

Guide to Common Laboratory Tests for Eating Disorder Patients

Test	Measure	Description	Reference Range**	Abnormal High	Abnormal Low	Notes
<u>Complete Blood Count (CBC)</u>	See below	Levels of multiple blood components	See individual counts			
	White Blood Cell (WBC) Count	Measures immune system functioning (includes basophils, eosinophils, lymphocytes, monocytes, neutrophils)	4,000-10,000 WBCs/mcL	Infection, inflammation, trauma to tissue, high physical or emotional stress, anemia	Malnutrition can lead to decrease in one or more of these types of cells. Decrease is not typically correlated with increased risk of infection	
	Red Blood Cell (RBC) Count	Count of the actual number of red blood cells per volume of blood. RBCs deliver oxygen throughout the body.	4.2-5.7	Fluid loss due to diarrhea or dehydration	Anemia	
	Hemoglobin (HGB)	Protein used by red blood cells to distribute oxygen to other tissues and cells in the body	13.2-16.9		Anemia	
	Hematocrit (HCT)	Percent of blood that is occupied by red blood cells	38.5-49%		Anemia	
	Mean Corpuscular Volume (MCV)	Measures the size of red blood cells	80-97		Anemia	
	Platelet	Create clots or scabs to prevent or stop bleeding	150,000-450,000 platelets per mcL		Malnutrition; Vitamin B deficiency	
<u>Comprehensive Metabolic Panel</u>	See below	Assesses current status of kidneys, liver, and electrolyte and acid/base balance as well as blood sugar and blood proteins	See individual counts			
	Glucose	Blood sugar level at time of testing	70-145 mg/dL	Diabetes; excessive food intake; use of diuretics	Hypothyroidism; starvation	A sudden drop in glucose (<70 mg/dL) can have serious medical complications
	Total Protein	Total protein level in blood fluid	6.0-8.3	Unusual with eating disorders	Malnutrition	
	Albumin	Small protein produced in liver	3.4-5.4 g/dL	Dehydration	Malnutrition	

	<u>Total Calcium</u>	Amount of calcium circulating in blood	9.0-10.5 mg/dL	Dehydration	Low blood protein levels (albumin); low magnesium; vitamin D deficiency; high phosphorus level	If Albumin level is low, "ionized calcium" level should be ordered instead of total calcium. Abnormal calcium levels can cause serious cardiac complications.
	<u>Sodium</u>	Electrolyte	135-145 (mEq/L)	Dehydration from inadequate fluid intake	Sodium loss due to diuretic use; overhydration (Some patients will overhydrate, or "fluid load," prior to being weighed in order to temporarily increase weight)	Abnormal levels can cause serious medical complications
	<u>Potassium</u>	Electrolyte	3.5-5.0 (mEq/L)	Dehydration	Vomiting; diuretic use	Abnormal levels can cause serious cardiac complications
	<u>Bicarbonate</u>	Electrolyte	22-30 mmol/L	Vomiting; metabolic alkalosis	Metabolic acidosis	Abnormal levels can cause serious medical complications
	<u>Chloride</u>	Electrolyte	98 - 108 mmol/L		Vomiting; diuretic use	
	<u>BUN</u>	Kidney function	7 - 20 mg/dL	Dehydration	Malnutrition; overhydration (see note about "fluid loading" above); very low protein diet	
	Creatinine	Kidney function	0.5-1.2 mg/dL	Dehydration	Unusual and not cause for concern	
Liver Panel (Hepatic Function Panel/ Liver Function Tests/ LFTs)	See below		See individual counts			The relationship between liver enzymes is a bit complicated. Overall, we know low BMI and low percent body fat are correlated with elevated liver enzymes and that these enzymes, when elevated, can be a marker of liver damage. Occasionally liver enzymes become

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	Alkaline Phosphatase	Liver enzyme/liver function	30 to 120 IU/L	Elevated liver enzymes can reflect liver damage or inflammation due to malnutrition.		
	ALT/SGPT	Liver enzyme/liver function	9 to 60 IU/L	Elevated liver enzymes can reflect liver damage or inflammation due to malnutrition.		
	AST/SGOT	Liver enzyme/liver	10 to 40	Elevated liver		

Serum Iron		Blood iron level	60-170 mcg/dL		Malnutrition; iron deficiency anemia	
Lipid Profile	Total Cholesterol		< 200 mg/dL (5.18 mmol/L)			
	High Density Cholesterol	"Good cholesterol"	> 50 mg/dl (1.5 mmol/L)			
	Low Density Cholesterol	"Bad cholesterol"	<130 mg/dL (3.37 mmol/L)			
	Triglycerides		< 150 mg/dL (1.7 mmol/L)			
Serum Magnesium		Electrolyte	1.7 to 2.2 mg/dL	Dehydration; use of magnesium-containing laxatives	Malnutrition; diuretic use; nonmagnesium-containing laxative abuse	Abnormal levels during refeeding can cause serious medical complications
Serum Phosphorus			2.4 - 4.1 mg/dL	Low calcium levels; use of phosphate-containing laxatives	Malnutrition; diuretic use; chronic antacid use	Abnormal levels during refeeding can cause serious medical complications
Amylase			25-125 U/L	Chronic vomiting		
Thyroid Panel	TSH	Thyroid stimulating hormone	0.4 - 4.0 mIU/L	Hypothyroidism	Hyperthyroidism	
	T3	Triiodothyronine	100 to 200 ng/dL	Hyperthyroidism	Hypothyroidism	
	T4	Thyroxine	4.5 to 11.2 (mcg/dL)	Hyperthyroidism	Hypothyroidism; malnutrition	
Transthyretin (Prealbumin)		Assesses nutritional status	12-50 mg/dL		Malnutrition; hyperthyroidism	
Urinalysis, Macro and Micro						

Other Tests						
Electrocardiogram (EKG)		Measures heart rate and heartbeat regularity	Malnutrition and binge/purge behaviors can lead to decreased heart rate, slow pulse, and/or irregularities in heartbeat known as bradychardia. Electrolyte imbalances and hypotension can also lead to cardiac complications. These symptoms can be incredibly dangerous, and frequently can only be assessed through an EKG scan.			
Full Vital Signs	Including orthostatics (measuring blood pressure and pulse in various positions) and temperature		Malnutrition and binge/purge behaviors can lead to hypothermia, dehydration, and hypotension (low blood pressure). Make sure and mention if your child has been complaining of dizziness, light headedness or has had any fainting spells. Blood pressure-related complications can be deadly.			

Chart courtesy of Maren Schiess MSN, APRN-BC

** Reference ranges vary from lab to lab, so you should always use the reference ranges on the lab report if they're different from the ranges on this chart.

All "Abnormal High/Low" descriptions refer to interpretations of high or low results that are commonly associated with eating disorder symptoms. Low or high results on these tests may also have alternate explanations. Ask your physician for additional information.

All **bold and underlined tests** are high priority- make sure and request these from your doctor

All **pink highlighted** tests measure things that are potentially critical/dangerous

For more information on these and other laboratory tests, the following sites have reliable information:

<http://www.labtestsonline.org/>

<http://www.psychiatryonline.com/popup.aspx?aID=139336>

http://www2.massgeneral.org/harriscenter/patient_lab.asp

<http://www.nlm.nih.gov/medlineplus/laboratorytests.html> (search for the specific test)