

## Hypothyroidism #1 – Not Every Case is Alike

If you have an underactive thyroid gland, or your thyroid gland has been removed, and you take a thyroid hormone supplement, then you probably have your blood tested occasionally to confirm that your medication dose is correct. But a single blood test alone will not tell the whole story. In order to treat hypothyroidism effectively, several different types of tests may need to be done, the results must be interpreted correctly, and considered within the context of physical examination findings and the patient's symptoms. So, if you have ever been told, "The test result was within the normal range, so everything is fine, and you don't need to change your medication," remember there may be more to the story.

It is important to keep in mind that three different types of data must be considered when formulating the optimal treatment for a patient with hypothyroidism: 1) the patient's symptoms, 2) the blood test results, and 3) the physical examination findings. The treatment plan can only be considered a success if all 3 categories have been optimized – and category #1, patient symptoms, is the first priority. For example, if the patient is reporting symptoms of hypothyroidism despite a "normal" test result, then the treatment plan cannot be considered a success. The opposite situation can also occur: if a patient has no troublesome symptoms, but blood test results are mildly abnormal, then one should not rush into potentially unnecessary treatment.

Let's now review the symptoms and signs of hypothyroidism. If the following sounds familiar, then you may need to adjust your treatment plan. Common symptoms include: unusual fatigue, abnormally increased sleep requirements, depression, lack of motivation, lack of enthusiasm, loss of interest in activities that previously interested you, clouded or "foggy" thinking, poor memory, cold intolerance, dry hair and skin, brittle fingernails, unusual constipation, or just feeling run down. Women may notice abnormal menstrual cycles, often with unusually heavy menstrual bleeding. Have you ever felt like this but were told, "the blood test is normal, so everything is fine..."? If so, read on.

Thyroid hormone blood testing is complex, and therefore often subject to misinterpretation. The first point to appreciate is that standard procedure involves using the TSH (Thyroid Stimulating Hormone) test to evaluate thyroid status. The key issue is that the TSH hormone is made by the *pituitary gland*, not the *thyroid gland*. This pituitary hormone is an indirect indicator of thyroid gland function and the main reason to measure the TSH level is to confirm normal thyroid function status in patients who *don't have a thyroid problem*. In contrast, the thyroid gland makes the following hormones: thyroxine (also called levothyroxine, tetraiodothyronine, and T4) and triiodothyronine (also called liothyronine and T3). Furthermore, most of the thyroid hormone in your bloodstream is bound to proteins, and only a tiny fraction (the free T4 and free T3) is freely dissolved in the body fluids and available to carry out essential hormone functions. So, if your TSH is "in range" but you do not feel well, it might be because your free T3 and free T4 levels are not properly balanced.

For more about balancing T3 and T4 levels, see my next post.