

## GAS AND BLOATING

### What's the Problem, and How Do You Diagnose It?

Many HIV+ people develop problems with gas and bloating. Diagnosis is simple: ask yourself if you are experiencing more than the usual gas (flatulence, farting) or feeling an uncomfortable pressure in your abdominal area that comes and goes. Know that it is considered normal for the average person to expel a reasonable amount of gas approximately 14 times every day. However, this would usually be relatively unnoticeable. In many HIV+ people, especially those on protease inhibitors, there can be frequent and very smelly gas. Some people will also feel very bloated at times, sometimes to a point that is quite uncomfortable. Even those not on HAART may experience gas and bloating that is much worse than in their pre-HIV lives.

### What are the Causes?

There are several possible causes for gas in HIV disease, and in many people, there may be more than one factor contributing to the problem. There has been a tendency in recent times to automatically blame antiretroviral drugs for gas problems but that is not always the case. Well before starting HAART many HIV+ people will notice an increased level of gas or bloating.

**One of the most common causes of gas is fat malabsorption**, a condition estimated to affect a significant percentage of HIV+ people even in early disease stages. Normally, in the process of digestion food passes from the stomach into the small intestine where enzymes like lipase (for fat) and amylase (for carbohydrates) work to break down the food into less complex forms which can be readily absorbed through the wall of the small intestine. Over time, it appears that more and more people become unable to properly digest and absorb fat, the result of which is improperly digested fat passing into the colon where it is acted upon by bacteria, causing gas and/or diarrhea. With this sort of gas and/or diarrhea (as opposed to that caused by infections), the person may otherwise feel relatively well and will usually continue to have a reasonably good appetite.

This possible gas cause is frequently undiagnosed, either because it is unsuspected by the physician or because the person experiencing the problem is unaware of how much fat they're really eating. In order to diagnose fat malabsorption, a 24-hour stool test for fecal fat can be performed. The test is done by giving a 100-gram fat diet for two full days, throughout the second day of which you collect the stool for a full 24 hours. With healthy function, there should only be around 7 grams of fat in the stool. It is not uncommon to see 20-60 grams of fat in the stool of people with fat intolerance. If the test results show that the fecal fat level is too high (a condition which is called steatorrhea), then the need to cut back fat in the diet and do everything possible to improve fat digestion is clear.

**Another potential dietary cause of gas is consumption of dairy products** such as milk, cheese, cream, ice cream, etc. Many people with HIV infection develop lactose intolerance, meaning that they can no longer adequately digest the milk sugar called lactose. They apparently are no longer producing sufficient quantities of lactase, the enzyme necessary for its digestion and, thus, the digestion of all dairy products. When the lactose reaches the colon undigested, there is bacterial digestion and fermentation of the lactose. The result can be gas and bloating, as well as watery diarrhea, stomach cramps, nausea, a feeling of an "acid stomach," and/or fatigue. A lactose hydrogen breath test can be performed to determine whether there is lactose intolerance. If that's not available to you, the simplest test to determine lactose intolerance is simply to eliminate *absolutely all* dairy products from your diet for one to two weeks, watching to see if your symptoms improve. If they do, this is probably at least part of your problem.

If you really want to test the theory, after the week or two of abstinence, sit down to a big dairy meal (plenty of non-fat milk, cheese, yogurt, etc.) and see what happens. If your gas and/or diarrhea had disappeared or improved and now recur, you'll know this is a problem. The reason to stick to non-fat dairy products for this test meal is to make sure that any observed changes come from the introduction of lactose and not just an increase in fat. Regular milk and dairy products derived from it are fairly high in fat. Since fat itself can cause gas and diarrhea, you want to make sure you're testing your tolerance for lactose, not for fat.

**For some people, gluten (the protein portion of grains) is problematic.** For them, reducing or eliminating the intake of gluten-containing foods may be helpful in reducing gas by reducing inflammation in the gut. Gluten is contained in wheat, rye, oats, and barley). Gluten-free grains are rice, quinoa, millet, and buckwheat.

**There are many intestinal infections and other conditions that can cause gas,** and some may too often go undiagnosed. Parasites can cause excessive gas, often accompanied by diarrhea, nausea (especially upon awakening), abdominal cramps, and fatigue, often combined with feeling generally depressed and ill. These symptoms may wax and wane, but should be an indicator for aggressively pursuing this possibility. Over time, parasites can actually cause or worsen malabsorption, which will in turn worsen gas problems. Candida overgrowth, often created by use of antibiotics that kill off the good bacteria that would normally keep Candida in check, can also cause gas and bloating, as well as diarrhea, intestinal damage and inflammation, itching in the anal area, and thrush in the oral cavity. Women may also have vaginal yeast infections. Any such symptoms would mandate aggressive diagnosis and treatment. Even without such symptoms, a lack of the proper good bacteria in the intestines can prevent food from being properly digested (since the bacteria aid digestion) and result in gas and bloating.

**Antiretroviral drugs.** Antiretroviral drugs can certainly cause gas and bloating. The most common drug causes of gas are the protease inhibitors, but other drugs can also contribute to this problem. With protease inhibitors, there is too often a particularly smelly, offensive gas created that many people find extremely problematic, not to mention embarrassing. Research has shown that protease inhibitors block normal digestive enzymes from doing their jobs. Since those enzymes are needed for food to be properly digested, this protease inhibitor-caused enzyme inhibition will result in improperly digested food passing into the colon where it will be acted upon by bacteria and produce smelly gas. If gas problems began shortly after the introduction of one or more new meds, it's likely that this may be a major factor in the gas creation.

**It's also important to remember that non-HIV-related causes of gas may be affecting many HIV+ people.** **Gas and bloating can be caused by bowel problems** such as irritable bowel syndrome (in the past, sometimes called spastic colon, nervous colon, unstable colon, nervous bowel, spastic bowel, nervous colitis, mucous colitis, or spastic colitis, all of which are now considered inaccurate or misleading) and inflammatory bowel disease (which includes both ulcerative colitis and Crohn's disease). The former is estimated to cause problems for 22 million Americans, and the latter for at least one to two million. Thus, many people living with HIV may be affected by these problems. If they have occurred and been properly diagnosed before the diagnosis of HIV disease, then their possible contribution to the occurrence of gas and/or diarrhea will probably be taken into account. However, for those who happen to develop these conditions after an HIV diagnosis, the possibility that gas and diarrhea are being caused by these may not be considered. Thus, make sure that these are kept in mind. To help you distinguish between the two, these are the common characteristics of each.

Irritable bowel syndrome (IBS) can cause crampy abdominal pain, gas, and bloating (to the extent that there may be visible abdominal distention), as well as diarrhea and, confusingly, constipation, or constipation that alternates with diarrhea. There may be more frequent bowel movements and looser stools with the onset of abdominal pain, and the pain may be relieved by bowel movements. These symptoms may be markedly influenced by dietary factors and psychological factors or stressful life situations. With IBS, there is no fever or bleeding, no signs of tissue damage, no changes in the lining of the bowel, and no likelihood of progression to more serious disease. Inflammatory bowel disease (IBD) can also cause gas and diarrhea, along with abdominal pain, rectal bleeding, fever, weight loss, and inflammation and ulceration of the bowel lining that can be observed with x-rays and direct viewing via an endoscopy.

In general, it is just important to remember that these conditions affect many millions of people and, thus, may be contributing to gas and/or diarrhea in many. As with so many other aspects of HIV disease, there is a tendency for some to forget that anything that affects humans, although entirely unrelated to HIV disease, can affect someone living with HIV so any comprehensive diagnosis must include considering non-HIV-related causes of problems.

**Another non-HIV-related cause of gas is consumption of gas-producing foods.** Certain foods tend to produce gas, usually because they contain relatively indigestible fiber. Included are beans, cabbage, broccoli, cauliflower, Brussels sprouts, onions, and garlic. Carbonated drinks can also contribute to gas (the gas goes in; the gas comes out). If your daily diet often includes consumption of such foods and beverages they may be creating or worsening a gas problem.

## What are the possible treatments?

The first must for effective treatment of gas and bloating is identification of all the possible contributing causes, to the greatest extent possible, followed by elimination of as many of these as possible. This would include treating any infections found, discussing with your physician the possibility of switching drugs if it's clear that one or more are the major causes of the problem, using pancreatic enzymes to help with both fat malabsorption and protease inhibitor-induced gas, doing everything else necessary to address malabsorption by improving the health of the gut (including taking acidophilus and glutamine nutraceuticals), addressing lactose intolerance, decreasing or eliminating gas-producing foods, and, if diagnosed, treating bowel conditions like irritable bowel syndrome or inflammatory bowel disease.

## Key Therapies

**Addressing maldigestion, fat intolerance and malabsorption.** If fat intolerance and malabsorption seem likely (because you notice that your gas problems seem to worsen after high-fat meals) or have been diagnosed (using the fecal fat test), it is very important to take steps to improve the health of the gut, cut back on dietary fat as much as is necessary to see improvement, and take a pancreatic enzyme formula that contains lipase, the fat-digesting enzyme, with all fat-containing meals and snacks.

The overall goal here should be to improve fat tolerance by using the nutrients that help to heal the gut and using pancreatic enzymes to improve digestion and absorption. Initially, it may also be necessary to significantly reduce fat intake in order to reduce gas. Over time, by doing the other things to improve fat tolerance, a higher level of fat intake will very likely again become possible.

**At the top of any list of ways to address problems with gas and bloating would be pancreatic enzymes.** In particular, the enzyme products that contain the fat-digesting enzyme called lipase seem to have been the miracle cure for many people's gas problems, particularly the stinky, smelly kind caused by protease inhibitors.

The enzymes probably work in several different ways to lessen gas. First, they aid in proper digestion, particularly of fat-containing foods, and reduce the malabsorption that is common in HIV disease, even in those not taking HAART meds. Second, in those using protease inhibitors, giving the enzymes helps to counter the negative end result (gas) that the protease inhibitors create when they inhibit the proper use of enzymes. The protease inhibitors will still be inhibiting a certain percentage of the enzymes present (both those naturally produced by the pancreas and those taken orally), but the increased total amount of enzymes achieved through supplementation will mean that enough enzymes are present and working to allow food to be properly digested, thus preventing gas.

If you're going to be using enzymes, note that, although enzyme products can be purchased over-the-counter, they can also be prescribed by a physician and will then probably be covered by your insurance or Medicaid. One of the best prescription products is Digestive Care, Inc.'s **Pancrecarb** (covered by Medicaid in all 50 states). This product works better than most others because it is not only high in lipase (which appears to be the key enzyme for solving gas and bloating problems) and amylase (necessary for proper digestion of carbohydrates) but is also enteric-coated (which is what gets it through the stomach acid unharmed and into the small intestine where it works). It also contains a bicarbonate buffer. The bicarbonate, which is a natural secretion of the pancreatic gland, optimizes enzyme activity, especially of lipase. With this combination of features, this product appears to deliver better enzyme activity and, thus, greater effectiveness in reducing gas and bloating when compared to other products.

A good non-prescription formula is NYBC's **Plant UltraEnzymes**, also high in lipase. UltraEnzymes are also a vegetable enzyme formula which will aid in the digestion of such gas-producing foods as beans, cabbage, broccoli, cauliflower, Brussels sprouts, onions, and garlic.

The use of pancreatic enzymes can help whether your gas is caused by HIV-caused fat malabsorption and improper digestion, or solely by protease inhibitors or other drugs, or some combination of these. In fact, using the enzymes with every meal has helped many people stay on their protease inhibitor combos by dramatically reducing or eliminating the gas problems that were otherwise just too problematic. However, do note that the best results will come from doing everything necessary to heal the gut, improve digestion, and limit gas, rather than focusing on enzymes alone. The best way to determine appropriate dosing of the enzymes is to begin by taking one or two with each meal or snack, and then increasing the number of tablets until gas problems are resolved. Some people will see great improvement with low doses, while others may need to swallow 3 to 5 tablets with each meal or snack in order to eliminate gas.

## NYBC Digestive Enzymes:

**Plant Ultra Enzymes:** Plant enzymes are not affected by stomach acid and are released in the intestines in a broad pH range, making them a good choice for HIV+ people. A blend of the following enzymes (plus papain and bromelain) derived from vegetable sources: Protease (breaks down protein), amylase (breaks down starch), lipase (breaks down fiber), and lactase (breaks down lactose). Suggested use is one capsule one to two times a day with meals.

Plant UltraEnzymes x 90	1 with each meal
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**Another key for improving digestion and absorption of fats as a way to reduce or eliminate gas is to work on improving the health of the gut (the intestines).** Research has clearly shown that HIV+ people have a great deal of inflammation in the gut, often as a result of the elevated production of inflammatory cytokines, cell-produced chemicals that are released as part of the body's immune response. This inflammation contributes to problems with proper absorption. Thus, the use of agents to counter this inflammation as part of an overall approach to improving the gut would seem to be appealing.

However, long-term use of systemic anti-inflammatory drugs could be needlessly risky. One problem is that over-suppressing the inflammatory response with the powerful effect that drugs have might increase the risk for infections (since the inflammation is part of the immune system's way of countering infections). In addition, anti-inflammatory drugs can cause many side effects, particularly gastrointestinal bleeding. There is ongoing research looking at the use of non-systemic drugs for reducing gut inflammation (drugs that are not absorbed and instead pass through the gut where they have a local effect) and these may one day be found to be useful. However, the main focus of this research is currently on the use of such drugs to lower viral load (since inflammation increases viral load, and a substantial portion of the HIV in the body is found in the gut), and the research is not yet completed so it may be some time before we know whether such therapies might also be useful for gas, bloating, and/or diarrhea.

Since HIV-caused inflammation, and increased production of unstable free-radicals, play a role in causing or contributing to most of the symptoms described in this guide, the idea of counteracting that inflammation is appealing. Rather than using anti-inflammatory drugs, which are potentially toxic and may interfere with the natural benefits of the inflammatory response (since the inflammation is part of the immune system's way of countering infections), it is probably preferable to use foods that have natural anti-inflammatory qualities.

Because such foods have been used for thousands of years with no apparent adverse effects on immune responses, it seems likely that long-term consumption of them would be considerably safer than long-term use of drugs. Their anti-inflammatory effects are more subtle but might still provide substantial benefit. Naturally anti-inflammatory substances are found in the following foods and seasonings:

- garlic, ginger, turmeric
- bioflavonoid- and antioxidant-rich fruits and vegetables
- omega-3 fatty acid-rich foods such as fatty fish (e.g. salmon, mackerel, sardines, tuna, cod and halibut), flaxseed, and walnuts.
- chlorophyll-containing foods such as wheat grass juice and blue-green algae.

**Chlorella.** A type of green algae with modest amounts of protein, vitamins and minerals. Some animal studies suggest it may augment resistance against some kinds of infections. In a mouse study, use of chlorella offset the risk of death from CMV infection by stimulating NK cell and interferon production; whether this is relevant to humans, of course, is unknown. May be a better choice than blue-green algae, which causes diarrhea in some.

**Curcumin (Turmeric Root; *Curcuma longa*):** Rich in a group of constituents known as curcuminoids, turmeric is a very effective anti-inflammatory, choleric (stimulates bile flow), antioxidant, and antimicrobial. Traditionally in India it was used predominantly for digestive and liver disorders. In the west it has been used for similar purposes and additionally for the treatment of jaundice and hepatitis.

**Cautions:** Has blood thinning activity and may potentiate the effect of anticoagulant medications.

**DGL or deglycyrrhized licorice** chewed three times per day between meals has also been helpful.

**DigestEase:** An herbal formula derived from Tibetan medicine, consisting of ginger, rhubarb, elecampane, gentian, and other substances. Designed to improve digestion and colonic function, particularly problems arising from poor eating habits. May cause brief constipation or diarrhea at the beginning of use.

**Garlicin Pro:** Enterically-coated allicin tablets.; good for those who experience a strong aftertaste or repeat with aged garlic formulas.

**Fiber Formula (Tyler)** is a blend of psyllium, oat bran, bentonite (clay), guar gum, prune powder, and marshmallow root as well as enzymes such as bromelain and papain. It also contains ginger, goldenseal, cranesbill root (*Geranium maculatum*), the aerial parts of *Echinacea purpurea* in a 4:1 concentration and the root of *Echinacea angustifolia* in a 4:1 concentration. The various fibers help support GI tract health. There are five types of fiber (cellulose in bran; hemicellulose in unrefined cereals; lignins in the woody part of vegetables; pectin in fruits, and the gums found in dried beans and oats). Some are water-soluble, others insoluble. Some are not digestible (cellulose and lignins) and others are (hemicellulose, pectins and gums). Cellulose and hemicellulose (found in unrefined cereals, bran, some fruits and vegetables, whole wheat) can have a good effect both on stool bulk; those found in lignins, pectins and gums can also help lower cholesterol. Oats, for example, contain digestible, water-soluble and mucilaginous gum, that can affect sugar uptake, serum cholesterol levels, and how fast the stomach empties of food. Psyllium-containing products are commonly used in products like Sonne and Metamucil.. Try to avoid using them at the same time as your other vitamins/herbs or with drugs (particularly indinavir/Crixivan®) as they may interfere with absorption. Don't take too much or for too long. Psyllium has laxative action, so take extra fluids. Do not use if you are diabetic or have an intestinal tract blockage. **Fiber may impair the absorption of drugs; take an hour after HIV meds**, perhaps in the evening before bed. Goldenseal in the mix may limit its benefits for long term use.

**Ginger.** Ginger root is an appetite stimulant, as well as a nausea suppressant (which may also be needed by many with appetite loss). It can be consumed as a tea or a syrup (available in some health food stores; one good brand is New Chapter) or via capsules containing powdered ginger (2 to 3 capsules, a half hour before meals), or the root itself can be chewed. Tea is easily made by chopping a couple of tablespoons of fresh ginger root, covering it with hot water, and allowing it to steep for five to ten minutes. It is best to consume the ginger 15 to 30 minutes before meals for the best results for appetite stimulation. For those who have both appetite loss and nausea, drinking ginger tea throughout the day may work best.

**Iberogast:** A tincture blended of chamomile, Angelica root, milk thistle, licorice root, peppermint leaf and other less familiar herbs that support intestinal health.

**Ketotifen** also appears to be **protective of the cells in the gastrointestinal tract**, protecting cells in the stomach, small intestine, and colon from toxins. In non-HIV research, it has shown some effectiveness as a treatment for colitis, or inflammatory bowel disease. *Thus, it may also provide some protection against the damage to the intestines commonly caused by inflammation and pathogen-produced toxins.* This could help preserve gut function and, thus, proper absorption of nutrients, making a weight-gain program more likely to succeed. Ketotifen is available only with a doctors prescription.

**Kidney UT:** An herbal combination containing juniper berries, parsley, ginger root, Uva Ursi, marshmallow root, cramp bark and goldenseal that support intestinal, urinary tract, and kidney function. Use should be limited to a couple of weeks, and it may be too strong for sensitive stomachs. Do not use if pregnant.

**Peppermint enteric softgels.** The oils in peppermint can help with irritable bowel syndrome, abdominal pain, bloating and disturbed bowel habits, according to German authorities. Two enteric-coated capsules (0.2 milliliters) of oil may be used for gallstones or other GI problems.

**Quiet Digestion:** A blend of Chinese botanicals used to reduce gastric distress including pain, cramping, nausea, vomiting, diarrhea, regurgitation and poor appetite; treats viral or bacterial gastroenteritis as well as motion sickness, hangover, and jet lag. (!) Contains iron, so may not be good if you have liver problems.

**NYBC Nutraceuticals for Gas and Bloating:**

Chlorella 500mg x 180	6/d (2B, 2L, 2D)
Curcumin 500 mg x 60	6/d (2B, 2L, 2D)

DGL 400mg x 100 lozenge	2-4/d, chew as needed
DigestEase 255mg x 100	3-6/d (1-2B, 1-2L, 1-2D). For optimum benefit, use for four weeks.
Flaxseed Capsules 100mg x 200	3-6/d (1-2B, 1-2L, 1-2D)
Garlicin Pro 300mg x 100	3-6/d (1B, 1L, 1D) Take with liquid at mealtimes.
Fiber Formula x 120	6/d between meals
Ginger Root 6:1 500mg x 100	3-6/d (1-2B, 1-2L, 1-2D)
InnerFresh Pro x 16oz	1 tablespoon, 3 x per day
Ketotifen 1mg x 50	4/d (2B, 2D)
Kidney UT	4 - 6/d (2B, 2L, 2D)
Peppermint enteric softgels x 90	3/d (1B, 1L, 1D)
Omega-3 1,000mg x 200	6/d (2B, 2L, 2D)
Quiet Digestion x 90	6/d after meals (2B, 2L, 2D); between meals as needed

**For overall improvement in gut health, it will also be important to supplement with glutamine and acidophilus.** See those discussions in the separate entries here under *Key Treatments*. With a combination of the natural anti-inflammatories, glutamine, acidophilus, and pancreatic enzymes, you may find that gas will improve tremendously, perhaps reducing or even eliminating the need to reduce fat intake.

**However, initially, when gas and bloating are causing serious problems and you are only just beginning your gut improvement program, or when improving the gut in all these ways along with taking pancreatic enzymes are not sufficient for completely eliminating gas and bloating, it will be important to look at all the possible ways to reduce dietary fat in order to eliminate the possible contribution of fat malabsorption to these problems.**

Unfortunately, in our society, high-fat diets are the norm and many people are unaware of how much fat is really in their diets. You have to think in terms of both the hidden fat contained within many foods as well as the more obvious added fats in an average diet. In other words, remember that meat (other than very lean varieties) and dairy products other than those made from skim milk (including cheese and cream and yogurt and ice cream) are all loaded with fat. Breakfast and luncheon meats are particularly high in fat, including bacon, sausage, bologna, pastrami, and so on. A huge percentage of snack foods are very high in fat, including most chips, many crackers, many cookies, many granola bars, many candy bars, most hot dogs, and so on. And, of course, the fats found in salad dressings and peanut butter or other nut butters and many sauces can add huge amounts of fat calories if you overdo them. Fried foods of all kinds (burgers, fries, fried chicken, fried fish, fried or deep-fried vegetables, and so on) are often lethally high in fat. The addition of fatty products such as butter or vegetable oils or mayonnaise or cream or whipping cream or sour cream can dramatically increase the fat content of the diet.

Many people remain unaware of how much fat they're taking in daily, in part because of its hidden nature. If you keep a food diary that lists every single food and every single drink that you consume over several days, you may discover that your intake is higher than you had thought. You may find that the total from both hidden and obvious fats is startlingly high:

- Cream in the morning coffee, granola for breakfast (sounds healthy but usually very high in fat) with whole milk (also high in fat), and maybe some bacon (fat) or sausage (fat) or toast dripping with butter (even more fat).
- A chicken salad sandwich at lunch (loaded with fatty mayonnaise) or one containing high-fat luncheon meats and accompanied by fries or chips (most varieties are extremely high in fat).
- Pizza or a pasta with a high-fat sauce for dinner accompanied by a salad with lots of dressing, seeds and nuts, olives and/or cheese (all of which astronomically increase the fat content of that salad).
- Between meal snacking on doughnuts (don't forget that they're deep-fried), or cookies (many are surprisingly high in fat), or chips (heat them up in the oven once; you'll be amazed by how much fat you see), or croissants (they're made with loads of butter; and any that you add worsens the fat content).
- And don't forget that far too many meals are eaten out where control of fat content can be terribly difficult.

For a couple of weeks, try to avoid such foods, instead experimenting with a truly low-fat diet, with the emphasis on complex carbohydrates and plenty of vegetables and fruit and lean sources of protein. Desirable foods would include brown rice, pita bread, baked or steamed potatoes, oatmeal or other such grain cereals, beans, broth-based soups, steamed

vegetables, fresh or stewed fruits, and low-fat meats and fish (particularly when broiled or grilled), including poultry with the skin removed and tuna packed in water.

A week or two on such a diet can help you determine if fat is contributing to your gas, bloating, or diarrhea problems. Very often, people who have been living with gas and/or diarrhea for sometimes quite lengthy periods will find that this dietary change will greatly help. In addition to cutting the total amount of fat in the diet back, eating smaller but more frequent meals may be useful. This will reduce the amount of fat hitting your digestive tract at one time. If your body's capacity to digest fat is limited, this may help. Switching to a different kind of more digestible fat can also help. One good source of fat for those who find that fat intolerance is, indeed, a problem but who need the calories that fat so easily provides is the particular type of fat made up of medium chain triglycerides (MCT's).

In most products, the main source of MCT's is coconut fat. Whether the coconut fat is found in coconut itself or the products made from it (macaroons, coconut cream, coconut milk, grated coconut, etc.) or the fractionated coconut oil found in some of the better supplemental drinks (such as Clintec Peptamen and Clintec Nutren and Mead Johnson Lipisorb and others), it provides this type of fat that is easier to digest and absorb and, thus, does not contribute to gas, bloating, or diarrhea. Coconut cream is very tasty. It comes packaged similarly to butter, in large sticks, and can be used in place of butter or oils for frying, for making soups or sauces, for "buttering" your bread, and so on. MCT oil can be purchased in many health food stores where it is usually promoted as a body-building supplement. For those who need additional calories, this can be added to soups, potatoes, grains, casseroles, stews, or supplemental drinks. Because fat is a good source of calories and helps to make food tasty, coconut cream or MCT oil can be good resources for a kind of fat that won't be hard on your body. (For additional information on reducing fat, see the section on *Diarrhea*.)

Medium Chain Triglycerides (MCT) x 16 oz	as needed
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**Consuming acidophilus and other “good bacteria.”** Naturally occurring intestinal microorganisms aid digestion and produce vitamins for the body. Most people refer to these organisms as “acidophilus” in reference to *Lactobacillus acidophilus*, a particular strain of these “good” bacteria, although there are actually many different strains normally present in a healthy intestine. They are often deficient in people living with HIV, particularly in those who have had repeated rounds of antibiotics or are using prophylactics.

When the bacteria that are needed to help break down foods, completing their digestion, are not present, the undigested food particles sitting in the intestines can create or worsen gas, bloating, and diarrhea. Consuming fermented dairy products (such as yogurt, kefir, buttermilk, or sweet acidophilus milk) or taking nutraceuticals containing acidophilus and other microorganisms can help to prevent the digestive malfunction that can be caused by deficiencies of these good bacteria, and the digestive gas and other problems that could result from it. In particular, repopulating the intestines with good bacteria may improve the digestion of dairy products.

The widespread use of antibiotics has also created *Candida* overgrowth in a large percentage of HIV+ people in later disease stages, and some even in earlier stages. Even low-level *Candida* that may have gone undiagnosed can contribute to gas and bloating. Long-term daily usage of non-toxic substances like oregano extract or grapefruit seed extract, as well as acidophilus, may be advisable to keep *Candida* suppressed.

Long-term use of acidophilus may help in other ways. Researchers in Italy have shown that elderly people taking 8 capsules of mixed-bacteria nutraceuticals per day achieved a 50 percent decrease in intestinal inflammation. Since, as discussed above, HIV is known to cause significant intestinal inflammation, a problem that may, in turn, worsen diarrhea and gas (as well as increasing the viral load in the intestines), the possibility that acidophilus might also decrease this inflammation and, thus, help heal the gut is appealing.

For all of these reasons, supplementation with acidophilus nutraceuticals often helps to decrease digestive gas and diarrhea.

**Bifidus Balance:** Contains four strains of bifidobacteria (combined with fructo-oligosaccharides (FOS), that aid in their replication) which inhibit the growth of common disease-causing bacteria, including coliforms, *Salmonella*, and *Candida*, as well as aiding in digestion and the production of B-vitamins. It should be refrigerated.

**Candimycin:** A blend of whole plant oil extracts of oregano, thyme, and peppermint along with goldenseal in an enterically-coated softgel to assure absorption, for combating excessive yeast growth (candidiasis). Test tube studies show that oregano oil can kill *Candida*. 3d Do not use if there is obstruction of bile ducts, gallbladder inflammation, or severe liver damage.

**Oregano Oil:** Test tube studies show that oregano oil can kill candida. One small study in humans also suggested a benefit for those with intestinal fungal overgrowth.

**Oregano Extract:** Essential oil of oregano along with oil of ginger and fennel.

**Saccharomyces Boulardii:** A “friendly yeast” that has a proven ability to increase the immune response in the GI tract; it has helped to control chronic diarrhea in some HIV+ people.

**NYBC Probiotics:**

Bifidus Balance 280mg x 100	3/d (1 before food 3 x day)
Florastor 250mg x 40 (Saccharomyces Boulardii )	4/d (2 before food morning and evening)
JarroDophilus x 60	3+/d (1+B, 1+L, 1+D)
Oregano Oil Enteric x 90	3/d (1B, 1L, 1D)
Oregano Extract x 90	2/d (1B, 1D)

**Consuming L-glutamine.** Glutamine is an amino acid that may help with gas and bloating by helping to heal the gut. This will improve absorption of fat and prevent its passing into the colon undigested where it will be acted on by bacteria and create gas. For many reasons, there is a high demand for glutamine in HIV+ people, and normal intake may not equal the demand. Thus, proper maintenance of intestinal tissue, for which glutamine is absolutely required, may not occur. Taking a steady supply of glutamine may significantly improve the proper turnover of intestinal tissue, and thus increase absorption. The end result can be a significant improvement in gas and bloating. Doses needed for this will depend on each person’s other needs for glutamine, and may range from 5 grams up to 30 grams or more daily. A powdered form is best; mix it in water or juice and take in 3 to 4 divided doses daily, preferably on an empty stomach, 20 to 30 minutes before eating. This can help to heal damaged intestines, maintain intestinal absorption, reduce gas, and help limit diarrhea by enhancing water and sodium absorption across the wall of the small intestine. [For more information on glutamine and appropriate dosing, see *NYBC’s Basic Nutrient Protocols* and *Counteracting Inflammation* in the *Introduction* and the *Diarrhea* section.]

Glutamine USP x 1,000g	1 level kitchen tsp = 4 grams
Glutamine 900mg x 180	3 - 12 divided doses

**Addressing lactose intolerance.** In those who have developed lactose intolerance, eliminating or decreasing dairy products can greatly improve problems with gas, bloating, and diarrhea. However, getting lactose out of your diet isn’t always easy. It’s easy to see that you will need to reduce or eliminate the obvious milk-containing foods such as milk itself, powdered milk, puddings or sauces prepared with milk, ice cream, cream soups, cheese, milk shakes, and so on. However, note that milk or its derivatives are hidden in many, many other foods and some drugs. This includes many fast foods (burger, chicken, and pizza joint fare), prepared foods (frozen entrees and packaged meal items), baked goods (including a great many breads, pastries, and cookies), processed meats that contain milk powder (bologna, hot dogs, etc.), and all nutraceuticals or supplemental drinks that contain lactose or whey. Also remember that milk or cream is added to many soups, sauces, casseroles, and desserts so be very careful to check on the ingredients of any food you didn't prepare for yourself.

The reaction to lactose is sometimes dose-dependent, with different people's tolerances widely variable. Some people can tolerate small amounts of dairy products or foods that have relatively low levels of lactose but will react badly to larger amounts. For example, they may be able to tolerate the lower amounts of lactose found in yogurt, buttermilk, kefir, aged cheese, and "sweet acidophilus" milk (which is actually fermented milk) or reduced-lactose milk (which has had lactase added to it to help you digest it), but get gas, bloating, and diarrhea if they drink regular milk. For others, even very small quantities of dairy products (a teaspoon of cream in coffee, a small dab of cheese on your pasta, one cookie or piece of bread that contains milk powder or whey, one sandwich with luncheon meat containing milk powder, a smidgen of ice cream, a supplement or weight gain drink containing lactose, margarine that contains whey, etc.) can cause diarrhea.

Be aware that, by volume, there is more lactose in lower fat products. This can create a problem for those attempting to lower the fat content of their diets (since fat itself can cause gas and diarrhea) by switching from whole milk to skim milk or from high-fat ice cream to the low-fat iced milk frozen dessert. Skim milk has more lactose than low-fat

milk which has more lactose than whole milk which has more lactose than cream. Because of this, some people who can't consume any other dairy products without symptoms can actually eat a high-fat premium brand of ice cream with no problem. This sometimes creates the false belief that lactose is not a problem. Because those people can eat their Haagen Daz ice cream with no apparent problem, they are then sure that drinking milk couldn't possibly be contributing to their gas and diarrhea. Since that is not the case, be careful how you assess your reaction to dairy foods. Since there is so much individual variation in the level of lactose tolerance, your personal experience will have to be your guide to what you can eat without problems.

If you suspect that lactose intolerance may be a serious contributor to your gas or diarrhea problems, it may be best to try for complete avoidance. *Read labels carefully.* If you are trying to eliminate all lactose-containing products in order to see if this is a problem, it is best to avoid even the reduced-lactose products. It is sometimes possible for people who are lactose intolerant to resolve the problem by taking enzyme products containing lactase at any time when they eat a dairy product. Some people find this to be completely effective but for others it may not be. In that case, the only solution is elimination of the dairy products. Such lactase products are widely available over the counter. One of the more commonly available ones is *Lactaid* which works well for some. Another lactase product is Dairy Ease which, unfortunately, contains mannitol. Since mannitol can actually cause diarrhea, it's probably better to use Lactaid.

In addition, don't forget that lactose is present in a number of drugs, including the acyclovir (Zovirax) 200 mg capsules. It is not, however, present in the 800 mg acyclovir tablets so if you need the drug but can't tolerate the lactose, that's your solution. It is also present in azithromycin (Zithromax), sometimes used in the treatment of MAC or cryptosporidiosis. Yes, it's another Catch-22. A drug you're being given to treat an infection that causes gas and diarrhea may itself cause gas and diarrhea. Always have your complete list of drugs checked by your physician and/or pharmacist to see if any contain lactose.

It is very important to note that lactose intolerance can develop even in those for whom dairy products have never before caused problems. Don't presume that it's a complete impossibility because you've *always* drunk lots of milk or eaten lots of ice cream or cheese and never had it bother you. The intolerance frequently develops as HIV disease progresses and affects many more people than in the population at large. In fact, some experts have suggested that virtually all those living with HIV will eventually become lactose intolerant. In particular, the intolerance may become apparent during secondary infections. After an infection is cleared, the person who was intolerant during the infection may again be able to use dairy products.

If it appears that complete elimination of dairy products is necessary in order to eliminate your symptoms, using dairy substitutes such as rice milk, almond milk, oat milk, or coconut milk can be helpful. The latter is relatively high in fat but most of it is in the form of medium-chain triglycerides which do not cause gas and diarrhea. In addition, many people who do not tolerate cow's milk products seem to tolerate goat's milk and the products made with them more easily. Since dairy products are widely found in the American diet, it may seem difficult to avoid them completely. A good guide to living lactose-free is *Milk Is Not For Every Body* by Steve Carper (Facts on File, 1995), a comprehensive meal-planning guide for those who must avoid dairy products.

Lactase Concentrate - HP 137mg x 60	1 with dairy
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**Decreasing intake of gas-producing foods and drinks.** Many common foods tend to increase digestive gas, in general, so lessening these may be very useful in a total approach to eliminating gas and bloating. Included are beans, cabbage, broccoli, cauliflower, Brussels sprouts, onions, garlic, and carbonated drinks. However, each individual may have certain foods that are problematic so it's important to try to identify which food products cause you the most problems and then decrease or eliminate them. When such foods are consumed, it can be very helpful to use a vegetable enzyme product like Beano that will improve their digestion and decrease the likelihood that they will cause gas. In many cases, taking 2 to 4 of these enzymes at the time such foods are consumed can dramatically decrease the gas that could otherwise result. Avoiding carbonated drinks (which contain gas which must ultimately be released) can also help to decrease gas. Avoiding chewing gum may also be useful since you tend to swallow air when gum is chewed. And last but not least, chewing food carefully and slowly when you eat your meals and snacks may help. When food is gulped down without proper chewing, you often swallow air.

**NYBC Digestive Enzymes:**

Plant UltraEnzymes 800mg x 90	3/d (1B, 1L, 1D)
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Plant Enzymes x 240	6/d (2B,2L, 2D)
Super Enzymes x 180	6/d (2B, 2L, 2D)
Pancreatin 8x USP x 60	3/d (1B, 1L, 1D)

**Betaine hydrochloride.** Some people may have inadequate production of hydrochloric acid in their stomachs for proper digestion to take place. It is believed that the parietal cells (those that produce hydrochloric acid) in many HIV+ people are adversely affected by disease processes with the end result being an inadequate production of hydrochloric acid. In such people, supplementation with the acid betaine hydrochloride may improve digestion and reduce gas. It is available in capsules which are best taken throughout the meal (if taking more than one). It is advisable to not take the capsules after meals since that increases the chances of creating a burning feeling. The amount needed may vary considerably since some individuals may have only a slight underproduction of stomach acid, requiring perhaps only a capsule or two with each meal, while others may produce very little, requiring multiple capsules.

However, it's important to know that needless supplementation with HCl can cause feelings of indigestion and heartburn (a "burning" feeling in the esophagus or stomach), and would be harmful if continued over time. The best way to test for the need for extra stomach acid is with gastric analysis by radiotelemetry, a process that requires you to swallow a capsule that contains a radio transmitter, followed by analysis of readings from your stomach both at baseline and after test solutions are given. If the pH level is too high, either initially or after the test solutions are given, it will indicate too-low production of stomach acid, and thus the need for supplementation.

If this test is not available to you, a trial can be done giving betaine hydrochloride with meals to see if it improves digestion and reduces gas. If after supplementation with the HCL, there is ever a feeling of heartburn or other discomfort, the supplemental HCl should be discontinued, and an antacid mixture of baking soda and water drunk for immediate relief (since that will counter the acid).

However, note that many people under-produce hydrochloric acid and because the pH of the stomach is then too alkaline (not acid enough), the sphincter muscle at the top of the stomach does not receive the signal it needs to close (a signal that comes from the presence of a normal acid level when food is consumed). When the sphincter muscle does not close, the stomach acid that is present can then rise into the esophagus and create a burning feeling. In some cases, this may lead people who actually have too little stomach acid to believe that they have too much.

Betain Hydrochloride x 120	1-2 in the middle of eating
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**Starting slowly with fiber nutraceuticals.** Many people with either diarrhea or constipation will be given soluble fiber nutraceuticals to help create a more normal stool. These substances add bulk and moisture to the intestines, thereby promoting a well-formed and lubricated stool. The fibers also swell and therefore facilitates normal peristaltic action. The most commonly used of the hydrophyllic fibers include: psyllium seed and husk, flax seeds, and oat bran. Each can be freely added to the diet or taken as a supplement. Soluble fiber can, indeed, help with both problems but can also cause significant gas. If you wish to try soluble fiber for any such problems, it's best to always increase your intake very slowly. Beginning with a very small amount (no more than a teaspoon) and working your way up to the amount that helps reduce the diarrhea or improve the constipation is the best approach. And be sure to not confuse soluble fiber nutraceuticals with those containing insoluble fiber such as wheat bran. The latter can be irritating to the intestines and might worsen both gas and diarrhea.

**Caution:** While hydrophyllic fibers are beneficial for promoting elimination, their cold and wet nature tend to have a negative effect on digestion and assimilation. To counteract this tendency, they should always be used with warming carminatives herbs such as cinnamon, ginger, or anise. Hydrophyllic fibers can also decrease the absorption of conventional medications. In cases where there is a very narrow threshold regarding the effective dosage of medications or in the case of taking medications for life-threatening conditions, consult with a qualified health professional prior to using hydrophyllic fibers.

**Herbal and Food Bitters.** Certain herbs have a bitter quality that can boost appetite and reduce or eliminate gas and bloating. Bitters are an important class of botanicals to help support normal digestive, assimilative, and eliminative processes. They help to promote the free flow of bile from the liver which helps to stimulate intestinal peristalsis. There are numerous individual herbs such as gentian, yarrow, Oregon grape root, and wormwood, which when prepared as teas, act as digestive bitters. There are also numerous commercial bitter preparations prepared as hydro-alcohol extracts that are

available in health food and liquor stores.

**Dosage:** As tea, 1-2 teaspoons of herb slowly boiled in water for 10 minutes in a covered vessel. Drink 1-3 cups daily. As hydro-alcohol extracts; 1 tablespoon morning and evening.

**Beginning a meal with a salad that includes some bitter greens (Swiss chard, dandelion, arugula, watercress and any other bitter leafy green vegetables) may also reduce gas and bloating.** There are also digestive formulas (for example, Swedish bitters) that contain these herbs that can be used prior to a meal as an appetite stimulant.

**Carminatives:** Carminative herbs are those that are rich in essential oils, are strongly aromatic, and include some of the most common spices used in cooking. They are specifically used for gas, indigestion, and abdominal bloating, and poor assimilation of foods. The most common carminatives include: ginger root, cinnamon bark, anise seed, angelica root, fennel seed, chamomile flowers, and peppermint leaf. Any of these can be utilized as teas.

**Dosage:** Steep 1-2 teaspoons in 1 cup of boiled water for 10 minutes in a covered vessel. Drink 1-3 cups daily.

**Caution:** The use of therapeutic doses of spices is generally contraindicated in those with gastric hyperacidity and some inflammatory conditions. Spices can also increase the absorption of some medications. If using conventional medications that have a narrow range of effective dosages, care must be taken to avoid excessive drug intake. Bitters are generally contraindicated in those with duodenal ulcers.

**Artichoke Leaf (*Cynara scolymus*):** Increases flow of bile, inhibits cholesterol biosynthesis and lowers serum lipids, antioxidant, increases liver regeneration, protects liver cells from chemical damage. Specific indications include: Dyspeptic complaints, nausea, vomiting, spasmodic abdominal pain, stomach ache, loss of appetite, constipation, bloating.

**Dosage:** The equivalent to 4-6 g daily.

#### **Fiber, Bitters and Carminatives:**

Artichoke 15% 500mg x 180	3-6/d (1-2B, 1-2L, 1-2D)
Swedish Bitters x 16.90 oz	teaspoon before food
Fiber Formula x 120	6/d (2B, 2L, 2D)
Flax Fiber x 12 oz	3-6 grams daily

**Discussing drug switches.** When all else fails to eliminate your gas (or least reduce it to livable levels), it may be time to discuss with your physician the possibility of switching to a drug or drugs that may be less likely to cause this problem. There's no doubt that protease inhibitors are the most likely to be causing the problem, and the particularly stinky smelly kind of gas is highly likely to be tied to protease inhibitors. So it's certainly possible that a drug switch might solve the problem. However, there is an important caveat to this. Although it would seem ideal to look for possible substitutions for any medication that appears likely to be contributing to this problem, there may not always be available substitutes. This may be a particular problem for people who are very treatment experienced with HAART meds. They may have become resistant to many previously used drugs, and might well be on the only combo currently available to them. If the combo is otherwise working well and providing the anti-HIV benefits needed, it may be necessary to stay with those meds, while attempting to address the gas and bloating in other ways. For many people who need to stay on their protease inhibitors or other meds causing gas problems, the solution has been pancreatic enzymes that contain lipase (see discussion above).

**Treating all infections that could contribute to gas.** Remember that, as discussed above, there are many intestinal infections that can cause gas, and some may too often go undiagnosed. For anyone with gas and bloating problems, it's important for a physician to aggressively pursue an aggressive diagnosis of all possible contributing causes, including infections that may have gone previously undiagnosed. If you notice symptoms that could indicate parasites (which can cause excessive gas, often accompanied by diarrhea, nausea, abdominal cramps, and fatigue, often combined with feeling generally depressed and ill), be sure to ask for the necessary stool sample tests for proper diagnosis. Don't forget that any delay in treatment can worsen the problem since, over time, parasites can actually cause or worsen malabsorption, which will in turn worsen gas problems. If you have a history of antibiotic use, always consider the possibility of Candida overgrowth. If, in addition to cause gas and bloating, you also have other symptoms that could point to Candida (diarrhea, intestinal damage and inflammation, itching in the anal area, thrush in the oral cavity, and, in women, vaginal yeast infections), then be even more suspicious of a Candida overgrowth problem. Any such symptoms would mandate aggressive diagnosis and treatment. For those with low CD4 counts, also consider the possibility of the opportunistic intestinal infections like MAC or cryptosporidiosis which could also contribute to gas, bloating, and

diarrhea.

### Treatment of Specific Infections:

#### Blastocystis, Giardia, Entamoeba

Tinidazole (Fasigyn) 500mg x 8 (Doctor Rx required)	Giardia or Blastocystis: 4 pills one day Amoebas: 4 pills 3-5+ days plus humatin immediately afterward for 7 days
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#### Cryptosporidia, Microsporidia

NTZ 500mg x 6; (Doctor Rx required) Rulid 300mg x 10 (Doctor Rx required)	NTZ: 2x2/day with food for 7 days; NTZ+Rulid: 2 daily of each 15 minutes after food; then Rulid: 2/day for 7 days
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#### C. Difficile

Florastor 250mg x 40 (Saccharomyces Boulardii )	4/d (2 before food morning and evening)
Jarrow Formulas Saccharomyces Boulardii	6+/day divided doses on an empty stomach

**Treating IBS or IBD.** As mentioned, functional bowel problems can sometimes cause gas and other intestinal problems. The treatment for both irritable bowel syndrome (IBS) and inflammatory bowel disease (IBD) is aimed at treating the symptoms since the underlying causes are not definitely known. Dietary changes aimed at increasing the intake of both soluble and insoluble fiber can help a lot with IBS, often eliminating the symptoms entirely. High-fiber diets keep the colon slightly distended which helps to prevent spasms. Soluble fiber binds water and helps prevent both excessive dehydration and hardness of the stool, as well as excessive liquidity. Reducing stress or learning to handle it better may also help with IBS. Antispasmodic drugs and tranquilizers are sometimes prescribed for acute attacks of IBS. Surgery is not used for IBS. It appears that some people with IBS may be deficient in magnesium, a factor which may contribute to the abdominal cramping. For them, taking magnesium in doses of 500-600 mg per day may be useful. Since too much magnesium could actually contribute to diarrhea, anyone wishing to try this should start with a low dose and work up slowly, aiming for the dose that will help eliminate the cramping without further loosening the stools.

For IBD, a combination of anti-diarrheal, antispasmodic, and anti-inflammatory drugs may be used. During any flare-up of symptoms, avoiding large doses of insoluble fiber as well as very rough foods such as raw carrots, nuts, corn on the cob, and so on may help with IBD. Surgery may be used since it can cure ulcerative colitis and can correct some complications of Crohn's disease, as well as providing symptomatic relief. Ensuring a plentiful supply of the nutrients that help the intestines to heal themselves may also help with both IBS and IBD. Included are vitamin A (doses of 5,000 to 10,000 IU daily, preferably in a water-soluble form), zinc (50 mg daily), and most important, glutamine (doses of 10 to 30 grams daily may be best for those with intestinal damage; use a powdered form dissolved in water or juice and consumed in doses spread throughout the day, preferably taken on an empty stomach.)

**Ketotifen** also appears to be **protective of the cells in the gastrointestinal tract**, protecting cells in the stomach, small intestine, and colon from toxins. In non-HIV research, it has shown some effectiveness as a treatment for colitis, or inflammatory bowel disease. *Thus, it may also provide some protection against the damage to the intestines commonly caused by inflammation and pathogen-produced toxins.* This could help preserve gut function and, thus, proper absorption of nutrients, making a weight-gain program more likely to succeed. Ketotifen is available only with a doctors prescription.

**L-glutamine.** Glutamine is an amino acid that may help with gas and bloating by helping to heal the gut. This will improve absorption of fat and prevent its passing into the colon undigested where it will be acted on by bacteria and create gas. For many reasons, there is a high demand for glutamine in HIV+ people, and normal intake may not equal the demand. Thus, proper maintenance of intestinal tissue, for which glutamine is absolutely required, may not occur. Taking a steady supply of glutamine may significantly improve the proper turnover of intestinal tissue, and thus increase absorption. The end result can be a significant improvement in gas and bloating. Doses needed for this will depend on each person's other needs for glutamine, and may range from 5 grams up to 30 grams or more daily. A powdered form is best; mix it in water or juice and take in 3 to 4 divided doses daily, preferably on an empty stomach, 20 to 30 minutes before eating. This can help to heal damaged intestines, maintain intestinal absorption, reduce gas, and help limit diarrhea

by enhancing water and sodium absorption across the wall of the small intestine. [For more information on glutamine and appropriate dosing, see *NYBC's Basic Nutrient Protocols* and *Counteracting Inflammation* in the *Introduction* and the *Diarrhea* section.]

**Triphala.** Triphala is a traditional herbal formula from the ayurvedic tradition of India. It is made up of a combination of 3 fruits (amla, behada, and harada) and has been in continued use for more than 2000 years. It is primarily used for supporting digestive and eliminative functions, and is specifically used for diarrhea, especially that secondary to irritable bowel syndrome. Triphala is unique among herbal laxatives. While its activity is partly based on compounds that are also contained in cascara and senna (anthraquinone glycosides), it does not appear to have the same propensity for developing laxative dependency as these.

**Dosage:** 1-3 g daily.

#### **Nutraceuticals for Irritable Bowel Syndrome (IBD) and Inflammatory Bowel Disease (IBD)**

Ketotifen 1mg x 50	4/d (2B, 2D)
Triphala 500mg x 180	6/d (2B, 2L, 2D)
OptiZinc 30mg x 100	2/d (1B, 1D)
Glutamine USP x 1,000g	1 level kitchen tsp = 4 grams
Glutamine 900mg x 180	3 - 12 divided doses

**Constipation.** There are three primary classes of botanicals used to treat constipation: 1. Laxatives; 2. Hydrophyllic fibers; 3. Herbal bitters.

□ **Laxatives:** These act primarily by irritating the intestines. This causes water to migrate into the intestines resulting in more fluidic stools and a stimulation of peristalsis which results in a bowel movement.

**Cautions:** Prolonged or excessive use of laxatives can cause dependency.

**Buckthorn Bark (*Rhamnus cathartica*), Cascara Sagrada Bark (*Rhamnus purshiana*), Senna Pods (*Cassia senna*):** Each contains anthraquinones glycosides that, when hydrolyzed by intestinal enzymes, stimulate peristaltic action.

**Dosage:** 1-2 mL of tincture daily. Best taken in morning and evening.

**Triphala:** Triphala is a traditional herbal formula from the ayurvedic tradition of India. It is made up of a combination of 3 fruits (amla, behada, and harada) and has been in continued use for more than 2000 years. It is primarily used for supporting digestive and eliminative functions, and is specifically used for diarrhea, especially that secondary to irritable bowel syndrome. Triphala is unique among herbal laxatives. While its activity is partly based on compounds that are also contained in cascara and senna (anthraquinone glycosides), it does not appear to have the same propensity for developing laxative dependency as these.

**Dosage:** 1-3 g daily.

□ **Hydrophyllic fibers:** These substances add bulk and moisture to the intestines, thereby promoting a well-formed and lubricated stool. The fibers also swell and therefore facilitates normal peristaltic action. The most commonly used of the hydrophyllic fibers include: psyllium seed and husk, flax seeds, and oat bran. Each can be freely added to the diet or taken as a supplement.

**Cautions:** While hydrophyllic fibers are beneficial for promoting elimination, their cold and wet nature tend to have a negative effect on digestion and assimilation. To counteract this tendency, they should always be used with warming carminatives herbs such as cinnamon, ginger, or anise. Hydrophyllic fibers can also decrease the absorption of conventional medications. In cases where there is a very narrow threshold regarding the effective dosage of medications or in the case of taking medications for life-threatening conditions, consult with a qualified health professional prior to using hydrophyllic fibers.

□ **Herbal Bitters:** Bitter substances enhance digestive and eliminative process thereby helping the body break down food more efficiently. Additionally, by stimulating the release of bile from the gall bladder into the small intestine, bitters help to facilitate normal peristalsis (see Herbal Bitters above).

**Dosage:** As tea, 1-2 teaspoons of herb slowly boiled in water for 10 minutes in a covered vessel. Drink 1-3 cups daily. As hydro-alcohol extracts; 1 tablespoon morning and evening.

**Treating autonomic neuropathy.** In some people, autonomic neuropathy may contribute to gas and bloating

problems when the stomach nerves that would normally propel food out of the stomach and along the way through the digestive tract fail to do so. This can leave food sitting for too long in the stomach, with the end result often being excessive gas and bloating. The use of the prescription drug called metoclopramide (Reglan) may be very helpful for normalizing stomach function. Other treatments for autonomic neuropathy may also help. (For more information on this, see *Neuropathy*.)

### **Other Possibilities**

**Peppermint tea and ginger tea.** Drinking these teas can stimulate digestion and, thus, decrease gas and bloating. Drinking these teas before and/or after eating may be useful. It is best to make a strong tea (by using more tea per amount of water) for this use.