

# FUNCTIONAL BLOOD CHEMISTRY ANALYSIS

## BLOOD CHEMISTRY PANEL FOR NUTRITIONAL ANALYSIS

For a functional blood chemistry analysis as a means of assessing your nutritional health it is best if we have as many blood markers as we can get. This analysis identifies patterns found in these markers to determine metabolic function, subclinical issues or nutritional deficiencies. The following markers are an excellent basis for this analysis. We can order the tests for you. If your practitioner will order all or most of these markers, then we can provide the analysis and a Functional Health Report from the test results. Please fax to (415) 549-0570 or email ([labs@primohealthcoach.com](mailto:labs@primohealthcoach.com)) the results to our office.

**Fasting Required:** Yes- 10 to 12 hours

**Results:** 5-7 Business days

### Blood Markers:

**Lipid:** This is a group of simple blood tests that reveal important information about the types, amount and distribution of the various types of fats (lipids) in the bloodstream.

**Complete Blood Count (CBC's):** Used as a broad screening test to check for such disorders as anemia, infection, and many other diseases. It is actually a panel of tests that examines different parts of the blood.

**Fluids and Electrolytes:** Includes Chloride, Serum, Potassium, Sodium, Serum, and Carbon Dioxide

**Liver:** Includes Albumin, Alkaline Phosphatase, Alanine Transaminase (ALT) (SGPT), Aspartate Transaminase (AST) (SGOT), Bilirubin, Total, Bilirubin, Direct, Protein, Total

**Kidney:** Includes Albumin, Calcium, Carbon dioxide, Chloride, Creatinine, Phosphorus, Potassium, Sodium, BUN

**Glucose (Diabetes):** Serum Glucose

**Mineral and Bone:** Iron, Total, Calcium, and Phosphorus

**Magnesium:** This mineral is particularly important to nerves and muscles. Low magnesium is found in malnutrition, alcoholism, diabetes, hyperparathyroidism, and more. High magnesium is seen in kidney failure.

**Iron W/TIBC:** Total Iron Binding Capacity (TIBC) measures the amount of transferrin, a blood protein that transports iron from the gut to the cells that use it. Your body makes transferrin in relationship to your need for iron; when iron stores are low, transferrin levels increase, while transferrin is low when there is too much iron. Usually about one third of the transferrin is being used to transport iron. Because of this, your blood serum has considerable extra iron-binding capacity, which is the Unsaturated Iron Binding Capacity (UIBC). The TIBC equals UIBC plus the serum iron measurement. Some laboratories measure UIBC, some measure TIBC, and some measure transferrin.

**Serum Iron Level:** measures the level of iron in the liquid part of your blood.

**Ferritin:** Composed of iron and protein, Ferritin is a storehouse for iron in the body. Measurement provides an accurate picture of how much iron you have available in reserve. It is used to evaluate anemia and for diagnosing iron deficiency. Low Ferritin is a sign of iron deficiency. Ferritin is high with inflammation, infection, liver disease, iron overload, certain amends and certain cancers (leukemia and lymphoma).

**Thyroid Panel w/TSH:** Includes T-3 Uptake, T4, T7, TSH T3-Total: One Increased T3 often occurs in hyperthyroidism, but in approximately 5% of cases only T3 is elevated, "T3 toxicosis." Do not confuse T3 with T3 uptake; these are two different tests. The latter is done very commonly as part of the usual thyroid profile. Less than 1% of T3 is unbound.

**T3 Free: Tri-iodothyronine (T3):** This test is used to evaluate thyroid function. It is primarily used to diagnose hyperthyroidism. It is also used to assess abnormal binding protein disorders and to monitor thyroid replacement and suppressive therapy.

**T4 Free: Thyroxine T4 (Free):** This test is used to evaluate thyroid function in individuals who may have protein abnormalities that could affect total T4 levels. It is used to evaluate thyroid function and monitor replacement and suppressive therapy.

**TPO:** The TPO gene provides instructions for making an enzyme called thyroid peroxidase. This enzyme plays a central role in the function of the thyroid gland. Thyroid peroxidase assists the chemical reaction that adds iodine to a protein called thyroglobulin, a critical step in generating thyroid hormones. Thyroid hormones play an important role in regulating growth, brain development, and the rate of chemical reactions in the body (metabolism).

**TAA:** This test helps to detect possible thyroid problems. Thyroglobulin is a protein that is normally confined to the thyroid gland. It is the source of the thyroxine and triiodothyronine hormones in the body. The presence of autoantibodies to thyroglobulin can lead to the destruction of the thyroid gland. Such antibodies are more likely to appear after trauma to, or inflammation of, the thyroid gland.

**HbA1C:** This non-fasting test indicates how well you have controlled your diabetes over the last few months. Even though you may have some very high or very low blood glucose values, Hemoglobin A1C will give you a picture of the average amount of glucose in your blood over that time period. The result can help you and your doctor know if the measures you are taking to control your diabetes are successful. Hemoglobin A1C is not a substitute for daily, routine blood glucose diabetes testing.

**C-Reactive protein, hs:** a substance in the blood that indicates the presence of inflammation and could warn of a heart attack in advance. Elevated amounts of the protein in men may triple their risk for heart attack and double their risk for stroke, whereas elevated amounts in women can increase their heart attack risk up to seven times. Cardio (also specific or high sensitivity) C-Reactive Protein is a marker of inflammation to the blood vessels and a strong predictor of risk for future myocardial infarctions. Cardiovascular tests ordered vary based on patient symptoms as well as family history.

**Homocysteine:** commonly used as a screen for people at high risk for heart attack or stroke. It may be useful in patients who have a family history of coronary artery disease but no other known risk factors.

**Fibrinogen:** also referred to as factor I, is a 340 kilodalton glycoprotein that is produced by the liver. Fibrinogen has a plasma half-life of about 4 days. Proteolytic conversion of fibrinogen to fibrin occurs through both the extrinsic and intrinsic pathways.<sup>6</sup> Fibrinogen deficiency should be considered when a patient with bleeding history has both extended protime (PT) and activated partial thromboplastin time (aPTT).

**Vitamin D, 25 Hydroxy:** Vitamin D tests are used to determine if bone weakness, bone malformation, or abnormal metabolism of calcium (reflected by abnormal calcium, phosphorus or PTH tests) is occurring as a result of a deficiency or excess of vitamin D. Since vitamin D is a fat-soluble vitamin and is absorbed from the intestine like a fat, vitamin D tests are sometimes used to monitor individuals with diseases that interfere with fat absorption, such as cystic fibrosis and Crohn's disease, to assure that they have adequate amounts of vitamin D. Vitamin D tests are also used to determine effectiveness of treatment when vitamin D, calcium, phosphorus, and/or magnesium supplementation is prescribed.

*Please note that functional blood chemistry analysis is for educational and nutritional purposes and is not intended to diagnose or replace the work of your primary care physician.*