In celebration of our fifth anniversary, New York Buyers’ Club proudly presents a special edition of *SUPPLEMENT*. While we normally cover several topics in an issue, this special edition is focused on just one: how to combat the side effects of HIV medications by using complementary and alternative therapies, especially supplements.

Despite many improvements to HIV meds over time, side effects remain a problem and can make life miserable, even causing people to skip doses and thus undermine the effectiveness of their prescriptions. There are also long-term problems, such as liver damage, bone loss, high cholesterol, or diabetes/insulin resistance, that can build up quite gradually but ultimately become very serious health threats. The good news: there is an enormous amount of accumulated evidence and experience about how to use supplements or other CAM therapies to counteract these side effects.

Presented here is just a small fraction of the information available on our website and blog (www.NewYorkBuyersClub.org). This short guide is meant to help you exercise your options, get a second opinion, ask questions and look for answers as you make decisions regarding your health and well-being.

Before you get started – a few things:

1. **Talk to Your Doctor**
   - about any alternative or complementary therapies – such as supplements – that you plan to add to your regimen. Not all doctors are knowledgeable about supplements and CAM, and it can be helpful to print out information from this guide, or from NYBC’s online resources, to take into your next appointment for discussion.
   - Since some supplements can interact with medications, it’s crucial that your health care provider see the full picture of everything that you are taking!

2. **Note: The Suggestions Offered in This Guide**
   - are based on federally funded research and other strong evidence – plus years of experience. Note also that NYBC chooses supplement manufacturers known for their products’ purity and reliability, so that the co-op can provide members with effective and safe supplements.

3. **We Are Here for You!**
   - The New York Buyers’ Club is a membership co-op: our strength is in our numbers and our collective expertise gained over many years. Also note that you do not have to be HIV+ to be a member!

   - your questions, we are available by phone (toll-free: 800-650-4983) or email (contact@NewYorkBuyersClub.org).

   - Lastly, the New York Buyers’ Club is a 501(c)3 nonprofit organization, so all membership dues and contributions are tax deductible.

NYBC is also a membership co-op, with sliding scale annual dues that range from $5 to $25. These modest membership fees are easily offset by your savings on the our inventory of handpicked, low-priced supplements.

Your contributions help support distribution of health information like this edition of *SUPPLEMENT*—a worthy goal, we hope you’ll agree!

**Since its inception in 2004, New York Buyers’ Club has operated as a nonprofit membership co-op and information exchange for people living with HIV/AIDS, hepatitis, and other chronic conditions. We are “consumer advocates,” sifting through scientific evidence and cutting through the hype in order to identify those supplements and other CAM therapies that are most beneficial. Based on our findings, let this primer be your guide to alleviating or eliminating some of the more common side effects of HIV meds.**

### HIV Medication Side Effects & Possible Solutions

- **Fatigue**
- **Malabsorption**
- **Nausea**
- **Insomnia**
- **Diarrhea**
- **Lipodystrophy**
- **Diabetes**
- **Heart Health Issues**

**Free Information & Online Store:** [www.NewYorkBuyersClub.org](http://www.NewYorkBuyersClub.org)
PART II: GETTING STARTED

Side effects from antiretroviral (ARV) therapy can be anything from unpleasant and annoying to debilitating and life-threatening. They can include diarrhea, nausea, insomnia, fatigue, neuropathy, lipodystrophy— to name some of the major symptoms.

Sometimes side effects may only appear as numbers in your blood work (elevated liver enzymes, high LDL ["bad"] cholesterol, low HDL ["good"] cholesterol, high triglycerides, for example), but other times they can directly and adversely affect your quality of life.

The first thing to do if you develop any symptoms that may be side effects is to see your physician. Sometimes doctors are reluctant to ascribe symptoms to drug side effects—but it is very important to determine that:

1. **YOUR HIV MEDS ARE WORKING PROPERLY**;
2. **YOUR SYMPTOMS DO NOT REFLECT ANOTHER ILLNESS**;
3. **OTHER MEDICATIONS ARE NOT CAUSING THE SIDE EFFECTS**

So first: get a good diagnosis and eliminate other possibilities, such as infections. If you have determined that the symptom is indeed a side effect of your medications, what can be done? Provided below are some possible solutions to common issues, but please note that this primer provides just the short answer—it’s important for you to do your own homework!

**DIARRHEA**

This is one of the most common side effects of antiretroviral drugs—especially protease inhibitors. When it occurs, make sure to drink plenty of (healthy) fluids to replace electrolytes (potassium, sodium, and magnesium ions) and prevent dehydration. Avoid sugary and/or caffeinated beverages.

One of the simplest remedies: bananas! Adding a yogurt with active cultures to your regular diet can also improve diarrhea. In addition to adding beneficial flora to your gastrointestinal tract, yogurt is nutritionally rich in protein, calcium, riboflavin, vitamin B6 and vitamin B12. However, for some, dietary changes may not be enough to control the diarrhea. Additional interventions. A note of caution: calcium carbonate works fine but should be avoided if you are using atazanavir (Reyataz).

If diarrhea is associated with the use of antibiotics, go probiotic! Use acidophilus, bifidus or Saccharomyces boulardii (Florastor) to control C. difficile (a problem frequently encountered with antibiotic use) and to improve gut function. Use of enzymes may also help to improve digestion (e.g., lipase, protease, amylase, and lactase).

**MALABSORPTION**

This is the difficulty in digesting or absorbing nutrients from food. It’s a widespread problem among HIVers, and a serious one at that. HIV disease damages the guts, where it is estimated that 80% of the disease’s “lives,” hindering the digestive tract’s ability to absorb nutrients (or meds). Additionally, many HIVers actually have too little acid in their stomachs—a little-discussed condition. This can cause the sphincter at the opening of the stomach to fail to close properly, resulting in GERD: gastro-esophageal reflux disorder.

In general, gut function can be improved with probiotics such as acidophilus and bifidus, as well as 2-5 grams of glutamine, taken daily. Further, digestive enzymes that help break down fats, carbs and proteins may be useful in promoting better absorption. Again, a good diet and a potent multi are important starting points.

When malabsorption arises because levels of acid in the stomach are low, betaine hydrochloride can...
be tried to offset the problem, though using this supplement should be done with care.

HEART HEALTH Most ARV can disrupt fat metabolism in the body, with potential consequences for cardiovascular health. “Bad” cholesterol (LDL) often increases, along with triglycerides. Meanwhile, “good” cholesterol (HDL) levels decline, although this may be primarily an effect of HIV disease itself. These changes can pose a risk for heart problems, diabetes, and stroke. Risks for heart trouble are significantly higher among users of abacavir and didanosine (ddI/Videx), and especially among those with other risk factors.

A healthy diet, regular exercise, and not smoking can help to offset the risk of heart disease and should be the starting point for addressing the problem. A variety of supplements may also help: the best data are for niacin (which increases HDL while lowering LDL) and omega-3 fatty acids (fish oils found in deep-sea fish). Niacin may cause flushing and itching that make it impossible for some. However, starting with a low dose of about 100 mg and working up to about 1,000 mg per day may help to minimize the flushing reactions. Consuming fatty fish (such as wild salmon) is an excellent approach; however, therapeutic doses of 3-6 grams of fish oil can be more effective.

Other helpful agents include carnitine (for triglycerides), pantetheine (a B vitamin) and phytosterols. Phytosterols have some excellent data to support their use, but they are not cheap. When statins are prescribed, consider also using CoQ10, about 200-600 mg per day, as statin drugs can deplete this critical nutrient.

LIVER DAMAGE (hepatotoxicity). The worst ARV offenders for liver damage are nevirapine and ritonavir, but they can all be problematic. The role of alcohol or infection with Hepatitis B or C must also be considered. Liver damage may not have any symptoms or it may cause fatigue, loss of appetite, abdominal pain, and yellowing of the skin, whites of the eyes, and urine (jaundice).

A variety of therapies may help to sustain or improve liver function, including alpha lipio acid (N-acetylcysteine/NAC (about 1500 mg/day), Coenzyme Q10 (200-600 mg/day, SAMe (400-1200 mg/day), milk thistle (a recent FIAR study did not find the kind of harmful interaction between this botanical and ARV that some warned against earlier), B vitamins, and anti-inflammatory foods or supplements like garlic, ginger, turmeric, and fish oil. The licorice extract glycyrrhizin also has some data to support its use but may increase blood pressure. Finally, don’t forget that a good diet (see “The Basics” above) can benefit your liver!

Our overall advice: be persistent, and you can find a liver-supportive regimen to suit your individual needs.

DIABETES and insulin resistance. The culprit here for the most part is the protease inhibitors, particularly indinavir (Crixivan). Of course, the usual risk factors (e.g., obesity, poor diet) can complicate things. Diet and exercise—again, important to tackle these first!

The basic problem begins when sugar (glucose) isn’t properly taken up by cells. This starts out as “insulin resistance” and can develop into Type II diabetes if unchecked. Working with your physician, you can consider a number of agents, including alpha lipoic acid (200-400 mg/day), chromium (200 mcg), vitamin B6 (pyridoxal-5-phosphate is the most bioavailable form—about 50 mg three times/day), zinc (25-50 mg/day—usually enough in a multi), and antioxidants.

Traditional Chinese Medicine and other healing traditions have also used a variety of botanicals against high blood sugar, including as bitter melon (which may have some small effect against HIV as well), Gymnema sylvestre, and fennel, among others. A good regimen to manage sugar levels may permit you to reduce or possibly eliminate some blood sugar-controlling medications. But remember that it is very important to work closely with your physician on this!

A GOOD REGIMEN TO MANAGE SUGAR LEVELS MAY PERMIT YOU TO REDUCE OR POSSIBLY ELIMINATE SOME BLOOD SUGAR-CONTROLLING MEDICATIONS.

Tips for Controlling NAUSEA

Eat several small meals instead of a few large meals
Avoid spicy, greasy, and rich foods; choose bland foods
Eat cold rather than hot meals
Don’t drink with a meal or soon after
Avoid alcohol, aspirin, and smoking
Avoid strong cooking odors

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FIRST, determine if a medication like AZT is causing anemia — physical weakness caused by damage to red blood cells. A recent large study found that about 30% of people on HAART had moderate anemia. Women had an 80% greater risk of being anemic than men, and African-Americans had a risk of anemia 2.6 times higher than whites. Anemia is usually caused by a deficiency of either iron or vitamin B12. With AZT-related anemia, however, it may be due to damage to the bone marrow, from which red blood cells arise. A safe bet is to use B12/folic acid because these are very non-toxic and there is ample evidence of vitamin B12 deficiency among people with HIV. If it is an iron-related deficiency, then an iron supplement makes sense.

Otherwise, iron may be problematic because it can be hard on the liver, a sensitive organ for many due to effects of HIV meds or conditions like Hepatitis B or C co-infection.

Diet, exercise, cutting down on excessive caffeine, alcohol, and recreational drugs can all help manage fatigue, of course. And recall that a good multivitamin is the cornerstone of HIV care and good general health and energy! NYBC stocks eight different kinds and we’d be happy to help you select one that best suits your needs. Last, if you have normal or low blood pressure, the botanical Eleuthero senticosus (Eleuthero) can provide an extra energy boost.

SLEEP ISSUES Persistent insomnia, followed by chronic fatigue, can become major medical issues for people with HIV, as they can lead to poor medication regimen adherence and, subsequently, lower CD4 counts. Insomnia (trouble sleeping) can be caused by efavirenz (Sustiva, Atripla) but can also be provoked or worsened by stress, anxiety, depression, pain, and drug use - particularly stimulants - which can range from caffeine to crystal meth. Avoiding the latter two, getting ample exercise, establishing good sleeping patterns, taking occasional naps when needed, and drinking a nice herbal tea or warm milk before bed can all help.

In terms of supplements used for sleep issues, melatonin may have benefit. Start with a low dose (approximately 1 mg) about 1/2 hour before bed. Give it about a week for the benefit to appear, gradually increasing the dosage as needed. See below under Depression/anxiety for additional information about supplements to help with sleep.

NAUSEA and vomiting. Try the pro-active tips below as your first lines of defense in quelling nausea.

Some antiretroviral drugs can be taken with food, and doing so may lessen their negative gastrointestinal effects. If a particular medicine is suspected of being the cause, it may be possible to alter the drug’s dosage or frequency.

There is substantial anecdotal evidence that ginger and peppermint may help against nausea. Marijuana also works extremely well for some, though absurdly enough it remains illegal except in a few places. (Synthetic THC, Marinol, is the legal pharmaceutical alternative.) It can also help to offset appetite loss, a side effect encountered with Abacavir (Ziagen).
BONE LOSS (osteopenia/osteoporosis). Bone loss and increased likelihood of fractures due to ARV effects and/or aging is a serious concern for many with HIV. Taking adequate amounts of calcium (about 1200 mg per day) and Vitamin D (up to 3000 or possibly more IU’s per day!) makes a lot of sense. A number of other minerals are thought to play an important role in bone health and maintenance, including silicon, strontium, and others. These are included in formulas such as Jarro’s “Bone Up” supplement. While there are fewer clinical data on these minerals, it probably won’t hurt to use them—though the added expense becomes a factor.

Regarding calcium supplementation: calcium carbonate absorbs as well as calcium citrate when taken with meals, and is less costly. The advantage of calcium citrate may be for those taking atazanavir (Reyataz), where use of calcium carbonate is discouraged.

Consider also the role of reduced testosterone (in both men and women). For this factor in bone loss, DHEA may help, particularly in women, where it can increase testosterone levels modestly and improve the balance between cortisol and DHEA.

NERVE DAMAGE Peripheral neuropathy: “nukes” (nucleoside reverse transcriptase inhibitors) such as ddI (Videx), and d4T (stavudine/Zerit) - and Indinavir, T20, and even 3TC (Epivir) may all cause this feeling of pins and needles or numbness to toes and fingers. It can travel up the legs and become debilitating.

HIV, diabetes, alcohol abuse, and vitamin deficiencies can all be causes of peripheral neuropathy. Supplements that are “good for your nerves” and that have the most robust data include acetyl carnitine (1-3 grams/day, quite well studied for peripheral neuropathy) and alpha lipoic acid (200-600 mg/day). Other agents that can help are Vitamin B12, biotin, lecithin, magnesium, borage oil, evening primrose oil, choline and inositol.

Don’t forget that the body’s neural network includes the brain: estimates are that somewhere between 40% and 70% of those with HIV have experienced some form of neurological impairment — so addressing this issue is a crucial matter. The underlying mechanisms that cause cognitive defects (memory problems, minor cognitive motor disorder) are similar to those that cause neuropathy—inflammation. Thus, though there are few clinical data to support the idea yet, it is hoped that the same types of regimens used to manage neuropathy may also have a good effect on cognitive function. We already have indirect evidence that an anti-inflammatory can positively affect the body’s neural network: fish oil has been found to reduce depression.

LIPODYSTROPHY This involves losing or gaining body fat, (lipodystrophy and hyperadiposity, respectively) often in ways that can be disfiguring, embarrassing, and stigmatizing. Early evidence linked lipodystrophy with protease inhibitor use; current research suggests lipodystrophy may be a side effect of combining PI’s and “nukes.”

Treatments for lipodystrophy are sadly limited, though there are various studies underway involving fish oil, chromium, carnitine, and other supplements or supplement combinations.

Both resistance training (e.g., weight lifting) and aerobic exercise may help to improve muscle tone, but may have limited benefit for peripheral fat accumulation. Various “facial fillers” have been used to offset the stigmatizing loss of fat (see www.facialwasting.org for more information).

HIV, DIABETES, ALCOHOL ABUSE, AND VITAMIN DEFICIENCIES CAN ALL BE CAUSES OF PERIPHERAL NEUROPATHY

Last: it has been theorized that the cellular-level mitochondrial toxicity of ARV may damage fat cells, resulting in loss of fat to the face and limbs. Long-term antioxidant therapy may help prevent this fat loss, or possibly even begin to correct it. Single antioxidants such as vitamin E or beta carotene probably don’t make sense—a potent multi should be the starting point. Other agents like alpha lipoic acid and N-acetyl-cysteine/NAC, as well as CoQ10, may be tried in order to counter the mitochondrial toxicity and oxidative stress, whether arising from HIV disease itself or from certain “nukes.”

HIV, DIABETES, ALCOHOL ABUSE, AND VITAMIN DEFICIENCIES CAN ALL BE CAUSES OF PERIPHERAL NEUROPATHY

HIV, diabetes, alcohol abuse, and vitamin deficiencies can all be causes of peripheral neuropathy.

We hope this special edition of SUPPLEMENT has opened your eyes and mind to some new approaches in caring for your health – don’t forget to check out our website for a wealth of useful information – and keep in touch! To your health —

The Staff and Volunteers of New York Buyers’ Club

Note: this guide is based on a primer prepared by NYBC Treatment Director George Carter for our June 2009 Fifth Anniversary celebration. Other staff members and volunteers contributed to revising and editing the guide.