

Diagnostic tests for diabetes

Multiple tests are available to support a diagnosis of diabetes. Each has advantages and disadvantages. Use these tests in individuals with symptoms of diabetes, or in those with risk factors for T2D.

Test	Diagnostic threshold for diabetes	Delivery protocol
Fasting plasma glucose	≥ 7.0 mmol/l (126 mg/dl)	Patient must fast for 8–12 hours prior to test.
2-hour venous plasma glucose (oral glucose tolerance test)	≥ 11.1 mmol/l (200 mg/dl)	Patient must fast for 8–12 hours prior to test. Measure fasting glucose. Administer 75 g oral glucose. Measure <i>venous</i> plasma glucose after 2 hours.
2-hour capillary plasma glucose (oral glucose tolerance test)	≥ 12.2 mmol/l (220 mg/dl)	Patient must fast for 8–12 hours prior to test. Measure fasting glucose. Administer 75 g oral glucose. Measure <i>capillary</i> plasma glucose after 2 hours.
Random plasma glucose	≥ 11.1 mmol/l (200 mg/dl)	Administered at any time, fasting not necessary. Appropriate for patients with symptoms of hyperglycaemia.
HbA1c	$\geq 6.5\%$ (48 mmol/mol)	Administered at any time, fasting not necessary.

Advantages and disadvantages of diagnostic tests

		Cost	Simplicity of test	Fasting state required	Appropriate for T1D and T2D
Fasting plasma glucose	≥ 7.0 mmol/l (126 mg/dl)	Low	Single blood sample	YES	T1D and T2D
2-hour venous plasma glucose (OGGT)	≥ 11.1 mmol/l (200 mg/dl)	High	Multiple blood samples	YES	T1D and T2D
2-hour capillary plasma glucose (OGGT)	≥ 12.2 mmol/l (220 mg/dl)	High	Multiple blood samples	YES	T1D and T2D
Random plasma glucose	≥ 11.1 mmol/l (200 mg/dl)	Low	Single blood sample	NO	T1D and T2D
HbA1c	$\geq 6.5\%$ (48 mmol/mol)	High	Single blood sample	NO	T2D

Key: ■ Advantage ■ Disadvantage

OGGT, Oral Glucose Tolerance Test; T1D, type 1 diabetes; T2D, type 2 diabetes. ElSayed NA, et al. 2. Classification and Diagnosis of Diabetes: Standards of Care in Diabetes—2023. Diabetes Care 1 January 2023; 46 (Supplement_1): S19–S40; Butler A E, Misselbrook D. Distinguishing between type 1 and type 2 diabetes BMJ 2020; 370 :m2998.