

## Using Nutrients to Protect the Body and Counter HIV Symptoms and Drug Side Effects by Lark Lands

Many studies have shown that people living with HIV/AIDS develop multiple nutrient deficiencies in early disease stages, and that they worsen over time. The nutrient deficiencies contribute to both immune dysfunction and the development of many different symptoms. Protecting the body with a plentiful supply of nutrients—from both a nutritious diet and nutrient supplements—provides three very important benefits.

□ **First, optimal levels of nutrients will boost the immune response, both before and after antiretroviral drugs (HAART) are taken.** Researchers have shown that people with higher levels of nutrients progress more slowly. The reason is that the immune response is dependent on the nutrients that make up immune cells and chemicals. The body's need to crank out an immune response to HIV, day in and day out, makes this a very nutrient-depleting disease. The result is that you rapidly use up your antioxidants and the other nutrient building blocks that are key in your immune response. Thus, it's very important to always replenish nutrients.

□ **Second, for those who are on HAART, appropriate nutrient supplementation can greatly decrease or eliminate many drug side effects.** In turn, that can help prevent drug failure since you are much more likely to properly adhere to drugs when they aren't making you feel sick or causing symptoms that you hate. Both studies and anecdotal reports from the community have shown that far too many people are skipping doses to try to lessen side effects. When that happens, it's highly likely to lead to drug resistance and failure. Using nutrients to help prevent side effects can make it much more likely that drugs will be consistently taken as directed, thus maintaining their effectiveness. That means that your meds—and their ability to save your life—may remain effective for years and years instead of months.

□ **Third, your quality of life can be immensely improved when life-degrading symptoms are eliminated or, at least, lessened with nutrient supplementation.** Whether symptoms are caused by HIV itself or by HAART meds, nutrients can often help eliminate them and greatly improve quality of life. The result will be that you can gain the benefits that the drugs can give you, while avoiding the side effects that can make taking them so difficult. And that can help you live *well* with HIV, not just longer.

**One of the most important parts of a formula for living well is to do a long-term program that provides protection against (1) oxidative stress, (2) mitochondrial damage, and (3) inflammation.**

□ **Oxidative Stress.** A great many studies have shown that oxidative stress begins in early HIV disease stages and worsens over time. In essence, oxidative stress occurs when the body's supply of antioxidants is insufficient to counter the various body processes—including the body's immune responses to HIV—that generate unstable molecules called free radicals and reactive oxygen species. These unstable molecules may serve an initial purpose such as destroying organisms like viruses or participating in normal body processes but they can then cause cellular damage when they bounce around through the body, picking off electrons from places they shouldn't and damaging cells and tissues along the way. So throughout this disease, much higher than normal levels of the antioxidants which can stop these unstable molecules in their tracks are needed to prevent this damage. When there are not enough antioxidants, both immune cells and vital organs like the liver can be harmed.

For example, research has shown that cellular levels of glutathione, the most important intracellular antioxidant, begin to decrease within weeks of HIV infection, and go downhill from there. Those decreased levels of glutathione have been shown to be tied to the death of immune cells. In addition, the liver is absolutely dependent on adequate supplies of glutathione to break down toxic chemicals. If its supply of glutathione is inadequate, it's more likely to be damaged when it has to break down drugs. Using the nutrients that help to stabilize glutathione levels—particularly alpha-lipoic acid, N-acetyl-cysteine (NAC), glutamine, and vitamins E and C—can help maintain immune cells, protect the liver through years of taking HAART meds, and support the body, in general, against oxidative stress. In addition to glutathione, there are many other antioxidants in the body which work in different ways and in different places to protect it against oxidative stress, so keeping all the antioxidants—especially vitamin C, vitamin E, superoxide dismutase (SOD), the carotenoids (like beta-carotene and lycopene and lutein), selenium, alpha-lipoic acid, and coenzyme Q-10—at optimal levels is important.

□ **Mitochondrial Damage.** Recent research has shown that the function of mitochondria (the energy factories inside cells) is negatively affected by nucleoside analogues (nukes, the drugs like AZT, d4T, 3TC, abacavir, etc.) It's been shown that the resulting mitochondrial dysfunction may be a cause of fat changes in the body, especially the lipodystrophy-associated fat loss called lipoatrophy, as well as of neuropathy (nerve damage), myopathy (muscle aches), pancreatitis (inflammation of the pancreas), fatty liver, white blood cell and platelet decreases, anemia, and, in its severest form, potentially lethal lactic acidosis, a condition in which lactic acid builds up in the blood, sometimes to life-threatening levels. Research has shown that countering oxidative stress, as discussed above, may be one key for preventing the nuke-caused damage to the mitochondria. The mitochondria produce lots of free radicals during normal body processes and without sufficient antioxidant protection, the mitochondria may be damaged. Studies have shown that giving antioxidant nutrients along with the drugs may help prevent this damage, so the antioxidants listed above are an important part of a mitochondria protection program.

Also of great importance is the amino acid carnitine. Acetyl-L-carnitine is a naturally occurring molecule in the body that's derived from carnitine. It is involved in the normal transportation of free fatty acids into the mitochondria, and the normal oxidation of free fatty acids. Without carnitine, the mitochondria cannot function properly. The B vitamins are also crucial nutrients for mitochondrial support. In particular, thiamine (vitamin B-1) and riboflavin (vitamin B-2) are needed for proper mitochondrial function. There have been recent reports showing dramatic improvement in people with lactic acidosis (resulting from mitochondrial damage) after administration of these vitamins. Because standard thiamine supplements have to be converted in the body to an active form, the best supplement to use is benfotiamine. This combination of carnitine, antioxidants, and B vitamins may significantly help to counter mitochondrial toxicity and all the problems that can stem from that.

□ **Inflammation.** Inflammation in the body of HIVers can activate the virus and increase replication, raising your viral load. Inflammation also contributes to the development of a lot of the things that people are most worried about today: bone problems, heart disease, diarrhea, gas and bloating, liver dysfunction, myelopathy (spinal problem), myopathy (muscle aches), nausea, neuropathy, and skin problems. Thus, countering inflammation is crucial. Anti-inflammatory drugs might increase the risk of infections by over-suppressing the inflammatory response (a part of the immune system's way of countering infections), and can cause gastrointestinal bleeding.

Luckily, a much less risky approach is to use foods that have natural anti-inflammatory qualities. Such foods have been used for thousands of years with no apparent adverse effects on immune responses, so it seems likely that long-term consumption of them would be considerably safer than long-term use of drugs. There are a number of naturally anti-inflammatory foods and seasonings including ginger, turmeric (a seasoning), bioflavonoid-rich fruits (especially all the different berries), and omega-3 fatty acid-rich foods like fatty fish, flaxseed, and walnuts. Out of those, the best way to get the most potent effect is by either eating fatty fish quite often—things like salmon, mackerel, sardines, cod and halibut—or by taking fish oil supplements. The reason is that fish oil provides the anti-inflammatory omega-3 fatty acids in a ready-to-use form which does not have to be processed by the body in the complex ways that the other omega-3-containing foods do. Thus, you're more likely to get a consistent effect with fatty fish or fish oil supplements.

In addition to fish oil, antioxidants can help because early in the process in which inflammation is created in the body, oxidative stress plays a key role. So when you take the antioxidants for all the other reasons discussed above, you'll also be countering inflammation and all the different problems it can create.

**The bottom line is simple.** Everyone living with HIV needs to be doing a base program that will replenish all the nutrients that are so often deficient, boost the immune response, counter miserable symptoms, and ensure the presence of adequate amounts of nutrients to help counter the MIO problem: M for mitochondrial toxicity, I for Inflammation, and O for Oxidative stress. When you do that with the combination of a good diet and the proper supplements, you'll go a very long way toward giving your body long-term protection against the virus and the damage it causes, against the drug side effects, and against life-disabling, misery-making symptoms.

## **Nutrient Supplementation for Living *Well* with HIV Disease** by Lark Lands

**Ideally, everyone living with HIV would take the first three items listed here daily ( a great multiple, an antioxidant formula, and anti-inflammatory fish oil) for all the reasons discussed above. These are the base of a great, protective program!** Where needed, other nutrients can be added to more fully protect the body and eliminate drug side effects and other symptoms. You can save money by ordering hugely discounted supplements at near-wholesale prices from the **Houston Buyers Club (800-350-2392); [www.houstonbuyersclub.com](http://www.houstonbuyersclub.com)**

**Multiple vitamin/mineral:** a potent multiple contains a broad spectrum of many different antioxidants, B vitamins, carotenoids, A, C, D, E, minerals (including calcium, magnesium, zinc, selenium, chromium, etc) and other important nutrients; take with 3 meals/day. **Excellent brand: SuperNutrition's SuperBlend (8 tablets per day for the full dose).** **NOTE: many multi's put in tiny doses and then CLAIM that they have everything; in fact, the doses are often absurdly small; always compare ingredient amounts to a great multi like the SuperBlend.**

**Antioxidant formula:** take with meals; should contain multiple antioxidants such as carotenoids, selenium, vitamin E, vitamin C, alpha-lipoic acid, N-acetyl-cysteine, Co-Q-10, lutein, lycopene, etc. (Note: the therapeutic range for selenium is 400-800 mcg/day; more than 1000 mcg daily from all sources can be toxic; selenium is found in most multiples so check daily totals). **Excellent brand: SuperNutrition Antioxidant Power.**

**Anti-inflammatory omega-3's (fish oil):** Fish oil; 1000-2000 mg daily; contains anti-inflammatory omega-3 fatty acids (including EPA & DHA); very important to help prevent viral activation, immune dysfunction, fatigue, and many inflammation-caused problems, as discussed above. **Excellent (no nasty fishy taste) brands: Natural Factors (264 mg EPA, 2-4 caps daily), or less expensive liquid Carlson's fish oil, 1-2 teaspoons daily.**

**Acetyl-L-carnitine:** 500-1000 mg twice daily (1-2 capsules twice daily); very important for protection against mitochondrial toxicity and all the problems which can result from that, including lipodystrophy; can help reverse neuropathy; can help lower blood fats. **Excellent brand: Jarrow Acetyl-L-Carnitine (500 mg).**

**Acidophilus and other probiotics:** 1-2 capsules daily, preferably taken with water ½ hour before a meal. Intestinal microorganisms (probiotics), often deficient in HIVers, aid digestion & produce vitamins for the body. Crucial for those on antibiotics or those with yeast problems. Probiotic supplements can help to prevent candida overgrowth, digestive tract damage and malfunction, and diarrhea; may also help to prevent other infections from taking hold in the intestines. **Excellent brands: Jarrow Shelf-Stable Acidophilus and Essential Formulas Probiotics 12 Plus.**

**Alpha-lipoic acid:** 600-1200 mg/day (1-2 capsules, twice daily); very important antioxidant; helps protect and repair the liver; can improve insulin sensitivity; helps improve neuropathy, helps prevent mental changes. Because it's broken down quickly, a time-released form is crucial **Great brand: Jarrow Sustained Release Alpha Lipoic Acid (300 mg).**

**Vitamin B-12 and folic acid:** B-12, 1000 mcg, 2-7 times per week, depending on needs; critical to prevent or eliminate fatigue, neuropathy, tinnitus (ringing in the ears), and some forms of cognitive dysfunction (memory and other mental problems). **Excellent brand: Jarrow B-12 (cyanocobalamin, 1000 mcg sublingual tablet).** Always take B-12 and folic acid together. Folic acid, at least 800 mcg/day; larger doses of folic acid, up to 5-10 mg (5,000 to 10,000 mcg) per day may also help prevent cervical or anal dysplasia (the cellular changes that may lead to cancer). **Excellent brand: Bluebonnet Folic Acid (800 mcg tab).** B-12 can also be taken via prescribable nasal gel (Nascobal) or injection.

**Benfotiamine:** 450 - 600 mg/day (150 mg capsules, 3-4 times daily); advanced form of thiamine; crucial for countering mitochondrial toxicity and thus helping to prevent neuropathy and many other problems. **Excellent brand: Benfotiamine.Net, Inc.'s Benfotiamine (150 mg capsule)**

**Vitamin C:** 500-2000 mg with each meal; tolerable amount is very individual; excessive amounts will cause intestinal gas and diarrhea so watch for this. Vitamin C is a powerful antioxidant and natural anti-inflammatory. [The SuperBlend multi has 1500 mg in the recommended 8 tabs.] **Great brand: SuperNutrition Big Rose Hips C (1000 mg tab)**

**Coenzyme Q-10:** 100-300 mg/day; critical for immune function, heart muscle health, periodontal health, prevention of mitochondrial toxicity, including lactic acidosis; levels decline as HIV progresses; high levels (6,000 mg daily) shown in Japanese research to help reverse congestive heart failure. **Excellent brand: Jarrow Coenzyme Q-10 (100 mg cap).**

**Vitamin E:** 800-2000 IU/day; critical antioxidant; crucial for heart disease prevention; may help reduce some menstrual or menopausal symptoms in women (multiple & antioxidant formula will contain E; check totals). **Excellent brand: Bluebonnet Vitamin E (d-alpha tocopherol, 400 IU or 1000 IU cap).**

**Fatty acids:** gamma linolenic acid (GLA) in borage oil/evening primrose oil/grape seed oil; 480 mg/day; may help reverse neuropathy. **Excellent brand: Barlean's Borage Oil (240 mg GLA per capsule).** Flax seed oil contains a mixture of fatty acids which can help with dry, itchy skin and scalp. **Excellent brand: Barlean's Flaxseed Oil (less expensive liquid (1 TBS=1810 mg), 1-2 tablespoons daily; or capsule (550 mg), 3-6 caps daily).**

**Glutamine:** 5-15 grams daily; more (up to 30-40 grams per day) needed in those with diarrhea or wasting; amino acid crucial to maintain antioxidant status, build and maintain muscle and intestinal tissue, maintain optimal immune function; deficiencies contribute to wasting, susceptibility to lung/intestinal/cervical/oral infections, intestinal atrophy, and malabsorption. **Excellent brand: Jarrow L-Glutamine, powdered form (500 grams; 1/4 tsp = 1 gram).**

**N-Acetyl-Cysteine (NAC):** 1500-2000 mg/day; raises glutathione, an antioxidant that is critical to immune function and liver health; may increase survival and protect liver. **Excellent brand: Jarrow NAC (500 mg cap).**

**Selenium:** 400-800 mcg/day; powerful antioxidant; critical to immune function; may help slow progression; (some multiples have enough; check total from all sources; more than 1000 mcg/day could be toxic). **Excellent brands: Jarrow Activated Selenium (200 mcg capsule) and Source Naturals Selenomax (200 mcg cap).**

**Zinc: 25-50 mg/day with any one meal;** deficiency common & causes skin problems, taste/smell/appetite/vision problems (multiple may have enough; toxicity possible at more than 100 mg/day long-term but only likely at very high levels; **long-term use should be balanced with copper, 2-4 mg per day taken at different meal than zinc**). **Excellent brand: TWINLAB Zinc, 50 mg capsule. TWINLAB Copper, 2 mg.**

**Supplemental drinks:** powdered products which provide antioxidants (superoxide dismutase, Coenzyme Q-10, etc.), carnitine, and B vitamins to support the mitochondria are Millennium Technologies' Resurgex (a potent mix of micronutrients; 2 drinks daily) and Resurgex Plus (same micronutrients in a meal replacement formula; good for weight gain with 2 drinks daily). Covered by Medicaid in many states; sold by Houston Buyers Club at large discount.

Nutrient supplementation can significantly improve or eliminate many symptoms and help to prevent or improve serious disorders. Nutrients that may help with each problem are listed in parentheses in descending order of importance): **fatigue** (B-12, fish oil, Coenzyme Q<sub>10</sub>), **skin problems** (fatty acids, zinc, A, B-6), **weight loss/wasting** (glutamine), **loss of sense of smell or taste** (zinc, fatty acids, potassium), **loss of appetite** (zinc, multiple vitamin), **memory loss and concentration problems** (B<sub>12</sub>, B complex, alpha-lipoic acid), **neuropathy** (acetyl-carnitine, alpha-lipoic acid, gamma linolenic acid (GLA), fish oil, biotin, B-12, choline, inositol, benfotiamine, B-6), **depression/anxiety** (B-12, B-6, zinc), **muscle cramps** (magnesium, calcium taken separately from magnesium, E), **muscle aches** (carnitine), **liver problems** (alpha-lipoic acid, NAC, silymarin, C, glutamine), **lipodystrophy & mitochondrial toxicity** (antioxidants, carnitine, B vitamins, fish oil), **insulin resistance** (alpha-lipoic acid, GTF chromium, zinc), **cardiac problems** (fish oil, antioxidants, carnitine, magnesium), **bone problems** (Vitamin D, calcium, magnesium, fish oil).

**LARK LANDS** is a medical journalist, editor, and long-time AIDS treatment educator and advocate. A pioneer in promoting an integrated approach to HIV/AIDS, her articles have been widely reprinted in AIDS newsletters and described as "*the most valuable guides to developing strategies for survival of AIDS in print to date.*" **For additional fact sheets, including in-depth information on eliminating drug side effects and other symptoms, as well as information on the "Living Well, Not Just Longer" seminar, go to [www.larklands.net](http://www.larklands.net)** The 100's of articles written in her years with *POZ* magazine (as Science Editor) and with *CATIE's The Positive Side* magazine are at: [www.poz.com](http://www.poz.com) and [www.catie.ca](http://www.catie.ca)