

NUTRITIONAL SUPPLEMENTS IN DISSEMINATED LYME DISEASE

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July, 2008

Page 1 of 4

BACKGROUND INFORMATION

Studies on patients with chronic illnesses such as Lyme and Chronic Fatigue have demonstrated that some of the late symptoms are related to cellular damage and deficiencies in certain essential nutrients. Double blinded, placebo controlled studies, and in one case direct assay of biopsy specimens have proven the value of some of the supplements listed. Some are required, while others are optional -see below. They are listed in order of importance.

I suggest you use a pill organizer. These are multi-compartment boxes that you pre-fill with your pills once a week. This makes the task of taking a large number of tablets much, much simpler and can markedly minimize missed doses. The Vitamin Shop sells a variety of good organizers.

I have found that the quality of supplements used is often more important than the dose. In fact, I do not recommend "mega doses". Instead, seek out, if possible, pharmaceutical grade products, especially if USP certified. I recommend, among others, Pharmanex, Researched Nutritionals and Nature Made products because they fit these criteria. In the list below, it is indicated whether the products should be gotten from Pharmanex, Researched Nutritionals, a different specific manufacturer, or even if a generic substitute is OK.

To order products from Pharmanex, you need to register as a customer with a referral from another registered customer. You may use my referral number (US9256681) to get started. Call 1-800-487-1000.

To order products from Researched Nutritionals, you will need a physician's referral. If your own physician does not have an account, you may use my name when ordering. Call 1-800-755-3402. Nature Made products are widely available in vitamin stores and pharmacies.

BASIC DAILY REGIMEN (in order of importance)

1. PROBIOTICS (required when on antibiotics)

Kefir: This is a yogurt-like drink that is said to more permanently replenish beneficial flora. You only need to drink 2 to 4 ounces a day.

Acidophilus: the best kinds are frozen or refrigerated to ensure potency. Take two with each meal. Plan to mix together several different brands to broaden the spectrum. You can get acidophilus from most vitamin stores but some generic brands are of unknown freshness and potency. An alternative that does not need refrigeration and can be taken only once a day is a high potency, patented product called "**Pro Bio**" from Pharmanex. The ultimate mix of pre- and probiotics with soil based organisms is a product called "**Prescript-Assist Pro**" from Researched Nutritionals. This too does not need refrigeration.

In addition, have 4 ounces of sugar-free **yogurt** on occasion.

2. MULTI-VITAMIN (required)

I recommend the **Life Pack** family of multivitamins available through Pharmanex. These are unique supplements- pharmaceutical grade and USP certified, they are the only products clinically proven in double blinded, placebo controlled crossover studies to quench free radicals and raise antioxidant levels in the blood and lipids. Choose LifePak for males under 40, LifePak Women for hormonally active women, LifePak Prenatal when pregnant, and LifePak Prime for postmenopausal women and for men over 40. LifePak Teen is also available. Continue long term.

NUTRITIONAL SUPPLEMENTS IN DISSEMINATED LYME DISEASE

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July, 2008

Page 2 of 4

3. CO-Q10- *required, but do not use while taking the prescription drug atovaquone (Mepron, Malarone).*

Deficiencies have been related to poor function of the heart, limitations of stamina, gum disease, and poor resistance to infections. Heart biopsy studies in Lyme patients indicated that they should take between 300 and 400mg daily. I recommend you get the Co Q-10 from Researched Nutritionals. One caplet contains 400 mg, so take one a day with food.

4. ALPHA LIPOIC ACID (required)

This facilitates entry of CoQ-10 into mitochondria. Dose is 300 mg twice daily. Generic is OK.

5. VITAMIN B (required).

Clinical studies demonstrated the need for supplemental vitamin B in infections with Borrelia, to help clear neurological symptoms. Take one 50 mg B-complex capsule daily. If neuropathy is severe, an additional 50 mg of B-6 can be added. Generics are OK.

6. MAGNESIUM (required)

Magnesium supplementation is very helpful for the tremors, twitches, cramps, muscle soreness, heart skips and weakness. It may also help in energy level and cognition. The best source is magnesium L-lactate dehydrate ("**Mag-tab SR**", sold by Niche Pharmaceuticals: 1-800-677-0355, and available at Wal-Mart). DO NOT rely on "cal-mag", calcium plus magnesium combination tablets, as they are not well absorbed. Take at least one tablet twice daily. Higher doses increase the benefit and should be tried, but may cause diarrhea. In some cases, intramuscular or intravenous doses may be necessary.

7. ESSENTIAL FATTY ACIDS: (required)

Studies show that when EFAs are taken regularly, statistically significant improvements in fatigue, aches weakness, vertigo, dizziness, memory, concentration and depression are likely. There are two broad classes: GLA (omega-6 oils) and EPA (omega-3 oils), derived respectively from plant and fish oils. This is what to take:

Plant Oil: Use a refrigerated product of mixed omega oils obtained from the local health food store. Take one to two tablespoons daily. May be mixed with food, put on salads, etc.

Fish Oil: Use "**Marine Omega**" by Pharmanex. Use four daily, taken on a full stomach (this brand is required because it is certified to be free of any measurable amounts of heavy metals and organic toxins).

8. NT-FACTOR

This product addresses the mitochondrial damage thought to underlie the metabolic dysfunction associated with chronic diseases which, in patients with tick-borne illnesses, is manifest by fatigue and neurologic dysfunction. It is the single most reliable agent I have found that can give noticeably increased energy levels. When supplements known to support neurological function are added (see below), improved cognition and memory often result. You will notice this within two to three weeks. It also contains high quality prebiotics and probiotics. Available from Researched Nutritionals.

OPTIONAL SUPPLEMENTS FOR SPECIAL CIRCUMSTANCES

FOR NEUROLOGIC SYMPTOMS- here, the goal is three-fold- supply the metabolic needs, replenish what has become depleted, and protect the neurons and their supportive cells. The "required" supplements, above, must be taken, and the items that follow below are considered "add-ons".

NUTRITIONAL SUPPLEMENTS IN DISSEMINATED LYME DISEASE

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July, 2008

Page 3 of 4

ACETYL-L-CARNITINE- this is taken along with **SAM-e**. This combination can result in noticeable gains in short term memory, mood and cognition. The Acetyl Carnitine also is said to help heart and muscle function. Doses: Acetyl-L-carnitine- 1500-2000 mg daily on empty stomach; SAM-e- 400 mg daily with the acetyl carnitine. Positive results may appear as early as 3 weeks; use for 2 to 3 months, but repeat or extend this course if needed. Available in most vitamin stores; Generic acetyl carnitine is okay, but I recommend "Nature Made" brand SAM-e (also available at most vitamin stores).

METHYLCOBALAMIN (Methyl B12)

Methylcobalamin is a prescription drug derived from vitamin B12. This can help to heal problems with the central and peripheral nervous system, improve depressed immune function, and help to restore more normal sleeping patterns. Many patients note improved energy as well. Because the oral form is not absorbed when swallowed or dissolved under the tongue, Methyl B12 must be taken by injection. Dose is generally 25 mg. (1 c.c.) daily for 3 to 6 months. Long term studies have never demonstrated any side effects from this drug. However, the urine is expected to turn red shortly after each dose- if the urine is not red, a higher dose may be needed or the present supply may have lost potency. The injectable form of this is not available in regular drug stores. It must be manufactured (compounded) by specialty pharmacies on order.

GREEN TEA

Green, but not black tea contains some of the most potent antioxidants around (80-100 times more effective than vitamin C). I strongly recommend this to any patient with degenerative changes to the central nervous system. At least four cups daily are needed to reap this benefit, and the tea must be decaffeinated. A nice alternative is "**TeGreen**" capsules by Pharmanex. They contain 97% pure tea polyphenols and each capsule is the equivalent of four cups of decaffeinated green tea. Take one to three daily.

CORDYMAX

Cordyceps is a well-known herb from Tibet that has been shown in clinical studies to improve stamina, fatigue, and enhance lung and antioxidant function. It also raises superoxide dismutase levels, important to prevent lesions in the central nervous system, which is why this (along with green tea) is essential if neurodegeneration is part of your illness. The positive effects can be dramatic; can be used long term. USP- certified cordyceps is available from Pharmanex as "**CordyMax**".

CITICHOLINE

Many studies have shown benefits to cognition, especially memory. Benefits are slow to notice, so plan to use this long-term. Dose is 500 to 1000 mg twice a day.

FOR IMMUNE SUPPORT

"REISHI MAX "

This enhanced extract from cracked spores of the reishi mushroom has been shown in clinical studies to augment function of the Natural Killer Cells as well as macrophages. Recommended in all patients who have a CD-57 count below 60. Take four a day. Available only from Pharmanex.

TRANSFER FACTORS are the body's natural signals meant to activate the pathogen-killing effects of the cellular immune system. Therapy with these agents consists of taking both a general stimulator, plus specific transfer factors for the infection you have. Personal experience made me a believer in transfer factor therapy. For Lyme patients, use Transfer Factor Multi-Immune as the

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Page 4 of 4

general stimulant, and Transfer Factor Lyme-Plus as the specific agent. Both are exclusives from Researched Nutritionals, and I have found them to be surprisingly effective in making the very ill respond better to treatment. Take as directed on the label.

FOR JOINT SYMPTOMS

GLUCOSAMINE

Glucosamine can be of long term benefit to the joints. Do not be misled into buying a product that also contains chondroitin, as this chemical does not add anything, but it can make the product more expensive. Look for a product that contains the herb *Boswellia serrata*- this is a non-irritative anti-inflammatory. Although many generics exist, the Pharmanex product, "**Cartilage Formula**" has the right ingredients and is of proven efficacy. Expect improvement only over time (several weeks), but plan to use this indefinitely to maintain joint health.

VITAMIN C

Vitamin C is important to aid in maintaining healthy connective tissues. High doses are recommended- 1000 to 6000 mg a day as tolerated (if the dose is too high for you it may cause acid stomach, gas and loose stools). Consider using "Ester-C" (non-acid and longer acting), or "C-Salts" (very well tolerated). Start with a low dose and increase slowly to find your tolerance level.

FLEX CREAM

This is an amazing liniment-like product that really works and has a money back guarantee. Use for any type of body pain- spread on a thick layer and do not rub in. It takes 30 to 60 minutes to work, then lasts many hours. A Pharmanex exclusive.

OTHER OPTIONAL SUPPLEMENTS

VITAMIN D

Surprisingly, most people in America are vitamin D deficient. In the Lyme patient, low vitamin D levels can cause diffuse body aches and cramps that are not responsive to magnesium or calcium supplements. Some also believe that vitamin D is essential for normal immune and hormone function. I strongly urge you to have a fasting blood level drawn. It is recommended that the blood levels be in the upper half or the normal range. If it is not, then 2000 to 4000 units daily are needed for several weeks to make up for the deficit, and then a lower maintenance dose may be necessary, based on results from repeated blood level monitoring. If vitamin D is needed, improvements take 2 to 3 weeks to note, but are well worth the wait.

CREATINE

Creatine has been shown to be of benefit in neuromuscular degenerative diseases such as Lou Gherig's Disease (ALS) and can be very helpful in supporting low blood pressure, as in NMH. It may also benefit strength, stamina, and heart function. Important: To use this safely, you must have an adequate fluid intake. The creatine product should contain taurine, an amino acid needed to enhance creatine absorption, plus some carbohydrate to aid creatine entry into muscle. You will need a 20 gram daily loading dose for the first five days, then 4 to 10 grams daily maintenance. Try "**Cell Tech**" from the Vitamin Shop, and follow label directions.

MILK THISTLE

Useful to support liver function. Take 175 mg daily- use an 80% Silymarin extract. Available from many vitamin stores.