



## **Doctors' Choice** N U T R I T I O N

### **Chronic Fatigue Syndrome & Fibromyalgia: A Naturopathic Perspective**

In my clinical practice, Chronic Fatigue Syndrome (CFS) and Fibromyalgia (FM) are two very common chronic conditions that are often debilitating and very difficult to treat. The physical, mental and emotional stress incurred by the individual (as well as their loved ones) is often very difficult to witness, yet, strangely inspiring.

From a clinical standpoint, it is important that individuals suffering from chronic fatigue who suspect they may have FM or CFS should ask that their physician first rule out other organic causes of fatigue such as anemia, hypothyroidism, viral infections [eg. Cytomegalovirus (CMV), Lyme disease, Human Herpes Virus 6 (HHV 6), Epstein Barr Virus (EBV)], and cancer.

While there are many similarities between FM and CFS (namely symptoms of chronic musculoskeletal pain, aching and stiffness, disturbed sleep, depression and fatigue), the presence and pattern of "tender points" differentiates FM from CFS.

According to the American College of Rheumatology, the criteria for classification of FM are as follows: History of widespread pain for at least three months, occurring in all of the following areas such as above and below the waist, on both the left and right side of the body and axial skeletal pain (pain along the cervical, thoracic or lumbar spine). It includes mild to debilitating tenderness in at least 11 of 18 defined points located over muscles and tendon insertions (eg. occiput, trapezius and supraspinatus muscles, knees, etc.). Common physical and laboratory findings for FM include chronic aching, stiffness, sleep disturbances, pain, headaches, anxiety, depression, fatigue, low levels of adenosine triphosphate (ATP) (the energy currency of the cell), and intestinal disturbances among others.

These symptoms can often be exacerbated by environmental or emotional stress and pain is often the most prominent symptom which begins in one region such as the neck or shoulders, and slowly spreads to other areas of the body over time.

In contrast to FM, CFS is diagnosed when the patient meets both of the following criteria: a) Persistent or relapsing chronic fatigue that is unexplained by laboratory assessments and is not due to ongoing physical exertion; fatigue that is not significantly improved by rest and b) at least four or more of the following symptoms such as, sore throat, tender lymph nodes, muscle pain, multiple joint pain without swelling, headaches, poor sleep or insomnia, and post-exertional malaise that lasts greater than 24 hours.

It is still unclear as to what is the definitive cause of FM and CFS; rather, there are many theories which include trauma to the nervous system (eg. from stressors such as illness, injury, or trauma), dysfunction in the endocrine system, poorly regulated muscle metabolism, immune dysfunctions, thyroid disorders, adrenal fatigue, imbalance in the gut flora between beneficial and harmful bacteria (dysbiosis), and liver congestion due to toxicity.

While research studies do support each of the above hypotheses, it may be noteworthy consider the possibility that FM and CFS are multi-faceted in origin whereby adrenal stress, environmental toxicity, dysbiosis, food intolerances, trauma and oxidative stress all facilitate an increase in inflammatory chemicals being released with subsequent physical, mental and emotional distress, all of which characterize FM and CFS.

The immune dysfunction hypotheses is supported by the clinical symptoms found in CFS and FM which seem to coincide with chronic microbial infections such as Lyme disease caused by the bacteria *Borrelia burgdorferi* or chronic viral infections such as the EBV, CMV, HHV 6 and Coxsackie virus. Further evidence suggest that patients with CFS have higher antibody titres against the HHV 6 which may play an important role in the activation and progression of CFS.

During a chronic viral infection, the immune system is activated whereby inflammatory chemicals (eg. cytokines such as Interleukin-2) contribute to sensations of pain, the lymphatic system is activated with enlarged lymph nodes, and sleep disturbances, alterations in mood, muscle tension and fatigue may result; all of which appear to mirror the symptoms found in CFS and FM.

(For ideas on how to strengthen your immune system, please refer to my previous article entitled "The Immune System & Chronic Illness").

The trauma trigger hypotheses is particularly interesting as I am reminded of my very first patient whom I treated as a naturopathic medical intern. This patient was a pleasant lady in her early forties who was diagnosed with FM after she suffered a blow to her head from a falling ceramic pot. Her case appeared to mirror that of a study which indicated that over 60% of patients with FM had been involved in a motor vehicle accident before the onset of their symptoms. Recent research has shed possible light onto the correlation between whiplash and motor vehicle accidents and chronic pain. It was found that tension or laxity in the rectus capitis posterior minor muscle (a muscle at the back of the neck that has an attachment from the first cervical vertebrae to the occiput) or its connective tissue attachment to the spinal cord, could lead to an impairment in the circulation of the cerebral spinal fluid leading to elevated levels of substance P (a protein chemical that is released by intense painful stimuli) with concurrent depressed levels of serotonin (a "feel-good" hormone) being released in their spinal cord.

The thyroid dysfunction hypothesis is intriguing as the clinical features of FM, CFS and hypothyroidism are almost identical. Low levels of thyroid hormone has been shown to cause an increase in substance P and a reduction in serotonin levels. There also appears to be a large percentage of those with CFS and FM who suffer from hypothyroidism (12-45% in FM/CFS vs. 2-6% in the normal population). The cause of thyroid dysfunctions in these cases have mostly been associated with exposure to environmental toxins such as PCBs and dioxins, both of which are highly toxic to the immune system and deplete the body of essential B-vitamins. These chemicals also cause the displacement of thyroid hormones from its carrier proteins, preventing their binding onto receptor sites resulting in thyroid dysfunctions.

On a daily basis, we are exposed to chemical toxins whether through ingestion, inhalation, or absorption. These toxins disturb various physiological functions and include pesticides, food additives, and synthetic chemicals. These chemicals also cause the displacement of thyroid hormones from its carrier proteins, preventing their binding onto receptor sites resulting in thyroid dysfunctions. The chronic exposure to toxins over time can result in triggering peripheral pain receptors which can lead to an increased sensitization and exaggerated response to environmental stimuli (please refer to my previous article entitled "The Role of Detoxification in Chronic Illnesses"). Researchers believe that these factors contribute to chronic pain seen in FM; it is of interest to note that about 47-67% of patients with FM and 53-67% of patients with CFS have reported at least one episode where their symptoms worsened after specific chemical exposure.

Recall that xenobiotics and foreign chemicals cause illness either by its direct toxic effects or their toxic intermediates formed during the body's detoxification process. Furthermore, toxic compounds that are not completely eliminated may be reabsorbed into circulation for further detoxification by the liver resulting in increased free radical production that results in cellular damage

In the body, toxins which are not removed from the body, are stored in organ systems, joints, and in adipose (white fat) tissue. Recently, researchers have found that adipose tissue may be actively involved in the inflammatory process (often seen in FM and CFS). The discovery of the hormone leptin which is produced by fat cells, confers an endocrine function to fat tissue. Leptin is among a number of proteins secreted from adipocytes (fat cells), including adiponectin, retinol binding protein, tumor necrosis factor alpha (TNF $\alpha$ ), interleukin-6 (IL-6), and plasminogen activating inhibitor 1 (PAI-1) among others. Of note, TNF $\alpha$  and IL6 are well known inflammatory chemicals. For example, TNF $\alpha$  has been found to stimulate the expression of genes involved in the production of other inflammatory mediators and may serve as an early marker for inflammatory pathological conditions.

In the midst of all the information I have just presented, I am reminded that while technical and clinical information is relevant, I am reminded that individuals who suffer from CFS and FM on a daily basis may just be sick and tired of being sick and tired; aside from having to wade through a maze of doctors, massage therapists, and counsellors, having to deal with new technical information may just be the last straw.

While the treatment options for CHS and FM may be as varied as the hypotheses regarding the etiology behind these conditions, some very simple tips to minimize the inflammatory process and achieve some relief of muscle aches and pains may include a diet free from processed foods, additives and preservatives, as well as red meat which contain saturated fat and inflammatory mediators. Rather, introduce into your diet cold water fish such

Doctors' Choice Nutrition  
1190 Thurlow Street, Vancouver, B.C. V6E 1X3  
Tel: 604-688-1169 Fax: 604-688-1176  
[www.doctorschoicenutrition.ca](http://www.doctorschoicenutrition.ca)

as salmon, tuna, and mackerel at least twice per week as a source of essential fatty acids which not only reduce harmful cholesterol but also provide potent anti-inflammatory benefits (an alternative would be supplementing with a good quality fish oil that is cold-pressed, processed via molecular distillation and screened for heavy metal contamination). Eating whole grains, fruits and vegetables as a source of fibre is essential to attain regular bowel evacuation for the removal of toxins metabolized by the liver. Drinking at least half your body weight in ounces is a wonderful guideline to ensure adequate hydration, and promote the elimination of waste products and toxins via the kidneys.

I often recommend a good detoxification program prior to starting any other supplementation to ensure optimal absorption and efficacy of these treatments. Upon successful completion of the detoxification program, my patients suffering from CFS and FM are prescribed some essential natural health products to support the production of cellular energy in the mitochondria; these include CoQ10, and B-vitamins such as Vitamin B12, Vitamin B6. In addition to these, malic acid and aspartate also promote the production of energy; the combination of magnesium and malic acid is essential as magnesium in and of itself is a very effective muscle relaxant while low levels of malic acid has been shown to result in a shift to a very inefficient (anaerobic) means of generating energy in the body. This results in the abnormal buildup of lactic acid which occurs after exertion. The buildup of lactic acid results in muscle pain, achiness and fatigue as is often seen in CFS and FM.

L-carnitine is also important as researchers have found low levels of the carnitine compound acetylcarnitine in the blood or muscles of those living with CFS and FM. Carnitine plays many roles in the body but it essential in supporting the optimal function in the mitochondria and hence energy production; this is achieved by preventing a substance called acetyl coenzyme A from building up and shutting down the Krebs cycle in the mitochondria. The form of carnitine is important to note as clinical results with acetyl-L-Carnitine has been shown to be more effective than L-Carnitine or D-L-Carnitine.

In conclusion, there are many treatment options for CFS and FM however, this is a field in medicine which is still poorly understood with much clinical research yet to be done. The treatment options for CFS and FM is much too vast to summarize in this brief article however individuals living with these debilitating conditions may also want to consider acupuncture therapy and botanical medicines with antiviral properties (eg. Olive leaf extract). The fundamental principle of naturopathic medicine entails the identification and treatment of the underlying cause as opposed to just the symptoms of dis-ease; as the underlying etiologies for Chronic Fatigue Syndrome and Fibromyalgia are many, it is advisable for those suffering from these conditions seek help from licensed healthcare providers who understand this principle, and who can apply it in their approach to treatment for maximal outcome.

Dr. Aaron Christopher Hoo is a naturopathic physician with a private practice in Vancouver, British Columbia. He can be reached at 1190 Thurlow Street, Vancouver, British Columbia, Canada, V6E 1X3. Tel 604 688 1169. [www.draaronhoo.meta-ehealth.com](http://www.draaronhoo.meta-ehealth.com)