

# DETOXIFICATION

## The Problem of Toxicity

In recent history, mankind has managed to drastically change the chemistry of the environment in which we live. For example, in 2000 alone, more than 4 billion pounds of chemicals were released into the ground, threatening a portion of the soil we grow our food in and the natural underground water tables that supply some of our drinking water. Over 260 million pounds of chemicals were also discharged into surface waters such as lakes and rivers. Nearly 2 billion pounds of chemical emissions were pumped into the air we breathe. A grand total of over 6 billion pounds of chemical pollutants were released into the environment we eat, breathe and live in—all in just one year.

To compound the problem of our toxic environment, we have refined away much of the nutritional value of our food and replaced it with artificial colorings, preservatives, flavorings, conditioners, etc. This poor quality diet—combined with extensive use of antibiotics in medicine and agriculture—may have predisposed many of us to experience a kind of “internal” pollution. Internal pollution occurs when toxins enter the body from the environment or are produced by unhealthy bacteria in the intestine. Internal pollution negatively impacts many aspects of our overall health.

## Will Toxicity Have an Effect on You?

What does this problem of toxicity mean for us individually? It may present a threat to the vibrant level of health that we would like to enjoy. But whether we succumb to the adverse effects of toxicity depends on our knowledge of the subject and the choices we make. We need to take personal responsibility to make sure that we do not fall victim to toxicity. That involves learning what we need to do to help our body protect itself.

## Basic Ways to Avoid Toxicity

Let's begin with some of the basic requirements to avoid toxicity. Do all you can to purify your work and home environments. If you know the source of any toxic materials at work (i.e., stored or leaking chemicals, dyes, paints, solvents, glues, acids) or household offenders (i.e., insecticides, cleaning agents), remove them if possible. If the offending materials cannot be removed, an effective air purification system may be needed. Protective clothing and/or breathing apparatus should be worn when using any toxic materials. Regular replacement of furnace and air conditioning filters may also be helpful.

It is also very important to eat a good diet with plenty of fresh, wholesome foods. Avoid eating excess fat, refined sugar, and foods high in additives and preservatives. Eat moderate levels of protein (approximately 15% to 20% of your calories) and fat (approximately 20% of your calories), while increasing levels of complex carbohydrates (approximately 60% of your calories). Consume meats from organically raised animals and select organically grown fruits and vegetables whenever possible. Drink plenty of purified water (ideally, eight 8-ounce glasses a day). A home water purification system is highly desirable to provide pure water for drinking and cooking.

## Support Your Body's Efforts to Eliminate Toxicity

One thing is certain in our effort to purify our work and home environments: it is impossible to avoid toxicity completely! With that realization, the importance of supporting your body's efforts to eliminate accumulated toxins cannot be overstated. The illustration on the front side of this sheet outlines the body's natural detoxification mechanism and helps us understand the best way to strengthen and support it. Please take a minute now and consider it closely.

## Water or Juice Fasts Are Less Complete

Formerly it was believed that a water or juice fast was a preferred detoxification program. These fasts were thought to work under the principle that the body will be able to clear stored toxins and heal itself when the “stress” of digestion and the further accumulation of toxins are eliminated. The modern-day realization that the body's detoxification mechanism is a heavily nutrient-supported process has made it clear that simple juice or water fasting is less complete and no longer the method of choice. Prolonged fasting may weaken muscles and various organs because of protein losses and a gradual slowing of metabolic activity as the body endeavors to conserve its depleted energy resources.

## More Complete Support for Detoxification

A better approach to detoxification is to nourish the body thoroughly, fueling its natural detoxification mechanism with the nutrients needed to achieve optimal detoxification activity. By providing high quality protein, complex carbohydrates and essential fats, the body gets what it needs to prevent muscle and organ breakdown and depleted energy resources. But that is just the beginning. Nutrients are needed to support and protect the function of the organs directly involved in detoxification: the liver, the intestinal tract and the kidneys—which measure out the chemicals to keep in the body and the ones to excrete through urine. Intelligent application of nutrition may help in the following ways:

The **intestines** support regular bowel movements, eliminate the build-up of unhealthy microorganisms and internal toxins, and provide a strong and intact barrier to prevent the leakage of toxic materials from the intestines into circulation. The nutrients zinc and pantothenic acid, the amino acid L-glutamine, carbohydrates known as fructooligosaccharides, and beneficial microorganisms known as lactobacilli and bifidobacteria are a few of the substances that support the health and integrity of intestinal function.

The **liver** filters out and transforms toxic substances that have entered the blood into harmless substances that can be excreted in the urine. Vitamins A, B<sub>3</sub>, B<sub>6</sub>, C, and E, beta-carotene, the amino acids L-cysteine and L-glutamine, along with compounds known as glutathione and phospholipids, are some of the substances that support liver function. Also, it appears that the ratio of dietary protein to carbohydrate may be a very important factor in determining the ability of the liver to detoxify certain substances.

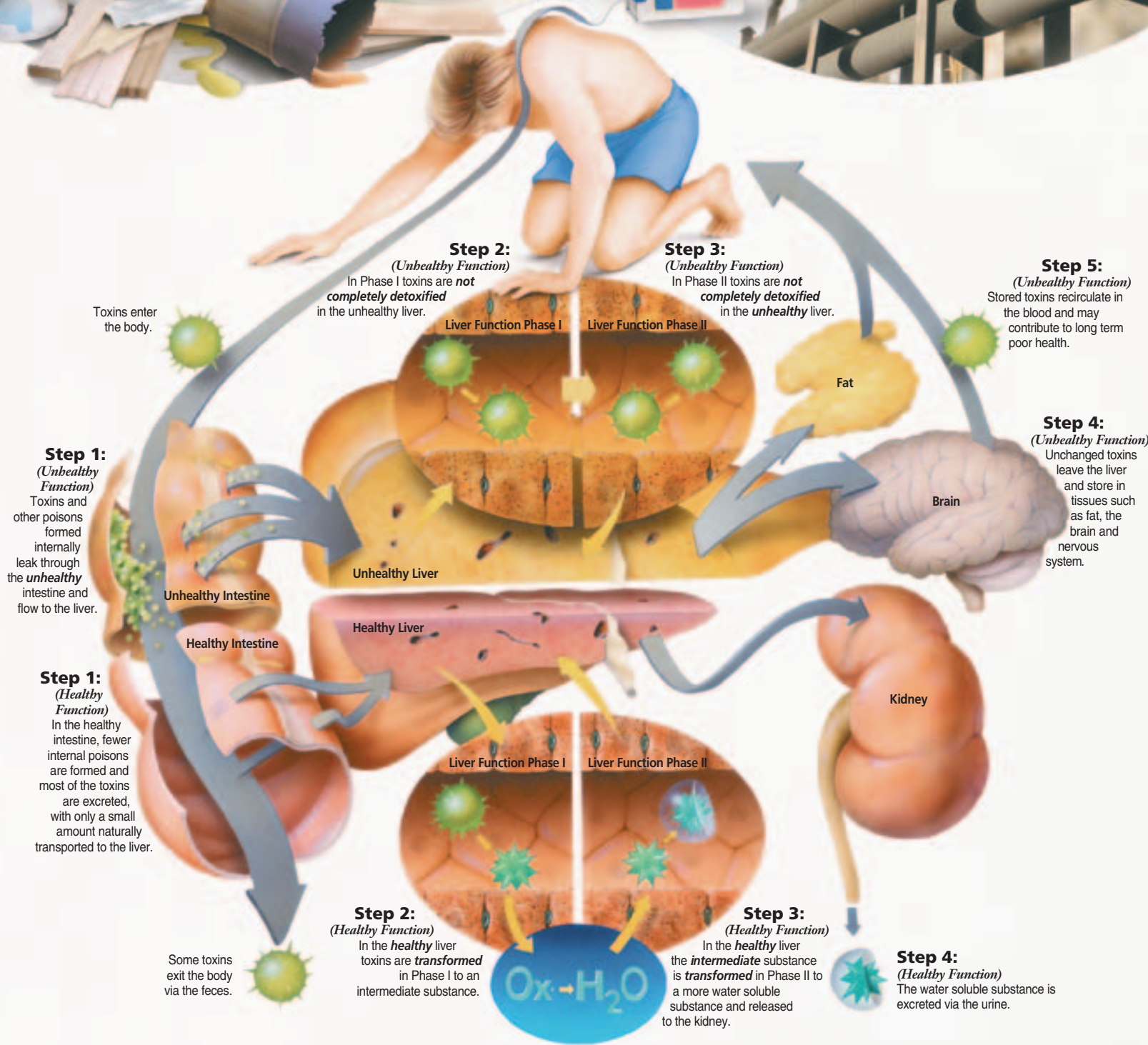
The **kidneys** are a vital component in detoxification of metabolic waste received from the liver and provide a route for toxin excretion via the urine. Vitamins B<sub>6</sub>, B<sub>12</sub>, and folates (including folic acid and L-5-methyl tetrahydrofolate) support folate deficiencies and lower homocysteine levels typically found in patients with considerable renal concerns. Herbs such as cordyceps mycelium extract and Chinese salvia root prevent toxic offense to the kidneys. N-Acetylcysteine (NAC) is an amino acid derivative that is well-known for its highly potent antioxidant activity in reducing free radical activity to support the structure and function of the kidneys.

Weight reduction and management is helpful for those who are overweight. **Excess fat** provides a ready storage site for fat-loving toxins entering the body. Once deposited there, it is very difficult to remove them. Unless the excess fat is removed, they remain there with the possibility of being a continual source of toxicity.

## Find the Help You Need

Ask us what you can do to help eliminate internal pollution.

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**Step 1:**  
*(Unhealthy Function)*  
Toxins and other poisons formed internally leak through the **unhealthy intestine** and flow to the liver.

**Step 2:**  
*(Unhealthy Function)*  
In Phase I toxins are **not completely detoxified** in the **unhealthy liver**.

**Step 3:**  
*(Unhealthy Function)*  
In Phase II toxins are **not completely detoxified** in the **unhealthy liver**.

**Step 5:**  
*(Unhealthy Function)*  
Stored toxins recirculate in the blood and may contribute to long term poor health.

**Step 4:**  
*(Unhealthy Function)*  
Unchanged toxins leave the liver and store in tissues such as **fat**, the **brain** and nervous system.

**Step 1:**  
*(Healthy Function)*  
In the **healthy intestine**, fewer internal poisons are formed and most of the toxins are excreted, with only a small amount naturally transported to the liver.

**Step 2:**  
*(Healthy Function)*  
In the **healthy liver** toxins are **transformed** in Phase I to an intermediate substance.

**Step 3:**  
*(Healthy Function)*  
In the **healthy liver** the **intermediate** substance is **transformed** in Phase II to a more water soluble substance and released to the kidney.

**Step 4:**  
*(Healthy Function)*  
The water soluble substance is excreted via the **urine**.

**Step 2-A:**  
*(Healthy Function)*  
Harmful free radicals (OX\*) are formed as a result of Phase I activity, but are **transformed** to harmless water (H<sub>2</sub>O) by antioxidant nutrients.