

Recipe for Living: Nutrition & HIV

This edition of *ACRIA Update* covers nutrition issues of importance to the health and well-being of people living with HIV/AIDS (PLWAs). Even though we've come a long way in developing HIV treatments over the past several years, nutrition has remained of key relevance to the care of this disease. The ability to maintain a healthy diet can make a tremendous difference in overall quality of life.

on this topic, but we recognize that there are still more questions than answers. Clearly, more research is needed in this area.

Nevertheless, we feel confident that the following discussion is among the most comprehensive available on nutrition issues of relevance to HIV disease. I especially want to thank our Guest Editor, Anya Romanowski, Director of Nutrition Services at God's Love We Deliver (GLWD), who devoted so much of her time to making this edition of *ACRIA Update* useful for PLWAs and care providers. As Deputy Executive Director of GLWD, I created that agency's Education Department 10 years ago, so I am particularly pleased that ACRIA was able to partner with Anya to update our readers on this critical topic.

J Daniel Stricker, Editor in Chief

We've tried to present the current thinking about nutrition's role in HIV care with as much scientific information as possible. But the reality is that there continues to be a lack of rigorous research on the subject. In many instances, there are no clear-cut answers on the types of nutritional interventions that are most advantageous to PLWAs. This edition of *ACRIA Update* presents a comprehensive discussion on what's currently available

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Nutrition for Health and Healing in HIV

by Jan Zimmerman, MS, RD

Concerns about medication toxicities and side effects run high in the HIV community. Multiple medications are being prescribed not just for HIV infection, but also for prevention and treatment of other infections, high cholesterol and fat accumulation, diabetes, heart, liver, kidney, and digestive diseases, cancer, hormonal deficiencies, pain syndromes, and mental health concerns. Nutritional risk factors, such as poor quality diet, weight loss, mild to moderate nutrient and hormonal deficiencies, dehydration, high levels of oxidative and emotional stress, and substance use aggravate these conditions and worsen toxicities. Seldom addressed by primary care providers, alternative therapies flourish in this environment, with susceptible consumers searching for anything from a prayer to a cure. Limited income dollars are spent on supplements that may be covered by state Medicaid or ADAP programs, on products that are irrelevant or on formulations that contain inadequate levels of nutrients. Use of extreme "detox" diets and enemas is also common practice.

Research suggests that aggressive nutrition support boosts the immune system and detoxification, improves digestion, and produces positive health outcomes. Eastern approaches such as Traditional Chinese Medicine and Indian Ayurvedic Medicine focus on the value of whole food choices and mind-body practice as the basis of healing and longevity. These concepts are integrated with a harm reduction philosophy that relates success to the continual cycle of involvement and motivation for personal change, growth, and development.

This article will focus on healing nutrition strategies for four conditions often experienced in HIV disease: lipodystrophy (fat gain, high blood cholesterol and/or triglycerides), fatigue (low energy), nausea, and diarrhea. Interventions are designed to be both preventive and therapeutic, as well as useful for daily practice. All of these symptoms/side effects strongly impact on medication adherence, self-esteem, independence, and

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ACRIA is an independent, non-profit, community-based AIDS research and treatment education organization dedicated to rapidly improving the length and quality of life for people living with HIV/AIDS. ACRIA studies new treatments for HIV-related diseases through its clinical research and conducts a comprehensive treatment education program. Bulk copies of *ACRIA Update* are available free to agencies that provide services to people living with HIV/AIDS. For more information, call Jonathan Deardoff at 212-924-3934 ext. 121.

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Ampligen and HAART with Treatment Interruptions

This trial will study the effects of the addition of Ampligen to HAART in people with HIV. People who have been on a stable HAART regimen for at least 4 months will add Ampligen either immediately or after 24 weeks. Ampligen is given as an hour-long infusion twice a week.

Ampligen is an immunomodulator with a low incidence of side effects. It can stimulate interferon and other cytokines, as well as other intracellular antiviral defense mechanisms. This trial will study whether Ampligen can assist the immune system's response to carefully monitored Strategic Therapeutic Interruptions (STIs) of HAART. The theory is that Ampligen will lengthen the HAART-free time interval with a resultant decrease in HAART-induced toxicities. The hope is that Ampligen will maximize STIs to the point that the cell-mediated immune system response might be sufficient to eliminate the need for HAART.

Adults with a CD4 count of 300 or more and a viral load over 500 but less than 30,000 within 40 days, can join this 48 week study. Participants make 44 visits to ACRIA. All blood tests, study visits and study drugs will be provided at no charge. Once you have been enrolled you will be reimbursed for each visit.

For more information, call Dr. Douglas Mendez at (212) 924-3934 ext. 126.

Resurgex Pilot Study

This study will evaluate the safety and effects of Resurgex on metabolic, virological, and immunological parameters in people with HIV.

Resurgex is a nutritional supplement developed by Millennium Biotechnology, Inc. Its components have been designed to nutritionally address problems encountered in HIV disease and in antiretroviral drug treatment. Most of the ingredients contained in Resurgex are available individually at health food stores. What makes Resurgex unique is its combination of superoxide dismutase (SOD, a potent antioxidant enzyme) with gliadin (a wheat-based natural polymer), to make SOD absorbable in the digestive tract.

People with HIV who have been on HAART therapy for at least 16 weeks or have never been on antiretroviral therapy (or have not taken it for at least 24 weeks), and who do not currently take any additional fortified nutritional supplementation, may be eligible for this study.

This study will last approximately 6 months, with at least 10 visits to the Harlem United Community AIDS Center on 124th St. in Manhattan. All blood and investigational tests, study visits, and study investigational products will be provided at no charge. Participants are reimbursed \$25 when they enroll, with an additional \$25 when they complete the study.

For more information, call Dr. Eugen Vartolomei at 212-924-3934 ext. 125.

Editor's Notes

- All material in *ACRIA Update* is presented for educational and informational purposes only, and is not intended as medical advice. All decisions regarding one's personal treatment and therapy choices should be made in consultation with a physician.
- *ACRIA Update* refers to all drugs by both their commercial and scientific names upon their first reference in an article. Thereafter in the article, they will be identified with the name by which we feel they are most commonly known, either commercial or scientific.

Nutrition for Health and Healing *(continued from first page)*

emotional health. Nutritional therapy, introduced when someone is motivated, can often re-focus attention from misery to the healing, dynamic, and restorative nature of food, nutrient, and fluid choices.

Balancing Metabolism

Lipodystrophy, fatigue and diarrhea can all be related to metabolic imbalance and/or toxicity. Cellular metabolism is a complex orchestration of distinct, highly regulated reactions. These reactions dictate how food is broken down, burned for energy, used for structure, and how toxic by-products are excreted. How well this system works depends on environmental factors inside and outside the cell, including pH balance, hydration, availability of nutrients, oxidative stress level, and the activity of hormones such as insulin, cortisol and testosterone.

Internal metabolic reactions work best in an environment that maintains a pH balance that is slightly alkaline. pH means *hydrogen potential* and measures the amount of hydrogen ions in a solution. Rated on a scale of 0 (most acidic, least alkaline) to 14 (least acidic, most alkaline), a neutral pH is around 7. An elaborate, internal buffer system tries to keep pH balanced at 7.4 for blood, 6.4 for saliva, and 5.5–6.0 for urine. Before HAART (Highly Active Antiretroviral Therapy) became available, PWA health activists tested salivary pH and noted that an acidic salivary pH less than 6.0 was strongly related to wasting, fatigue, neuropathy, and swollen lymph glands. These symptoms were reported greatly improved with the regular use of a highly alkalizing whole lemon drink, which increased salivary pH levels. Today, clinicians, researchers, and people on HAART have concerns about lactic acidosis, a potentially fatal condition that comes from the build up of lactic acid in the blood. Lactic acid is a toxic by-product usually neutralized by cell buffer systems. These systems rely on the availability of calcium, magnesium, potassium, and sodium, minerals that are most abundant in vegetables and fruits, whole grains, nuts, seeds, low-fat dairy, and enriched foods. Few people eat enough of these foods, especially large quantities of fruits

and vegetables, which also happen to be the most potent alkaline-forming foods.

The considerations of acid/base balance may also be connected to traditional Chinese medical theories about food and its impact on health conditions. Both contain distinct, natural properties characterized by yin/yang, hot/cold, dry/damp. Very yang food choices, mostly unhealthy fats and processed carbohydrates, create a very damp, hot environment. Disease and infection thrive in this environment. Chinese medicine teaches that cutting down on unhealthy fats and processed carbohydrates, and radically increasing consumption of vegetables, especially dark greens, fruits, whole grains, and unrefined essential fats can improve physical balance and detoxification.

“...consistent and rational use of... supplements may improve fatigue, insulin resistance, and overall immunity.”

This basic dietary recommendation is now backed by a decade’s worth of medical research. High consumption of vegetables and fruit and low intake of saturated fat have been connected to improved health outcomes for cancer, hypertension, heart disease, and diabetes, all associated risk factors in HIV infection. In addition, naturally occurring compounds in plant foods have been discovered that defend cells against disease. Anthocyanins, indoles, flavonoids, sulfaforaphane, lycopene, and limonoids are a few of these new and exciting “phytochemicals.”

Hydration is also key for a balanced metabolism. Drink 8 cups of water-based, non-caffeine fluids and reduce or avoid alcohol and sugar-based drinks. Timing

and distribution of calories is also important. Eating small meals 5-6 times a day feeds the metabolic system in a gentler, more consistent manner than the traditional 1-3 large meals. It may also have an effect on blood sugar levels and insulin, the hormone that instructs blood sugar to enter the cell and be stored as fat or burned for energy. Flooding the system with large doses of sugar and refined carbohydrate may promote insulin resistance, a condition in which cells reject insulin and cannot access blood sugar for energy. Over time, blood levels of both sugar and insulin increase and sugar is stored as fat-carrying triglycerides in the blood. Also known as *Syndrome X*, this pre-diabetic state may be responsible for many of the metabolic symptoms of lipodystrophy, including high LDL (bad) cholesterol, low HDL (good) cholesterol, high triglycerides, high blood pressure, and fat gain around the abdomen. In HIV, insulin resistance is also related to fatigue, high levels of the stress hormone cortisol, testosterone changes, and an increased risk for diabetes and heart disease.

Diet and Supplements To Balance Metabolism and Improve Insulin Resistance

A diet to reduce the symptoms of insulin resistance/*Syndrome X* scales down total daily carbohydrate intake from 55%-60% (normal intake) to 45% of daily calories. The easiest way to do this is to avoid large quantities of refined carbohydrates like white flour and sugar. Try to eat smaller portions of these foods, as their sugars and insulin response can quickly overwhelm the system. Eat more healthy carbohydrates, like vegetables, fruits, whole grains, beans, nuts and seeds. These foods contain fiber, protein, or essential fats that keep blood sugar and insulin from rising too rapidly.

Proper balancing of fats is also critical to metabolism. Focus on increasing the healthy fats, also known as omega-3 fats and monounsaturated fats. Omega-3 fats, found in fatty fish (salmon, sardines, herring, trout), walnuts and flax and pumpkin seeds, decrease insulin resistance in diabetics and are anti-inflammatory. These healing fats are also linked to reduced risk

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The Role of Dietary Supplements in HIV

by George M. Carter

There's a lot more to life than viral load and CD4 counts. And increasing evidence shows that taking a few extra supplements a day may help in a variety of ways.

Vitamins and Minerals

All the food we eat to stay alive and healthy is made up of various chemicals. Those that are required in small amounts are known as *micronutrients*. They're considered *essential* because, for the most part, the body can't manufacture them. These include vitamins and minerals.

Vitamins are small, complex organic substances that the body needs for the chemical reactions involved in metabolism and growth. Vitamins can be divided broadly into two categories: fat-soluble (vitamins A, D, E and K) and water-soluble (the B-vitamins, folic acid, biotin and vitamin C). To illustrate the difference, vitamin E mixes up well in oil, while a powder of vitamin C mixes up nicely in water. Fat-soluble vitamins wind up being stored in the liver, and some can be toxic if taken in excessive quantities.

Minerals are inorganic solid substances not composed of plant or animal matter. They are as important as vitamins in maintaining health and essential to survival. For example, the movement of minerals across cell membranes supports our body's most primary functions, such as the regulation of our heart beat, electrical activity of nerve cells, and water balance inside and outside of cells. *Macrominerals* that are required in relatively large amounts daily include phosphorus, calcium, and magnesium. Other macrominerals include the electrolytes, which are ionized salts such as sodium, potassium and chloride (found in some sports drinks to help replenish levels after a sweaty workout). *Trace elements*, or *microminerals*, refer to those minerals that are also considered essential, but needed only in tiny amounts by the body. These include boron, manganese, selenium, copper, iron, iodine, chromium, molybdenum, cobalt, vanadium, nickel, silicon and zinc. Excessive amounts of some minerals can also cause toxic reactions.

Other Dietary Supplements

In addition to the micronutrients, our bodies require *macronutrients* to function. Macronutrients include fats, simple and complex carbohydrates, and proteins that the body uses for fuel in the form of calories. Of course, consuming more calories than the body will utilize may result in fat deposits. However, data from researchers at the British Columbia Center of Excellence in HIV/AIDS at St. Paul's Hospital have shown that people with HIV need to consume greater numbers of calories than uninfected individuals. The trick is assuring that the quality of those calories is carefully – pardon the expression – weighed.

“More studies to evaluate the benefits, costs and limitations of micronutrient therapy are needed.”

Eating a healthy, balanced diet is the first essential component of a comprehensive HIV management strategy. This includes consuming plenty of clean water, fresh fruit and vegetables, whole grains, beans and other varied sources of protein (meat, dairy, fish). A well balanced diet should also emphasize sources of healthy fats – omega-3 fatty acids from fish, monounsaturated fats found in nuts, avocados, olive oil – while cutting down on processed foods and beverages and the greasy, fried foods that may add calories but are otherwise problematic from a health standpoint. And of course, exercise is necessary to preserve lean muscle and help transform as much of our nutritional intake as possible into lean tissue!

Many other substances are also extremely important for their health benefits. These include amino acids, which are the chemicals that make up proteins. Examples include carnitine and its nerve-improving cousin, acetylcarnitine, N-acetylcysteine (NAC), taurine and glutamine, as well as chemicals such as coenzyme Q10, alpha lipoic acid, choline, inositol, various flavonoids and omega-3 fatty acids.

When these various nutrients aren't contained in food or medications, the Food and Drug Administration (FDA) refers to them as *dietary supplements*, which the agency defines as substances not considered either foods or drugs. Dietary supplements include vitamins, minerals, fatty acids, single or mixed amino acids, protein supplements (powders and drinks) and herbs used for non-cooking purposes.

How Does HIV Affect Nutritional Status?

Directly, HIV disease can cause damage to the gastrointestinal tract. This is not surprising considering the fact that HIV infects T-cells and a significant majority of those cells reside in the Gut-Associated Lymphoid Tissue (GALT). As a result, the lining of the intestinal tract deteriorates during the immune system's battle against HIV, possibly resulting in such problems as diarrhea and *villous atrophy*. Villous atrophy is a condition in which the tiny hair-like lining of the inside of the small intestine becomes stunted. These villi help the intestines to absorb nutrients. If they can't function properly, the intestines are unable to absorb nutrients properly. This may lead to *malabsorption*.

Even very early in HIV disease, the levels of certain vitamins and minerals begin to become depleted in many people. This happens notably with carotenoids, which are pigments related to vitamin A, vitamin E, vitamins B12 and thiamin (B vitamins), ascorbates (vitamin C), selenium, and zinc, among others. Many of these deficiencies worsen as the disease pro-

gresses. In 1996, researchers at University of Medicine and Dentistry of New Jersey noted lower levels of many antioxidants and minerals even in some people who took supplements, although the deficiency was not as marked as in people who did not use supplements. Lower levels of various nutrients – due to inadequate dietary intake, malabsorption, diarrhea, or altered metabolism – may be a sign of more rapid disease progression. Antioxidants are important because they can offset some of the damage caused by free radicals that are produced by HIV, some medications, and the body's inflammatory responses to HIV. Vitamins C and E (tocopherols), bioflavonoids, selenium, carotenoids, coenzyme Q10, and alpha lipoic acid act directly as antioxidants, while the B vitamins, NAC, and other substances are critical for maintaining the reduction-oxidation balance (redox) that occurs inside cells.

As HIV disease progresses, opportunistic infections such as *cryptosporidiosis*, *microsporidiosis* and other intestinal parasites, cytomegalovirus (CMV), Kaposi's sarcoma (KS) and candidiasis (thrush) can cause further inflammation and severe damage to the small intestine. The loss of the intestinal ability to absorb necessary nutrients may be compounded by medication side effects.

In summary, nutrient status can be impaired by HIV's damage to gut function, other infections leading to malabsorption and intestinal damage, hormonal imbalance (declining testosterone levels in both women and men, for example), diminished appetite, and diarrhea. These and other problems individually and collectively conspire to make it hard to get the nutrition that your body needs – let alone to make up for the metabolic losses sustained in the ongoing struggle with HIV.

What Can Be Done?

Thankfully, a lot! The first step is to aggressively seek a diagnosis for any infection that may be causing symptoms such as diarrhea or weight loss. This can be difficult since some infections, especially certain parasites, are hard to diagnose. Some of the diagnostic procedures may be uncomfortable. But if an infection is found, treatment should be started.

Aside from diagnosing and managing infections, it's critical to establish a good diet. The first line of defense against any disease is maintaining adequate nutrient intake. That must come first from the food we eat. As Hogg and his colleagues noted in a 1995 article in the *Journal of Acquired Immune Deficiency Syndrome and Human Retrovirology*, people with HIV need to take in substantially more calories than their HIV-negative counterparts.

A healthful diet is a smart part of a complete HIV-fighting program. However, in the case of HIV disease, food alone is probably inadequate to sustain the body's needs. Even the healthiest of diets may not provide adequate levels of vitamins, minerals and other important nutrients to offset the damage.

Data: Many Questions Remain

We still have no consensus on the best dosages of vitamins, part-

Eating a Healthy Diet

Your food choices can have a significant impact on your health. Part of good health is eating a well-balanced diet. Make sure you regularly eat healthy, nutritious foods that are high in fiber, contain vitamins and minerals, and are low in fat (fruits, vegetables and whole grains).

Change takes time, so don't get discouraged.

- Keep a food diary to track what you eat and drink for two to three days, and to help you identify areas in your diet that may need improvement.
- Are you eating at least five servings of fruits and vegetables a day? Did you consume any whole grain foods that are rich in fiber, such as beans, legumes, whole wheat breads and cereals?
- How much fat are you eating? Bake, steam, or grill instead of frying foods. Use vegetable oils instead of butter or lard when cooking.
- Are you drinking enough water? Limit your intake of sodas and other high-sugar beverages. Remember, fruit "drinks" contain more sugar than fruit juice.
- Make small, realistic changes in your diet, instead of trying to make large, unattainable changes. This will make it easier to adapt and incorporate the changes into your everyday eating habits. If you eat a slice of chocolate cake once a week, make sure to eat fruit as your dessert for the rest of the week.

There is no magic solution when it comes to good nutrition. Adding a multivitamin or mineral supplement to your food intake is a simple way to ensure that you receive adequate vitamins and minerals, but it doesn't replace the importance of eating a well-balanced diet.

ly due to the lack of clinical studies that can properly answer the questions. How potent should a multivitamin be? Researchers at the University of Medicine and Dentistry of New Jersey have noted micronutrient deficiencies persisting in a subset of supplement-using HIV-positive people.

Further research is unquestionably needed. Too often, mainstream medicine doesn't fully address or consider the use of supplements, let alone endeavor to study them. Although this is changing in some good ways, the changes are slow to happen. Fortunately, more people are becoming activist and demanding that good clinical studies be conducted of these types of interventions.

One problem with all clinical studies, however, is that broad and sometimes inappropriate generalizations are made for everyone based on a study of relatively few people or based upon an ill-conceived study design. For example, a study of long-term, heavy smokers received a lot of press when it found that smokers supplementing with beta-carotene and vitamin A actually had a slightly increased risk of lung cancer compared to those who did not use the supplements. The media blitz following the release of

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the study results in 1996 suggested that beta-carotene was generally harmful. But beta-carotene is only one antioxidant in a tightly controlled system, and later animal studies showed that an excess of beta-carotene combined with the oxidizing effects of cigarette smoke apparently wreaked havoc with this fine-tuned system. So, rather than proving that beta-carotene can prevent cancer in smokers, this study showed that the combination of beta-carotene and heavy smoking is potentially dangerous.

Other studies suffer from poor design. One randomized clinical study conducted by researchers from St. Bartholomew's and the Royal London School of Medicine and Dentistry evaluated the benefit of a combination of vitamins A, C and E, selenium and zinc in treating diarrhea. Participants received either albendazole, a drug used to treat some parasitic infections, or albendazole plus the supplements. The study found no added benefit to using the supplements over a two-week period. Aside from the fact that the study was too short, making generalizations based on these results is difficult since these people had diarrhea. Who knows how much of the supplements were actually absorbed? Indeed, the researchers concluded that despite a higher risk of death in those with low levels of the vitamins and minerals in their blood, little benefit was gained in giving people pills that simply passed through their systems.

A better designed study might have provided the amino acid, glutamine, to manage the diarrhea. Recent data have underscored the benefit of this intervention for managing protease inhibitor-related diarrhea, and there is a good deal of clinical data to support the benefits of glutamine in restoring gut function. Clearly, the albendazole study spent a lot of money to state the obvious – even supplements won't be completely helpful if they don't stay in your body for long. The other lesson, not surprisingly, is that it is crucial to diagnose and treat diarrhea.

Fighting for Access

Millions of HIV-positive people do not have adequate access to food and clean

water. Vitamin A deficiency and growth retardation are major public health problems in developing countries. In Africa, HIV infection, malaria, diarrhea, and respiratory infections are widespread, and their association with poor nutritional status accounts for a large number of deaths, particularly in infants and children. Various studies have shown that simple supplementation regimens can have a significant impact on suffering and death rates among people with HIV in places like Zambia, South Africa and Tanzania. Interventions such as a multivitamin and/or a B-complex are inexpensive. Even so, the cost remains beyond the reach of many, even in so-called developed nations like the United States. Activism is critical to secure access to these important interventions for people in developing nations and to ensure that they are covered by state Medicaid and AIDS Drug Assistance Programs (ADAPs) here at home.

Certain states, like New York, cover multivitamin supplements under their Medicaid and ADAP formularies. However, the ones that are provided are considered by many to be inadequate and, indeed, they provide considerably lower dosages than other brands. Some people compensate by simply taking more tablets each day, but this can be problematic in a disease that already has a high daily pill burden.

Supplementation: Can't Hurt, May Help

Observational studies of adults in the United States show an overall 30% reduction in the rate of progression to AIDS when just a multivitamin is used. This kind of study is difficult to accept on its own since there might be biases that a controlled clinical evaluation might help to minimize. With an epidemiological study of this sort, people who chose to take supplements may take better care of themselves generally and be in better health to begin with, representing a selection bias. Still, it isn't outrageous to conclude that a multivitamin may be a good idea in a disease that often results in nutritional deficiencies and a potentially fatal wasting.

A large double-blind placebo study published in *The Lancet* in 1998 described the

effects of vitamin supplementation in 1,075 HIV-positive pregnant women in Tanzania, 34% of whom had vitamin A deficiency. The women were equally divided into four groups, receiving vitamin A alone, a multivitamin with vitamin A, a multivitamin without vitamin A, or placebo. Women taking a multivitamin – with or without vitamin A – had reduced risks of preterm birth, low birth weight, and fetal death compared to those taking placebo or vitamin A alone. They also had comparatively significant increases in CD4, CD8 and CD3 counts. In this study, researchers observed that taking vitamin A alone or adding vitamin A to the multivitamin did not seem to show any added benefit.

A recent report from Mercer University School of Medicine in Savannah, Georgia described a woman taking antiretroviral therapy and suffering from lactic acidosis. Mitochondrial toxicity, a potential side effect of the nucleoside analogues (Zerit, Videx, AZT, etc.), can create abnormally high levels of lactate, which, rarely, leads to lactic acidosis, a potentially life-threatening condition. The woman in Georgia had a very low level of the B vitamin, riboflavin and was given 50 mg of riboflavin a day. Within four days, her lactate levels were close to normal. This is only one case, of course, but there are many other case reports of lactic acidosis being treated with B vitamins, carnitine and coenzyme Q10. So it wouldn't hurt – and it may very well help – to use a B-complex. Although there are no data yet to show that a B-complex will prevent increases in lactate levels, it is an inexpensive and safe intervention. It may be reasonable to take that extra capsule or two a day, along with a potent multivitamin.

In addition, certain amino acids are proving their worth repeatedly and should probably be considered a core part of HIV management. These include, with a best estimate on the dose for adults, 1,500-2,000 mg of NAC, 5 grams (5,000 mg) of glutamine (unless diarrhea is present, in which case the dose can go up to 40 grams) and 3,000-6,000 mg (3-6 grams) of carnitine daily in divided doses. The recommended dose is 3 grams per day, as carnitine can cause diarrhea and body odor.

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The Road from Perfection

by Heidi M. Nass

If I had been asked in the months following my diagnosis whether what I ate and whether I exercised could somehow control the HIV in my body I would have said, “No.” Looking back, though, my behavior suggested a different answer.

Almost overnight I stopped caffeine and sugar, started taking vitamins and supplements with religious devotion, switched to unprocessed organic foods, added more long-distance runs and resistance work to my schedule and took up yoga. At the time, I was doing what I believed necessary to manage my health. Looking back, it seems pretty clear I was trying to outrun a train.

I started to realize things were out of hand when I visited an acupuncturist during this time and she asked me to write down all the supplements and vitamins I was taking. When she pointed to a few specific items on the lengthy list and asked what they were for, I heard myself say, “I don’t remember.” It wasn’t that I had been taking things without meticulously researching them; I just couldn’t keep them all straight.

Maybe in my head I knew “do everything perfectly” didn’t equal “control HIV,” but my behavior came straight out of “I need to do something or I’m gonna die.” In the crisis of my diagnosis, I suppose I needed something to control, as if my brain took on a hobby while the rest of me was freaking out.

The irony of all this self-care was that it threatened whatever pleasure was in my life at the time. My runs were no longer the relaxing detours of my week but what I was supposed to do to purge toxins and keep my cardiovascular system toned. Yoga class felt less like a chance to practice meditation with my body and more like an obligation. The chores just kept piling up. Even the occasional six ounces of coffee acquired the taste of guilt.

Meanwhile, my viral load went up and my CD4s went down. When I ultimately went on antiretroviral therapy – the thing I was desperate to avoid – I found unexpected relief in what felt like surrender. As my viral load went to undetectable and my CD4s climbed above 1,000, I relaxed into the knowledge that I wasn’t going to die next week. I started to believe I was in it for the long haul and I began to behave that way.

To be honest, I somewhat resented drug therapy. I hadn’t taken an antibiotic in over ten years, let alone the three medications my regimen required every day. While HIV had never shown me a symptom, the diarrhea caused by Viracept was very real.

Strangely, though, I think this helped me start to see how diet and exercise fit into the picture. Some research and experimentation led me, for example, to the discovery that glutamine and calcium supplements could completely resolve my intestinal upset. I began to focus on supporting

my body to tolerate the medications and reduce their potentially toxic effects.

Six years later, I have what I would call a recovered attitude about the role of diet and exercise in managing my HIV disease. I have a better understanding of all the tools of wellness and I’ve had some time to get adjusted to what it means to live with HIV.

The pleasure is back in my running. That cup of coffee tastes good again.

I don’t look at my diet and exercise habits as ways to knock down the virus; I eat well and I exercise because it’s really good for my body, and it feels that way. I try to keep it simple. The two things that I’ve always felt were most important for long-term strength and survival – gut health and muscle mass – are the two things I try to support with what I eat and what I do.

By anyone’s standards, I eat well – organic vegetables and fruits, whole grains, plenty of protein and water. I’m a vegetarian, which probably helps me avoid some of the more unhealthy foods, but forces me to pay more attention to what I eat to be sure I get all the nutrients I need.

These days I exercise with realistic goals, a commitment to do the work, and forgiveness. Last year I trained successfully for a half-marathon but had to pull out a few days before the race when I got a hypersensitivity reaction during a drug switch. I was disappointed, but I took great satisfaction in knowing I could go the distance and committed myself to finding another race. For someone perpetually at risk of death-by-perfectionism, learning how to say “Oh, well...” – and meaning it – is as important to a successful exercise regimen as being disciplined about putting in the time every week.

These days my life feels too short to fill with “shoulds” and too long to opt out of investing in it. I’ve discovered a vast, sort of unruly world that exists beyond the pre-diagnosis denial that I would ever die and those first post-diagnosis months of being consumed by the idea of my death.

I engage in a fairly constant process of negotiating what I am willing and able to contribute on any given day to feeling healthy and strong. No one makes me find creative ways to eat broccoli (not my favorite) or get myself out the door for a run on a dreary day. Sometimes, though, these simple choices about what to put into my body and how to keep it strong remind me that I’m also choosing to participate fully in my life ... and that feels good.

Heidi M. Nass is a community advocate based in Madison, Wisconsin.

Using Evidence to Make Nutrition Decisions: A Look at Zinc

by Diana Peabody

Evidence-based medicine provides the framework for decisions around clinical practice and treatment guidelines in HIV disease. There is growing pressure in the field of nutrition to make recommendations, especially with regards to supplementation, using this rigorous method of evaluating the evidence. The strength of a recommendation, ranging from “should always be offered” to “should never be offered,” depends on the quality of evidence that is available. The gold standard is the randomized clinical trial, usually a double-blinded, placebo-controlled intervention study, which decreases bias and gives the most objective results. The weakest evidence is considered to be “expert opinion.”

In nutrition, there have been only a few randomized clinical trials, which makes it difficult to find proof of benefit or proof of cause and effect. Instead, we often rely on *in vitro* (test-tube) studies, epidemiological evidence (population studies), animal studies, and anecdotal evidence such as case reports and hearsay. As a result, expert opinion often serves to guide our decisions. Nutrients are hard to study with the usual scientific methods because there are complex interactions between the gut, immune system, viral replication and the nutrients. The body’s way of handling a

systemic infection is called the acute phase response. When this occurs, the metabolism of micronutrients is altered, making it difficult to accurately assess deficiency.

The studies that do exist usually report mildly deficient blood serum levels of a nutrient, which are sub-clinical, meaning that there are no apparent physical symptoms of deficiency. The level at which a nutrient is reported to be deficient depends on the population norms used at the laboratory. It is still unclear whether norms used for the healthy population are applicable for people with HIV. If someone’s serum vitamin or mineral level is low, it could mean that there actually is a nutrient deficiency with more generalized malnutrition, or it could reflect a change in the metabolism of the nutrient. It could also be a temporary response to an infection, a marker of disease progression, the result of an interaction between a drug and a nutrient, or even a laboratory error. These confounding variables have resulted in a lack of consensus in the scientific community and a reluctance to make recommendations for specific micronutrient supplements.

Zinc is a nutrient for which there is no consensus regarding the recommended intake in HIV. It has long been known for its role in immune function, which led to a belief that high doses of zinc would stimulate and maintain a healthy immune system in the context of HIV infection. However, like most micronutrients, the most beneficial amount to take in a disease that attacks the immune system is far from conclusive. Zinc acts as a co-factor in hundreds of metabolic actions in the body. Serum zinc levels are affected by time of day, food, stress, and infections. Whenever there is an infectious process, like opportunistic infections and possibly HIV itself, the liver pulls zinc from circulation to make substances that fight infection, known as acute phase reactants. This protective process causes zinc levels to decrease, making it unclear whether it

really is beneficial to replace low levels of zinc in these conditions. A number of studies that investigated the role of zinc in immunity, HIV progression, and the risk of dying have influenced supplementation decisions over the years. Most of these studies took place prior to the use of HAART (Highly Active Antiretroviral Therapy) and have not been reproduced in people on HAART.

In 1993, Alice Tang and colleagues from Johns Hopkins University published an epidemiological study in *American Journal of Epidemiology* that related micronutrient intake from food and/or supplements to HIV disease progression. They investigated several nutrients, including zinc, which was found to be significantly associated with disease progression. Surprisingly, they found that a total intake of zinc from food and supplements greater than 20 mg per day – which is approximately twice the recommended daily intake – incurred a relative hazard of 2.06 for disease progression. This means that someone with a higher zinc intake was twice as likely to progress faster to AIDS than someone with a lower zinc intake. One limitation of the study is the potential error introduced by using a food frequency questionnaire to measure general dietary intake, because self-reporting of food intake can be quite inaccurate. Although there was a significant association between zinc intake and disease progression, this study does not prove that higher intakes of zinc caused the disease to progress; people with lower CD4 counts may have started taking more zinc hoping to slow disease progression. Also, the cut off was at 20 mg per day, and the researchers did not differentiate between that and higher intakes of over 50 mg per day, which are fairly typical.

Marianna Baum and other researchers from the University of Miami School of Medicine also looked at serum zinc levels and HIV disease progression. Her findings were published in *AIDS* in 1995. She found that serum zinc correlated to

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The web version of this issue contains this additional material:

Vitamin & Mineral Chart

Nutrition Information Resources for People with HIV

Nutrition & Immunity: You Are What You Eat

dietary intake and that serum zinc tended to decrease over time. In the group she looked at, normalizing serum levels with supplementation improved CD4 cell count slightly. This study contradicts the Tang study in that it found statistically significant benefit in zinc supplementation, although the researchers didn't report what dose they used. Interestingly, the prevalence of low zinc was 25-26% in HIV-positive men compared to 17% in HIV negative controls. In 1998, the same researchers published data on HIV-positive, injection drug using men; 56% of them had deficient zinc levels, which were associated with lower CD4 levels and advanced disease (CD4 counts less than 200). Again, low zinc may be a marker of – not a cause of – disease progression.

A study published by RK Chandra in *JAMA* in 1984 showed that high doses of zinc suppressed immunity in healthy men. The study participants took 300 mg daily for six weeks, which resulted in decreased immune function. Although this is an extremely high dose, it does show that more is not always better. These are but a few of the many articles looking at the role of nutrients in HIV infection. These studies show that low serum zinc and low dietary zinc intake are linked and both have been associated with faster progression of HIV disease. They provide preliminary evidence that suggests zinc “needs to be investigated further.” However, they don't show cause and effect or determine the best dosing regimens. Moreover, the Tang and Chandra studies raise concerns about the wisdom of taking high doses of zinc.

Recommendations for daily nutrient intake have been developed based on deficiency prevention in the healthy population. The requirements for a disease state like HIV are unknown. We still don't completely understand the actions of vitamins and minerals and the long-term consequences of taking nutrients in high doses as a therapy. The first principle in supplementing should be “do no harm.” Certainly staying well nourished with a generous intake of nutrients from food should be the first line of defense, supported with a thoughtful and well-planned supplementation regimen.

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New Web Site

ACRIA recently redesigned our web site to include several new resources. The redesign was implemented primarily to make the agency's directory of enrolling HIV clinical trials in New York State available as an online resource. But other features have also been upgraded, and we've created an entirely new look for the site.

The new online directory offers users a high degree of flexibility to view trial listings that are of interest to their specific needs and circumstances. Individuals can request to see only those trials that are enrolling within a specific region, or they can search for trials by condition, treatment, and/or criteria such as CD4 count, viral load and age.

The web site has also been improved in other ways. It now has a search engine for users to quickly and easily reference information on specific topics from the site's extensive content. Treatment and research issues can now be located without having to wade through multiple back issues of *ACRIA Update* or other archived materials. Users can go directly to sources containing the pertinent discussions. We hope that you visit www.acria.org soon to view the site's new look and functionality.

Planning Your Meals Saves Time and Hassle

Simplifying your meal preparation can help combat problems such as fatigue, loss of appetite and a general sense of feeling overwhelmed. Here are a few suggestions you can try:

- Weekly menu planning can save time and extra trips to the store. Prepare a shopping list before you go to the store and try to stick to buying only those items.
- Become familiar with the layout of your supermarket. Most healthy foods are located against the walls of the store (the outside aisles). The middle aisles can easily distract you and lead to impulse buying.
- One-pot skillet meals, such as casseroles and stir-fry's, take less time to prepare. You can vary the recipes by substituting different vegetables, meats, and seasonings. Broiling and microwaving are other quick options for food preparation.
- Stock your freezer with frozen vegetables. Prepare sauces, stews, soups, and meats in large quantities and freeze the leftovers. When you're not feeling well or have medical appointments, these items can be removed and easily reheated.
- Buy healthy snacks, such as yogurts, fruits, vegetables, and nuts, which can be consumed between meals.

Fibrates and Statins and Glitazones (Oh My!)

by Tim Horn

It's hard to say what's more frustrating – the fact that we still don't know what causes lipodystrophy, or the fact that we still don't know how best to treat it. Even if researchers eventually conclude that specific antiretrovirals are responsible for the more dangerous manifestations of this syndrome – most notably increases in lipid levels and insulin resistance – it's not clear what this pronouncement will actually mean for people with HIV. For example, it's not as if any of us can afford to avoid the protease inhibitors. They remain one of the most powerful virus-clobbering tools we have, and many of us wouldn't get very far without them.

If ongoing research determines if – and how – certain anti-HIV drugs cause lipodystrophy, pharmaceutical companies might be able to cash in on these discoveries and begin turning out less toxic versions of their more powerful compounds. But writing and rewriting drug recipes will require a whole lot of testing and a great deal of time. Thus, it would likely be several years before “sugar- and fat-free” formulations hit the pharmacy shelves.

Given this frustrating predicament, there has been a rush to find some outside help in the form of treatments to manage the side effects themselves. On one level, this is total madness – having to treat the side effects of one drug with the use of other drugs, many of which have their own long list of toxicities. Then again, the alternative is even more troublesome – an increased risk of heart attacks and strokes, for example.

As this issue of *ACRIA Update* focuses on some of the more important nutritional and dietary considerations for HIV-positive people, including those with lipodystrophy, this review of drugs in development is dedicated to pharmaceutical agents being studied for the potential ability to improve two nutritional parameters that are of central concern to patients with lipodystrophy: lipid levels and insulin levels. Other drugs being studied for their ability to improve the more physical symptoms of lipodystrophy, chiefly fat loss in the limbs and face and fat increases around the gut, continue to make headway in clinical trials. These agents – including recombinant human growth hormone (Serostim) and cosmetic devices (e.g., New Fill injections) – will be reviewed by this author in a future issue of the *Update*.

LIPID-LOWERING DRUGS

Lipid-lowering drugs have had a profound effect on the lives of millions of Americans living with elevated cholesterol and triglyceride levels. Elevated cholesterol levels can lead to clogging of the arteries and, with it, an increased risk of heart

attacks and stroke. Elevated triglyceride levels are associated with their own set of problems, including life-endangering damage to the pancreas (pancreatitis). However, much of what we know about increased lipid levels and the drugs used to bring them under control come from studies involving HIV-negative people in their late 50s to 70s, many of whom have long histories of smoking, high blood pressure, and fat-soaked diets. It still isn't clear to what extent elevated cholesterol and triglyceride levels raise the risk of problems in otherwise healthy and younger HIV-positive people. But there aren't too many healthcare providers who will sit by idly, waiting to see what may or may not happen to their HIV-positive patients who have cholesterol levels well above 200 and triglyceride levels in the thousands. (A healthy cholesterol level is below 200 mg/dL, and a healthy triglyceride level is below 150 mg/dL). For these people, lipid-lowering drugs are definitely an option to consider.

Bile-Acid Resins

Beyond the rather unattractive name for this class of drugs, bile-acid resins such as **cholestyramine (Questran)** and **colestipol (Colestid)** have been shown to reduce LDL “bad” cholesterol by 10% to 30% in HIV-negative people. These drugs bind with cholesterol in the intestines and prevent it from being absorbed into the bloodstream. The cholesterol is then removed from the body with each bowel movement.

Bile-acid resins are often used in combination with other lipid-lowering drugs. This is because bile-acid resins can actually cause triglyceride levels to increase. Side effects of these drugs include stomachaches, bloating, flatulence (farting), heartburn, and constipation. Another problem with bile-acid resins is that they should be taken two hours before or after other medications, including antiretrovirals. This can be a major headache for HIV-positive people who are already overwhelmed by a two- or three-times-daily medication schedule.

Bile-acid resins have not yet been studied in HIV-positive patients with increased lipid levels associated with lipodystrophy.

Nicotinic Acid (Niacin)

Niacin, a derivative of vitamin B, lowers both cholesterol and triglyceride levels. It has been shown to reduce total cholesterol by approximately 20% to 30%, lower triglycerides by 35% to 55%, and increase HDL “good” cholesterol by 20% to 35%. Like bile-acid resins, niacin has not been studied in HIV-positive individuals with lipodystrophy.

Side effects of niacin include nausea, diarrhea, increased liver enzymes, and vasodilatory symptoms (e.g., flushing). There are two types (and many different brands) of niacin available: an immediate-release formula and an extended-release formula. According to one study, the immediate-release formula is much more likely to cause flushing than the extended-release formula, whereas the extended-release formula is much more likely to cause liver problems than the immediate-release formula. While it is not believed that niacin has any negative drug interactions if combined with any of the antiretrovirals, HIV-positive people with elevated liver enzymes due to their antiretrovirals or coinfection with either hepatitis B or hepatitis C should be cautious if using the extended-release formulation of niacin. Niacin can also increase sugar (glucose) levels in the blood, which may not be a good idea for HIV-positive people with insulin resistance (see below).

Niacin can be purchased with a prescription through a pharmacy or without a prescription at grocery stores and health-food markets. However, it should be used with caution and always under the supervision of a healthcare provider.

Fibric Acid Derivatives

Fibric acid derivatives (fibrates) include **fenofibrate (TriCor)** and **gemfibrozil (Lopid)**. These drugs work by speeding up the chemical breakdown (catabolism) of triglyceride-rich lipoproteins that circulate in the body. Fibrates are best known for their ability to lower triglyceride levels – by 30% to 55% in HIV-negative clinical trial participants – but don't offer much in the way of cholesterol-lowering effects. In turn, fibrates are usually taken with other lipid-lowering agents, typically a statin. However, some experts believe that a fibrate/statin combination might increase the risk of rhabdomyolysis. This is a rare condition where damage to muscles results in the release of muscle cell contents into the bloodstream, which can lead to serious damage to the kidneys and other organs. If your doctor recommends these two types of lipid-lowering drugs, he or she will need to keep an eye on your kidney, liver, and muscle functions through regular blood tests.

Gemfibrozil is the most commonly used fibrate in the United States. However, some experts suggest that HIV-positive people stick to fenofibrate, because it is not metabolized by the same enzyme system (cytochrome P450 3A4) used by many of the protease inhibitors (PIs) and non-nucleoside reverse transcriptase inhibitors (NNRTIs). In other words, fenofibrate is less likely to have a negative interaction with anti-HIV drugs – at least in theory.

Not much is known about the effectiveness of fibrates in HIV-positive folks with lipodystrophy. In one small study, researchers evaluated the medical charts of 14 HIV-posi-

tive patients who combined their antiretroviral therapy with gemfibrozil. Eight of these patients took gemfibrozil for at least four weeks. Before starting fibrate treatment, the average triglyceride level was 1800 mg/dL. After three months of gemfibrozil therapy, triglyceride levels were down to 300 in most patients. Cholesterol levels did not change in this study.

As for side effects associated with the fibrates, the most common are stomach pain, bloating, and nausea. Liver enzymes can also become elevated, and there is an increased risk of developing gallstones. Decreased libido and impotence can also occur.

Statins (HMG-CoA Reductase Inhibitors)
By far the most popular lipid-lowering drugs, the statins block the activity of the HMG-CoA reductase enzyme, which controls the rate of cholesterol production in the body. In HIV-negative study participants, the statins have been shown to reduce total and LDL cholesterol and to actually keep people with elevated cholesterol levels alive longer and healthier.

For HIV-positive people, there is a caveat to consider with these drugs – many of the statins are broken down in the body by the same enzyme used to metabolize the PIs and NNRTIs. This can cause blood levels of either the PIs/NNRTIs or the statins to fluctuate, which can increase the risk of side effects and reduce the potential benefits of either treatment. [A quick sketch of the possible interactions between each of the PIs, NNRTIs, and the statins, as well as other lipid-lowering drugs, is available at www.hiv-druginteractions.org, courtesy of the Liverpool HIV Pharmacology Group.]

One AIDS Clinical Trials Group study completed a few years ago enrolled 43 HIV-negative individuals to take the protease inhibitors ritonavir (Norvir) and saquinavir (Fortovase) in combination with one of three statins: **atorvastatin (Lipitor)**, **simvastatin (Zocor)**, or **pravastatin (Pravachol)**. Because this study was a brief “pharmacokinetics” study – an evaluation of drug levels during a short period of time – it was not necessary to enroll HIV-positive patients. According to the results, first presented at the 7th Conference on Retroviruses and Opportunistic Infections in February 2000, blood levels of pravastatin declined by approximately 47% when it was combined with ritonavir/saquinavir. Atorvastatin levels increased by 79% and simvastatin levels increased by a whopping 3059%.

Based on these findings, the United States Public Health Service (USPHS) has pretty much ruled out the use of simvastatin in combination with any of the PIs or NNRTIs given the potential risk of serious side effects. Atorvastatin is an

(continued on next page)

option, but if it is used, the dose should be reduced – by half, say some doctors – and then gradually increased (if necessary) with careful monitoring. Pravastatin is the only HMG-CoA to pass muster with the USPHS, although it might be necessary to increase the dose of this drug somewhat if the desired reduction in cholesterol is not achieved.

Other cholesterol-lowering statins that are approved but not yet formally studied in combination with any of the antiretrovirals include **lovastatin (Mevacor)** and **fluvastatin (Lescol)**; the drug **cervastatin (Baycol)** was recently taken off pharmacy shelves by the FDA because of toxicity concerns. Lovastatin is metabolized very much like simvastatin and is best avoided if you are taking either a PI or NNRTI. Fluvastatin levels may drop if it is combined with either a PI or NNRTI, thus there may not be much of a lipid-lowering benefit at the usual recommended dose.

Do the statins actually work for people with lipodystrophy? Unfortunately, there have only been a few small, short-term studies looking at the safety and effectiveness of statins in HIV-positive people. Frustratingly, the pharmaceutical companies that produce statins are reluctant to get involved in the crowded and often messy HIV drug-development game. According to one pharmaceutical spokesperson who agreed to speak with *ACRIA Update* on the condition of anonymity: “Nobody understands why lipid increases are occurring [in HIV-positive people] and companies producing [statins] see this as a huge liability issue. The possibility of drug interactions, an increased risk of side effects, and limited effectiveness in HIV-positive patients could make the statins look bad.”

Fortunately, there have been a few research reports to go on. In one study conducted in Spain, 15 HIV-positive people with elevated cholesterol and triglyceride levels took atorvastatin in combination with their antiretroviral drugs. After 12 weeks, cholesterol levels dropped by approximately 25% and triglyceride levels fell by roughly 35%. After another three months, these improvements held, although some of the patients still had cholesterol levels above 200. Similar data were reported at the 3rd International Workshop on Lipodystrophy and Adverse Drug Reactions, held in Athens, Greece in October. In this study, researchers at Baylor College of Medicine in Houston reviewed the medical files of patients with lipodystrophy who took either fibrates or statins to lower their cholesterol and triglyceride levels to see how effective these drugs were. Numerous patients had been taking the drugs in combination with their antiretrovirals for at least a year. Although many saw their cholesterol and triglyceride levels decrease dramatically while using the lipid-lowering treatments, only a few people were able to reduce their lipids to the healthy ranges.

In a nutshell, not much research has taken place with

respect to the safety and effectiveness of lipid-lowering drugs in people with HIV-associated lipodystrophy. In the handful of studies that have been completed so far, it appears that lipid levels do improve with the use of fibrates and statins. Unfortunately, these same studies – along with numerous doctors who prescribe these drugs – indicate that these therapies are a ripple in the ocean for many HIV-positive patients. While it is safe to say that any improvements in cholesterol or triglyceride levels may help reduce the risk of life-threatening complications, more needs to be done to help those with lipid levels in the red to get their numbers back in the black.

TREATMENTS FOR INSULIN RESISTANCE

A handful of studies have looked at the possibility of using two common types of diabetes treatments to treat lipodystrophy, particularly for HIV-positive people who have insulin resistance. Insulin resistance means that cells in the body are less sensitive to insulin, a hormone produced by the pancreas that helps cells absorb sugar (glucose), which they need to function properly. Insulin resistance can lead to diabetes, which can go on to cause blindness, heart disease, and a slew of other problems.

Metformin

Metformin (Glucophage) helps to reduce the amount of glucose produced by the liver, which generally leads to reduced amounts of insulin and glucose in the bloodstream. At least one clinical trial, conducted by researchers at Massachusetts General Hospital in Boston, suggests that metformin holds a great deal of promise for HIV-positive people with insulin resistance.

At the 3rd International Workshop on Lipodystrophy and Adverse Drug Reactions, Dr. Steven Grinspoon presented data from a clinical trial that compared metformin to placebo in 26 HIV-infected people (20 men, 6 women) with elevated insulin and glucose levels. After three months, all of the patients were allowed to take metformin for an additional nine months. At the time of Dr. Grinspoon’s presentation, 19 patients had been enrolled in the study for at least a year.

Generally speaking, metformin treatment resulted in marked reductions in the “two-hour postprandial” insulin levels. This means that the drug was most effective two hours after eating a meal, the time when insulin levels are highest in the body. Metformin was less effective on glucose levels, both “fasted” (before the first meal of the day) and two hours after eating. Because higher-than-normal two-hour postprandial insulin levels are considered to be an early sign of insulin resistance, these findings suggest that metformin might slow the progression of insulin resistance, rather than being a curative therapy once it occurs.

Also of interest was the effect of therapy on body weight and changes in body shape. Patients treated with metformin experienced significant decreases in body weight and saw improvements in their waist size (decreased fat around the gut). The drug was also well tolerated: No patients discontinued the study because of side effects, and there were no reports of lactic acidosis, a dreaded side effect of metformin that has been seen in some HIV-negative patients with diabetes.

Unfortunately, metformin failed to pan out as a therapy for either HIV-associated insulin resistance or lipodystrophy in a second study conducted in Barcelona. In this clinical trial, 51 individuals with lipodystrophy received metformin, the lipid-lowering agent gemfibrozil, or placebo for one year. Only slight decreases in body weight and improvements in body shape were reported. Whatever improvements were seen, were similar in all three groups, including those receiving the placebo. Lackluster improvements in LDL cholesterol, triglycerides, and insulin levels were also reported – again, in all three groups.

Glitazones

Also being studied for the treatment of lipodystrophy are the glitazones. Glitazones belong to a class of drugs called the thiazolidinediones and are best known for their ability to make cells more sensitive to insulin. Glitazones have also been shown to help correct the function of adipocytes (fat cells). In one clinical trial of HIV-negative diabetic patients, glitazone therapy was associated with increases in subcutaneous fat (i.e., fat in the face, arms, and legs) and decreases in visceral fat (i.e., fat that accumulates deep in the belly) – benefits many researchers have been hoping to duplicate in patients with HIV-associated insulin resistance and lipodystrophy.

Unfortunately, the results of several small studies suggest there is little to be excited about. In one study evaluating **pioglitazone (Actos)** in nine HIV-positive patients with lipodystrophy, there were no significant improvements in body weight or body shape. However, in a questionnaire, four of the nine patients reported improvements in their physical appearance. A review of nine patients with lipodystrophy who took **rosiglitazone (Avandia)** every day for six months showed only mild improvements in triglycerides, cholesterol levels, body weight, and fat distribution.

The largest, most “scientific” study of a glitazone for the treatment of lipodystrophy was reported in February at the 9th Conference on Retroviruses and Opportunistic

Infections in Seattle. The study, conducted in Helsinki, randomized 30 HIV-positive individuals with lipodystrophy to take either rosiglitazone or placebo for six months. Before entering the study, the patients had mildly elevated triglyceride and cholesterol levels, increased insulin levels, and noticeable fat loss in their limbs.

After three months of treatment with either rosiglitazone or placebo, insulin levels decreased in the patients who received rosiglitazone. In patients who received the placebo, insulin levels continued to increase. But that’s where the good news ends. Triglyceride levels increased in those who took rosiglitazone – even more than they did in patients who took the placebo – and cholesterol levels continued to rise at the same rate in both groups. The Helsinki team also observed no noticeable improvements in fat size in the limbs.

“...not much research has taken place with respect to the safety and effectiveness of lipid-lowering drugs in people with HIV-associated lipodystrophy.”

Sadly, these findings suggest that glitazones will be of limited benefit to patients as a broad-spectrum treatment for the various signs and symptoms of lipodystrophy. Perhaps more encouraging results will come out of ACTG 5082, a randomized, controlled study being conducted by the AIDS Clinical Trials Group, comparing a combination of rosiglitazone and metformin to metformin alone and rosiglitazone alone in HIV-infected patients with insulin resistance and lipodystrophy. Early results are anticipated sometime this year.

CONCLUSION

It’s safe to say that the experience of lipid-lowering and insulin-sensitizing drugs so far has been less than stellar. Then again, it is important to consider what researchers have been looking for – a magic bullet that will effectively reverse any and all signs of lipodystrophy. The fact is there are clear-cut benefits to these treatments. First there are the fibrates and statins, which have been shown to reduce triglyceride and cholesterol levels. Then there is the encouraging data involving metformin and the glitazones, two classes of drugs that can effectively improve insulin sensitivity and, as a result, potentially ward off the threat of diabetes. Short of a magic bullet, there are clearly individual weapons available to, once again, keep HIV-positive people alive longer and healthier.

Tim Horn is executive editor of the PRN Notebook, published by Physicians’ Research Network in New York.

Nutrition for Health and Healing *(continued from page 3)*

of heart attack, stroke and breast, prostate, and colon cancer. They may also be useful in mental health conditions such as manic depression and schizophrenia. Scientists suspect a lack of omega-3s may increase the risk of Alzheimer's and Parkinson's disease. Monounsaturated fats such as olive oil, canola oil, nuts, seeds, and avocados are also healthy fats, as they boost levels of the "good" HDL cholesterol. Finally, decrease saturated fat from dairy, beef, pork, poultry skin, palm oil, and hydrogenated oils ("trans fat") from margarine, processed foods, and fried foods. These unhealthy fats increase blood levels of "bad" LDL cholesterol (clogs your arteries) and raise the risk of heart disease.

Eating enough protein is always important for someone living with HIV. Choose low-fat protein sources such as lean meats, skinless poultry, eggs (4 per week) or egg whites, low-fat dairy, beans, nuts, seeds, and soy-based foods. Be sure to eat protein throughout the day, but especially in the morning, and in combination with healthy carbohydrates and fats.

Progressive declines of vitamins, mineral, and antioxidants are well documented in HIV disease. Clinical assessment of nutrient levels may be difficult to measure, because blood levels may not reflect concentration and availability inside of cells. Many of these nutrients are essential for various metabolic reactions, especially energy production and detoxification. While a basic multivitamin/mineral pill may cover possible deficiencies, consistent and rational use of additional supplements may improve fatigue, insulin resistance, and overall immunity. Focus on vitamins (particularly B vitamins), minerals (selenium, calcium, magnesium, zinc) antioxidant compounds (selenium, coenzyme Q10, vitamins C & E, L-carnitine, alpha lipoic acid), and the amino acids cysteine and glutamine. Boosting levels of glutathione, the body's most important antioxidant, is critical to pathways that detoxify most medications.

Balancing Emotions and Metabolism

Cortisol is the primary hormone generated in times of stress. High levels of corti-

sol wreak havoc with metabolism and have been related to insulin resistance, fat accumulation, depression, and decreased immunity. Consider mind-body practices and therapies that address emotional issues and life stress. Chronic overeating and under-eating, common responses to anxiety, depression, isolation, and substance use, aggravate the metabolic response. Learning to nourish oneself physically and emotionally is critical. Recognizing food/mood connections and addressing underlying emotional development is usually necessary to transform poor food habits into healthy practice.

Balancing Digestion

For centuries, practitioners of Chinese Medicine have focused on the digestive system as a central axis of health, balance, and detoxification. As with cell metabolism, natural properties of food and fluids impact tremendously on the digestive process, creating internal conditions that are ultimately friendly or hostile to the steady stream of bacteria, virus, fungi, and other toxins that pass through the intestinal track. Modern scientists have confirmed the critical importance of the digestive environment to health. Considered the largest organ of the immune system, the gut is a primary barrier against invading organisms, and home to highly concentrated areas of activated CD4+, CD8+ and B cells. In spite of (or because of) this powerful intestinal immune system, the digestive process plays a fundamental role in the progression of HIV disease. Vaccine researchers regard the intestines as a principal point of access for HIV infection and location of primary viral replication and persistence, even in early stages of the disease.

Virtually everyone with HIV has gastrointestinal symptoms at some point. People suffer enormously, displaying symptoms ranging throughout the length of the digestive tract, including dental problems, thrush, ulcers, heartburn, nausea and vomiting, severe gas, lactose intolerance, diarrhea, colitis, diverticulitis, constipation, hemorrhoids, anal warts and herpes. Many of these conditions can be greatly improved with aggressive nutrition interventions that use dietary change, supple-

ments, and stress reduction to support digestion and boost intestinal immunity.

As HIV treatment and research continue to evolve, it is critical to integrate nutrition, healing, and mind-body therapies into primary care models, clinical research, and treatment education curricula. These interventions can reduce the risk of heart disease, stroke, cancers and diabetes, improve wellness and enhance quality of life. These nutritional strategies are offered as concrete, natural options for feeling better, maintaining adherence, and long-term survival.

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God's Love We Deliver (GLWD) is the leading provider of life-sustaining nutritional support services for people living with AIDS/HIV and other serious illnesses in the New York City metropolitan area. GLWD prepares and delivers two well-balanced meals each weekday to those who, because of their illness, are unable to provide and prepare meals for themselves or their families. They also offer culturally appropriate nutrition education and counseling to people living with HIV and other serious illnesses, their families and care providers, and staff members from other service organizations. All services are free, and there is no waiting list.

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Strategies to Manage Side Effects & Symptoms

Developing a nutrition plan that works in daily practice can be challenging. Making even small changes may help balance metabolic, detoxification, and digestive pathways and improve symptoms. The following are suggestions to maximize health and healing. Consult with an HIV nutrition specialist to create an individualized nutrition plan and always inform your primary care provider of dietary changes and use of supplements.

Lipodystrophy and High Blood Fats

- Reduce saturated and hydrogenated fat intake.
- Increase intake of healthy fats: omega-3s and monounsaturated.
- Radically reduce intake of refined carbohydrates and sugary foods and drinks.
- Increase total soluble fiber intake to 25 grams per day.
Found to significantly reduce cholesterol levels in combination with a low saturated fat diet. *Highest soluble fiber foods: beans, most fruits and vegetables, nuts and seeds, whole grains, especially oatbran, barley, brown rice, quinoa, kuzu root.*
- Eat 25 grams of soy protein per day.
Found to significantly reduce cholesterol levels along with a low saturated fat diet. Consider substitution of enriched soymilk for dairy milk, and eat more soy products.
- Increase aerobic exercise to get the heart pumping: brisk walk, jump-rope, bicycle, rowing.

Fatigue

- Eat adequate calories and protein; address poor quality diet; consume oral supplements to maintain weight, energy, and high protein intake.
- Supplement with B vitamin complex, co-enzyme Q10, selenium, cysteine, glutamine.
- Reduce/avoid large amounts of caffeine that may interfere with sleep patterns.
- Get support for emotional issues through therapy, support groups, or friends - do not isolate!
- Practice deep breathing exercises to maximize oxygen intake.
- Consider mind/body practice: meditation, visualization, acupuncture, osteopathic & chiropractic manipulations, mild exercise, yoga, t'ai chi.

Nausea

- Know the specific dietary instructions for all medications. Take all medications except for Videx (ddl) with food, even if the label says "with or without food". This instruction is about absorption levels, not digestive ease or capacity. The digestive process for medications works best with food to stimulate digestive enzymes. Crixivan (indinavir) can be taken with a no-fat, no-protein snack, e.g., unsweetened cereal & skim milk, toast & jelly. If nausea is extreme, consider making a "sandwich" – eat half a meal, take medication, eat the other half of the meal.
- Take medications with non-caffeine fluids: juice, herbal tea, or water.
- Eat easily digestible foods: soup, yogurt, applesauce.
- Avoid greasy, fatty foods.
- Avoid cold foods; eat more warm foods; eat dry foods, like crackers or pretzels.
- Use ginger: fresh ginger tea, crystallized, soft chew, or hard ginger candies.

- Sip on peppermint (unless you have heartburn) and chamomile tea; drink 3-4 cups/day.
- Sit up after eating; do not lay flat.
- Practice deep breathing exercises and meditation.

Diarrhea

- Follow the **YOBRATS** diet:

Y – Yogurt: low-fat, with live active cultures listed on label: 2-3 cups/day.*

O – Oatbran: very high source of soluble fiber; better than oatmeal; eat as hot cereal, or use 1-2 tsp. twice daily in diluted juice as fiber supplement.

B – Bananas: good source of soluble fiber and potassium.

R – White Rice: lessens water content in small intestine; easily digestible calories/energy; "congee" - rice porridge, feels like a warm blanket inside.

A – Applesauce: soluble fiber, easily digestible calories/energy; apples and pears (no skin).

T - Toast & Tea: white bread, herbal tea only (no caffeine!!).

S - Soup: weak, bland (no spices), broth-style, warming fluids and sodium to replace fluids.

** If yogurt is not desired or tolerated, take refrigerated supplements of *L. acidophilus* and/or *L. bifidus*, "the good bacteria," to nourish and protect basic digestive function. Best known as "the stuff that's in yogurt," *L. acidophilus* is supported by a century's worth of studies that show how useful it can be in decreasing digestive symptoms, especially diarrhea. No toxicities have been documented, although too large a dose to start may produce diarrhea.*

- Begin taking 500 mg calcium carbonate twice a day; if no improvement, push up to 2000 mg per day. If eating 2-3 cups yogurt or dairy per day, do not exceed 1000 mg daily.
- Consider using digestive/pancreatic enzymes with every meal; the type covered by prescription is porcine-derived and not suitable for Muslims or people following kosher or vegetarian diets. Vegetarian formulas are available at health food stores.
- Dilute all juice and Gatorade-type drinks. Avoid caffeine.
- For long term, chronic diarrhea, also:
 - » Maintain protein intake by eating plain chicken, fish, lowfat meats, soy-based foods, lowfat dairy products, whey protein powder.
 - » Use glutamine protein powder, 10-30 grams daily, to help repair the intestinal lining.
 - » Other supplements may be helpful: Shaman Botanicals NB Stool Formula.
 - » Drink only specialized, low-fat nutrition supplements for calories and to maintain weight. Avoid regular or "plus" products like Ensure, Boost, Resource.
 - » Supplement with extra zinc (50 mg daily).

Jan Zimmerman

Diet Wise, Pound Foolish: Promoted Diets for HIV

by Anya Romanowski, MS, RD, CDN & Lisa Zullig, MS, RD

Research on drug therapies is traditionally given a higher priority than research into nutrition due to profit potentials. Put simply, protease inhibitors generate significantly more profits than bananas. Since there are so many variations among individuals living with HIV, studies looking at micronutrients have produced inconsistent results. Unlike studies examining the role of vitamins and minerals in HIV, little research is available on specific diets appropriate for this population.

Fad diets and quackery develop from research uncertainties and the vulnerability of individuals searching for simple solutions to health concerns (with weight loss often being the desired outcome). The United States Department of Agriculture's preliminary research on popular weight loss diets finds that most of them do result in weight loss. The micro- and macronutrient composition is not as crucial as the caloric composition of diets. Typically, the diets provide 1,400 to 1,500 calories per day. But many diets are short-lived and don't teach people how to change their eating habits or prepare them to eat well-balanced meals. Once the interest in adhering to the diet wanes, former food habits are resumed and the weight is regained. This is called the "yo-yo effect," on the principle that what goes up must go down (visa versa in this case).

With concern about immunity and the potential of certain foods to provide energy and strength, diets advertising these sought-after results have gained popularity in mainstream media. Individuals can be bombarded with alarming advice. Here are two extreme examples:

In 1995, Michael Kent Bilbrey was arrested in Chandler, Arizona for selling a quack potion as a cure of AIDS. He was charged with theft and ordered to pay a restitution of \$39,300 after his "potion" was found to have no scientific justification since it consisted of nothing more than cranberry juice, saline solution and household bleach.

In 1993, Herbert Saunders, a farmer in Minnesota, convinced numerous customers to buy a cow for \$2,500 and pay up to \$35 a bottle for its milk, claiming it as a cure for AIDS and other diseases. He reportedly injected a patient's blood sample into the cow's udder to theoretically produce antibodies for the disease. Saunders has not been arrested and still defends his actions.

A nutritionally balanced high-protein, low-fat diet that includes a variety of foods is often promoted for maintaining optimal nutrition status. The goal of the general diet recommendation is to ensure adequate intake of all nutrients, to maintain weight and muscle mass and reduce the risk of malnutrition.

High-Protein, Low-Carbohydrate Diet
HIV-positive individuals are encouraged to generally eat as much protein and as many different kinds of food as they can without regard for exact diet composition. As a result, some people choose to follow a high-protein, low-carbohydrate diet often promoted. Many people experience sudden weight loss on these low-calorie diets due to water loss, with the false impression that fat loss has occurred. In addition to sudden weight loss not being ideal since it leads to dehydration and the loss of muscle protein, this type of diet provides inadequate amounts of vitamins A, B and E, certain minerals, and dietary fiber. This diet may also have other negative results including a higher saturated fat intake (from animal protein sources), a higher demand on the liver and kidneys in breaking down protein to its digestive form (amino acids), the formation of kidney stones, and an increased risk for osteoporosis (a disease where your bones become very brittle and fracture easily).

Vegetarian Diets

Plant-based, vegetarian diets are rich in whole grains, fruits, vegetables, legumes, nuts and seeds, and are low in saturated fat and cholesterol. People on vegetarian diets generally have reduced incidences of cardiovascular disease, cancer, dia-

betes, hypertension, and gastrointestinal abnormalities. Protective components of the foods vegetarians consume include fiber, phytochemicals, vitamins and minerals. Although considered healthier than a typical Western diet and therapeutic for people with various chronic diseases, this diet may pose a challenge for people living with HIV who have increased nutritional needs. A vegetarian diet can be too low in calories and protein essential for maintaining weight and lean muscle mass long-term. Therefore, an HIV-positive individual may need additional protein, calorie and vitamin B12 supplementation (since vitamin B12 is found primarily in animal foods).

Macrobiotic Diets

Macrobiotics, from the Greek ("macro" meaning "large" or "long", and "bios" meaning "life"), is a way of eating and living that incorporates only whole foods and foods processed by traditional methods. Today, our interpretation of macrobiotic lifestyle is based on the teachings of the modern father of macrobiotics George Ohsawa and his student Michio Kushi. Based on the belief that we're continually influenced by environmental factors including food, climate, geographic location, activity and physiology, this approach views illness as the body's effort to return to harmony with the natural environment. Consuming a wholesome diet is the direct path to reestablishing this balance.

People are encouraged to foster a further connection to the environment by eating regionally grown foods appropriate for the climate. For example, most residents of the United States live where whole grains, beans, seeds, vegetables and some fruits are grown naturally. In this area, dairy products, red meat and poultry are generally not recommended. As foods are to be eaten as close to their natural form as possible, highly processed foods with additives are to be avoided. Further, traditional preparation and cooking methods, such as steaming or lightly sautéing, which preserve nutrients and enhance flavor, are suggested.

Getting the Most for your Money

Create a budget and stick to it! Sticking to a financial budget can be challenging. Prepare a monthly spending plan that considers how much money you spend on food, household items, medical costs, housing, and entertainment. At the end of the month, examine how well you were able to stick to your plan and note expenses that exceeded your budget.

- Try to avoid impulse purchases. Keep track of unscheduled purchases and decide whether they need to be incorporated into your monthly budget.
- Reduce any unnecessary spending, such as eating out, by planning your meals weekly and sticking to a shopping list.
- Shop at supermarkets and farmers' markets. Foods are more expensive at delis, bodegas, and gourmet stores.
- Don't shop when you're hungry. You'll end up buying more items than you anticipated.
- Purchase generic brand products instead of premium products at the supermarket (premium brands cost more due to packaging and marketing costs). Clip coupons only for items that you normally purchase. Even though coupons may slightly reduce the cost of premium brands, the generic brands tend to be cheaper.
- Buy non-perishable items in bulk supply when they're on sale. Perishable items like meat, chicken and fish may also be purchased on sale, but label, date and freeze what you don't plan to use immediately.

Macrobiotics is guided by the principles of yin and yang – the interrelationship between opposites. Foods are either yin, creating expansion, or yang, causing contraction. Further, foods are categorized into two groups: acid-forming or alkaline-forming. The bulk of energy, 50-60%, comes from whole grains (complex carbohydrates), followed by 20-30% from vegetables, 5-10% from soups, and 5-10% from beans and sea vegetables. A small percentage of the diet consists of condiments, beverages, fish, desserts and supplementary foods. This breaks down to 12% protein, 15% fat, 73% complex carbohydrate, and 0% refined sugar. Although this diet is primarily vegetarian, small amounts of white meat fish and some shellfish can be included. The macrobiotic diet favors sources of protein low in saturated fat and cholesterol such as traditionally processed tofu, tempeh and seitan (wheat gluten).

According to Kushi, the gradual breakdown of natural immunity occurring through poor diet and other health habits is responsible for increased susceptibility to harmful viruses and bacteria. The modern diet, consisting of mostly acid-forming and yin foods, leads to imbalance and weakening of health and immunity.

Immune support through adherence to the macrobiotic lifestyle has been promoted as a treatment for HIV by some holistic healers, but little research has been conducted by the Western medical community to evaluate its efficacy. In the mid-1980's, a small group of nine men in New York City with AIDS following a macrobiotic regimen within one to twelve months of diagnosis were monitored for several years by EM Levy and colleagues from the Boston University School of Medicine. Through blood samples, clinical observations and participant questionnaires, the researchers found an increase in CD4 numbers. Additionally, participants reported less fatigue, a sense of well-being and a better quality of life. The researchers noted that this psychological component of the intervention might influence disease progression.

Yeast-Free Diets

The reduction of the yeast, candida albicans, is the primary focus of this diet and has been promoted to people with HIV suffering from thrush (candidiasis). To reduce the growth of yeast infections, the diet calls for the avoidance of yeast, sugar, fruits, grains, nuts, milk, wheat, caffeine, nicotine and alcohol. No con-

trolled clinical trials have been conducted to substantiate the diet's validity for treating candidiasis, yet some individuals claim that it has been beneficial.

Asking Questions About Research

To assist in making informed decisions when interpreting diet information, here are a few questions to ask yourself:

- Does it sound too good to be true or make claims of being superior to conventional diets?
- Does it promise a "quick-fix" or require that certain foods be avoided or eaten at specific times of the day?
- Has the diet been in existence for a substantial amount of time?
- Have any harmful side effects or dangers been reported in individuals following the diet?
- What type of study was used to justify claims? Was it a controlled study? Was the study conducted in humans or animals?
- How large was the study population and how long did it last?
- Was the study ever repeated to confirm the findings?
- Were the results published in a peer-reviewed journal, and did they provide details about the study design and disclose limitations of the study?

Making the Right Choices

The beginning of any meaningful diet change is self-assessment. Working with a registered dietitian, you can assess your current diet by completing a food record or food frequency questionnaire. These are useful tools to examine the adequacy of eating patterns and for identifying specific areas needing improvement. The goal of health promotion through improved dietary habits, rather than adherence to a strict eating plan, will lead to overall improvements in health.

Anya Romanowski, MS, RD, CDN is the Director of Nutrition Services at God's Love We Deliver. She also offers her services to other New York City non-profit organizations as a nutrition consultant.

Lisa Zullig, MS, RD is an HIV Nutrition Specialist at God's Love We Deliver and at Michael Callen-Audre Lorde Community Health Center.

Practicing Food Safety

Keep in mind, food poisoning most often occurs at home. Once shopping is complete, observing safe food handling practices is paramount to avoiding illness.

Buy, prepare and store foods the proper way to reduce your chances of getting sick.

- Before opening, inspect packages and cans for visible signs of damage such as dents, tears, bulges or leaks. Check the "use by" date on food packages, and discard items once the date has passed.
- Freeze all meats and fish if you won't be cooking them within two days to preserve their freshness. Double bag fish, chicken and packaged meats before placing them in the freezer to avoid freezer burn.
- Defrost all frozen food in the refrigerator, not in sinks or on countertops.
- Keep raw meats and vegetables separate. Germs love to mix between them.
- Cooking to the proper temperature destroys harmful bacteria. Cook meats until they are no longer pink, and fish until it flakes.
- Right before eating any fresh fruits and vegetables, wash them to get rid of chemicals, pesticides and bacteria.
- Always wash your hands before and after handling foods.
- Use hot, soapy water to clean all utensils, cutting boards, appliances, and countertops.
- Bacteria thrive in dirty sponges and dish towels. If they smell, discard or throw them in the washer.

Remember the saying: *When in doubt, throw it out.*

Dietary Supplements (continued from page 6)

Another form of carnitine, acetyl-carnitine, crosses the blood-brain barrier and seems to help with neuropathy according to preliminary data from Dr. Michael Youle of the Royal Free Hospital in London. Plain old carnitine has the added advantage of helping to lower LDL (bad) cholesterol and possibly triglycerides. The ideal dose may be 3 grams of each form per day, but, frustratingly, there are no available data to support this theory yet.

To improve gut function, many people supplement with acidophilus and bifidus bacteria, which are found naturally in the gut. Diarrhea and antibiotics can destroy these normal intestinal companions. One of the functions of the pancreas is to secrete the enzymes the body uses to digest foods, and this activity can be disrupted in HIV disease. Some people take supplements that contain these enzymes (protease, amylase, lipase, and/or lactase).

Of course, none of the interventions described above represent a cure. However, the accumulating data strongly suggest that they can improve quality of life and reduce

medication side effects and symptoms of HIV disease. Indeed, they may well improve the chances for a longer life.

What Makes A Good Study?

More studies to evaluate the benefits, costs and limitations of micronutrient therapy are needed. As researchers Friis and Michaelsen from The Royal Veterinary and Agricultural University in Denmark note, "The fact that multiple micronutrient deficiencies usually co-exist and often interact makes design of interventional [as opposed to observational] studies and interpretation and generalization of the results difficult. For example, zinc is required for mobilization of vitamin A from the liver stores, wherefore effects of vitamin A supplementation cannot necessarily be generalized to populations with a different zinc intake. Thus, it does not seem reasonable to evaluate a single micronutrient in the context of multiple co-existing and interacting deficiencies."

This points to a need to be a bit more clever about trial design when it comes to dietary supplements. The question must

be framed carefully, the intervention selected intelligently and the trial design appropriate to the question at hand. Although some recent studies have focused on the effects of certain botanical interventions on the blood level of anti-retrovirals, the clinical significance of the results are unclear since the studies involved HIV-negative volunteers using single drugs. A recent study showed that St. John's wort reduced blood levels of indinavir (Crixivan) in volunteers. The data certainly suggest caution – avoid St. John's wort. Unfortunately, this leaves open the question about how to manage the mild-to-moderate depression that St. John's wort can safely treat, given the toxicities and potential for drug interactions with many antidepressant medications. To date, no cost/benefit/risk analysis comparing these interventions has been undertaken.

There is a profound need for more studies that examine supplements of all kinds in people with HIV. Studies have repeatedly shown that most people, both HIV-positive and negative, use dietary supplements. More information about these supplements will help people make more informed treatment decisions and allow for more sensible analyses of the costs, benefits, risks and limitations of these types of interventions.

Until There's More Data

Ultimately, each individual's health condition, age, gender, weight and other variables must be factored in to tailor a regimen suitable to that person's needs. And on top of all that, you have to be willing to take those few extra pills every day! For the health of the body and a decent quality of life, those extra pills may not be such a bad deal. At the very least, a potent multivitamin and B-complex daily can't hurt, and enough data exist to support their potential benefits. Other supplements should be carefully considered. Talk to your physician. He or she should want to work with you in designing the best program for you and not dismiss your concerns or your choices.

George M. Carter is the director of The Foundation for Integrative AIDS Research (FIAR), a new, not-for-profit organization that is dedicated to the clinical evaluation of dietary supplements used in HIV and chronic viral hepatitis.

First ResPAC Meeting Held

The Research Policy Advisory Committee for New York State (ResPAC) held its inaugural subcommittee meeting in January 2002.

ResPAC is ACRIA's initiative to create a first of its kind statewide strategic plan for future HIV research. It is a cooperative program with scientists, clinicians, community representatives and public health officials throughout New York.

Eleven epidemiologists attended the January meeting at amfAR's offices to discuss emerging needs in HIV research. Their resulting draft report identified seven areas of high priority for future epidemiological studies.

Subsequent strategic planning sessions will be held for behavioral science and clinical research in the very near future. A report containing findings from all three subcommittees will be available to the public following ResPAC's Full Committee Meeting later this year.

ACRIA Elects Four New Board Members

Jason Heffner, Adam Lippes, Martha Nelson, and Maer Roshan have joined ACRIA's Board of Directors. Each brings unique strengths to the agency's oversight body.

Jason Heffner has been a longtime AIDS activist as a member of ACT UP and other organizations concerned with the public health sector's response to the HIV epidemic. Most recently, he has become involved in global issues surrounding this disease. He currently serves as Technical Advisor in the Office of Sustainable Development, Bureau of Africa at the United States Agency for International Development. Mr. Heffner will add an important community voice to the Board's deliberations in the coming years.

Adam Lippes is a prominent fashion industry executive. He currently serves as Creative Director of Oscar De La Renta LTD, a major American design house. Mr. Lippes has been a strong supporter of ACRIA's mission for several years. Prior to joining the Board, he became involved in agency-wide issues as a member of

ACRIA's National Advisory Council. He has also demonstrated his commitment to ACRIA through several fundraising efforts. Most recently, he hosted our 2001 holiday dinner that generated over \$100,000 in support.

Martha Nelson is Managing Editor of *People* magazine, among the most renowned popular culture publications in the world. Previously, as founding editor of *InStyle* magazine, Ms. Nelson has been credited with launching the premier monthly celebrity and fashion oriented publication yet conceived. Ms. Nelson's association with ACRIA goes back to 1997 when she was kind enough to offer *InStyle* magazine support for two fundraising events. Her interest in our work has grown since that time, as demonstrated by the significant financial backing that Ms. Nelson has arranged for subsequent ACRIA events and for fundraising appeals by several other AIDS-related non-profits. We are very excited to have someone of Ms. Nelson's capabilities and stature on our Board of Directors.

Maer Roshan is another successful publishing executive, having held a number of prominent positions at highly regarded national magazines. Most recently, Mr. Roshan served as Editorial Director of *Talk* magazine. Prior to that position, he was Deputy Editor of *New York* magazine. Mr. Roshan's interest in causes of particular importance to the gay and lesbian community is well known. He has been a leading voice within the publishing world on health issues of high impact to these and other minority populations. We anticipate that Mr. Roshan will bring a vital new perspective to the Board's deliberations.

ACRIA Welcomes New Staff

ACRIA is pleased to welcome Stephen Karpiak, Ph.D. as our Associate Director of Research. We are excited to have recruited an individual who is so well suited to this position. The bulk of Dr. Karpiak's career has been spent as a Senior Researcher within the Division of Neuroscience at the Columbia University College of Physicians & Surgeons' Department of Psychiatry. Dr. Karpiak's time at that major teaching hospi-

tal has allowed him to acquire both an in depth understanding of the medical research process and the ability to compose complex grant proposals for scientific projects. Of equal significance, Dr. Karpiak has experience in the AIDS non-profit sector. Immediately prior to joining ACRIA, he served as Executive Director of Pride Senior Network in New York City and of A Place Called Home in Arizona. He has also been a Program Director of Being Alive services at AIDS Project Arizona. We look forward to Dr. Karpiak's contributions to ACRIA's research program in the years ahead.

ACRIA also welcomes Richard Poirier as the agency's controller. Mr. Poirier comes to us with over twelve years of financial management and accounting experience. He has coordinated budgeting, accounts payable and accounts receivable functions at both large corporations and small start-up firms. Mr. Poirier not only has the capability to manage our existing accounting needs, but will also be able to develop and implement any new financial protocols that may be required as our programs expand.

Tracy Swan is ACRIA's newest HIV Treatment Educator. She brings to our programs a sophisticated knowledge of both HIV and hepatitis C (HCV) health issues and a proven background in counseling individuals about their healthcare options. Immediately prior to joining ACRIA, Ms. Swan was the Access Project Director at the AIDS Treatment Data Network, where she maintained a database of national and local ADAP and Medicaid benefits and provided treatment counseling and education. Ms. Swan acquired her significant knowledge of HIV and HCV treatment issues while serving at the Cambridge Health Alliance's Multidisciplinary AIDS Program as Substance Abuse Specialist/HCV Case Management Program Director at the Alliance's network of Boston area hospitals and satellite clinics. Ms. Swan currently serves on the Community Constituency Group of the Adult AIDS Clinical Trials Group (ACTG). Ms. Swan's involvement with the ACTG allows her to ensure that the concerns of HIV-positive individuals are appropriately considered in the design of HIV trials.

generous contributions

The following persons, corporations and organizations made major donations between December 16, 2001 and March 15, 2002 to support ACRIA's research and education efforts:

Agouron Pharmaceuticals, Inc.
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Thoughtful donations in memory of the following remind us of what is at stake in the fight against AIDS:

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Charles Brown
Bill Chafin
David Ecklund
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