Your Monthly Update

Dear Colleague

Welcome to the May 07 newsletter from Pure Bio Ltd.

Did you know. . .?

Research has shown that Milk Thistle (Silymarin) could play an important role in the treatment of diabetes. A randomised, double-blind, placebo controlled trial showed that over a 4 month period blood sugar, glycosylated haemoglobin and total cholesterol all reduced in the group taking 200mg silymarin 3 x daily.

Our topic for this month, in response to a specific request, is:

Chronic Fatigue Syndrome

Ranking	Nutritional Supplements	Botanical Medicine
Secondary	L-carnitine NADH Potassium-magnesium aspartate Vitamin B12	
Other	DHEA Fish oil (EPA/DHA) Magnesium	Asian (Panax) ginseng Eleuthero (Siberian ginseng) Licorice

Primary – Reliable and relatively consistent scientific data showing a substantial health benefit.

Secondary – Contradictory, insufficient, or preliminary studies suggesting a health benefit or minimal health benefit.

Other – An herb is primarily supported by traditional use, or the herb or supplement has little scientific support and/or minimal health benefit.

Related Terms: Chronic fatigue and immune dysfunction syndrome, CFIDS, CFS, Myalgic encephalomyelitis

Chronic fatigue syndrome is a complex illness affecting the brain and multiple body systems. It is defined by incapacitating fatigue that is not relieved by rest, and at least four of the following symptoms for at least six months:

- **impaired short-term memory of concentration which significantly affects normal activities**
- **sore throat**
- **tender lymph nodes in the neck or underarms**

- muscle pain
- pain in multiple joints with no joint swelling or redness
- headaches of a new type or severity
- unrefreshing sleep
- general malaise following physical exertion that lasts more than 24 hours

Other common symptoms include: bloating, nausea, diarrhea, night sweats or chills, brain fogginess, dizziness, shortness of breath, chronic cough, visual disturbances, allergies or sensitivities to foods, alcohol, chemicals, irregular heartbeat or palpitations, jaw pain, or eyes or mouth.

Chronic fatigue syndrome is more common in women than men, and the majority of people affected are in their thirties.

Causes

The cause of chronic fatigue syndrome is unknown and there are no specific lab tests to diagnose this condition. Multiple triggers may be involved, such as viral infection, stress, nutrient deficiency, toxins, and hormone imbalances.

- **Viral Infection. Chronic infection with viruses, such as Epstein-Barr virus, human herpes virus 6, and cytomegalovirus, may contribute to the development of chronic fatigue syndrome in some people.**
- **Immune Dysfunction. Another factor thought to be involved in chronic fatigue syndrome is immunologic dysfunction, such as the inappropriate production of inflammatory cytokines. This results in excessive amounts of nitric oxide and peroxynitrite and produces fatigue.**
- **Hormone imbalances. Some studies have found that people with chronic fatigue syndrome have lower levels of the hormone cortisol, which is secreted by the adrenal glands. Lowered level of cortisol may promote inflammation and activate immune cells. Thyroid disorders have also been implicated in chronic fatigue syndrome.**

Dietary Modification

Some doctors believe that people with CFS who have low blood pressure should not restrict their salt intake. Among CFS sufferers who have a form of low blood pressure triggered by changes in position (orthostatic hypotension), some have been reported in a preliminary study to be helped by additional salt intake. People with CFS considering increasing salt intake should consult a doctor before making such a change.

An increased need for salt may be associated to a state of adrenal exhaustion, where sodium levels are severely depleted due to decreased production of cortisol.

Lifestyle Modification

Exercise is important to prevent the worsening of fatigue. Many people report feeling better after undertaking a moderate exercise plan. However, most people with CFS are sensitive to overexertion, and excessive exercise may lead to consistently worsening fatigue and mental functioning. Exercise should be attempted gradually, starting with very small efforts. One small study found that intermittent exercise, in which patients walked for three minutes followed by three minutes of rest for a total of 30 minutes, did not exacerbate their CFS symptoms.

Nutritional Supplement Treatment Options

Potassium/Magnesium Aspartate - The combination of potassium aspartate and magnesium aspartate has shown benefits for chronically fatigued people in double-

blind trials. However, these trials were performed before the criteria for diagnosing CFS was established, so whether these people were suffering from CFS is unclear. Usually 1 gram of aspartates is taken BID, and results have been reported within one to two weeks – *Potassium/Magnesium PE*

Vitamin B12 deficiency may cause fatigue. However, some reports, even double-blind ones, have shown that people who are not deficient in B12 have increased energy following a series of vitamin B12 injections. Some sources in conventional medicine have discouraged such people from taking B12 shots despite this evidence. Nonetheless, some practitioners have continued to take the limited scientific support for B12 seriously. In one preliminary trial, 2,500 to 5,000 mcg of vitamin B12 given by injection every two to three days led to improvement in 50 to 80% of a group of people with CFS; most improvement appeared after several weeks of B12 shots. While the research in this area remains preliminary, people with CFS considering a trial of vitamin B12 injections should consult a doctor. Oral or sublingual B12 supplements can be used in preference to injectable B12, but relatively high doses are required due to the poor intestinal absorption.

- ***B12/Folic Acid PE***
- ***Methylcobalamin PE***

Vitamin B6 - A preliminary trial has shown that people with CFS have reduced functional B-vitamin status when compared to people without the condition. The functional vitamin deficiency seen in this study was most pronounced for vitamin B6 –

- ***B6 Complex PE***
- ***P5P50 PE***

L-carnitine is responsible for transporting long-chain fatty acids into the mitochondria. It allows these fatty acids to be converted into energy.
There may be a problem in the mitochondria of people with CFS. Deficiency of carnitine has been seen in some CFS sufferers and it has been linked with muscle fatigue and pain and impaired exercise tolerance.

One study examined the use of one gram of L-carnitine in 30 people with chronic fatigue syndrome. After 8 weeks of treatment, there was statistically significant clinical improvement in 12 of the 18 parameters, with the greatest improvement occurring after 4 weeks of treatment. One person was unable to complete the 8 weeks of treatment due to diarrhoea. There was no placebo group in this study and it wasn't blinded.

Supplemental L-carnitine is generally well tolerated, however high doses of L-carnitine may cause digestive upset and diarrhoea. Occasionally, increased appetite, body odour, and rash may occur – *l-Carnitine PE*

NADH (nicotinamide adenine dinucleotide) NADH is a naturally occurring molecule formed from vitamin B3 (niacin) that plays an essential role in cellular energy production (ATP). In a double-blind trial, people with CFS received 10 mg of NADH or a placebo each day for four weeks. Of those receiving NADH, 31% reported improvements in fatigue, decreases in other symptoms, and improved overall quality of life, compared with only 8% of those in the placebo group. Further double-blind research is needed to confirm these findings.

Magnesium levels have been reported to be low in CFS sufferers. In a double-blind trial, injections with magnesium improved symptoms for most people. Oral magnesium supplementation has improved symptoms in those people with CFS who previously had low magnesium levels, according to a preliminary report, although magnesium injections were sometimes necessary. These researchers report that magnesium deficiency appears to be very common in people with CFS. If people with CFS do consider magnesium supplementation, they should have their magnesium status checked by a Whole Blood Spectrum Analysis before undertaking supplementation. It appears that only people with magnesium deficiency benefit from this therapy.

- ***Liquid Magnesium Pure Bio***
- ***Magnesium Aspartate PE***
- ***Magnesium Citrate PE***
- ***Magnesium Glycinate PE***
- ***Magnesium Orotate Kloesterl***

Coenzyme Q10 (CoQ10) is a compound found naturally in the mitochondria. CoQ10 is involved in the production of ATP, the main energy source of body cells. It is also an antioxidant.

A survey of 155 people with persistent fatigue found that the percentage of users who found a treatment helpful was greatest for Co Q10 (69% of 13 people).

- **CoQ10 30mg PE**
- **CoQ10 60mg PE**
- **CoQ10 120mg PE**

Dehydroepiandrosterone (DHEA). DHEA is secreted by the adrenal glands and in smaller amounts by the ovaries and testes. DHEA can be converted in the body to other steroid hormones, such as estrogen and testosterone. It is also involved in memory, mood, and sleep. Levels of DHEA in the body peak when a person is in his or her mid-20's and then slowly decline with age. In one report, DHEA levels were found to be low in people with CFS. Another research group reported that, while DHEA levels were normal in a group of CFS patients, the ability of these people to increase their DHEA level in response to hormonal stimulation was impaired. Whether supplementation with DHEA might help CFS patients remains unknown due to the lack of controlled research.

DHEA is not recommended unless lab tests indicate there is a deficiency. Treatment should be closely supervised by a qualified health practitioner. Little is known about the long-term safety of DHEA.

Because DHEA is converted to estrogen and testosterone, people with estrogen- and testosterone-related conditions, such as breast, ovarian, prostate, and testicular cancer) should avoid DHEA.

EPA/DHA - Essential fatty acids have been used in the treatment of chronic fatigue syndrome. One theory about how they work is that viruses reduce the ability of cells to make 6-desaturated essential fatty acids and supplementing with essential fatty acids corrects this disorder.
In a double-blind, placebo-controlled study of 63 people, the participants were given either a combination of essential fatty acids from EPA/DHA and evening primrose oil (eight 500 mg capsules a day) or a placebo. After 1 and 3 months, people taking essential fatty acids had significant improvement in chronic fatigue syndrome symptoms compared to those taking the placebo pills.

- ***EPA/DHA Essentials PE***
- ***EPA/DHA liquid PE***
- ***DHA Enhance PE***
- ***Neuromins PE***

Botanical Treatment Options

Licorice - Some research suggests that CFS may be partially due to low adrenal function resulting from different stressors (e.g., mental stress, physical stress, and even viral illness) and impacting the normal communication between the hypothalamus, pituitary gland, and the adrenal glands. Licorice root is known to stimulate the adrenal glands and to block the breakdown of active cortisol in the body. One case report described a man with CFS whose symptoms improved after taking 2.5 grams of licorice root daily. While there have been no controlled trials to test licorice in

patients with CFS, it may be worth a trial of six to eight weeks using 2 to 3 grams of licorice root daily, or tincture equivalent – *Licorice tincture Pure Bio*

Ginseng - Adaptogenic herbs such as Asian ginseng and eleuthero may also be useful for CFS patients—the herbs not only have an immunomodulating effect but also help support the normal function of the hypothalamic-pituitary-adrenal axis, the hormonal stress system of the body. These herbs are useful follow-ups to the six to eight weeks of taking licorice root and may be used for long-term support of adrenal function in people with CFS.

A survey of 155 people by researchers at the University of Iowa with persistent fatigue found that ginseng was considered one of the more helpful treatments, with 56% of people who used ginseng rating it as effective.

Researchers in California found that Panax ginseng significantly enhanced cellular immune function by peripheral mononuclear cells (blood cells that are a critical component in the immune system to fight infection) in people with chronic fatigue syndrome or acquired immunodeficiency syndrome (AIDS).

- ***Panax ginseng PE***
- ***Eleuthero PE***
- ***Panax ginseng tincture Pure Bio***
- ***Siberian ginseng tincture Pure Bio***

Integrative Options

Highly stressful situations should be avoided by people with CFS. Coping mechanisms for dealing with stress can sometimes be maximized by behavioural therapy, which has been shown helpful for people with CFS in several controlled studies.

Ayurveda

A typical approach in ayurveda may be to improve digestion and eliminate toxins with a detox program. Ayurvedic herbs may also be used, such as ashwagandha, amla, bala, triphala, and lomatium, which are combined according to the patient's dosha, or constitutional type. The vata dosha is thought to be susceptible to chronic fatigue syndrome.

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