

Key Terms

Aerobic exercise: Physical movement that results from rhythmic muscular contractions that are primarily fueled by the aerobic metabolism of energy in the body; oxygen-based generation of energy is usually the main source for any activity lasting longer than 2 min continuously.

Autonomic neuropathy: Disease affecting the nerves innervating the heart, gastrointestinal, and genitourinary tract; cardiovascular autonomic neuropathy (CAN) is the most common, studied, and clinically important type of this neuropathy.

Cardiorespiratory (aerobic) fitness: The ability of the circulatory and respiratory systems to supply oxygen to skeletal muscles during sustained (aerobic) physical activity.

Continuous glucose monitoring (CGM): Newer technologies that allow for subcutaneous monitoring of glucose levels with frequent readings (usually every 5 min).

Daily lifestyle activity: All physical activities done during the course of a day involved with self-care, basic locomotion, and other movement other than planned exercise sessions (also called activities of daily living [ADL]).

Diabetic ketoacidosis (DKA): High level of blood ketones (e.g., β -hydroxybutyrate, acetoacetate, acetone), accompanied by hyperglycemia, that can result in coma or death if not treated in a timely manner.

Estimated average glucose (eAG): Alternate method to report hemoglobin A1C levels, as an estimated average glucose in mg/dl instead of percent (e.g., A1C value of 6.0% equates to an eAG of 126 mg/dl); the relationship between A1C and eAG is described by the formula $(28.7 \times \text{A1C}) - 46.7 = \text{eAG}$. An online calculator is available at professional.diabetes.org/GlucoseCalculator.aspx.

Gestational diabetes mellitus (GDM): A hyperglycemic condition developing most often during the third trimester of pregnancy (when placental hormones decrease insulin action); although it usually resolves postpartum, it is associated with a greater risk for the mother of developing type 2 diabetes later in life.

Hemoglobin A1C (or A1C): Test to assess glycemic control that reflects a time-averaged blood glucose concentration (as a percent) over the previous 2–3 months; a normal value is ~4.0–6.0%.

Hyperglycemia: An elevated blood glucose level (i.e., blood glucose ≥ 126 mg/dl).

Hypoglycemia: An abnormally low blood glucose level (i.e., blood glucose < 70 mg/dl).

Insulin resistance: A condition in which there is a relative lack of insulin action in insulin-sensitive tissues (primarily skeletal muscle) needed to maintain normal glucose levels.

Latent autoimmune diabetes of the adult (LADA): A form of type 1 diabetes that is often slower in onset and diagnosed in adults.

Metabolic syndrome: A syndrome characterized by a constellation of disorders, including insulin resistance, obesity, central adiposity, glucose intolerance or diabetes, dyslipidemia, and hypertension.

Muscular endurance: The ability of muscles to contract using submaximal force over a period of time, based on criteria such as the number of pushups that can be done in a minute.

Muscular strength: The maximal ability of a muscle to exert force, often measured as the amount of resistance that can be moved one time (one-repetition maximum).

Nephropathy: A microvascular disease affecting the kidneys, resulting in excessive urinary protein (microalbuminuria, followed by gross proteinuria) as a marker of end-stage renal disease.

Peripheral neuropathy: Disease affecting the nerves in the extremities, especially the lower legs and feet, resulting in pain or loss of sensation and increased risk of amputation.

Resistance (strength) exercise: Physical activity aimed at increasing muscular strength or muscular endurance through the use of resistance or weights.

Retinopathy: A disease caused by long-term damage to blood vessels of the retina caused by elevated blood glucose levels; the stages include nonproliferative (less severe) and proliferative (more advanced and severe form), the latter of which is the leading cause of new blindness in adults.

Self-monitoring of blood glucose (SMBG): The practice of using blood glucose monitoring devices outside of clinical settings to monitor changes in blood glucose levels.

Type 1 diabetes (T1D): Immune-mediated disease that selectively destroys the pancreatic β -cells, leading to a central defect in insulin release upon stimulation; although more commonly associated with youth, it can develop in individuals of any age and frequently occurs in adulthood as well as in latent autoimmune diabetes of the adult.

Type 2 diabetes (T2D): Disease directly related to insulin resistance, formerly thought to afflict persons older than the age of 40 years, which now has an increasing prevalence in younger children and adolescents; this type of diabetes accounts for 90–95% of all cases of the disease.