

## Natural Approaches for Hepatitis C: Part 6 Diet for Hepatitis C

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A healthy diet is important for everyone, but is especially important for people with HCV. It can go a long way in limiting symptoms and disease progression by providing the body with the nutrition it needs to be strong, fight illness and repair itself. I cannot think of a single illness or disease suffered by humankind that does not in some way relate to nutritional intake, digestion, absorption and assimilation. Conversely, an unhealthy diet can worsen disease symptoms and progression by causing undue burden on an already impaired immune system.

The components of a healthy diet include lots of fresh fruits, vegetables, beans, raw nuts and seeds, whole unrefined grains, legumes, cold water fish, soy products, eggs, poultry and lean meats (if one prefers animal products). Dairy products, red meats, and other sources of saturated (animal) fat should be used on a limited basis.

Whenever possible, foods should be grown organically to reduce the burden of harmful chemicals upon the already diseased liver. Organically grown foods contain far fewer pesticides, fungicides, herbicides and insecticides. Lowering the load of these and other organochemicals will only benefit the liver by not overburdening its detoxification pathways or promoting oxidative (degenerating) damage.

### **What are organochemicals?**

Organochemicals are toxic chemicals that can damage our immune systems, nervous and endocrine systems. Environmental chemicals require detoxification by the liver, intestinal tract and the kidneys and other tissues and organs can be affected by various organochemicals as well. Potential sources of harmful chemicals are varied depending upon the chemicals themselves and their particular tendencies to collect in our food, water and air supply. Once in our outside environments they inevitably make their way into our internal environment – namely our bodies.

Some of these toxic substances include DDT, PCBs dioxin, 1,4-dichlorobenzene, ethylphenol and xylene just to name a few. These and other toxins are largely fat-soluble and therefore are readily stored in the body. The Environmental Protection Agency, EPA, and other sources claim that the levels of the majority of toxins, although pervasive and unavoidable in our environment, are within acceptable levels, which means they are below known cancer causing or symptom producing limits.

However, virtually no studies have been conducted that examine the combined effects of many environmental chemicals upon individuals. Those with HCV are particularly susceptible to the negative additive effects of these chemicals. It is the liver and intestinal tract and kidneys that bear the brunt of the work involved to carry out detoxification efforts. It is no wonder that we see more degenerative

disease than ever before in history since our environment is a virtual breeding ground for premature aging and disease.

Nutritionally speaking, constant, daily exposure to organochemicals increases our need for a variety of nutritional factors. Persons who have chronic infections usually have nutritional imbalances that compromise recovery and increase their susceptibility to organochemical accumulation. For example, many HCV infected people are protein deficient. Protein deficiency will compromise important detoxification systems in the liver known as the mixed function oxidase, MFO, system, Phase I and Phase II processes. Toxic chemicals stay in the body longer in those with compromised MFO, Phase I and Phase II systems caused by protein inadequacy. Furthermore, these same chemicals can literally become more toxic in the presence of deficient proteins as compared to individuals with normal protein intake.

Many other nutritionals are important for detoxification including the B-vitamins folic acid and choline, selenium, vitamin E and zinc. These and other nutritionals will be explored throughout this book. Fortunately, nutrition and healthy lifestyle habits like not smoking or drinking and exercising regularly provide each of us the opportunity to live well. When these techniques are practiced correctly the well person and the HCV infected individual can both improve the quality of their lives.

### **Healthy diet basics - dos and don'ts**

#### **Dos**

Increase the amount of whole, unprocessed foods in your diet (fresh fruit, vegetables, whole grains, beans, raw nuts and seeds) relative to the amount of processed foods you consume (pasta, bread, packaged foods). Unprocessed foods have greater nutritional value.

Diversify your diet by including new and different foods in your meals each week. Rotate the foods you eat so that you don't consume the same thing every day. Diversification helps insure well-rounded nutrient intake and helps avoid malnutrition.

Eat a wide variety of organic fruits. In season fruit is best. Organic frozen fruit is a great option when fresh organic fruit is not available. Fruit sauces (i.e. applesauce) and fruit-only jams are also good sources.

While you need to watch what you eat, a fat free diet is not healthy. Fat should constitute 20-30% of your total diet. Limit saturated fats (fats found in animal products) to less than 10% of your total diet. Avoid fried foods, hydrogenated or partially hydrogenated oils and cottonseed oil. Oxidized fatty acids (fried oils) increase cellular breakdown, adding to the overall oxidative (degenerative) load on the body and liver. Instead, opt for unsaturated essential omega 3, 6 and 9 fatty acids found in flax seed oil, olive oil, canola oil, salmon, cod, tuna, mackerel, currants, raw nuts, seeds, avocado and oats. Store oils, nuts and seeds in the refrigerator to slow down oxidation (rancidity) of the oils.

Eat a high fiber diet, 25-30 mg a day, by consuming a lot of vegetables, fruits, whole grains, beans, nuts and seeds, and minimize meats and refined foods. Ingest a wide variety of organic veggies. In season ones are best. Include salad greens, dark leafy greens (kale, spinach, collard greens, chard), squashes, root vegetables and cruciferous vegetables. Animal products should be limited since they are constipating and congesting in the body, slowing the elimination of toxins and bile acids. Plant foods in the diet increase the elimination of bile acids, drugs and toxic substances from the system. Vegetables

and fruits contain thousands of important phytochemicals (plant-derived) that have tremendous health benefits.

Eat enough healthy protein. Try to eat organic only, lean cuts of chicken, turkey, red meat (infrequently), eggs, salmon, tuna, sole, swordfish, mackerel, sardines, herring, and most other fish. Include soy products (tofu, tempeh and miso), beans, bean/grain combos, nuts and seeds.

Consume lots of legumes and beans including lentils, peas, navy beans, chickpeas, black beans, kidney beans, mung beans, soy beans, adzuki beans, black-eyed peas, pinto beans, string beans and others.

Eat a variety of nuts, seeds and nut butters. Try raw or lightly roasted/toasted cashews, almonds, walnuts, sunflower seeds, pumpkin seeds, sesame seeds, tahini, poppy seeds, brazil nuts, pistachio nuts, pecans and soy nuts.

Getting enough grains is also important. Consume rice, millet, buckwheat, oats, rye, barley, quinoa, spelt, amaranth.

Ensure you eat a sufficient amount of protein each day. Protein should comprise about 15-20% of your diet, or 55-70 gm a day. Good protein sources include lean meats, poultry, fish, eggs, soy products, beans, low-fat dairy products, nuts and food combining of grains/beans/vegetables.

Eat a variety of sea vegetables. Try hiziki, arame, nori, dulse, kelp, wakame and other sea veggies, which are high in trace minerals and are very alkalizing to the body.

Chew your food thoroughly and eat several small meals throughout the day instead of two or three large meals. This helps to balance your blood sugar and energy levels throughout the day. Eating slowly helps to evoke the parasympathetic nervous system, PSNS. The PSNS is in charge of proper secretion of various digestive juices.

Eat organic foods whenever possible since pesticides, herbicides and fungicides on produce and antibiotics/hormones fed to livestock burden the liver's detoxification mechanisms. There is also evidence that these chemicals increase cancer risk. Those with HCV want to reduce the work-load on the liver, intestines and kidneys.

Decrease or eliminate refined and processed sugars from your diet. As a substitute, use natural, unprocessed sugars high in the vitamins and minerals needed to help digest them. Try 100% pure maple syrup, fruit-only jams, fresh fruit, honey, molasses, barley malt, brown rice syrup and carob if allowed by your health care provider.

Drink plenty of water each day (body weight divided by 2, multiplied by 0.8 is the number of ounces your body needs, more if you are exercising). Avoid caffeinated and carbonated beverages, which are diuretics that cause your body to lose fluid. Herbal teas, fresh vegetable and fruit juices are healthy to consume. Diluted bottled juices and naturally decaffeinated beverages are OK in moderation.

## **Don'ts**

Desserts (pastries) and candies are largely sucrose and should be avoided. A diet containing between 25-30% sucrose for just 18 days showed an increase in liver enzymes that returned to normal when the sugar was removed

Steer clear of fresh shrimp and scallops. Also, stay away from frozen, canned or dried clams, shrimp, crab, lobster or scallops because they are all high in sulfites.

Avoid nitrites and nitrates in cured deli meats. These are converted into chemicals called nitrosamines upon digestion and are known to be toxic, adding strain on the liver.

Don't drink large amounts of fluids with your meal - this dilutes stomach acid vital for digestion.

Avoid sulfites in canned and preserved foods and in alcohol. Sulfites are liver toxic and add undue burden on the liver.

Don't overcook foods. Overcooked foods lose much of their nutritional content. Fish is best baked or broiled; meats are best broiled; vegetables are best steamed and baked; fruits can be eaten raw or baked. Do not microwave food, as the long-term health effects of food prepared in this manner are uncertain.

The Centers for Disease Control (CDC) and the National Institutes of Health (NIH) strongly recommend that people diagnosed with Hepatitis C eliminate all alcohol consumption. Alcohol significantly increases the incidence of liver disease and liver cancer in HCV infected individuals. Alcohol prompts fatty liver, liver inflammation and dysfunction, and increases the rate of liver cell degeneration, fibrosis and cirrhosis.<sup>2</sup>

Refrain from eating when you're not hungry. Stop eating when you're full. Paying attention to these rules will reduce digestive stress on the gastrointestinal tract.

Don't eat when you're stressed or "on-the-run." Mental or emotional stress as well as chemical, structural and other stressors may cause biochemical responses in the body that affect healing and recovery. For example, low grade chronic stress as well as profound acute stress can result in the production of immune depressing chemicals such as adrenochrome and cortisol. Adrenochrome is the oxidized product of adrenalin. Adrenalin or epinephrine is a normal and necessary part of a healthy response to life's stressors. When prolonged, however, epinephrine is oxidized into this immune compromising product.

Cortisol, like epinephrine, naturally increases during stress as ideal levels tonify the body allowing for a resilient immune response. When elevated in the body for longer than is advantageous, cortisol becomes an immune suppressor. Numerous other chemicals are affected during the chronic stress response that are proven to compromise healing. Viral exposure is an infectious stress that creates a cascade of chemical reactions that when left unchecked may increase nutritional requirements, speed tissue degeneration and compromise overall response to either drug or nutritional therapies.

A study in the Journal of Molecular Pharmacology showed that the immune system of alcoholics produces antibodies (known as autoantibodies) against important enzymes for the liver's detoxification process. These enzymes, known as cytochrome P450E1 and P4503A, are responsible for removing a variety of toxins from the body gathered from our food, water and air supply. It is likely that cellular changes that accompany alcoholism (such as cirrhosis and fibrosis) are responsible for the body's misdirected immune response towards the cytochrome enzymes. It is also possible that the cellular changes in the livers of those infected with Hepatitis C may experience similar autoimmune problems negatively affecting detoxification enzyme systems.

## **Allergy elimination**

In a broad sense, the term allergy describes the immunological response of the body to airborne, contact and ingested substances. In all cases, the immune system is activated in its attempt to protect itself and its owner - namely you, from harm. The laboratory section of this book briefly describes some of the various allergy tests available. Commonly, the health care provider will check for a few different types of allergy and must therefore order several different tests for this purpose.

The importance of allergy assessment and treatment is entirely unappreciated by the practicing gastroenterologist; the doctor most commonly sought after for the care of the HCV infected individual. Even the allergist, the practitioner who uses allergy testing on a regular basis, often fails to appreciate many of the subtle and pronounced effects that allergies can have upon those with HCV. Ultimately, it is left up to the holistically oriented or alternative health care provider to "put together all of the pieces" involved in assessing and creating a balanced health promoting program for those with HCV.

Allergy testing in the standard allergist's office is limited to assessing environmental and food allergies of an immediate type, known as Type I or immediate hypersensitivities. Other types of allergic responses include Type II, Type III and Type IV. Excellent resources exist that describe in greater detail these types of allergic responses and I refer the reader to the section on further suggested readings. Practically speaking, the health care provider and patient can work together when choosing which types of allergy assessments to perform.

The prevalence of food and environmental allergies is on the rise. This is due to a number of factors including food choices and chemical exposures from food, water and air. These factors also relate to each person's genetic predisposition to food allergies. Infectious states are known to be associated with an increased prevalence with food allergies. Why is HCV infection any different? The answer is, it is not. My clinical experience has shown that those with HCV have a much higher incidence of food allergies when compared to those without HCV. This observation has important implications in terms of treatment strategies.

Food and environmental allergies can cause virtually any symptom in the body. This is not surprising when one realizes that the immune response to allergies may be body-wide, thus causing symptom production in virtually any tissue, organ or organ system. Some common symptoms associated with allergies of any type include: fatigue, muscle pain, depression, chronic infections, malaise, headache, eczema, joint pain, intestinal problems, hypoglycemia (low blood sugar), mal-absorption and many more.

HCV is not caused by food or environmental allergies, but allergies and their immune responses can complicate recovery from the infection and it's many manifestations. A goal of natural therapies is to reduce the overall stress upon the immune system. The extent, if any, that environmental and food allergies complicate recovery from HCV should be assessed. At the very minimum suggestions are made below that outline a reasonable food intake that minimizes

many common allergens. Without proper testing, however, these suggestions only provide a rough guide for reduction of allergic (immunologic) load.

### **Practically speaking - food allergy testing and implementation**

Even though a careful health history, food elimination and reintroduction and allergy testing approach can identify various allergens, sometimes it is difficult to put this information into practical use. It is not uncommon for those with HCV to test positive for more allergens than could possibly be eliminated - that is without creating neuroticism and malnutrition. It is the job of the diligent practitioner and

individual to develop an approach that is the most reasonable considering all of the information gathered. Ultimately, a balanced plan that can be followed for an extended period of time and can be put into place in one's daily life is what is needed. In effect, a healthy lifestyle in terms of food and nutritional intake needs to be developed that allows for greater health and recovery for a lifetime.

A properly designed and implemented allergy elimination diet can be very beneficial for one's health. The approach involves avoiding certain foods that are common allergens or that you know or suspect you have a problem with (i.e. cause unpleasant symptoms). Below is a list of foods to eliminate or reduce in your diet to once every four days or less

- Dairy - milk, cheese, butter, yogurt, cottage cheese, sour cream, whey and casein.
- Wheat - wheat bread, pasta, baked goods, farina and wheat cereals
- Eggs - whites and yolks, foods containing eggs (i.e. a lot of baked goods).
- Citrus fruits - grapefruit, orange, pineapple, tangerine. Lime is the only citrus fruit allowed because it is highly alkaline instead of acidic and generally low allergy.
- Alcohol - including beer and wine.
- Caffeine - coffee, black tea and green tea. Only organic, naturally decaffeinated coffee or green tea is allowed. Naturally caffeine-free herbal teas are also allowed, except if they contain citrus.
- Refined Sugar - white sugar, sucrose, high fructose corn syrup, dextrose, maltodextrose, corn syrup, corn sweetener, glucose, maltose. Artificial sweeteners (aspartame, saccharin) should also be eliminated. Allowable sweeteners are 100% pure maple syrup, raw/unfiltered honey, blackstrap molasses, barley malt and rice malt
- Food Additives - artificial colors and preservatives, artificial sweeteners, nitrates (cured meats), sulfites (canned foods, condiments, wine and most dried fruit).
- Pesticides - eat organic foods only or to the greatest extent possible. Only eat organic meats (if you eat meat).
- Eliminate foods to which you know you are allergic.
- Any food that you currently eat three or more times per week, eat on a rotation basis of no more often than once every four days.

Don't despair due to this restrictive diet. There are still lots of healthy food options available. Wheat bread alternatives include wheat-free spelt, wheat-free millet, wheat-free rye and wheat-free oatmeal bread. Wheat-free pastas include quinoa-corn, rice and buckwheat soba noodles. Rice crackers, rye crackers, wheat-free waffles, gluten-free/wheat-free pancake mix, wheat-free oat or corn muffins, oatmeal, muesli (oats/nuts/raisins/unsulphured dates) and wheat-free cereals are other tasty options.

Rice milk, soymilk, almond milk, oat milk, rice cheeses, soy cheeses and almond cheeses are all healthy alternatives to your favorite milk and dairy products.

## **Juicing**

The therapeutic practice of juicing is nothing new to natural health care providers. Juicing enjoys a long history of success and praise for its healing potentials. Juices of fresh fruits and vegetables provide highly concentrated minerals, vitamins, biologically active enzymes, fiber and phytochemicals that could otherwise be consumed from the foods in unjuiced form. Juicing also alkalizes (i.e. reduces the acidity of) the body - a desired effect since acidity is associated with free radical production, degenerative disease, inflammation and aging.

Virtually hundreds of excellent books are available that describe the daily and medicinal uses of various juicing combinations for virtually any symptom and disease entity. I have included only the "tip of the

iceberg" regarding the benefits of juicing that I have found for my patients. The daily practice of juicing can not only be fun and educational, but literally invigorating. Many have reported an immediate return of vitality, mental clarity and energy after just a single day of juicing.

Juicing just once a day can add up to better health over a lifetime of consumption. For the HCV infected, I recommend between four and eight, eight ounce glasses of a healthy juice combination be consumed on a daily basis. It may be possible to gain tremendous health benefits from less than the recommendations given above when practiced in combination with some of the other healthy practices discussed throughout this book. The practitioner and health consumer must decide together the most reasonable approach to take and to what extent juicing is integrated into the healing program.

Some cautions regarding juicing may be in order. Overemphasizing the carrot content of juicing can cause fluctuations in blood sugar that can be harmful. Carrots are listed high on the glycemic index scale, GIS. The GIS was developed so that general food recommendations could be made to diabetics. Foods high on the GIS, like carrots, in some individuals could actually compromise immune function. Also, the presence of allergies to specific "healthy foods" can produce undesirable health effects. For example, if one is allergic to spinach this vegetable is best eliminated as a food choice for juicing purposes. Health care providers trained in food allergy practices and juicing can give the appropriate guidance needed in this important area.

One to three glasses of fresh juice are recommended therapeutically each day. Below are suggestions for healthful and delicious juices.

Fruit juice combinations	Unjuiceable fruits (pulp doesn't separate)
<ul style="list-style-type: none"> <li>• Apple</li> <li>• Pear</li> <li>• Apple and pear</li> <li>• Apple, pear and pineapple</li> <li>• Lemon, orange and grapefruit</li> <li>• Watermelon</li> <li>• Apple and watermelon</li> <li>• Apple and grape</li> <li>• Apple and cranberry</li> <li>• Avocado</li> </ul>	<ul style="list-style-type: none"> <li>• Papaya</li> <li>• Strawberry</li> <li>• Banana</li> <li>• Cantaloupe</li> <li>• Honeydew</li> <li>• Peach</li> <li>• Plum</li> <li>• Prune</li> <li>• Apricot</li> </ul>

Carrot-Vegetable Juices	Green Vegetable Juices
<ul style="list-style-type: none"> <li>• Carrot</li> <li>• Apple</li> <li>• Beet</li> <li>• Cucumber</li> <li>• Celery</li> <li>• Carrot tops</li> <li>• Kale</li> <li>• Ginger</li> <li>• Cabbage</li> </ul>	<ul style="list-style-type: none"> <li>• Celery</li> <li>• Kale</li> <li>• Spinach</li> <li>• Cucumber</li> <li>• Dandelion</li> <li>• Parsley</li> <li>• Apple</li> <li>• Ginger</li> <li>• Sprouts</li> </ul>

<ul style="list-style-type: none"> <li>• Sprouts</li> </ul>	
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Juicing is always therapeutic, but it's particularly helpful during disease flare-ups. In fact, during acute phases or exacerbations, solid foods should be restricted to brown rice, steamed vegetables and moderate amounts of lean protein sources such as tempeh, fish (i.e. salmon, tuna, mackerel, sword and sardines), free-range chicken and turkey. Ideally, during these periods, the diet should be primarily fluid and should include the following:

**Water** - The water source should be purified and high in natural minerals. It is recommended that all water sources be analyzed for the presence of parasites, synthetic and organic chemicals, bacterial organisms and other materials, which may burden the liver or other body systems.

**Vegetable broths** - A vegetable broth is simply a hot source of water that has had a large variety of vegetables soaked in it. The resulting fluid is now heavily mineralized and contains high amounts of vitamins and perhaps enzymes. Absorption and assimilation is very easy on the digestive tract.

**Fresh fruit and vegetable juices** - The purpose of juicing vegetables and fruits is not for the fiber content, but is instead to concentrate vitamins, minerals, enzymes and perhaps hundreds of phyto- (plant) chemicals. A typical glass of fresh, and preferably organically grown, vegetable juice for example may contain two carrots, an apple, a handful of crisp spinach leaves, a handful of kale (a green leafy vegetable), a stick of celery and a large beet.

**Herbal teas** - Dozens of herbal teas are readily available in health food stores and some supermarkets. Although herbal teas are too weak to provide strong therapeutic benefits, their continued consumption at low doses (i.e. 2-3 cups per day) can provide a weak, but additive stimulatory effect. For best medicinal value, brew herb teas for a minimum of four hours to create a more potent herbal infusion that can be stored for up to four days.

**Detoxification**

The health benefit of a nutritionally based detoxification program for the HCV infected person cannot be underemphasized. Besides an individually formulated diet and nutritional supplement and lifestyle changes, detoxification efforts can be dramatically improved with the use of specially formulated medical-nutritional food drinks. Several pleasant tasting products are available for consumers, which take into consideration nutritional needs during one's detoxification efforts.

Detoxification is the process whereby the body removes unwanted substances from itself. The liver and gastrointestinal tract are the primary organs involved in detoxification although the kidneys, skin, and other organs also play important roles. Over our lifetime, toxins accumulate in our bodies, often at a faster rate than our livers and GI tracts are able to get rid of them. Toxins are found in our drinking water, food and air. Medications have toxic effects. Stress produces toxins. Toxin accumulation can cause fatigue, pain, poor memory and concentration, headaches, allergies, hormonal disorders, slow healing, degenerative disease, poor digestion, infertility, weight disorders and more. For people with HCV, detoxification is especially important as a way to cleanse the over-burdened, already impaired liver of harmful substances that, when left to accumulate, increase liver degeneration and worsen the prognosis for HCV.

The liver's detoxification efforts heavily depend upon a series of enzymes known as the cytochromes, the most important of which is cytochrome P450.1 A study by the Institute for Environmental Medicine

in Stockholm, Sweden demonstrated that the immune system of some alcoholics has directed itself against the cytochrome P450 enzymes.<sup>2</sup> The self-directed attack of the immune system against the detoxification enzymes is known as an autoantibody reaction. It is probable that autoantibodies also direct themselves against the P450 enzymes of the HCV infected. Numerous studies have shown that autoantibodies directed against body tissues and systems are a common phenomenon in HCV infected people (see chapter 2 on autoimmunity).

There are dozens of different ways to accomplish liver and intestinal detoxification. A high quality nutritional detoxification program incorporates the following elements: fasting with liquid food supplements designed to assist detoxification efforts and sustain minimal caloric nutrition; fresh vegetable and/or fruit juice fasting; nutritional, herbal and fiber supplements to promote detoxification; an allergy-elimination diet (avoiding suspected and tested/diagnosed allergies); the vitamin C flush; enemas and education about the on-going integration of healthy diet, nutrition and lifestyle factors into daily living.

Antioxidant nutrients such as ascorbic acid, beta-carotene, vitamin E, CoQ10 and cysteine are very important for protecting the liver from accumulated damage over time. In fact, these and other antioxidants play a pivotal role in helping to ensure that detoxification efforts are successful. In order to emphasize the importance of antioxidants in detoxification I have given a detailed explanation below. The reader can consult the section on antioxidants for additional information.

Here's how antioxidants can help a virally infected person benefit from a nutritionally based detoxification program. HCV precipitates an inflammatory response in the body that is caused and is worsened by oxidative stress. The term oxidative stress refers to the production of highly reactive molecules in the body called free radicals, FR. These FR may damage virtually any tissue in the body. The inflammatory reaction occurs along with the production of FR by causing the body to produce a variety of chemicals that mediate or perpetuate (cause) the inflammatory response. Inflammation is actually a healing response by the body to a variety of stressors including viruses. The problem with inflammation is that it can become prolonged and excessive causing tissue and immune damage.

Chemicals that mediate the inflammatory response are referred to as reactive oxygen intermediates, ROI. Examples of ROI include, but are certainly not limited to, interleukin-1, -2 and -6 (known as cytokines), tumor necrosis factor, granulocyte-macrophage colony stimulating factor, GM-CSF. These and other laboratory markers can be measured and are often abnormally high in those with HCV and other chronic infections.

Additionally, oxidative stress can be indirectly measured by the presence of malondialdehyde, MDA, in the blood or urine. MDA is a breakdown product of oxidative damage to cellular membranes. Antioxidant supplements lower MDA

and other markers of oxidation demonstrating their ability to reduce inflammation and heal tissues. Inflammation can be measured in a number of ways including blood levels of ESR, erythrocyte sedimentation rate, and C-reactive protein (regular or a high specificity test); both of these markers may be elevated in the presence of chronic inflammatory stress. The nutrition and laboratory sections of this book outline many effective ways of reducing inflammation and these blood markers.

During fasting or the intake of reduced calories the body will naturally produce oxidants. Since this is the case, water fasting cannot provide the necessary antioxidants needed to quench excess oxidants because it simply does not contain antioxidants. Oxidants are produced during detoxification. During this breakdown process and removal of old cells and tissues, the body requires antioxidants to protect

healthy tissues and to build new tissues. A vegetable juice fast certainly provides some of the needed antioxidants, but in uncertain amounts and is almost certainly not enough to ensure proper healing in HCV infected individuals. For over 10 years I have used a variety of medically designed foods that have been formulated for the specific purpose of providing the necessary antioxidants and other nutrition for adequate detoxification and elimination. These medically-designed foods are called UltraClear, UltraClear Plus, UltraClear Sustain and UltraInflamX.

Basic nutritional supports such as the B-complex nutrients and multi-mineral complexes should not be neglected, as they are critical for normal liver and physiological functions. The so-called lipotropic agents including betaine, methionine, choline, vitamin B5, folic acid and inositol are of particular importance for liver detoxification, as they allow free flow of fats in and out of the liver. Silymarin, dandelion and other herbs nourish the liver and support liver cleansing. In addition, fiber assists the binding and elimination of toxins through the intestines and colon.

Detoxification efforts must be carefully balanced, otherwise excessive degenerative changes could result. Improperly implemented detoxification efforts (i.e. juice fasting, nutritional drinks etc.) will actually increase the breakdown of cells, tissues and organs. Liver detoxification results in increased production of MAO (monoamine oxidase), a singlet oxygen molecule that causes oxidation and degeneration of cells. It is advisable to seek the guidance of a professional trained in detoxification prior to undertaking your initial detoxification program.

UltraClear, UltraClear Plus, UltraClear Sustain and Ultra InflamX are pleasant tasting, patented medical foods made of low allergy potential (pre-digested) rice protein concentrate combined with basic nutrients for detoxification and elimination. All of the ingredients in these products are selected based upon the very latest medical and nutritional research regarding detoxification, liver and intestinal repair and inflammation control. They are each individually balanced with protein, carbohydrates and healthy fats blended with highly absorbable vitamins, minerals and other nutrients. Each was initially developed to support the liver and intestines' ongoing detoxification efforts. They are based on nutritional and scientific evidence regarding what the liver, intestines and general metabolism require for proper processing of toxins and tissue repair. Use of any one of these products is safe and effective for improving overall intestinal and liver function and detoxification, but should only be used under professional supervision. More details regarding these four products are available by calling Metagenics Vitamin Company and mentioning this book (1-800-META-VIT).

### **Encouraging elimination - coffee enema**

Administering a coffee enema rectally promotes liver detoxification by stimulating phase II conjugation, the process by which fat-soluble toxins in the liver are converted into water-soluble toxins for easier removal from the body. Overuse of the coffee enema and other types of enemas is not suggested. Although they can aid the detoxification and elimination process, they are not reparative in nature. Overuse can result in inflammation and irritation to the rectum and lower colon; removal of the mucous-immune blanket that coats the intestinal lining and removal of healthy endogenously produced bacteria. Adding in manufactured forms of healthy flora is not the same as the healthy flora produced within your colon.

To perform a coffee enema is quite simple. Percolate or boil 3 heaping tablespoons of ground organic regular coffee (not decaffeinated or instant) in one quart of filtered or distilled water. Simmer for 15 minutes. Strain and cool to body temperature. Lubricate the nozzle lightly with vitamin E oil or olive oil. Lie on your left side and administer the enema very slowly in an enema bag and tubing. It should take at least 15 minutes for the entire fluid to enter the rectum slowly. Then, still lying on your side, massage

your abdomen and try to retain the enema for another 15-20 minutes before releasing the content of your bowels.

Other detoxifying enema recipes include:

4 cups of chamomile tea (brewed for at least 2 hour)

Allow it to cool to room temperature.

Fill the enema bag allowing at least 15 minutes for the entire fluid to enter the rectum slowly.

Juice of one lemon in 4 cups of warm water

Fill the enema bag allowing at least 15 minutes for the entire fluid to enter the rectum slowly.