

LAB TESTS IN THE PREVENTIVE CARDIOLOGY CLINIC

Blood and urine lab tests are used to find out your risk of heart and blood vessel disease. They also help your healthcare provider create the best plan of care for you. As a patient in Cleveland Clinic's Preventive Cardiology Clinic, you will have some or all of the tests described in this handout.

Test name	Why is this test important?	Results information
Total cholesterol (TC)	<ul style="list-style-type: none"> Directly linked to your risk of heart and blood vessel disease 	<p>Goal for patients who are 20 or younger: 75-169 mg/dL Goal for patients who are 21 or older: 100-199 mg/dL</p> <p>Your goal may be different, depending on your age and other risk factors you have</p>
Triglycerides (TG)	<ul style="list-style-type: none"> Related to heart and blood vessel disease A very high level (>500-1,000 mg/dL) increases your risk of pancreatitis Levels are higher if you are obese or diabetic Eating simple sugars/simple carbohydrates, a high-fat diet and/or drinking alcohol can cause high levels Exercise can help lower levels 	<p>Goal: Less than 150 mg/dL</p>
High-density lipoprotein (HDL)	<ul style="list-style-type: none"> "Good cholesterol" High levels reduce your risk of heart and blood vessel disease. The higher your HDL level, the better. 	<p>Ideal Levels: Men: Higher than 45 mg/dL Women: Higher than 55 mg/dL</p>

Test name	Why is this test important?	Results information
<p>Low-density lipoprotein (LDL)</p>	<ul style="list-style-type: none"> • LDL is “bad cholesterol” • High levels are linked to a greater risk of heart and blood vessel disease • Major treatment target for patients taking medications to lower cholesterol levels 	<p>Goal:</p> <p>Less than 70 mg/dL if you have heart or blood vessel disease, diabetes or a very high risk of heart disease</p> <p>Less than 100 mg/dL if you have metabolic syndrome or more than one risk factor for heart disease</p> <p>Less than 130 mg/dL if you have a low risk of coronary artery disease</p>
<p>Complete blood count with differential (CBC)</p>	<ul style="list-style-type: none"> • Blood tests to get information about the parts of your blood, such as red blood cells, white blood cells and platelets • Help detect diseases and how bad they are • Detect anemia (low red blood cell count) 	<p>Normal Ranges:</p> <p>White blood cell count: 5,000–10,000</p> <p>Hematocrit (amount of blood made up of red cells): Men: 40–55% Women: 36–48%</p> <p>Hemoglobin (part of red blood cell that carries oxygen): Men: 14–18 gm/dL Women: 12–16 gm/dL</p>
<p>Lipoprotein (a) [(Lp(a))]</p>	<ul style="list-style-type: none"> • Lp(a) is low-density lipoprotein (LDL) attached to a protein called apo (a) • High levels of Lp(a) increase your risk of heart attack, stroke, blood clots, fatty build-up in veins after coronary artery bypass surgery and narrowing of the coronary arteries after angioplasty • High levels tend to run in families • Your doctor may order this test if you have a family history of heart disease at an early age • If your level is high, your doctor will likely be aggressive in managing your heart disease risk factors, especially your LDL level 	<p>Ideal level: Less than 30 mg/dL</p>

Test name	Why is this test important?	Results information
Apolipoprotein B (ApoB)	<ul style="list-style-type: none"> A major protein in cholesterol Research suggests ApoB may be a better overall marker of risk than LDL alone. High levels of ApoB are a sign of small, dense LDLs 	Ideal level: Less than 100 mg/dL
Homocysteine (Hcy)	<ul style="list-style-type: none"> An amino acid High levels increase your risk of heart and blood vessel disease 	Ideal level: Less than 10 umol/L
Hemoglobin A1c (HgA1c)	<ul style="list-style-type: none"> Used to diagnose diabetes Reflects average blood sugar levels over the last 2–3 months 	Ideal level: 5.6 or lower Prediabetes: 5.7–6.4 Diabetes: 6.5 or higher Goal for diabetic patients: Less than 6.5–7
Fasting glucose (also called fasting blood sugar)	<ul style="list-style-type: none"> High levels can mean you have diabetes or are insulin-resistant 	Ideal level: Less than 100 mg/dL Prediabetes: 110-125 mg/dL Diabetes: Higher than 126 mg/dL on two separate tests
Insulin	<ul style="list-style-type: none"> Insulin is a hormone made by the pancreas to control blood sugar High levels are associated with obesity, high cholesterol levels, diabetes, heart and blood vessel disease, and stroke 	Normal range: 1–24 U/ml
Creatine Kinase (CK)	<ul style="list-style-type: none"> A muscle enzyme Levels may be higher if you take medication to lower cholesterol levels 	Normal range: 30-220 U/L
Alanine Aminotransferase (ALT) (also called SGPT)	<ul style="list-style-type: none"> A liver enzyme Levels may be higher if you take medication to lower cholesterol levels 	Normal range: 5–45 U/L
Aspartate Transaminase (AST) (also called SGOT)	<ul style="list-style-type: none"> A liver enzyme Levels may be higher if you take medication to lower cholesterol levels 	7-40 U/L

Test name	Why is this test important?	Results information
Fibrinogen	<ul style="list-style-type: none"> • A protein in the blood • Helps blood clot, but too much increases your risk of a heart attack 	Ideal level: Less than 300 mg/dL
Thyroid stimulating hormone (TSH)	<ul style="list-style-type: none"> • Related to how well your thyroid is working 	Ideal range: 0.4-5.5 uU/mL
Ultra-sensitive C-reactive protein (us-CRP) (also called high-sensitivity CRP)	<ul style="list-style-type: none"> • Indicates vascular inflammation • Higher levels mean a higher risk of heart and blood vessel disease 	Low risk: Less than 2.0 mg/L Intermediate risk: 2–3 mg/L High risk: Higher than 3.0 mg/L
Urine albumin creatinine ratio (U Alb:Cr)	<ul style="list-style-type: none"> • Detects protein in the urine • A small amount of protein in the urine is a risk factor for heart and blood vessel disease 	Ideal level: Less than 30 mg/g
MPO	<ul style="list-style-type: none"> • Indicates inflammation • High levels are linked to a higher risk of heart attack, stroke and the need for coronary artery bypass surgery • High levels can also mean cardiovascular disease is getting worse • If your levels are high, your doctor will likely be aggressive to reduce your risk of cardiovascular problems 	Ideal level: Less than 350 pmol/L
Vitamin D	<ul style="list-style-type: none"> • Fat-soluble vitamin • D Cholecalciferol • Vitamin D controls the calcium and phosphate levels in your body. Calcium and phosphate keep your bones healthy. • Low levels of Vitamin D are linked to various health risks. Low levels can also mean you are having trouble tolerating a statin. 	Normal range: 31–80 ng/ml

Test name	Why is this test important?	Results information
Trimethylamine N-oxide (TMAO)	<ul style="list-style-type: none"> • Comes from bacteria in your gut • High levels found in meat, eggs and dairy foods • Taking choline, lecithin, L-carnitine and other supplements can cause high levels of TMAO • High levels in the blood increase the risk of heart disease, heart attack, stroke and clogged arteries (atherosclerosis) • If your levels are high, your doctor will likely be aggressive to lower your LDL and reduce other risk factors, have you take low-dose aspirin twice a day, and have you follow a Mediterranean diet 	<p>Low risk: Less than 6.2 uM</p> <p>Intermediate Risk: 6.2–9.9 uM</p> <p>High risk: 10.0 uM or higher</p>
Aminoterminal, pro-brain natriuretic peptide (NT-proBNP)	<ul style="list-style-type: none"> • Protein made in the heart and found in the blood when there is extra strain on the heart • High levels are linked to a higher risk of heart and blood vessel disease, and may indicate a decrease in heart function. You may need other tests to get more information. • If your level is high, your doctor will likely be aggressive to reduce your risk of cardiovascular problems 	<p>Ideal level: Less than 125 pg/mL</p>
Serum creatinine (CR)	<ul style="list-style-type: none"> • Related to kidney function 	<p>Normal ranges:</p> <p>Women: .058-0.96 mg/dL</p> <p>Men: 0.73-1.22 mg/dL</p>
Global risk score (GRS)	<ul style="list-style-type: none"> • A tool to rate your risk of heart disease or heart attack within the next 10 years 	<p>Low risk: Less than 10%</p> <p>Intermediate risk: 10–20%</p> <p>High risk: 20% or higher</p>

