

Laboratory Tests That Can Identify Nutrition Problems

The table below lists some lab tests that can identify nutrition problems, along with interpretation of results. This is not a comprehensive list, and health care facilities may not have the capacity to do some of these tests.

Test	Normal results	Low number	High number
Metabolic tests			
Glucose	70–99 milligrams (mg)/deciliter (dL)	Hypoglycemia, liver disease, adrenal insufficiency, excess insulin	Hyperglycemia, certain types of diabetes, prediabetes, pancreatitis, hyperthyroidism
Blood urea nitrogen (BUN)	7–20 mg/dL	Malnutrition	Liver or kidney disease, heart failure
Creatinine	0.8–1.4 mg/dL	Low muscle mass, malnutrition	Chronic or temporary decrease in kidney function
BUN/creatinine ration	10:1 to 20:1	Malnutrition	Blood in bowels, kidney obstruction, dehydration
Calcium	8.5–10.9 mg/dL	Calcium, magnesium, or vitamin D deficiency, malnutrition, pancreatitis, neurological disorders	Excess vitamin D intake, kidney disease, cancer, hyperthyroidism
Protein	6.3–7.9 grams (g)/dL	Liver or kidney disease, malnutrition	Dehydration, liver or kidney disease, multiple myeloma
Albumin	3.9–5.0 g/dL	Liver or kidney disease, malnutrition	Dehydration
Alkaline phosphatase (ALP)	44–147 international units (IU)/liter (L)	Malnutrition	Paget's disease or certain cancers that spread to bone, bile duct obstruction, liver cancer
Alanine amino-transferase (ALT)	8–37 IU/L	Generally not a concern	Certain toxins such as excess acetaminophen or alcohol, hepatitis
Blood tests			
White blood cell count	4,500–10,000 cells/microliter (mCL)	Autoimmune illness, bone marrow failure, viral infections	Infection, inflammation, cancer, stress, intense exercise

Test	Normal results	Low number	High number
Red blood cell count	Male: 4.7–6.1 Mill/ mL Female: 4.2–5.4 Mill/mL	Iron, vitamin B12, or folate deficiency, bone marrow damage	Dehydration, renal problems, pulmonary or congenital heart disease
Hemoglobin (Hb)	Male: 13.8–17.2 g/ dL Female: 12.1–15.1 g/dL	Iron, vitamin B12, or folate deficiency, bone marrow damage	Dehydration, renal problems, pulmonary or congenital heart disease
Hematocrit	Male: 40.7%– 50.3% Female: 36.1%– 44.3%	Iron, vitamin B12, or folate deficiency, bone marrow damage	Dehydration, renal problems, pulmonary or congenital heart disease
Mean corpuscular volume (MCV)	80–95 femtoliters	Iron deficiency	Vitamin B12 or folate deficiency
Mean corpuscular hemoglobin (MCH)	27–31 picograms	Iron deficiency	Vitamin B12 or folate deficiency
Platelet count	150–400 thousand/mL	Viral infections, lupus, pernicious anemia (due to vitamin B12 deficiency)	Leukemia, inflammatory conditions

Note: reference numbers are not standardized, and number may vary from lab to lab.

Stool sample analysis

Helminth (hookworm and ascaris) infection			Anemia
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