level of *glucose* in the blood is too low (below 70 *mg/dL*). Also called *hypoglycemia*.

insulin receptors (IN-suh-lin) (ree-SEP-turz): areas on the outer part of a cell that allow the cell to bind with *insulin* in the blood. When the cell and insulin bind, the cell can take *glucose* from the blood and use it for energy.

insulin resistance (IN-suh-lin) (ree-ZISS-tuhnss): the body's inability to respond to and use the *insulin* it produces. Insulin resistance may be linked to *obesity*, *hypertension*, and high levels of *fat* in the blood.

insulin shock (IN-suh-lin) (shok): see *hypoglycemia*.

intensive therapy: a treatment for *diabetes* in which *blood glucose* is kept as close to normal as possible. Optimal *blood glucose levels* are reached through frequent *injections* of *insulin* or use of an *insulin pump*, meal planning, adjustment of medicines, and physical activity. People undergoing intensive therapy work closely with their health care team.

intermediate-acting insulin

(IN-tur-MEE-dee-uht-AKT-ing)
(IN-suh-lin): a type of *insulin* with an *onset* of 1 to 3 hours, a *peak* at 8 hours, and a *duration* of 12 to 16 hours. See *NPH insulin*.

intermittent claudication (IN-tur-MIT-ent) (CLAW-dih-KAY-

shuhn): pain that comes and goes in the muscles of the leg. This pain results from a lack of blood supply to the legs and usually happens when walking or exercising.

intramuscular injection (IN-truh-MUHSS-kyoo-lur) (in-JEK-shuhn): inserting liquid medication into a muscle with a *syringe*. *Glucagon* may be given by intramuscular or *subcutaneous injection* for *hypoglycemia*.

islet cell autoantibodies (ICAs)

(EYE-let) (sel) (AW-toh-AN-tih-bod-eez): *proteins* found in the blood of people newly diagnosed with *type 1 diabetes*. They are also found in people who may be developing type 1 diabetes. The presence of ICAs indicates the body's *immune system* has been damaging *beta cells* in the *pancreas*. The antibodies that are routinely tested for include *IAA*, *IA-2A*, *ICA512*, and *GAD65* (also called GAD or GADA).

islets (EYE-lets): groups of cells located in the *pancreas* that make *hormones* that help the body break down and use food. For example, *alpha cells* make *glucagon* and *beta cells* make *insulin*. Also called *islets of Langerhans*.

islets of Langerhans (EYE-lets) (uhv) (LAHNG-ur-hahnz): see *islets*.

islet transplantation (EYE-let) (TRANZ-plan-TAY-shuhn): moving the *islets* from a donor *pancreas* into a person whose pancreas has stopped producing *insulin*. *Beta cells* in the islets make the insulin that the body needs for using *blood glucose*.

J-K

Janumet (JAN-yoo-met): the brand name of an oral medicine used to treat *type 2 diabetes*; a combination of *sitagliptin phosphate* and *metformin*.

Januvia (juh-NOO-vee-uh): see *sitagliptin phosphate*.

jet injector (jet) (in-JEK-tur): a device that uses high pressure instead of a needle to propel *insulin* through the skin and into the body.

juvenile diabetes (JOO-vuh-nyl) (DY-uh-BEE-teez): former term for *insulin-dependent diabetes mellitus (IDDM)* or *type 1 diabetes*.

ketoacidosis (KEE-toh-ASS-ih-DOH-siss): see *diabetic ketoacidosis*.

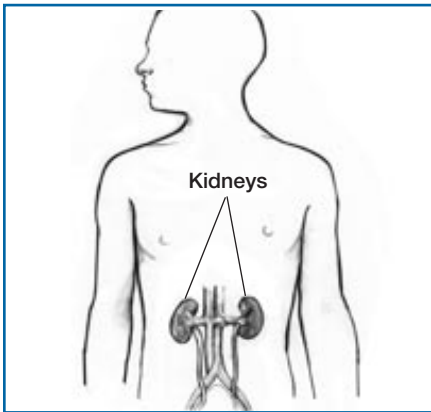
ketone (KEE-tohn): a chemical produced when there is a shortage of *insulin* in the blood and the body breaks down body *fat* for energy. High levels of ketones can lead to *diabetic ketoacidosis* and *coma*. Sometimes referred to as ketone bodies.

ketonuria (KEE-toh-NYOO-ree-uh): a condition occurring when *ketones* are present in the *urine*, a warning sign of *diabetic ketoacidosis*.

ketosis (kee-TOH-siss): a *ketone* buildup in the body that may lead to *diabetic ketoacidosis*. Signs of ketosis are nausea, vomiting, and stomach pain.

K-L

kidney: one of the two bean-shaped organs that filter wastes from the blood. The kidneys are located near the middle of the back, one on each side of the spine. They create *urine*, which is delivered to the bladder.



Kidneys

kidney disease: see *nephropathy*.

kidney failure: loss of *kidney* function. See *acute renal failure*, *chronic kidney disease*, and *end-stage renal disease*.

Kussmaul breathing (KOOS-moul) (BREE-thing): the rapid, deep, and labored breathing of people who have *diabetic ketoacidosis*.

lactic acidosis (LAK-tik) (ASS-ih-DOH-siss): a serious condition in which there is a buildup of lactic acid in the body. Lactic acidosis can result from *diabetic ketoacidosis*, *liver* disease, or *kidney disease*.

LADA (LAH-DUH): see *latent autoimmune diabetes in adults*.

lancet (LAN-set): a spring-loaded device used to prick the skin with a small needle to obtain a drop of blood for *blood glucose monitoring*.

Lantus (LAN-tuhss): see *insulin glargine*.

laser treatment: a type of therapy that uses a strong beam of light to treat a damaged area. The beam of light is called a laser. A laser is sometimes used to seal *blood vessels* in the eye of a person with *diabetes*. See *photocoagulation*.

L

latent autoimmune diabetes in adults (LADA) (LAY-tent) (AW-toh-ih-MYOON) (DY-uh-BEE-teez) (in) (uh-DUHLTS): a type of *diabetes*, usually first diagnosed after age 30, in which people show signs of both *type 1 diabetes* and *type 2 diabetes*. Most people with LADA still produce their own *insulin* when first diagnosed and do not require insulin *injections*. Some experts believe that LADA is a slowly developing kind of type 1 diabetes because patients have *antibodies* against the insulin-producing *beta cells* in the *pancreas*. Several years after diagnosis, people with LADA must take insulin to control *blood glucose levels*.

LDL cholesterol (EL-DEE-EL) (koh-LESS-tur-ol): stands for low-density lipoprotein *cholesterol*; a *fat* found in the blood that takes cholesterol around the body to where it is needed for cell repair and also deposits it on the inside of *artery* walls. Sometimes called “bad” cholesterol.

Levemir (LEV-uh-mihr): see *insulin detemir*.

limited joint mobility: a condition in which the joints swell and the skin of the hand becomes thick, tight, and waxy, making the joints less able to move. It may affect the fingers and arms as well as other joints in the body.

lipid (LIP-id): a term for *fat* in the body. Lipids can be broken down by the body and used for energy.

lipid profile (LIP-id) (PROH-fyl): a blood test that measures total *cholesterol*, *triglycerides*, and *HDL cholesterol*. *LDL cholesterol* is then calculated from the results. A lipid profile is one measure of a person’s risk of *cardiovascular disease*.

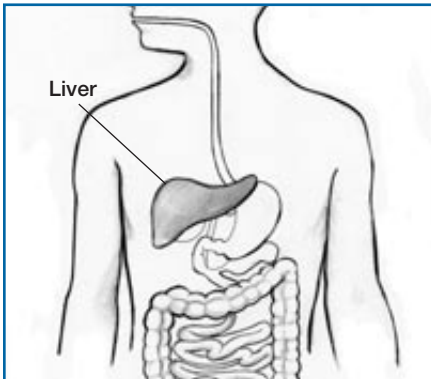
lipoatrophy (LIP-oh-AT-roh-fee): loss of *fat* under the skin resulting in small dents. Lipoatrophy may be caused by repeated *injections* of *insulin* in the same spot.

L

lipodystrophy (LIP-oh-DISS-troh-fee): a defect in the breaking down or building up of *fat* below the surface of the skin, resulting in lumps or small dents in the skin surface. Lipodystrophy may be caused by repeated *injections* of *insulin* in the same spot. See *lipoatrophy* and *lipohypertrophy*.

lipohypertrophy (LIP-oh-hy-PUR-troh-fee): buildup of *fat* below the surface of the skin, causing lumps. Lipohypertrophy may be caused by repeated *injections* of *insulin* in the same spot.

liver: an organ in the body that changes food into energy, removes alcohol and poisons from the blood, and makes bile, a substance that breaks down *fats* and helps rid the body of wastes.



Liver

long-acting insulin (long-AK-ting) (IN-suh-lin): a type of *insulin* with an *onset* of 1 hour, no *peak*, and a *duration* of 20 to 26 hours. See *insulin detemir* and *insulin glargine*.

low blood glucose (loh) (bluhd) (GLOO-kohss): see *hypoglycemia*.

low blood pressure: see *hypotension*.

low-density lipoprotein cholesterol (LOH-DEN-sih-tee) (LIP-oh-PROH-teen) (koh-LESS-tur-ol): see *LDL cholesterol*.

lymphatic vessels (lim-FAT-ik) (VESS-uhlz): thin tubes in the body that carry white blood cells and lymphatic fluid. Lymphatic fluid has cells that fight infection.

M

macrosomia (MAK-roh-SOH-mee-uh): abnormally large; in *diabetes*, refers to abnormally large babies that may be born to women with diabetes.



Macrosomia

macrovascular disease (MAK-roh-VASS-kyoo-lur) (dih-ZEEZ): disease of the large *blood vessels*, such as those found in the heart. *Lipids* and blood clots build up in the large blood vessels and can cause *atherosclerosis*, *coronary heart disease*, *stroke*, and *peripheral arterial disease*.

macula (MAK-yoo-luh): the part of the *retina* in the eye used for reading and seeing fine detail.

macular edema (MAK-yoo-lur) (eh-DEE-muh): swelling of the *macula*.

maturity-onset diabetes of the young (MODY) (muh-CHUR-ih-tee-AWN-set) (DY-uh-BEE-teez) (uhv) (thuh) (yuhng): a *monogenic* form of *diabetes* that usually first occurs during adolescence or early adulthood.

meglitinide (meh-GLIH-tih-nyd): a type of oral medicine for *type 2 diabetes* that lowers *blood glucose* by helping the *pancreas* make more *insulin* right after meals. (Generic name/Brand name: *repaglinide/Prandin*.)

metabolic syndrome (MET-uh-BOL-ik) (SIN-droh-m): a grouping of health conditions associated with an increased risk for heart disease and *type 2 diabetes*. Conditions include *hypertension*, a large waist, high *triglyceride* levels, low *HDL cholesterol* levels, and above-normal *blood glucose levels*. Metabolic syndrome was previously called *Syndrome X*.

metabolism (meh-TAB-oh-lizm): all of the chemical and physical processes in the body necessary for life. Processes include breaking down food for energy and producing needed substances.

Metaglip (MET-uh-glip): the brand name of an oral medicine used to treat *type 2 diabetes*; a combination of *glipizide* and *metformin*.

metformin (met-FOR-min): an oral medicine used to treat *type 2 diabetes*. Metformin lowers *blood glucose* by reducing the amount of *glucose* produced by the *liver* and helping the body respond better to the *insulin* made in the *pancreas*. Metformin belongs to the class of medicines called *biguanides*. (Brand names: *Glucophage*, *Glucophage XR*, *Riomet*.)

mg/dL: milligrams per deciliter (MIL-ih-gramz) (pur) (DESS-ih-lee-tur); a unit of measure that shows the concentration of a substance in a specific amount of fluid. In the United States, *blood glucose* test results are reported as mg/dL. Medical journals and other countries use millimoles per liter (*mmol/L*). To convert to mg/dL from mmol/L, multiply mmol/L by 18. Example:
 $10 \text{ mmol/L} \times 18 = 180 \text{ mg/dL}$.

microalbumin (MY-kroh-al-BYOO-min): small amounts of the *protein* called *albumin* in the *urine* detectable with a special laboratory test. See *albumin*.

microaneurysm (MY-kroh-AN-yoo-rizm): a small swelling that forms on the side of tiny *blood vessels*. These small swellings may break and allow blood to leak into nearby tissue. People with *diabetes* may get microaneurysms in the *retina* of the eye.

Micronase (MY-kroh-nayz): see *glyburide*.

microvascular disease (MY-kroh-VASS-kyoo-lur) (dih-ZEEZ): disease of the smallest *blood vessels*, such as those found in the eyes, nerves, and *kidneys*. The walls of the vessels become abnormally thick but weak. Then they bleed, leak *protein*, and slow the flow of blood to the cells.

miglitol (MIG-lih-tol): an oral medicine used to treat *type 2 diabetes*. Miglitol slows down the digestion of foods high in *carbohydrate*, such as rice, bread, milk, and fruit. The result is a slower and lower rise in *blood glucose* after meals. Miglitol belongs to the class of medicines called *alpha-glucosidase inhibitors*. (Brand name: *Glyset*.)

M

mixed dose: a combination of two types of *insulin* in one *injection*. Usually a *rapid-* or *short-acting insulin* is combined with a longer-acting insulin to provide both short- and long-term control of *blood glucose levels*.

mmol/L: millimoles per liter (MIL-ih-mohlz) (pur) (LEE-tur); a unit of measure that shows the concentration of a substance in a specific amount of fluid. In most of the world, except for the United States, *blood glucose* test results are reported as mmol/L. In the United States, milligrams per deciliter (*mg/dL*) is used. To convert to mmol/L from mg/dL, divide mg/dL by 18. Example: $180 \text{ mg/dL} \div 18 = 10 \text{ mmol/L}$.

MODY (MOH-dee): see *maturity-onset diabetes of the young*.

monitor: see *blood glucose meter*.

monofilament (MON-oh-FIL-uh-ment): a short piece of nylon, like a hairbrush bristle, mounted on a wand. To check sensitivity of the nerves in the foot, the doctor touches the filament to the bottom of the foot.

monogenic (MON-oh-JEN-ik): related to a single gene. Some rare forms of *diabetes* are monogenic, including *neonatal diabetes mellitus* and *maturity-onset diabetes of the young (MODY)*.

mononeuropathy (MON-oh-noo-ROP-uh-thee): a type of *neuropathy* affecting a single nerve.

myocardial infarction (MY-oh-KAR-dee-uhl) (in-FARK-shuhn): see *heart attack*.

NAFLD (EN-AY-EF-EL-DEE):
see *nonalcoholic fatty liver disease*.

NASH (nuhsh): see *nonalcoholic steatohepatitis*.

nateglinide (nuh-TEG-lih-nyd):
an oral medicine used to treat
type 2 diabetes. Nateglinide
lowers *blood glucose levels* by
helping the *pancreas* make
more *insulin* right after meals.
Nateglinide belongs to the
class of medicines called
D-phenylalanine derivatives.
(Brand name: *Starlix*.)

NDM: see *neonatal diabetes mellitus*.

necrobiosis lipoidica diabetorum
(NEK-roh-by-OH-siss) (lih-
POY-dih-kuh) (DY-uh-bet-ih-
KOR-uhm): a skin condition
usually on the lower part of the
legs. Lesions can be small or
extend over a large area. They
are usually raised, yellow, and
waxy in appearance and often
have a purple border.

neonatal diabetes mellitus (NDM)
(NEE-oh-NAY-tuhl) (DY-uh-
BEE-teez) (MEH-luh-tuhss): a
rare, *monogenic* form of *diabetes*
that occurs in the first 6 months
of life. In about half of those
with NDM, the condition is
lifelong and is called *permanent*
neonatal diabetes mellitus (PNDM).

In the rest of those with NDM,
the condition is transient and
disappears during infancy but
can reappear later in life; this
type of NDM is called *transient*
neonatal diabetes mellitus
(*TNDM*).

neotame (NEE-oh-taym): a dietary
sweetener with no *calories* and
no nutritional value.

neovascularization (NEE-oh-
VASS-kyoo-lar-ih-ZAY-shuhn):
the growth of new, small *blood*
vessels. In the *retina*, this may
lead to vision loss or blindness.

nephrologist (neh-FROL-uh-jist):
a doctor who treats people who
have *kidney* problems.

nephropathy (neh-FROP-uh-
thee): disease of the *kidneys*.
Hyperglycemia and *hypertension*
can damage the kidneys’
glomeruli. When the kidneys
are damaged, *protein* leaks out
of the kidneys into the *urine*.
Damaged kidneys can no longer
remove wastes and extra fluid
from the bloodstream.

nerve conduction studies: tests
used to measure for nerve
damage; one way to diagnose
neuropathy.

nerve disease: see *neuropathy*.

N

neurogenic bladder (NOO-roh-JEN-ik) (BLAD-ur): loss of bladder control caused by damage to the nerves controlling the bladder.

neurologist (noo-ROL-uh-jist): a doctor who specializes in problems of the nervous system, such as *neuropathy*.

neuropathy (noo-ROP-uh-thee): disease of the nervous system. The three major forms in people with *diabetes* are *peripheral neuropathy*, *autonomic neuropathy*, and *mononeuropathy*. The most common form is peripheral neuropathy, which affects the legs and feet.

NIDDM (EN-EYE-DEE-DEE-EM): see *noninsulin-dependent diabetes mellitus*.

nonalcoholic fatty liver disease (NAFLD) (NON-al-koh-HOL-ik) (FAT-ee) (LIV-ur) (dih-ZEEZ): *fat* in the *liver*. NAFLD can lead to *nonalcoholic steatohepatitis (NASH)* and *chronic* liver disease. NAFLD can be a complication of *insulin resistance* and *diabetes*.

nonalcoholic steatohepatitis (NASH) (NON-al-koh-HOL-ik) (STEE-uh-toh-HEP-uh-TY-tiss): a common *liver* disease, often without symptoms, that resembles alcoholic liver disease but occurs in people who drink little or no alcohol. The major characteristic of NASH is *fat* in the liver, along with inflammation and damage. NASH can be a complication of *insulin resistance* and *diabetes*.

noninsulin-dependent diabetes mellitus (NIDDM) (NON-IN-suh-lin-duh-PEN-dent) (DY-uh-BEE-teez) (MEH-luh-tuhss): former term for *type 2 diabetes*.

noninvasive blood glucose monitoring (NON-in-VAY-siv) (bluhd) (GLOO-kohss) (MON-ih-TUR-ing): measuring *blood glucose* without pricking the finger to obtain a blood sample.

N-O

Novolin 70/30 (NOH-voh-lin):
see *pre-mixed insulin*.

Novolin N (NOH-voh-lin):
see *NPH insulin*.

Novolin R (NOH-voh-lin):
see *regular insulin*.

NovoLog (NOH-voh-lawg):
see *insulin aspart*.

NovoLog Mix 70/30 (NOH-voh-lawg) (mix): see *pre-mixed insulin*.

NPH insulin (EN-PEE-AYCH)
(IN-suh-lin): an intermediate-acting *insulin* with an *onset* of 1 to 3 hours, a *peak* at 8 hours, and a *duration* of 12 to 16 hours. Also called N insulin. (Brand names: *Humulin N*, *Novolin N*.)

nutritionist (noo-TRISH-uh-nist): a person with training in nutrition; may or may not have specialized training and qualifications. See *dietitian*.

obesity (oh-BEE-sih-tee): a condition in which a greater than normal amount of *fat* is in the body; more severe than *overweight*; having a *body mass index* of 30 or more.

obstetrician (OB-stuh-TRISH-uhn): a doctor who treats pregnant women and delivers babies.

OGTT: see *oral glucose tolerance test*.

onset: in referring to *insulin*, how soon the insulin starts to lower *blood glucose levels* after it is taken. Onset may also refer to the time when a person's *diabetes* began.

ophthalmologist (AHF-thal-MOL-uh-jist): a medical doctor who diagnoses and treats all eye diseases and eye disorders. Ophthalmologists can also prescribe glasses and contact lenses.



Ophthalmologist

O

optician (op-TISH-uhn): a health care professional who dispenses glasses and lenses. An optician also makes and fits contact lenses.

optometrist (op-TOM-uh-trist): a primary eye care provider who prescribes glasses and contact lenses. Optometrists can diagnose and treat certain eye conditions and diseases.

oral glucose tolerance test (OGTT) (OR-uhl) (GLOO-kohss) (TOL-ur-uhns) (test): a test to diagnose *pre-diabetes* and *diabetes*. The oral glucose tolerance test is given by a health care professional after an overnight fast. A blood sample is taken and then the patient drinks a high-*glucose* beverage. Blood samples are taken at hourly intervals for 2 to 3 hours. Test results are compared with a standard and show how the body uses glucose over time.

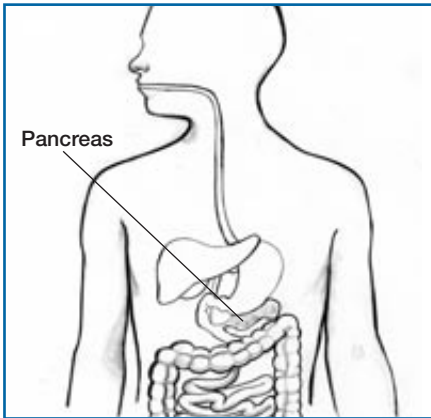
oral hypoglycemic agents

(OR-uhl) (HY-poh-gly-SEE-mik) (AY-jents): medicines taken by mouth by people with *type 2 diabetes* to keep *blood glucose levels* as close to normal as possible. Types of oral hypoglycemic agents are *alpha-glucosidase inhibitors*, *biguanides*, *D-phenylalanine derivatives*, *DPP-4 inhibitors*, *meglitinides*, *sulfonylureas*, and *thiazolidinediones*.

overweight: an above-normal body weight; having a *body mass index* of 25 to 29.

PAD (PEE-AY-DEE): see *peripheral arterial disease*.

pancreas (PAN-kree-uhss): an organ that makes *insulin* and *enzymes* for digestion. The pancreas is located behind the lower part of the stomach and is about the size of a hand.



Pancreas

pancreas transplantation (PAN-kree-uhss) (TRANZ-plan-TAY-shuhn): a surgical procedure to take a healthy whole or partial *pancreas* from a donor and place it into a person with *diabetes*.

pancreatitis (PAN-kree-uh-TY-tiss): an irritation of the *pancreas* that can cause it to stop working. Pancreatitis can be *acute* or *chronic*. *Diabetes* may develop when pancreatic tissue is destroyed from chronic pancreatitis and the *insulin*-producing cells of the pancreas, called *beta cells*, have been damaged. Pancreatitis can also occur as a side effect of the diabetes medication *exenatide* (*Byetta*).

PCOS (PEE-SEE-OH-ESS): see *polycystic ovary syndrome*.

peak: in referring to *insulin* speeds, the length of time the insulin is working hardest to lower *blood glucose levels*.

pediatric endocrinologist (PEE-dee-AT-rik) (en-doh-krih-NAH-luh-jist): a doctor who treats children who have *endocrine gland* problems such as *diabetes*.

pedorthist (ped-OR-thist): a health care professional who specializes in fitting shoes for people with disabilities or deformities. A pedorthist can custom-make shoes or orthotics (special inserts for shoes).

P

pen injector (pen) (in-JEK-tur): a penlike device for injecting *insulin*; contains a needle and a cartridge of insulin.

periodontal disease (PAIR-ee-oh-DON-tuhl) (dih-ZEEZ): disease of the gums.

periodontist (PAIR-ee-oh-DON-tist): a dentist who specializes in treating people who have gum diseases.

peripheral arterial disease (PAD) (puh-RIF-ur-uhl) (ar-TEE-ree-uhl) (dih-ZEEZ): also called *peripheral vascular disease*; a condition in which the large *blood vessels* of the legs are narrowed or blocked by fatty deposits, decreasing blood flow to the legs and feet. PAD increases the chances of amputation, *heart attack*, and *stroke*.

peripheral neuropathy (puh-RIF-ur-uhl) (noo-ROP-uh-thee): nerve damage that affects the feet, legs, or hands. Peripheral neuropathy causes pain, numbness, or a tingling feeling.

peripheral vascular disease (PVD) (puh-RIF-ur-uhl) (VASS-kyoo-lur) (dih-ZEEZ): see *peripheral arterial disease*.

peritoneal dialysis (PAIR-ih-toh-NEE-uhl) (dy-AL-ih-siss): see *dialysis*.

permanent neonatal diabetes mellitus (PNDM) (PUR-muh-nent) (NEE-oh-NAY-tuhl) (DY-uh-BEE-teez) (MEH-luh-tuhss): a rare, *monogenic* form of *diabetes* that first occurs in the first 6 months of life and is a permanent condition.

pharmacist (FAR-muh-sist): a health care professional who prepares and distributes medicine to people. Pharmacists also give information about medicines.



Pharmacist

photocoagulation (FOH-toh-koh-AG-yoo-LAY-shuhn): a treatment for *diabetic retinopathy*. A laser—a strong beam of light—is used to seal off bleeding *blood vessels* in the eye and to burn away extra blood vessels that should not have grown there.

pioglitazone (py-oh-GLIH-tuh-zohn): an oral medicine used to treat *type 2 diabetes*. Pioglitazone helps treat *insulin resistance*, the condition in which your body doesn't use *insulin* the way it should. Pioglitazone belongs to the class of medicines called *thiazolidinediones*. (Brand name: *Actos*.)

PNDM: see *permanent neonatal diabetes mellitus*.

podiatrist (poh-DY-uh-trist): a doctor who treats people who have foot problems. Podiatrists also help people keep their feet healthy by providing regular foot examinations and treatment.

podiatry (poh-DY-uh-tree): the care and treatment of feet.

point system: a meal-planning system that uses points to rate the caloric content of foods.

polycystic ovary syndrome (PCOS) (POL-ee-SISS-tik) (OH-vuh-ree) (SIN-droh-m): a condition in which women have high levels of male *hormones*, increasing the risk of irregular or absent menstrual cycles, infertility, *obesity*, ovarian cysts, heart disease, and *diabetes*. PCOS is associated with *insulin resistance*.

polydipsia (POL-ee-DIP-see-uh): excessive thirst; may be a sign of *diabetes*.

polyphagia (POL-ee-FAY-jee-uh): excessive hunger; may be a sign of *diabetes*.

polyuria (POL-ee-YOO-ree-uh): excessive urination; may be a sign of *diabetes*.

postprandial blood glucose (pohst-PRAN-dee-uhl) (bluhd) (GLOO-kohss): the *blood glucose level* 1 to 2 hours after eating.

pramlintide acetate (PRAM-lin-tyd) (ASS-ih-tayt): an injectable medicine used to treat *diabetes*. Pramlintide helps food move more slowly through the stomach and helps keep the *liver* from releasing stored *glucose*. Pramlintide belongs to the class of medicines called *amylin mimetics*. (Brand name: *Symlin*.)

P

Prandin (PRAN-din): see *repaglinide*.

Precose (PREE-kohss): see *acarbose*.

pre-diabetes (PREE-dy-uh-BEE-teez): a condition in which *blood glucose levels* are higher than normal but are not high enough for a diagnosis of *diabetes*. People with pre-diabetes are at increased risk for developing *type 2 diabetes*, heart disease, and *stroke*. Other names for pre-diabetes are *impaired glucose tolerance* and *impaired fasting glucose*.

pre-mixed insulin (PREE-MIKSD) (IN-suh-lin): a commercially produced combination of two different types of *insulin*. Several types are available:

- Pre-mixed *NPH* and *regular insulin*:
 - 70 percent NPH and 30 percent regular (Brand names: *Humulin 70/30*, *Novolin 70/30*.)
 - 50 percent NPH and 50 percent regular (Brand name: *Humulin 50/50*.)
- Pre-mixed *insulin lispro* suspension and insulin lispro:
 - 75 percent insulin lispro protamine and 25 percent insulin lispro (Brand name: *Humalog Mix 75/25*.)
 - 50 percent insulin lispro protamine and 50 percent insulin lispro (Brand name: *Humalog Mix 50/50*.)
- Pre-mixed *insulin aspart* protamine suspension and insulin aspart:
 - 70 percent insulin aspart protamine and 30 percent insulin aspart (Brand name: *NovoLog Mix 70/30*.)

preprandial blood glucose (pre-PRAN-dee-uhl) (bluhd) (GLOO-kohss): the *blood glucose level* before eating.

prevalence (PREV-uh-luhns): the number of people in a given group or population who are reported to have a disease.

P

proinsulin (proh-IN-suh-lin): the substance made first in the *pancreas* and then broken into several pieces to become *insulin*.

proliferative retinopathy (proh-LIF-ur-uh-tiv) (RET-ih-NOP-uh-thee): a condition in which fragile new *blood vessels* grow along the *retina* and in the *vitreous humor* of the eye.

prosthesis (pross-THEE-siss): a man-made substitute for a missing body part such as an arm or a leg.

protein (PROH-teen): 1. one of the three main nutrients in food. Foods that provide protein include meat, poultry, fish, cheese, milk, dairy products, eggs, and dried beans. 2. proteins are also used in the body for cell structure, *hormones* such as *insulin*, and other functions.



Sources of protein

proteinuria (proh-teen-YOO-ree-uh): a condition in which the *urine* contains large amounts of *protein*, a sign that the *kidneys* are not working properly.

proximal neuropathy (PROK-sih-muhl) (noo-ROP-uh-thee): a type of *neuropathy* that causes pain in the thighs, hips, or buttocks and leads to weakness in the legs.

pump: see *insulin pump*.

R

rapid-acting insulin (RA-pid-AK-ting) (IN-suh-lin): a type of *insulin* with an *onset* of 15 minutes, a *peak* at 30 to 90 minutes, and a *duration* of 3 to 5 hours. See *insulin aspart*, *insulin glulisine*, and *insulin lispro*.

rebound hyperglycemia (REE-bound) (HY-pur-gly-SEE-mee-uh): see *Somogyi effect*.

receptors (ree-SEP-turz): see *insulin receptors*.

Recognized Diabetes Education Programs (REH-kig-NYZD) (DY-uh-BEE-teez) (EH-juh-KAY-shuhn) (PROH-gramz): *diabetes self-management* education programs that are approved by the American Diabetes Association.

regular insulin (REH-gyuh-lur) (IN-suh-lin): a short-acting *insulin* with an *onset* of 30 to 60 minutes, a *peak* of 2 to 4 hours, and a *duration* of 5 to 8 hours. Also called R insulin. (Brand names: *Humulin R*, *Novolin R*.)

renal (REE-nuhl): of or relating to the *kidneys*. A renal disease is a disease of the kidneys. Renal failure means the kidneys have stopped working.

renal threshold of glucose (REE-nuhl) (THRESH-ohld) (uhv) (GLOO-kohss): the *blood glucose* concentration at which the *kidneys* start to excrete *glucose* into the *urine*.

repaglinide (ruh-PAG-luh-nyd): an oral medicine used to treat *type 2 diabetes*. Repaglinide lowers *blood glucose* by helping the *pancreas* make more *insulin* right after meals. Repaglinide belongs to the class of medicines called *meglitinides*. (Brand name: *Prandin*.)

retina (RET-ih-nuh): the light-sensitive layer of tissue that lines the back of the eye.

retinal hemorrhages (RET-ih-nuhl) (HEM-uh-ruhj-ez): bleeding *blood vessels* in the *retina*, which can cause *protein* deposits, or exudates, in the retina. Laser surgery is required to prevent blindness. Retinal hemorrhage is a common form of *diabetic retinopathy*.

R-S

retinopathy (RET-ih-NOP-uh-thee): see *background retinopathy*, *proliferative retinopathy*, and *diabetic retinopathy*.

R insulin (AR) (IN-suh-lin): see *regular insulin*.

Riomet (RY-oh-met): see *metformin*.

risk factor: anything that raises the chances of a person developing a disease.

rosiglitazone (rohss-ih-GLIH-tuh-zohn): an oral medicine used to treat *type 2 diabetes*. Rosiglitazone helps treat *insulin resistance*, the condition in which your body doesn't use *insulin* the way it should. Rosiglitazone belongs to the class of medicines called *thiazolidinediones*. (Brand name: *Avandia*.)

saccharin (SAK-uh-rin): a dietary sweetener with no *calories* and no nutritional value.

saturated fat: a type of dietary *fat* that can increase the risk of heart disease. Saturated fat is found in meat, poultry skin, butter, lard, shortening, and all milk and dairy products except fat-free versions.

secondary diabetes (SEK-uhn-DAIR-ee) (DY-uh-BEE-teez): a type of *diabetes* caused by another disease or certain drugs or chemicals.

self-management: the ongoing process of managing *diabetes*. Includes meal planning, planned physical activity, *blood glucose monitoring*, taking diabetes medicines, handling episodes of illness and of *low blood glucose* and *high blood glucose*, managing diabetes when traveling, and more. The person with diabetes designs his or her own self-management treatment plan in consultation with a variety of health care professionals such as doctors, nurses, *dietitians*, *pharmacists*, and others.

sharps container: a container for the disposal of used needles and *syringes*; often made of hard plastic so needles cannot penetrate the container.

S

short-acting insulin (short-AK-ting) (IN-suh-lin): a type of *insulin* with an *onset* of 30 to 60 minutes, a *peak* at 2 to 4 hours, and a *duration* of 5 to 8 hours. See *regular insulin*.

side effects: the unintended action(s) of a drug.

sitagliptin phosphate (sih-tuh-GLIP-tin) (FOSS-fayt): an oral medicine used to treat *type 2 diabetes*. Sitagliptin lowers *blood glucose* by helping the body make more *insulin* when it's needed. It also helps keep the *liver* from putting stored *glucose* into the blood. Sitagliptin belongs to the class of medicines called *DPP-4 inhibitors*. (Brand name: *Januvia*.)

sliding scale: a set of instructions for adjusting *insulin* on the basis of *blood glucose* test results, meals, or activity levels.

Somogyi effect (soh-MOH-jee) (uh-FEKT): when the *blood glucose level* swings high following *low blood glucose*, or *hypoglycemia*. The Somogyi effect may follow an untreated hypoglycemic episode during the night and is caused by the release of stress *hormones*. Also called *rebound hyperglycemia*.

sorbitol (SOR-bih-tol): 1. a *sugar alcohol*—a sweetener—with 4 *calories* per *gram*. 2. a substance produced by the body in people with *diabetes* that can cause damage to the eyes and nerves.

split mixed dose: division of a prescribed daily dose of *insulin* into two or more *injections* given over the course of the day.

starch: another name for *carbohydrate*, one of the three main nutrients in food.

Starlix (STAR-likes): see *nateglinide*.

stroke: a condition in which the blood supply to the brain is suddenly cut off, caused by a blockage or the bursting of a *blood vessel* in the brain or neck. Then brain tissue can be damaged. A stroke can cause a person to lose the ability to speak or move parts of the body.

subcutaneous injection (SUHB-kyoo-TAY-nee-uhss) (in-JEK-shuhn): putting a fluid into the tissue under the skin with a needle and *syringe*.

sucralose (SOO-kruh-LOHSS): a dietary sweetener made from *sugar* but with no *calories* and no nutritional value.

sucrose (SOO-krohss): a two-part *sugar* made of *glucose* and *fructose*. Known as table sugar or white sugar, it is found naturally in sugar cane and beets.

sugar: 1. a class of *carbohydrates* with a sweet taste; includes *glucose*, *fructose*, and *sucrose*.
2. a term used to refer to *blood glucose*.

sugar alcohols: sweeteners that produce a smaller rise in *blood glucose* than other *carbohydrates*. Their *calorie* content is about 2 calories per *gram*. Includes erythritol, hydrogenated starch hydrolysates, isomalt, lactitol, maltitol, mannitol, *sorbitol*, and *xylitol*. Also known as polyols.

sugar diabetes (SHU-gur) (DY-uh-BEE-teez): former term for *diabetes mellitus*.

sulfonylurea (SUHL-foh-nil-yoo-REE-uh): a class of oral medicine for *type 2 diabetes* that lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. (Generic names/Brand names: *chlorpropamide/Diabinese*; *glimepiride/Amaryl*; *glipizide/Glucotrol*, *Glucotrol XL*; *glyburide/DiaBeta*, *Glynase PresTab*, *Micronase*; *tolazamide* [generic only]; *tolbutamide* [generic only].)

Sunett (SOO-net): see *acesulfame potassium*.

Symlin (SIM-lin): see *pramlintide acetate*.

Syndrome X: see *insulin resistance* and *metabolic syndrome*.

syringe (suh-RINJ): a device used to inject medications or other liquids into *body tissues*. The syringe for *insulin* has a hollow plastic tube with a plunger inside and a needle on the end.



Syringe

systolic pressure (siss-TOL-ik) (PRESH-ur): the *blood pressure* when the heart pushes blood out into the *arteries*.

T

team management: a *diabetes* treatment approach in which medical care is provided by a team of health care professionals including a doctor, *dietitian*, nurse, *diabetes educator*, and others. The team provides information and advises the person with diabetes.

thiazolidinedione (THY-uh-ZOHL-ih-deen-DY-ohn): a class of oral medicine for *type 2 diabetes* that helps *insulin* take *glucose* from the blood into the cells for energy by making cells more sensitive to insulin. (Generic names/Brand names: *pioglitazone/Actos*; *rosiglitazone/Avandia*.)

TIA (TEE-EYE-AY): see *transient ischemic attack*.

tight control: see *intensive therapy*.

tinea pedis (TIN-ee-uh) (PEE-diss): see *athlete's foot*.

TNDM: see *transient neonatal diabetes mellitus*.

tolazamide (tol-AZ-uh-myd): an oral medicine used to treat *type 2 diabetes*. Tolazamide lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Tolazamide belongs to the class of medicines called *sulfonylureas*. (Available only in generic form.)

tolbutamide (tol-BYOO-tuh-myd): an oral medicine used to treat *type 2 diabetes*. Tolbutamide lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Tolbutamide belongs to the class of medicines called *sulfonylureas*. (Available only in generic form.)

trans fat: a type of dietary *fat* that increases the risk of heart disease. Trans fat is produced when liquid oils are turned into solids through a process called hydrogenation. Foods with trans fat include those listing hydrogenated or partially hydrogenated fat on the label, such as crackers, snack foods, commercially produced baked goods, and some stick margarines.

transient ischemic attack (TIA) (TRANZ-see-uhnt) (iss-KEE-mik) (uh-TAK): a condition in which blood flow to the brain is temporarily blocked. TIAs can cause temporary weakness or numbness, sudden confusion, dizziness, vision problems, or severe headache.

transient neonatal diabetes mellitus (TNDM) (TRANZ-see-uhnt) (NEE-oh-NAY-tuhl) (DY-uh-BEE-teez) (MEH-luh-tuhss): a rare, *monogenic* form of *diabetes* that occurs in the first 6 months of life. TNDM disappears during infancy but can reappear later in life.

transplant (TRANZ-plant): replacement of a damaged or diseased organ with a healthy one.

triglyceride (try-GLISS-ur-eyed): the storage form of *fat* in the body. High triglyceride levels may occur when *diabetes* is out of control.

type 1 diabetes (typ) (whuhn) (DY-uh-BEE-teez): a condition characterized by high *blood glucose levels* caused by a total lack of *insulin*. Occurs when the body's *immune system* attacks the insulin-producing *beta cells* in the *pancreas* and destroys them. The pancreas then produces little or no insulin. Type 1 diabetes develops most often in young people but can appear in adults.

type 2 diabetes (typ) (too) (DY-uh-BEE-teez): a condition characterized by high *blood glucose levels* caused by either a lack of *insulin* or the body's inability to use insulin efficiently. Type 2 diabetes develops most often in middle-aged and older adults but can appear in children, teens, and young people.

type I diabetes (typ) (whuhn) (DY-uh-BEE-teez): former term for *type 1 diabetes*.

type II diabetes (typ) (too) (DY-uh-BEE-teez): former term for *type 2 diabetes*.

U

U-100 (YOO-whuhn-HUHN-dred): see *unit of insulin*.

UKPDS: see *United Kingdom Prospective Diabetes Study*.

ulcer (UHL-sur): a deep, open sore or break in the skin.

United Kingdom Prospective Diabetes Study (UKPDS) (yoo-NY-ted) (KING-duhm) (pruh-SPEK-tiv) (STUHD-ee): a British study conducted from 1977 to 1997 in people with *type 2 diabetes*. The study showed that if people lowered their *blood glucose*, they lowered their risk of eye disease and *kidney* damage. In addition, those with type 2 diabetes and *hypertension* who lowered their *blood pressure* also reduced their risk of *stroke*, eye damage, and death from long-term *complications*.

unit of insulin (YOO-nit) (uhv) (IN-suh-lin): the basic measure of *insulin*. *U-100* insulin means 100 units of insulin per milliliter (mL) or cubic centimeter (cc) of solution. Most insulin made today in the United States is U-100.

urea (yoo-REE-uh): a waste product found in the blood that results from the normal

breakdown of *protein* in the *liver*. Urea is normally removed from the blood by the *kidneys* and then excreted in the *urine*.

uremia (yoo-REE-mee-uh): the illness associated with the buildup of *urea* in the blood because the *kidneys* are not working effectively. Symptoms include nausea, vomiting, loss of appetite, weakness, and mental confusion.

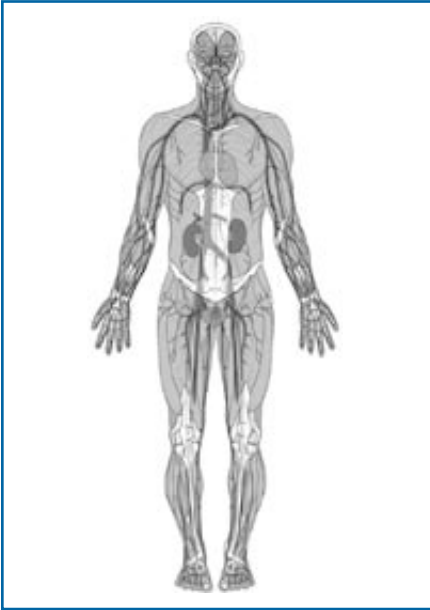
urinalysis (YOOR-ih-NAL-ih-siss): a test of a *urine* sample that can reveal many problems of the urinary tract and other body systems. The sample may be observed for color, cloudiness, concentration; signs of drug use; chemical composition, including *glucose*; the presence of *protein*, blood cells, or germs; or other signs of disease.

urine (YOOR-in): liquid waste product filtered from the blood by the *kidneys*, stored in the bladder, and expelled from the body by the act of urinating.

urologist (yoo-ROL-uh-jist): a doctor who treats people who have urinary tract problems. A urologist also cares for men who have problems with their genital organs, such as *erectile dysfunction*.

vaginal yeast (VAJ-ih-nuhl) (yeest): see *Candida*.

vascular (VASS-kyoo-lur): relating to the body's *blood vessels*.



Vascular system

vein (vayn): a *blood vessel* that carries blood to the heart.

very-low-density lipoprotein (VLDL) cholesterol (VAIR-ee-loh-DEN-sih-tee) (LIP-oh-PROH-teen) (koh-LESS-tur-ol): see *VLDL cholesterol*.

vitrectomy (vih-TREK-tuh-mee): surgery to restore sight in which the surgeon removes the cloudy *vitreous humor* in the eye and replaces it with a salt solution.

vitreous humor (VIT-ree-uhss) (HYOO-mur): the clear gel that lies behind the eye's lens and in front of the *retina*.

VLDL cholesterol (VEE-EL-DEE-EL) (koh-LESS-tur-ol): stands for very-low-density lipoprotein *cholesterol*. A form of cholesterol in the blood. High levels may be related to *cardiovascular disease*.

void (voyd): to urinate; to empty the bladder.

W-X

wound care: steps taken to ensure a wound such as a foot *ulcer* heals correctly. People with *diabetes* need to take special precautions so wounds do not become infected.

xylitol (ZY-lih-tol): a *carbohydrate*-based sweetener found in plants and used as a substitute for *sugar*; provides *calories*. Found in some mints and chewing gum.

Notes

Notes

National Diabetes Information Clearinghouse

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diabetes mellitus (d¹-m¹-e¹-l¹-i¹-t¹-u¹-s)



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