



Ruthie Harper M.D.
Nutritional Medicine Associates
3901 Medical Parkway Suite 100
Austin, TX 78756
Phone: (512) 343-WELL
Fax: (512) 346-0100

The Importance of Regular Blood Testing to Maintain Optimal Health

Too often, people fall victim to a disease that could have been prevented had the proper blood tests been done on a regular basis. Regular blood testing is part of maintaining optimal health.

In the past, most physicians considered blood testing only to ascertain cardiovascular risk factors for their patients. However, in addition to identifying proven cardiovascular disease risk factors, blood tests can detect numerous other medical abnormalities that are often easy to correct if caught in time. An example of a preventable disorder that can be detected by a yearly blood test is **calcium overload**. This condition is caused when too much calcium is removed from the bone. Unless discovered by a blood test, people don't find out about calcium imbalance until after they have a crippling bone fracture, a painful kidney stone (renal calculi), or heart valve failure (due to excess valvular calcification). These diseases often manifest years after the calcium imbalance first begins, yet an inexpensive blood chemistry test could detect this problem early and enable the person to take relatively simple steps to correct the calcium imbalance before it causes irreversible damage.

The new scientific literature also clearly establishes that elevated **insulin, glucose, homocysteine, fibrinogen, high sensitivity C-reactive protein, triglycerides, and LDL** dramatically increase the risk of heart attack, stroke, and other arterial diseases. What most people fail to realize is that significant changes can occur over the course of one year, meaning that previous tests may not accurately reflect current cardiovascular risk status.

Excess amounts of serum **iron** generate free radicals that increase the risk of cancer and atherosclerosis, and probably neurological disorders such as Alzheimer's disease and Parkinson's disease. If a blood test shows high **ferritin** levels, there are many ways to bring it down. A blood chemistry test can detect high iron levels before an iron-induced disease manifests.

What we look for at Nutritional Medicine Associates when we order Bloodwork

When a patient's blood test results are reviewed, typically there is only concern when a particular result is outside the normal laboratory "reference range." The problem with interpreting blood work in this way is that standard reference ranges usually represent "average" populations, rather than the optimal level required to maintain good health. It

now appears that most standard reference ranges are too broad to adequately detect health problems or prescribe appropriate therapy on an individual basis.

As an example, in the 1960s, the upper reference range for cholesterol extended up to 300 mg/dL. This number was based on a statistical calculation indicating that it was “normal” to have total cholesterol levels as high as 300 mg/dL. At that time, it was also “normal” for men to have fatal heart attacks at a relatively young age. As greater knowledge accumulated about the risk of heart attack and high cholesterol, the upper limit reference range gradually dropped to the point where it is now 200 mg/dL.¹

The same situation occurred with homocysteine reference ranges. Until recently, it was considered normal to have a homocysteine blood reading as high as 15 mm/L.² Most reference ranges now provide a chart showing that homocysteine levels above 7 indicate an increased risk of heart attack and stroke.³

Measuring Hormone Levels

Hormone imbalances develop in both men and women as a part of growing older. The result is that aging people suffer a variety of discomforts and diseases that are correctable and preventable if simple hormone adjustments are made.

Aging men, for instance, often suffer from excess production of insulin and estrogen, with simultaneous deficiencies of free testosterone and dehydroepiandrosterone (DHEA). If a physician were to test blood levels of all four of these hormones, the standard “reference ranges” are so wide that most men would fall into the so-called “normal” category. Standard reference ranges indicate that potentially dangerous insulin and estrogen levels are at the high end of “normal” in elderly men. The question has been raised whether these high normal levels are associated with an increased risk of heart attack, stroke, cancer, benign prostate enlargement, weight gain, type II diabetes, kidney impairment, and a host of other diseases.

The standard reference ranges for free testosterone and DHEA show that very low levels are perfectly “normal” for aging men. These same aging men (with low levels of testosterone/DHEA) have high rates of depression, memory loss, atherosclerosis, senility, impotency, high cholesterol, abdominal obesity, fatigue, and a host of other diseases. Studies are beginning to link low blood levels of testosterone and DHEA to these symptoms & diseases.

When evaluating thyroid function, the TSH reference range used by many laboratories is 0.2-5.5 mU/L. A greater TSH level is indicative of a thyroid hormone deficiency. That is because the pituitary gland is over-signaling TSH due to low levels of thyroid hormone in the blood. Any reading over 5.5 alerts a doctor to a thyroid gland problem and that thyroid hormone therapy may be warranted.

The trouble is that the TSH reference range is so broad that most doctors will interpret a TSH reading as low as 0.2 to be as normal as a 5.5 reading. The difference between 0.2 and 5.5, however, is 27-fold, a parameter potentially far too great to indicate optimal or even normal thyroid function.

A review of published findings about TSH levels reveals that readings over 2.0 may be indicative of adverse health problems relating to insufficient thyroid hormone output. One study showed that individuals with TSH values over 2.0 have an increased risk of developing overt hypothyroid disease over the next 20 years.¹⁶ Other studies show that TSH values over 1.9 indicate abnormal pathologies of the thyroid, specifically autoimmune attacks on the thyroid gland itself that can result in significant impairment.¹⁷

A more startling study showed that TSH values over 4.0 increase the prevalence of heart disease, after correcting other known risk factors.¹⁷ Another study showed that

administration of thyroid hormone lowered cholesterol in patients with TSH ranges of 2.0-4.0 but had no effect in lowering cholesterol in patients whose TSH range was 0.2-1.9.¹⁸ It also showed that in people with elevated cholesterol, TSH values over 1.9 could indicate that a thyroid deficiency is the culprit, causing excess production of cholesterol, whereas TSH levels below 2.0 would indicate a normal thyroid hormone status.

Doctors routinely prescribe cholesterol-lowering drugs to patients without evaluating their thyroid status. Based on the evidence presented to date, it might make sense for doctors to first attempt to correct a thyroid deficiency (based on a TSH value over 1.9) prior to using cholesterol-lowering drugs.

In a study done to evaluate psychological well-being, impairment was found in patients with thyroid abnormalities who were nonetheless within "normal" TSH reference ranges.¹⁹ The authors of a study published in the August 3, 2002 issue of *The Lancet* stated that "the emerging epidemiological data begin to suggest that TSH concentrations above 2.0 (mU/L) may be associated with adverse effects."

When it comes to assessing hormone status, the use of standard reference ranges may fail to adequately assess aging people because reference ranges are adjusted to reflect a person's age. Since it is normal for an aging person to have imbalances of critical hormones, standard laboratory reference ranges are not flagging high levels of estrogen and insulin or deficient levels of testosterone, thyroid, and DHEA, which may impact the individuals health negatively.

Creating optimal Health Reference Ranges

In medical school, imbalances of hormones are "normal" in aging people. We call this perimenopause or menopause in women and andropause in men. Hormone levels are not checked because hormonal decline is considered normal. More and more, however, aging people are seeking the health and vitality of a younger person with emphasis on reproducing more youthful hormonal balance.

Recommended tests

We recommend that you have a basic battery of tests performed annually. The recommended "Male Panel" consists of a complete blood count (CBC), chemistry test, ferritin, insulin, lipids, Free T3 & TSH, homocysteine, total and free testosterone, estradiol, prostate-specific antigen (PSA), and DHEA. The recommended "Female Panel" consists of the complete CBC, chemistry test, ferritin, insulin, lipids, Free T3, TSH, estradiol, progesterone, total and free testosterone, DHEA, and homocysteine.

If a serious abnormality is detected—such as elevated homocysteine, hormone imbalance, high PSA—testing should be repeated more often.