

Lab Work-up Description

The following lab tests have been shown in the research literature as valuable, effective tools in the assessment of health status, measuring risk of chronic diseases and prediction of mortality (death). These lab tests are common and can be ordered by your family physician or through us.

C-Reactive Protein (CRP) - High Sensitivity (Cardiac - Ordering Code: 120766)

Homocysteine (Ordering Code: 706994)

Fibrinogen (Ordering Code: 001610)

Hemoglobin A1c (Ordering Code: 001453)

Cholesterol (Lipid Panel: Ordering Code: 235010)

Vitamin D (25-Hydroxycalciferol - Ordering Code: 081950)

B12 and Folate (Ordering Code: 000810)

Ferritin (Ordering Code: 004598)

All the above order codes are through LabCorp. If your family physician elects to use another lab, they will have their own order codes. Your physician might see that, in your case, ordering some of these tests are not medically necessary and therefore your insurance will NOT cover the cost. In this case, I suggest paying for these tests yourself. We have arranged discounts with LabCorp through our wellness program. If you would like us to order these tests (\$290.00), here is what our order of wellness tests will include:

Glucose, BUN, Creatinine, Uric Acid, Sodium, Potassium, Chloride, CO₂, Calcium, Phosphorus, Magnesium, Total Protein, Albumin, Globulin, A/G Ratio, Bilirubin, Alkaline Phosphatase, GGT, LDH, SGOT, SGPT, Iron, Triglycerides, Cholesterol, HDL/LDL/VLDL, LDL/HDL Ratio Total Chol/HDL Ratio, CBC/Differential, Basic Thyroid panel (Total T₄, TSH, T₃ Uptake, FTI), Triiodothyronine (Total T-3), Hb A1c, Ferritin, TIBC, Iron Saturation %, 25 Hydroxy Vitamin D, C-Reactive Protein (High Sensitivity), Homocysteine, Fibrinogen, Urinalysis. We will also order B12 and Folate.

6 Months to Wellness

A program structured from evidence based science and objective assessment tools to guide you (not guess) to meet your goals of weight loss, fitness, stress reduction, improved nutrition, pain relief, and overall health improvement.

Schedule your wellness evaluation:



CHIROPRACTIC & FAMILY WELLNESS PC
— GUIDING YOUR FAMILY TO WELLNESS —

www.GuidingYourFamilyToWellness.com

804-594-1998

The following is the descriptions of the tests and why we are requesting them. We will use 2 sets of reference ranges. The normal reference ranges are what the labs and most medical professionals use. But since we are focused on prevention and assessment of wellness, we use optimal reference ranges that are stricter. **The normal data are used to signal disease processes. We want to aim for wellness.**

C-Reactive Protein- hs

This is a special protein that is formed when there is inflammation in the body. High levels are seen when you have a cold or the flu or if you have arthritis, but in the last few years, research has shown that small but significant amounts are related to heart disease. Why is this? Because atherosclerosis, the disease related to plaque formation in the arteries, is an inflammatory process. The hs after the name mean High Sensitive, which refers to the fraction of the CRP that pertains to heart and artery health and inflammation only.

Elevated CRP Levels

- Increased risk of heart disease and Stroke, Alzheimer's risk, Depression, Diabetes
- High CRP and IL-6 predict Death

Homocysteine

It is a toxic amino acid that can damage the linings of your arteries and considerably increase your risk for heart attack and stroke. If high blood pressure is present, the danger from Homocysteine is even greater. According to a study in the New England Journal of Medicine, elevated Homocysteine was found to be a strong independent risk factor for development of dementia and Alzheimer's disease. Independent risk factor means that if that is the only sign and symptom present, it is still very significant and the chance for disease is still high. Other markers for diseases are less significant if they are alone. They mean more and the risk is high if there are multiple positive tests. But in the case of Homocysteine, if it is high by itself, it is still significant. That is why we want to use that test. (The next test – Fibrinogen – is also, like Homocysteine, an independent risk factor for heart disease.)

Elevated Homocysteine Levels and **stroke**

Homocysteine Level	Stroke (Ischemic) Risk
Less than 7:	That is the healthy comparison group
Between 7 and 9:	26% increased risk (relative to the comparison group)
Between 9 and 11:	31% increased risk (relative to the comparison group)
Above 11:	74% increased risk (relative to the comparison group)

Homocysteine and Death in Coronary Artery Disease

Homocysteine Blood Level	Risk of Dying in 3.9 - 5.3 years
Less than 9:	3.8%
Between 9 and 15:	8.6%
Greater than 15:	24.6%

Fibrinogen

This is a protein in the blood that relates to clot formation; some of it is good and necessary. Simply put, the more fibrinogen in your blood, the greater the risk of forming a clot. Increased levels are highly associated with risk for heart attack and stroke.

Vitamin D

Studies have revealed that higher levels of vitamin D are associated with reduced risk of certain cancers including: Prostate cancer, Endometrial cancer, Skin cancer, Pancreatic cancer and Colorectal cancer. Vitamin D deficiency has been linked to increased risk of developing Autoimmune diseases, Multiple sclerosis and Type 1 diabetes. Deficiency has also been associated with Hypertension and heart disease. Lastly, Vitamin D deficiency in pregnancy is associated with increased odds of primary cesarean delivery. Vitamin D is also

important for bone health, prevention of osteoporosis, strong immune system, bone and muscle pain, lack of emotional wellbeing and insulin resistance. The Mayo Clinic performed research on 150 patients with chronic nonspecific musculoskeletal pain and found virtually all to be deficient in vitamin D (93% using the old reference ranges).

Vitamin B12, Folate & Iron (Ferritin)

These are common deficiencies in the US population. The deficiency causes anemia, tiredness (does not help your exercise motivation) B12 deficiency is associated with anemia, depression, dementia, high Homocysteine and problems with the nervous system.

Cholesterol

Everybody knows about that except that we like to look at the ratios between the types and the amount of HDL is critical – not just the total amount of cholesterol.

Hemoglobin A1c

HA1C is the most abundant minor hemoglobin component in the human red blood cells. It is increased 2 to 3 folds in the diabetic patient. It is formed slowly and continuously throughout the 120 day life span of the red blood cell. So measurement of HA1C provides an index of average blood glucose levels over the preceding 2 to 3 month. (How your body is utilizing sugars over the period of 2-3 month) There are numerous studies that found that increase in HA1C levels is associated with all cause mortality (death from all causes), increased death from heart disease and stroke. An increase of 1% in HA1c was associated with a 26% increase in risk of death independent of age, blood pressure, cholesterol, BMI and cigarette smoking. (The predictive value of HA1c for total mortality (death) was stronger than that documented for cholesterol concentration, BMI and blood pressure.)

Thyroid Tests

T-4 or thyroxine is a very important hormone because it is responsible for maintaining the body temperature, regulating the heart rate and stimulating metabolic activity in general through its involvement in using nutrients. Increases in T-4 can cause nervousness, palpitations, sweating, sleep disorders and weight loss. Decreases in T-4 may cause intolerance to cold, dry skin, fatigue and weight gain.

T-3 Uptake provides an estimate of how many of the available binding sites for this related thyroid hormone are used up. This test should be viewed in the context of the other thyroid tests, but in general, lower values are seen in hypothyroidism and higher values in hyperthyroidism.

FTI or Free Thyroxine Index provides an estimate of how much T-4 is in the free or active state. It is a useful index of hormonal levels and again low values are often associated with hypothyroid tendencies and high values with hyperthyroid tendencies.

TSH or Thyroid Stimulating Hormone is produced by the pituitary gland and sends a signal to the thyroid gland to produce more T-4 and T-3. This reflects how well the thyroid is responding to the orders of the pituitary and also how well the pituitary is working. It is part of the feedback mechanism that insures a proper metabolic rate.

The goodies are in the details

Labs are great but changing them or keeping them in the optimal ranges is what takes hard work. These labs will be interpreted in our wellness program in relation to diseases and in relationship to your lifestyle. Then we will guide you to how to change your lifestyle to optimize your health.