



Choices Healthy Views

by Anna Wolyn, MD



Do I need to DETOX ?

Many scientists suggest that that there is no need to detoxify since our bodies are equipped with mechanisms to remove any harmful substances, yet many physicians recommend different purifications programs. Who is right? Well both sides have some truth to it. If we lived in a perfect world with clean water, air, soil full of necessary nutrients, organic food, life without stress etc., there would surely be no need for additional detoxifications programs. But the world we live is not so pure, and there are several sources of pollutants to which we are exposed. Among the worst offenders are pesticides, other organic pollutants and heavy metals.

Pesticides

Over 4 billions pounds of pesticides are used in the US annually. The EPA has approved over 350 different pesticides to be used in our food. The average home contains 3-10 gallons of hazardous materials. Each year, an estimated 2,000 new chemicals are introduced for use in everyday items including foods, personal care products, prescription drugs, household cleaners and lawn care products.

Persistent Organic Pollutants (POPs)

Persistent Organic Pollutants (POPs) are long lasting synthetic chemicals with widespread production that began over 80 years ago (most of which were non-existent before then), and detectible levels of dozens of them are found in the tissues of all living things on earth. Numerous opportunities for repeated exposure (whether through oral, inhaled or topical exposure) occur on a daily basis. POPs are highly toxic, persist in the environment for years or decades, and bioaccumulate in fatty tissues.

Dioxins and dioxin like compounds are a very important category of POPs because they are associated with one of the most common increasing chronic diseases; type 2 diabetes. Dioxins suppress the immune system, lowers testosterone, and are carcinogenic and neurotoxic. Dioxins are very persistent in the environment and do not spontaneously degrade, nor are they metabolized by bacteria. The primarily method of removal is by the very slow process (25-100 years) of photo degradation.

Bis-phenyl A (BPA) is another organic pollutant that is an endocrine disruptor that can mimic the effects of estrogen. It has been linked to cancer, thyroid disorders, obesity and infertility.

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Peggi S. Cross, PhD5

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Do I need to DETOX ? (Continued)

Bleached milk cartons are also a significant source. BPA has been commercially used as a plasticizer since 1957 (despite a complete lack of safety testing) is found as an ingredient for widespread applications in lining of metal food and juice cans, refrigerator shelving, dental sealants and composites, CDs and DVDs credit card receipts, infant bottles etc.

Heavy Metals

Heavy metals complicate the picture even further. Almost everyone is affected to some degree by environmental mercury, arsenic, and to a lesser extent, cadmium. Symptoms and signs of heavy metal burden can be: extreme fatigue (both mental and physical), increased irritability, moodiness, lack of concentration, depression, eczema, allergies, chronic myalgias, hypertension, neuropathy, ischemic heart disease and cancer. Common sources of arsenic are from drinking untreated well water, while dental amalgams are the most common source of mercury.

Who should suspect toxins to be involved in poor health?

As a practicing clinician, my main interest in environmental toxins is determining the impact they could have on a patient's current state of health. This is done by going beyond the standard exam to help patients who present with conditions for which toxins are thought to play a major role. Those conditions include: Parkinson's disease, multiple sclerosis (MS), autoimmune disorders, cancers, diabetes, chronic fatigue, fibromyalgia, mood disorders, attention-deficit disorder (ADD), and various other chronic diseases.

My viewpoint about environmental toxins in such diseases has come directly from clinical experience. This is coupled with a desire to go beyond the standard explanations for chronic illnesses by examining other possible sources for them, and knowing that identifying a role for a toxin in a patient's illness may dramatically change the way in which the illness is managed.

So what is detoxification?

It is a chemical process of removing a xenobiotic (foreign substance found in the body that are not derived from a normal diet or produced endogenously), or a compound that is produced in the body (eg. hormones) by rendering it less toxic and more readily excreted.

This is also known as biotransformation. The process changes lipophilic (fat loving) substances which are very difficult for the body to eliminate into hydrophilic (water soluble) products, which can be more easily removed. It enables hormones, neurotransmitters, environmental toxins – anything that needs eliminating – a roadway for exit from the body. This transformation happens in all tissues in our body but the majority of reactions happen in liver, with some occurring in gastrointestinal tract, lungs, kidneys and skin.

Many of my patients tried different detoxification products in the past and some felt great after completing the program, but most of them could not finish taking the supplements because of severe side effects. This is my key point about detoxification! I encourage all my patients to do it safely, after a preparation process that starts with food and healing the gut! The reason why so many people feel sick during the process of detoxification is due to their individuality, which goes beyond the personality or looks. It is a genetic predisposition with defects called gene SNPs (single nucleotide polymorphisms) in their ability to detoxify.

The process of detoxification is very complicated and involves 3 phases with many chemical reactions. Genetic defects can happen on every level! The good thing is that we can identify some of these SNPs by doing genetic testing and help patients to avoid certain chemicals, drugs etc., as well as support the enzymatic pathways with appropriate supplements and foods.

The illustration in this article explains the process from a physiological perspective. The branch of medicine that considers and addresses physiological function is called Functional Medicine, and this is the system that I use for detoxification. It basically provides the correct nutrients in adequate supply to make sure that the body has everything it needs to adequately perform the function of detoxification, as well as providing pathways for removal of toxins.

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Complementary Health Practices Available at Choices

- Botanical Medicine
- Chiropractic
- Acupuncture
- Cold Laser Therapy
- Homeopathy
- Intravenous Infusions
- Mind/Body Medicine
- Neural Therapy (NT)
- Neuromuscular Therapy
- Nutritional Therapy/
Counseling
- Relaxation, Visualization
- Stress Management
- Traditional Chinese
Herbal Medicine
- Ultraviolet Blood Irradiations and Ozone Ther-

Do I need to DETOX ? (Continued)

Water

I recommend individual approaches to the detoxification process for all my patients, but in Functional Medicine, the patient plays a very important role in their own health management. In the case of environmental toxicity, an important aspect of this is using clean, good-quality drinking water, which helps chiefly in eliminating hydrophilic toxins from the body, but also in ridding the body of lipophilic toxins that are bio-transformed by the liver and excreted as water-soluble conjugates or breakdown products. I also recommend the use of alkalizing ionic water filters, because drinking water that has a slightly high, alkaline pH can enhance the movement of toxins out of the body.

Infrared Sauna

In addition to this, I recommend infrared saunas, on the basis of good evidence that the body excretes toxins in sweat.

Supplements

My contribution to helping patients in this process is to make a careful assessment of the patient, and recommend diet changes and supplements based on supporting the stages of detoxification shown in the diagram above, and the patient's individual constitution and sources of toxic load.

My advice for detoxification is to be WISE and eat ORGANIC as follows:

- (W) WATER**
- (I) INFRARED SAUNA**
- (S) SUPPLEMENTS**
- (E) ELIMINATION**

ORGANIC DIET

Elimination

Naturopathic doctors have long advised mainstream physicians about the importance of good elimination to good general health, and I subscribe to that. Having a bowel movement twice a week does not adequately eliminate organic toxins from the body, and if toxin containing fecal waste remains in the colon for any sustained time, the possibility grows that the feces' toxic contents will be reabsorbed and recirculated. I therefore advise patients to begin a high-fiber diet, which can markedly enhance detoxification. I especially recommend flax for this because of its low cost and because it helps to bind toxins in the gut so that they're excreted, and because this herb has phytoestrogenic lignans, which produce inhibitory effects on cellular hormone receptors, and limit the endocrine disruptive effects of organic compounds and many other organic toxins.

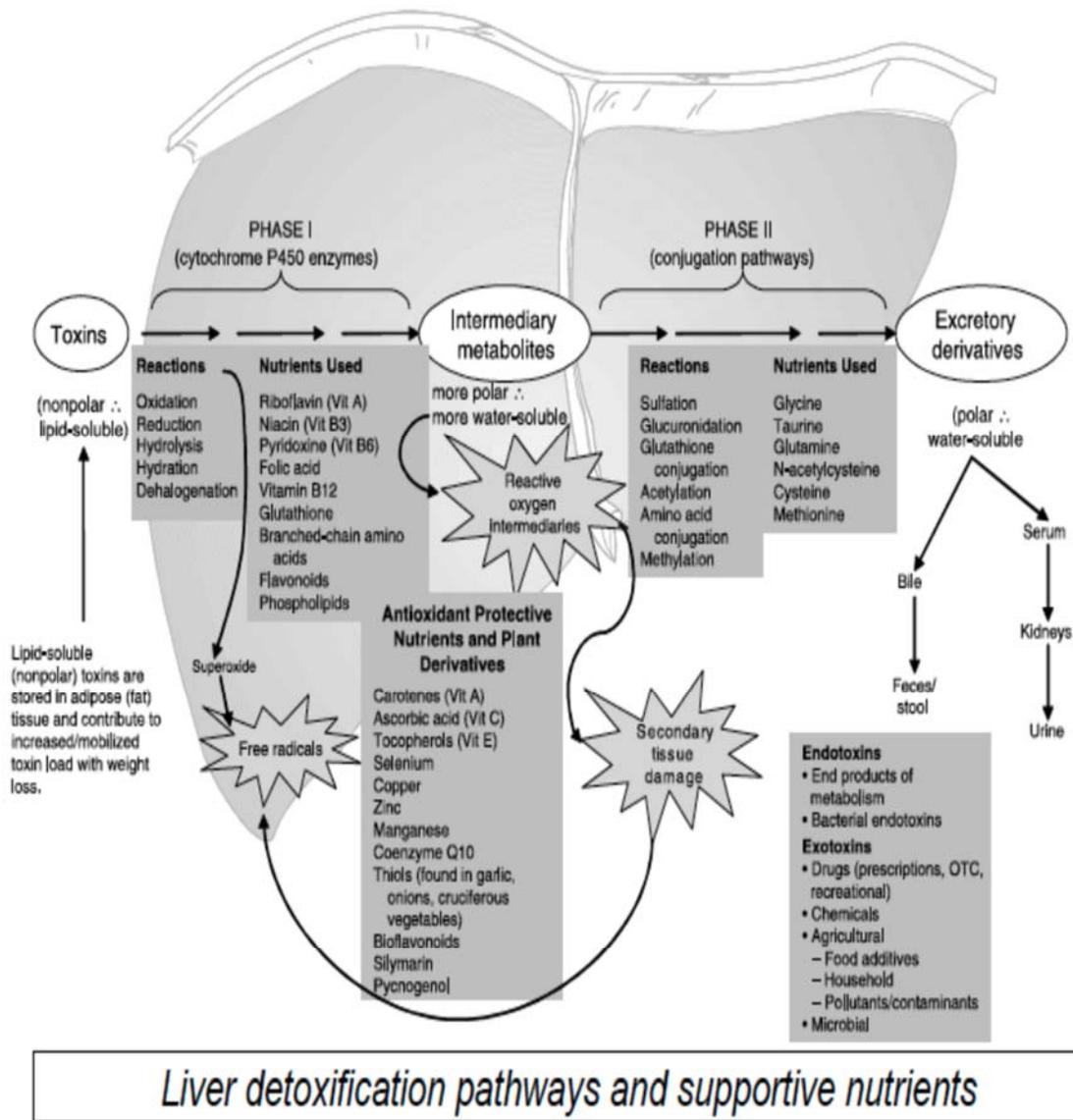
Organic Diet

For the reasons described earlier, I also advise patients—especially those who are carrying a noteworthy toxic burden—to eat organic foods, which are becoming increasingly easier to find and less expensive.

We need to remember the core principles of functional medicine and toxicology. Exposure to low levels of environmental toxins is widespread, lifelong and increasing. The total body burden of these toxins can act synergistically to cause physiologic dysfunction. This dysfunction can lead to chronic illness in susceptible individuals. Susceptibility is defined by an individual's ability to bio-transform, detoxify, and eliminate exogenous toxins. Environmental toxins should be considered in the differential for any chronic or recurrent disease.

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Do I need to DETOX ? (Continued)



Liver detoxification pathways and supportive nutrients

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Detoxification of mercury from the human body using vitamin B5 and xanthan gum

Peggi S. Cross, PhD

Mercury is found in coal, oils and minerals as well as in the atmosphere. It has been used for amalgamation of metals since ancient times, as a red paint in the form of the mineral cinnabar, as a mildew retardant, antiseptic, disinfectant, industrial control instruments and in the manufacture of caustic soda and chlorine (Cross and Odegaard, 2010). The most familiar use of mercury is in amalgams used in dentistry and this is the most likely route of high exposure in most humans.

Mercury toxicity causes symptoms of abnormal behavior, circulatory collapse, tremors, gastrointestinal effects, kidney damage, and various other health effects (Cross, et al., 2010).

The largest problem by far is the fact that mercury binds very strongly with sulfur bearing chemicals (which the body is laden with), making it very difficult to remove. Not only are the skin and other tissues comprised of sulfur, there are other sulfur bearing chemicals in the body which are instrumental to metabolic function, and having them bound-up with mercury is devastating to physiological function.

Of particular concern, is the reaction of mercury with lipoic acid. Lipoic acid exists in two states in the human body: in the form of lipoic acid which has two sulfur atoms bound together, and in the form of dihydrolipoic acid where the bond between the sulfurs has been broken and is bound to hydrogen atoms instead. Both of these forms of lipoic acid bind very strongly with mercury. While lipoic acid can be used to chelate or bind mercury, a lipoic acid molecule cannot necessarily grab mercury from another lipoic acid molecule because the bond strength is equivalent. So why do we care about lipoic acid in the body? Lipoic acid is part of the pyruvate dehydrogenase cycle which fuels the Krebs' energy cycle otherwise called the citric acid cycle. The citric acid cycle is involved in glucose oxidation which ultimately produces ATP, the energy currency of the human body. It is critical for oxygen uptake by cells and is considered the "hub" of cellular metabolism. Inactivation of the pyruvate dehydrogenase cycle by mercury (or arsenic which also binds to lipoic acid) brings respiration to a halt (Voet et al., 2002 pp. 466-475). Under these conditions, we would expect fatigue, shortness of breath, and a general deficit of new replacement cells creating more obvious problems such as overall hair loss and poor growth of nails.

Coenzyme A is one compound which helps to keep the pyruvate dehydrogenase cycle going and providing sufficient coenzyme A is critical during metal toxicity. The enzyme cycle involves constant oxidation and reduction of lipoic acid using coenzyme A. This may cause the metal to drop out during the transition and if there is another chemical which can pick up the metal and carry it out of the cell, detoxification may be possible. Unfortunately we cannot buy coenzyme A in a bottle but we can buy the precursor to coenzyme A, pantothenic acid, otherwise known as Vitamin B5

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Pantothenic acid (B5) is a precursor of coenzyme A (CoA), an important cofactor and acyl group carrier in cells. One of the main functions for CoA is the formation of acetyl-CoA, vital for cellular respiration and the metabolism of carbohydrates and fatty acids through the Krebs cycle. Distribution studies indicate that tissues with the highest retention of pantothenic acid are the kidneys, pituitary gland, heart, muscle, liver and adrenal glands. Additionally, pantothenic acid is required for the synthesis of fatty acids and membrane phospholipids, the amino acids leucine, arginine and methionine, and isoprenoid derivatives, including steroid hormones, vitamin A and vitamin D.

Pantothenic acid supports cellular energy production, adrenal and cardiovascular health, and synthesis of vitamins, amino acids, fatty acids, and steroid hormones.



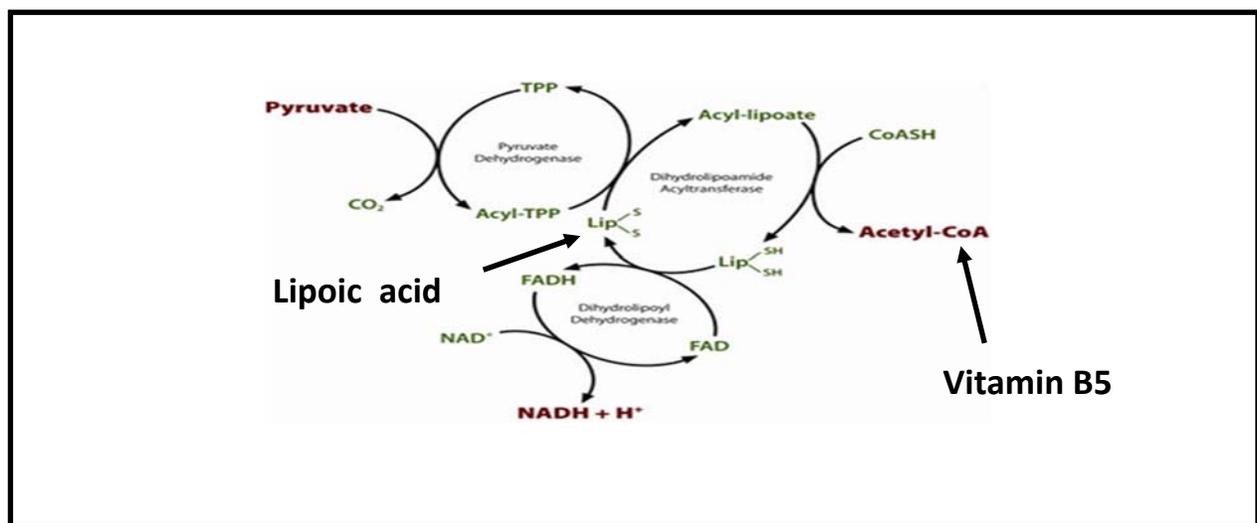
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Detoxification of Mercury (Continued)

(Voet et al., 2002, p. 46). Typical doses of vitamin B5 range from 100 to 1000 mg. Sources include beef and dairy products are the main food sources, followed by chicken, pork, fish and eggs.

Missing from the solution is a way to pick-up the metal and carry it out of the body without it binding to any other sulfur containing tissues on the way out. I propose xanthan gum. Xanthan gum is a substance used as a thickening agent in foods and beverages and it can be purchased in any health food store. It is a thixotropic agent which means that when it is under a shear force it is thin and when the force is not present it thickens up---just like catsup squirting out of a bottle. It passes through the body unreacted and unabsorbed and it has multiple carboxyl groups which can latch onto metals on the way out.

These agents combined together represent a very low risk solution for ridding the body of mercury accumulation. About 500-1000 mg of pantothenic acid every morning plus about 1/8 teaspoon of xanthan gum in your smoothie or sprinkled over your cereal for a month should be enough to clear out the mercury. Make sure you discuss this with your doctor first to let him/her know that you suspect or are concerned about mercury toxicity so that appropriate clinical evaluation before and after detoxification can be arranged.



Xanthan gum latches onto mercury and passes through the body unabsorbed.

The image shows a white plastic bottle of NOW Healthy Foods Xanthan Gum. Below the bottle is the chemical structure of xanthan gum, which is a polysaccharide. It consists of a backbone of glucose units linked by (1→3) glycosidic bonds. The side chains are composed of mannose units linked by (1→6) glycosidic bonds to the glucose backbone. The side chains also contain carboxylate groups and methyl groups.

References

Cross, P.S., Odegaard, N., Riley, M., **Lipoic Acid Formulations for the Removal of Arsenic and Mercury from Museum Artifact Materials.** Journal of Archeological Science. 2010, 37(8):1922-1928.

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Voet D., Voet J.G., Pratt, C.W. **Fundamentals of Biochemistry**, 2002, John Wiley and Sons, New York.

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What's New At Choices...



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Sleep disorders
PTSD
Depression
Anxiety
Multiple Sclerosis
Chronic Fatigue Syndrome
Fibromyalgia
Neuropathies
Chronic pain**

Seeing patients Tuesdays and Thursdays
Packages available for Multi-treatment plans
\$75 First Treatment (75 minutes)
\$65 Follow-up (40-60 minutes)
Cupping \$15 extra
Gua sha (\$10 extra)
Massage \$15 extra
Most Health Savings Plans can be used for payment.

Her services to VETS are on a donation only basis.

Natural Medicine Store Favorites by Brian Whitney

Liver detoxification occurs in two phases. During Phase I, enzymatic chemical reactions change both exogenous substances (e.g., prescription medications and pesticides) and endogenous toxins (e.g., hormones) into more water-soluble metabolites. In Phase II detoxification, the liver conjugates these metabolites to protective compounds—such as glucuronides, glutathione, sulfonates, and amino acids—that make them less harmful and easier to eliminate.

Developed to support healthy Phase I and II detoxification pathways in the liver, Detoxification Factors provides an expertly formulated combination of 38 ingredients.* It can be used for everyday nutritional support, for periods of increased oxidative stress and targeted cleansing, and can be incorporated into individualized endocrine, cardiovascular, or cellular support protocols.*



The ingredients in All Day Energy Greens make it one of the most potent, energizing, immune-enhancing drinks available. When you alkalinize your body with the goodness of All Day Energy Greens you give your body an instant energy boost and an abundant source of phytonutrients and antioxidants.*

A convenient way to help promote acid/alkaline balance is through the consumption of green food supplements. Green foods are alkalizing, meaning they help to keep the body's pH at an optimal alkaline state.

Meriva curcumin phytosome is a unique curcumin extract that is significantly better absorbed than other curcumin extracts. Several studies have illustrated curcumin's hepatoprotective effects, leading researchers to suggest its use in protecting the liver from exogenous insults from environmental toxins.* Curcumin also has the capacity to increase both the flow and solubility of bile.* Curcumin's hepatoprotective effects are due in part to direct free-radical scavenging; but curcumin also enhances the body's natural antioxidant system, which increases glutathione levels, thereby aiding in hepatic detoxification and inhibiting nitrosamine formation.*



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II. Xenobiotic Tolerability Test (XTT)

1. Are you presently using prescription drugs?

Yes (1 pt.) No (0 pt.)

If yes, how many are you currently taking? _____ (1 pt. each)

2. Are you presently taking one or more of the following over-the-counter drugs?

- Cimetidine (2 pts.)
 Acetaminophen (2 pts.)
 Estradiol (2 pts.)

3. If you have used or currently use prescription drugs, which of the following scenarios best represents your response to them:

- Experience side effects, drug(s) is (are) efficacious at lowered dose(s) (3 pts.)
 Experience side effects, drug(s) is (are) efficacious at usual dose(s) (2 pts.)
 Experience no side effects, drug(s) is (are) usually not efficacious (2 pts.)
 Experience no side effects, drug(s) is (are) usually efficacious (0 pt.)

4. Do you currently use or within the last 6 months had you regularly used tobacco products?

Yes (2 pts.) No (0 pt.)

5. Do you have strong negative reactions to caffeine or caffeine containing products?

Yes (1 pt.) No (0 pt.) Don't know (0 pt.)

6. Do you commonly experience "brain fog," fatigue, or drowsiness?

Yes (1 pt.) No (0 pt.)

7. Do you develop symptoms on exposure to fragrances, exhaust fumes, or strong odors?

Yes (1 pt.) No (0 pt.) Don't know (0 pt.)

8. Do you feel ill after you consume even small amounts of alcohol?

Yes (1 pt.) No (0 pt.) Don't know (0 pt.)

10. Do you have a personal history of

- Environmental and/or chemical sensitivities (5 pts.)
 Chronic fatigue syndrome (5 pts.)
 Multiple chemical sensitivity (5 pts.)
 Fibromyalgia (3 pts.)
 Parkinson's type symptoms (3 pts.)
 Alcohol or chemical dependence (2 pts.)
 Asthma (1 pt.)

11. Do you have a history of significant exposure to harmful chemicals such as herbicides, insecticides, pesticides, or organic solvents?

Yes (1 pt.) No (0 pt.)

12. Do you have an adverse or allergic reaction when you consume sulfite containing foods such as wine, dried fruit, salad bar vegetables, etc?

Yes (1 pt.) No (0 pt.) Don't know (0 pt.)

GRAND TOTAL: _____

III. Alkalinizing Assessment

1. Do you have a history or currently have kidney dysfunction?

Yes No

2. Have you ever been diagnosed with a condition known as hyperkalemia?

Yes No

3. Are you currently on diuretics or blood pressure medication?

Yes No

Note: Prescribe non-alkalinizing nutrients if patient answered yes to any part of this section.

For Practitioner Use Only:

OVERALL SCORE TABULATION

See doctor brochure for protocol suggestions.

MSQ SCORE _____ (High >50; moderate 15-49; Low <14)

XTT SCORE _____ (High >10; moderate 5-9; Low <4)

URINARY pH _____

Note: Patients with high MSQ but low XTT may be exhibiting pathology that is not related to toxic load. Other mechanisms should be considered such as inflammation/immune/allergic gastrointestinal dysfunction, oxidative stress, hormonal/neuro-transmitter dysfunction, nutritional depletion, and/or mind body. Individualize support with specific medical foods, diet, and/or nutraceuticals.

Interested in Detoxification?

Fill out the above test and take it to your provider to find out what the best approach to detoxification is for you!