

# Chronic Fatigue Syndrome, Fibromyalgia, and Autoimmune Thyroid Disease

Relationship Among These Conditions

From Mary Shomon & Donna Yeaw Updated December 04, 2003

September 1997 -- First, let's define the three diseases briefly and discuss how they're diagnosed.

While the constellation of symptoms can be similar, the primary complaint in Chronic Fatigue Syndrome (CFS) is the unrelenting fatigue. Even the smallest physical exertion can put the sufferer in bed for days. There is no official clinical test to make a firm diagnosis of CFS. Instead, doctors typically rule out other underlying illnesses before making a CFS diagnosis.

With Fibromyalgia (FMS), an arthritis-related condition, the primary complaint is the pain, a round-the-clock pain that rarely goes away. FMS can be diagnosed via a detailed 18-point "tender point" examination.

With Hashimoto's Autoimmune Thyroid disease ( HAIT), the thyroid fails to produce sufficient thyroid hormone to regulate metabolism. Symptoms of the resulting underactive thyroid usually include some complaint of fatigue or depression, but may include a host of other symptoms, including or muscular and joint pain, excessive weight gain, hair loss, dry and coarse, skin, menstrual irregularities, infertility and recurrent miscarriage, low blood pressure, high cholesterol and others. Diagnosis is most often by the sensitive thyroid stimulating hormone (TSH) test, but some doctors also use the thyrotropin releasing hormone (TRH) test or tests for thyroid antibodies.

Why is Diagnosis Difficult?

CFS, FMS and HAIT patients often visit their doctors complaining of a host of symptoms. (See sidebar.) Since symptoms are similar, there is a risk of misdiagnosis. Some doctors still fail to even acknowledge the existence of CFS and FMS.

And while medical tests can, in most cases, easily test for thyroid problems, many doctors still fail to diagnose the obvious signs of HAIT, or rely only on one test to diagnose the condition. Commonly, HAIT is also often misdiagnosed as depression, stress, or "female" hormonal problems such as premenstrual syndrome, post-partum depression or menopause symptoms, which are often labels applied to CFS and FMS sufferers as well.

Various Symptoms Seen in CFS, FMS & HAIT

Widespread pain

Fatigue

Feeling run down, sluggish

Muscle cramps and pains

Unexplained or excessive weight gain

Inability to lose weight

Gastrointestinal problems Irritable bowel syndrome

Poor sleeping

Headaches and migraines

Constipation  
Exhaustion  
Depression  
Low exercise tolerance  
Rashes  
Concentration difficulties  
Feeling cold Cold in extremities  
Dry, coarse and/or itchy skin  
Dry, coarse and/or thinning hair  
Increased menstrual flow  
More frequent periods  
Infertility  
Difficulty breastfeeding  
Recurrent miscarriage  
Swollen glands  
Low grade fever  
Slowed thinking, mental fog  
Husky voice  
Eczema, acne, rashes  
Swelling and fluid retention  
Carpal tunnel syndrome Numbness and tingling in extremities  
Raynaud's Syndrome  
Reduced sexual interest and ability  
More frequent infections  
Worsening of allergies and asthmatic reactions  
Chemical sensitivities  
Difficulty getting a full breath  
More frequent yeast infections  
Slow pulse  
Puffiness around the eyes  
Low blood pressure  
Neck pain/neck aches

#### Who Gets CFS, FMS and HAIT?

The majority of diagnosed cases of CFS occur in women, most of whom are 25 to 45 years old. FMS strikes mostly women between the ages of 20 and 50. And HAIT is known to affect women seven times more often than men, often women in the same age range. Researchers speculate that the same autoimmune mechanisms may be at work, and hormonal relationships may explain the higher incidence in women.

#### Are CFS, FMS and HAIT All Autoimmune Diseases?

While HAIT is known to be an autoimmune illness, researchers are beginning to believe that there is a strong autoimmune component to CFS and FMS as well. Ultimately, the three diseases may, in fact, be found to be varying manifestations of the same underlying autoimmune problems. The autoimmune connection that underlies these three conditions is discussed at length in the book *Living Well With Autoimmune Disease*.

Research reported in the Journal of Clinical Investigation indicates that there is a clear autoimmune component in chronic fatigue syndrome, and that approximately 52% of chronic fatigue syndrome patients develop autoantibodies indicative of autoimmune reactions.

German researchers also suggested a relationship between CFS and autoimmune disease, including autoimmune thyroid antibodies. In the a 1994 article in the German medical journal Wien Med Wochenschr, (<http://www.ncbi.nlm.nih.gov/htbin-post/Entrez/query?uid=7856214&form=6&db=m&Dopt=r>]Chronic fatigue syndrome: immune dysfunction, role of pathogens and toxic agents and neurological and cardiac changes), a study of 375 patients with chronic fatigue syndrome showed an increased occurrence of autoantibodies in the CFS-patients...especially microsomal thyroid antibodies. According to the researchers, this suggests that "CFS is associated with or the beginning of manifest autoimmune disease."

And the linkage between all three diseases is discussed in a 1996 article in the Canadian Medical Association Journal (<http://www.ncbi.nlm.nih.gov/htbin-post/Entrez/query?uid=8873636&form=6&db=m&Dopt=r>]Neuroimmune mechanisms in health and disease).

Researchers found that defects in the hypothalamus-pituitary-adrenal axis have been observed in autoimmune diseases (such as thyroid disease), rheumatic diseases, chronic inflammatory disease, chronic fatigue syndrome and fibromyalgia. They also found that levels of thyroid hormone are decreased during severe inflammatory disease.

#### What Causes CFS, FMS and HAIT?

Until definitive research is completed on CFS, FMS, HAIT and other autoimmune diseases, there are many hypotheses as to the causes behind these diseases. Some FMS researchers are looking at abnormally low levels of the hormone cortisol and its relationship to FMS. Other FMS researchers are studying regulation of the adrenal gland (which makes cortisol) in fibromyalgia.

Some medical researchers believe that a virus (such as Epstein-Barr, the mononucleosis virus is at the core of these diseases. And while no single virus or cause has been firmly associated with CFS, FMS or HAIT, one medical journal reported that 78% of the CFS patients studied in one research effort also tested positive for the Epstein-Barr Virus. Anecdotally, many thyroid patients report having had serious bouts of mononucleosis, or recurrent Epstein-Barr virus, prior to being diagnosed with HAIT.

Other researchers believe bacterial infection, stress, an accident (such as an auto accident) or other trauma may chronically activate the immune system. The immune system, which ordinarily returns to normal after successfully fighting an infection, then remains in a hyperactive state.

Others have suggested the development of one autoimmune disorder, such as rheumatoid arthritis or lupus may then precipitate the onset of CFS, FMS or HAIT.

And certain researchers are looking to autoimmune thyroid disease itself as perhaps the underlying cause of some CFS and FMS symptoms, or perhaps the root cause of the diseases themselves.

#### Is Thyroid Function and Hormone Conversion At the Center of the Mystery?

Dr. John C. Lowe, one of the nation's pioneers in fibromyalgia research, has, in a 1997 research study reported in the Clinical Bulletin of Myofascial Therapy, that he found clear relationships between thyroid

function and fibromyalgia, and believes that some form of hypometabolism, including thyroid dysfunction, may in part explain FMS.

In studying patients with diagnosed fibromyalgia, Dr. Lowe ran thyroid function tests on each patient. Those with elevated TSH levels (indicating hypothyroidism) did not undergo TRH stimulation tests. Those who had normal TSH levels were subsequently also given a TRH stimulation test.

Of the patients studied:

- \* 10.5% had primary hypothyroidism.
- \* 36.8% were diagnosed as euthyroid (in normal thyroid state)
- \* 52.6% had results, via the TRH test, that were consistent with central hypothyroidism.

Overall, the results of this analysis suggest that approximately 64% of fibromyalgia patients had thyroid hormone deficiencies. And interestingly, the level of primary hypothyroidism found among FMS patients is 10.5 times higher than what you'd expect to find in the general population.

Dr. Lowe cites unpublished studies which indicated that while euthyroid fibromyalgia patients do not have a thyroid hormone deficiency, they benefit as much from receiving T3 as most hypothyroid fibromyalgia patients do from T4. T3 is one of the two thyroid hormones, known commercially as Cytomel, and also a component in the T4/T3 drugs levothyroxine sodium (Synthroid and others), Thyrolar, and the naturally derived Armour Thyroid. Dr. Lowe indicates that a reason for this could be partial cellular resistance to thyroid hormone, as euthyroid fibromyalgia patients resemble patients with thyroid hormone resistance syndromes.

Some HAIT patients who do not resolve their hypothyroidism symptoms while taking T4-only drugs (and having normal levels on TSH tests) have found that taking the T4/T3 combination drugs relieve their hypothyroidism symptoms. This suggests some sort of underlying thyroid hormone resistance syndrome or FMS may also be at play in HAIT patients who do not thrive on the conventional T4 therapies.

Similar linkages between CFS and thyroid hormones have also been suggested. In a 1993 article published in the journal *Medical Hypotheses* researchers indicated that "...we believe much of the symptomatology [of chronic fatigue syndrome] can be explained by...disturbances of insulin and T3-thyroid hormone functions."

In an article by Raphael Kellman, M.D. in the magazine *Alternative Medicine* Dr. Kellman indicates that hypothyroidism -- an underactive thyroid -- as well as certain nutritional deficiencies, may underlie many cases of chronic fatigue.

According to Dr. Kellman, "about 40% of the patients I see in my practice who have chronic fatigue actually have a condition called hypothyroidism--a thyroid gland that fails to meet all its bodily functions which include energy regulation. Nutrient tests have shown us that many chronic fatigue patients have numerous vitamin deficiencies, notably vitamin C and the B-complex vitamins."

How Do Doctors Diagnose HAIT?

As suggested by the research conducted by Dr. Lowe and Dr. Kellman, when HAIT-related hypothyroidism underlies chronic fatigue or fibromyalgia, it may not be picked up by the standard thyroid hormone panel, which tests primarily the TSH, (thyroid stimulating hormone).

If HAIT symptoms are present, but TSH tests are normal, Drs. Kellman and Lowe often rely on the TRH -- thyrotropin releasing hormone -- stimulation test to assess possible hypothyroidism. According to Dr. Kellman, "the physician measures the patient's TSH level (a simple blood test), gives an injection of TRH, then draws blood 25 minutes later and remeasures the TSH. If the first TSH level is normal and the second TSH level is high--above ten--it tells us the patient's thyroid is underactive. A TSH reading of 15 is suspicious, while 20 strongly points to hypothyroidism."

Dr. Kellman states that, "of the patients I've seen with three or more typical symptoms of underactive thyroid but who have tested 'normal' in standard tests, 35-40% actually have underactive thyroids based on the TRH test."

Dr. Elizabeth Vliet, founder of the pioneering women's medical center Her Place, at All Saint's Hospital in Fort Worth, Texas, relies on a thyroid antibodies test to help pinpoint elusive thyroid problems. In her book, *Screaming to be Heard: Hormonal Connections Women Suspect...and Doctors Ignore*, Dr. Vliet says that she does not believe that TSH tests are the almighty indicator of a woman's thyroid health. Dr. Vliet says that symptoms, along with elevated thyroid antibodies and normal TSH, may be a reason for treatment with thyroid hormone. Here's a quote from her book:

"The problem I have found is that too often women are told their thyroid is normal without having the complete thyroid tests done. Of course, what most people, and many physicians, don't realize is that...a 'normal range' on a laboratory report is just that: a range. A given person may require higher or lower levels to feel well and to function optimally. I think we must look at the lab results along with the clinical picture described by the patient...I have a series of more than a hundred patients, all but two are women, who had a normal TSH and turned out to have significantly elevated thyroid antibodies that meant they needed thyroid medication in order to feel normal. This type of oversight is particularly common with a type of thyroid disease called thyroiditis, which is about 25 times more common in females than males...a woman may experience the symptoms of disease months to years before TSH goes up..."

What are the Treatments?

Dr. Lowe's treatments for FMS emphasize inclusion of the T3 thyroid hormone in treatment. Dr. Vliet's treatment for hypothyroid symptoms relies primarily on standard thyroid replacement, (which is typically a brand name or generic version of levothyroxine sodium). And Dr. Kellman, in addition to putting his chronic fatigue/hypothyroidism patients on Synthroid brand levothyroxine sodium, also details in his article a full range of supplements he's used with patients, including an animal-derived glandular called Thyrosine Complex, tyrosine, vitamins C and B complex, grape seed extract, magnesium, the Chinese herb astragalus.

In addition, clinical trials have shown that patients with fibromyalgia benefit from low-dose tricyclic antidepressants, and more doctors are now prescribing these for CFS patients as well. It's also becoming more common for doctors to prescribe other anti-depressants, including serotonin reuptake inhibitors, for patients with CFS, FMS and HAIT.