

## *Understanding Genetic Detoxification*

I am sure that many of you have heard of or even done a great number of detox programs, but one should know that there is a right way and a wrong way to clean out your body, and some weight loss and detoxification programs can actually do more harm than good if done incorrectly.

During the detox process, your liver is actually working hard to break down toxic substances and it needs certain essential nutrients to do this effectively. Fasting, or an insufficient diet, denies the body these nutrients and weakens your liver.

The body stores processed toxins that it cannot excrete inside fatty tissues (as an aside, your brain is made of predominantly fatty tissues), so losing weight actually re-releases these toxins back into your system where they can cause harm if not properly detoxified. If too many toxins are released from the fat cells too rapidly, or your liver lacks the genetic ability or nutritional support to metabolize them, then toxic reactions and health problems can be the result.

Furthermore, detoxification and weight loss are not one-size-fits-all programs because each person's natural detoxification abilities are unique.

Most of the body's detoxification processes take place in the liver. The liver processes toxins in two steps known as Phase I and Phase II. While some toxins can be processed by just Phase I or just Phase II, most toxins require both steps in order to be safely removed from the body. Phase I alters the toxin so that it can be bound to another molecule that will send it either to the kidneys for excretion through urine, or to the fat for "safe" storage. Phase II is where the appropriate molecule is attached to the toxin. In order for this process to occur smoothly and efficiently, it is critical that both Phases be properly balanced and coordinated. This timing and rhythm is determined by your genes.

For example, we know that there is a gene that specifically governs the metabolism of estrogen, both natural estrogen and estrogen from dietary intake. This gene is not always encoded the same way in every individual. Some people may have an alteration, or a

variation, of this gene that causes it to process estrogen too rapidly through Phase I.

While to some this may sound like a good thing, it's not. Phase I turns toxins into what scientists call "intermediate metabolites". They are highly reactive molecules, which are actually more toxic than they were in their original forms. Unless they are processed through Phase II in a timely manner, they can re-enter the body and cause all sort of problems.

Some of you may be old enough to recall the TV show "I Love Lucy". Some of you may be older still and recall the episode where Lucy and her best friend Ethel worked in a chocolate factory. At one point, their job was to take chocolates that came off a conveyor belt and wrap them. Well, in the obvious comedy that ensues, the conveyor belt is rolling hundreds of chocolates out faster than either of them could hope to wrap and they end up just cramming chocolate into wherever they can, be it their mouths, hats, or the floor. In the case of an "up-regulated" Phase I gene, Phase I would be the conveyor belt sending armies of toxic chocolate to a very desperate and over worked Phase II who wouldn't fare much better than Lucy did. So now the question becomes, how do we slow down an over reactive Phase I and get the chocolate factory working properly?

In order to solve any problem you first need to collect information. Thanks to recent breakthrough technologies in the field of genetics, a simple blood test can now be used to analyze each person's unique genetic variations that affect different aspects of their body's functions. It is now possible to know how your body's Phase I and Phase II processes are affected on the genetic level and from this information, solutions can be found.

A good example is up-regulation of the gene controlling Phase I estrogen metabolism, in order to balance out the processes one might recommend a nutrient program that increases the capabilities of one's Phase II metabolism without affecting the Phase I and bringing the two into balance.

Besides just being able to understand how your liver treats simple environmental toxins, we now have the potential to test each person to determine what effects one might experience from taking various prescription

medications BEFORE they are prescribed. Considering that adverse reactions to medical drugs are among the top ten leading causes of death in the United States, this is nothing to scoff at. Information of this magnitude can literally save lives. Well over 75% of the prescription drugs currently available can be prescreened for individuals who have been genetically tested to ensure that the risk of side effects and adverse events is nearly zero.

After living for thousands of years in organic chemical harmony with nature, mankind has in two hundred years changed the entire chemistry of the planet through the progressive saturation of toxic chemical byproducts of industrial agriculture, fossil fuels, and coal-powered energy to name just a few. The chemical changes these industrial toxins cause are not confined by geographical boundaries. Scientists have recorded evidence of pollution on virtually every surface of the earth, from the largest cities to the most rural landscapes. Even the Arctic and Antarctic regions are not remote enough to escape contamination.

A simple Google search of environmental toxins is enough to sweep away any naiveté one might have that we are leaving in a pure environment where the environmental impacts of our industrial technologies are tiny flecks of dust in the great deserts or drops of water in our oceans. The Gulf of Mexico oil spill disaster is still destroying wildlife well after the “clean up” has ended.

A recent study conducted on the lakes and rivers of the United States discovered that detectable levels of prescription drugs were present in every body of water tested which numbered hundreds of lakes and rivers all across the US. Though these are trace amounts, only time will tell what the effects of a lifetime of exposure to these substances will have.

Our bodies absorb toxins constantly. When we breathe, eat, drink, smoke, use computers, put on make-up, drive to work, or simply walk down the street, we encounter and absorb toxins. Nearly every facet of living in an industrialized nation creates exposure to harmful toxins that each of our bodies has a different level of ability coping with. When someone's body cannot fully break down and properly process these toxins, they remain in the tissues where

they can cause progressively worsening long-term health effects.

Consider the example of Thomas Latimer, as reported in the Wall Street Journal. Hours after treating his lawn with a pesticide, he experienced dizziness, nausea, and a pounding headache that was getting steadily worse. Despite medical care, he continued to worsen. Today he suffers from visual and concentration difficulties, speech impairment, nightmares, brain seizures, and takes anti-epileptic medications. He can no longer ride a bike, and even walking is difficult. The collective medical opinion on what occurred is that an anti-ulcer medication he was taking suppressed his liver and it was not able to process the pesticide he was exposed to and was thus allowed to wreak havoc on his body unchecked. Mr. Latimer is not the only individual to suffer from this type of toxic exposure. Pesticides alone are estimated to cause over 220,000 deaths each year.

Even if you are a health-oriented individual who eats organic foods, has minimal toxic exposure from their workplace, only drinks high quality artesian water, etc. There is still the potential for cumulative toxicity because of your inherent genetic individuality. You could have a genetic uniqueness that every time you fill up at the gas station, the exposure from the fuel vapors is not entirely processed and over the course of several years you begin developing signs of toxicity, i.e. skin problems, bronchial disorders, impaired cognitive ability, nervous system impairment, and so on. It may have been because your Phase II gene that is responsible for those toxins is under performing. Or some other set of genetic factors that amounts to the same result. In any case, the only way to know about such factors and to be able to prevent these conditions from occurring and ultimately being able to DO something about it requires testing. Because your genes are not likely to alter over the course of a lifetime, you only need to be tested once and the results are valid for a lifetime.

One of the best decisions that can be made to improve your health now and prevent illness and poor quality of life in the future is to be tested for genetic strengths and weaknesses that effect your body's detoxification abilities and to regularly detoxify your body when your body cannot do it by itself.

Some “detox” programs involve fasting or an extremely limited diet of odd ingredients like maple syrup and lemons. This is not a recommended method of cleansing the body for a number of reasons. In order to function properly, your liver needs a sufficient supply of nutrients that it can only get from proper diet and supplementation. Abstaining from a healthy diet can cause you to lose muscle mass (instead of fat, which is preferable), cause hypoglycemia (low blood sugar), and not to mention the impairment of various body systems from insufficient nutrient supply. Recall the example of Mr. Latimer and his pesticide incident. Impairing the body can increase the risk of health problems. It’s just common sense.

**TOXICITY SELF-TEST:**

<input type="checkbox"/> Fatigue/Weakness
<input type="checkbox"/> Hyperactivity
<input type="checkbox"/> Muscle/Joint pain
<input type="checkbox"/> Asthma
<input type="checkbox"/> Sinus problems
<input type="checkbox"/> Digestive problems
<input type="checkbox"/> Rapid heartbeat
<input type="checkbox"/> Sore/hoarse throat
<input type="checkbox"/> Canker sores
<input type="checkbox"/> Stiffness in joints/muscles
<input type="checkbox"/> Food cravings
<input type="checkbox"/> Water retention
<input type="checkbox"/> Mood swings
<input type="checkbox"/> Anxiety/Depression
<input type="checkbox"/> Itchy/Swollen eyes
<input type="checkbox"/> Poor concentration
<input type="checkbox"/> Headaches
<input type="checkbox"/> Itchy ear
<input type="checkbox"/> Dizziness
<input type="checkbox"/> Skin problems

The message is simple: get tested for your genetic detoxification abilities and regularly detoxify so that your body does not have to be burdened long with the toxins it cannot process on its own. Both of these steps are very important, which is why you should consult a qualified medical professional before beginning either part of the process.



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