

# 5 Basic Lab Tests



Evaluation of thyroid problem symptoms such as complaints of fatigue, insomnia, joint pains, difficulty focusing, brain fog, and other symptoms of thyroid problems can be started with a basic laboratory testing. A lot of times testing is important, as well as interpreting the tests using optimal (functional) ranges. It is wonderful when I can see the results and they fall somewhere in the middle of the bell curve.

- **General Tests:**

1. CBC (Complete Blood Cell Count): Shows potential deficiency in B vitamins, any signs of infection, evaluate increased risks for bleeding or having abnormal disorders of clotting. It also gives some hints as for

the iron deficiency or iron overload that needs to be researched further.

2. CMP (Complete Metabolic Panel): Some of the markers used are kidney and liver function markers. I prefer not to wait until my client has a full-blown Non-alcoholic liver disease (aka "Fatty Liver"), but to address it right away with lifestyle and diet interventions if I notice that the markers are not optimal. It is so much easier to reverse "fatty liver" at that stage than to work on it later. Also, I can spot some possible deficiencies in zinc and magnesium that may be evaluated with more advanced testing later.

- **Blood Sugar Tests**

1. Fasting Glucose: 70 – 85 mg/dL
2. HgA1C (Hemoglobin A1C): 4.8 – 5.2%
3. Fasting Insulin: less than 6  $\mu$ IU/mL

These are the optimal ranges for blood sugar and helps you evaluate the effects of your sweet tooth on your blood sugar level. I find it interesting that the normal range for fasting glucose is 70 – 99 mg/dL, yet pre-diabetes diagnosed at the levels of 100 – 125 mg/dL. If you have fasting blood glucose over 85 mg/dL, and/or fasting insulin over 6  $\mu$ IU/mL, and/or HgA1C higher than 5.2%, I recommend to implement the diet and lifestyle measures immediately. Why wait till the hurricane hits? Would you not want to prepare and avoid the hurricane altogether or, at least, dampen the damage? Once, you are officially in a pre-diabetic/diabetic range, it is much harder to reverse it than to prevent it.

Hemoglobin A1C is especially important as it shows how much sugar/grains/starches you consumed in the last 90 days. It also helps to evaluate the diet and lifestyle changes every 3 months and put you back on the train of compliance if you notice an increase in it.

- **Thyroid Function Tests**

## Optimal (Functional) Ranges:

1. TSH (Thyroid Stimulating Hormone): 1-2  $\mu\text{U/mL}$  or sometimes lower
2. Free T4 (FT4): over 1.1
3. Free T3 (FT3): over 2.8
4. Reverse T3 (RT3): less than a 10:1 ratio RT3/FT3
5. TPOAb and TgAb antibodies: negative or within the laboratory range

The thyroid gland is referred to as master gland that governs all the important and not very important bodily functions and processes. It regulates fertility, weight, elimination, digestion, skin and other organ repairs to name a few. The symptoms of low thyroid hormone could be vague and hard to figure out without testing. For example, my 2-3 symptoms were severe skin itching only in the front of my shins, joint pain, and morning fatigue. I considered these symptoms to be a normal part of aging; I also considered myself very healthy: I did Bikram hot yoga at least 1-2 times a week, went to the gym, ate what I considered a "healthy" low-fat, high-carb diet, and maintained my normal weight and BMI.

If I had not asked my family doctor check my thyroid labs, and then asked him again to check for thyroid antibodies, I would not have known that I had a problem. I had no other symptoms: I did not gain a pound, I did not have anxiety or depression, I did not have dry skin or brittle hair. But my antibodies were very high, both in 2,000+ ranges that contributed to my morning fatigue and some joint pain. These things may show up later when the thyroid gland is damaged beyond repair.

### ▪ **Vitamins and Minerals**

1. Full Iron Panel (Ferritin, Serum Iron, Transferrin Saturation, TIBC)
2. Vit B12 (serum or RBC)
3. Vitamin 25(OH)D: 50 – 70 ng/mL. Other useful markers for

the evaluation of Vitamin D levels include parathyroid hormone (PTH), calcium, and ionized calcium.

- **Inflammation Markers**

1. High-sensitivity C-Reactive Protein (hs-CRP): less than 1.0 mg/L. This marker shows the presence of inflammation in the body. It helps to look into the possible causes of the inflammation.
2. Homocysteine: less than 7.0-8.0.

Homocysteine also correlates to the inflammation. High levels of homocysteine contribute to congestive heart failure, strokes, migraines, and heart disease to name a few. Simple ways to try to reduce the levels of homocysteine are to take Vitamin B12, B6, and B9. Nevertheless, I usually recommend a complex of methylated B vitamins to lower homocysteine, because taking too much of one B vitamin may imbalance other B vitamins. Recheck your homocysteine levels in 3 months and if not improved, ask your medical practitioner for more advanced testing.

This is a list of very basic laboratory workup that can show a lot of new and interesting information and potential areas that can be worked on and improved upon. Your functional medical practitioner may choose to add more to the work-up depending on your symptoms and complaints.

**Should you need more help with getting to the underlying cause of your fatigue, insomnia, thyroid and hormonal problems, schedule a consultation with Zhanna Tarjeft, FNP [Here](#).**

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