

# LIVER GUARD™

PROTECT YOURSELF FROM TOXINS—LIGHTEN YOUR LIVER'S LOAD



Much as we may try to live healthy lifestyles, it's not always possible to avoid the environmental contaminants we face on a daily basis. The liver, which is crucial for a variety of functions including the detoxification of the body, is especially sensitive to both the external and internal environments to which it is exposed. If the liver is overloaded, it may not do any of its jobs completely. One way to support good liver health is by providing the nutrients the liver needs to carry out functions that are critical to the body. Source Naturals LIVER GUARD can help maintain optimal liver function with its formulation of 28 essential nutrients identified in scientific studies as nourishing or protecting the liver.

LIVER GUARD is part of the Source Naturals set of Bio-Aligned™ Formulas: potent, comprehensive formulations that go deep to address body system imbalances. Bio-Aligned Formulas are nutritional tools of SystemiCare™, a holistic, early intervention approach to healthcare. LIVER GUARD addresses three of the deep metabolic SystemiCare systems critical to our optimal health: Liver/Detox, Antioxidant Defense, and Energy.



Strategies for Wellness <sup>SM</sup>

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.



## Meet Your Liver

The largest of our vital organs, the liver is our chemical factory. Without it, we cannot produce digestive and detoxification enzymes, or hormones such as cholesterol. The liver is also involved in processing vitamins and minerals, most of which cannot be utilized by the body in their ingested form. They are often of no use to us unless they are chemically altered and activated, primarily by the liver.

In today's industrial world the liver is no longer simply responsible for the byproducts of internal metabolism. Its importance is magnified as the air we breathe, the water we drink, and the food we eat are laced with pollutants, toxic pesticides, hormones, and trans fats. With this heightened level of activity and stress, the liver requires optimal nutrient support. LIVER GUARD addresses the multiple body systems involved with liver function, supporting cleansing, fat metabolism, antioxidant defense, antioxidant production and energy generation.

## The Liver's Role in Detoxification

As one of the primary organs of detoxification, the liver is exposed to a vast array of chemicals, drugs and pollutants. Some of these are produced by our modern standards of living, and some are produced within the body, as byproducts of our metabolic pro-

cesses and those of microorganisms living within us. The liver detoxifies the byproducts of digestion and other harmful substances through a complex series of enzymatic chemical reactions referred to as Phase I and Phase II Detoxification. These processes increase a toxin's solubility in water, allowing it to be eliminated in urine and stool.

## Phase I Detoxification

Phase I enzymes, known as the cytochrome P450 system, begin detoxification by transforming toxins into an intermediate form that is easier for the body to eliminate. Although Phase I is necessary to increase a toxin's solubility, it is an oxidative process (a reaction in which a material gives up electrons) that produces free radicals that can cause secondary damage to cells. Sometimes, due to poor diet or unavailability of nutrients, Phase I reactions do not occur. In other situations, Phase I reactions become hyperactive, and excessive free radical production becomes a threat to cellular health.

Many toxins require additional processing to complete the transformation from lipophilic (fat soluble) to hydrophilic (water soluble) form, and this takes place in Phase II detoxification. If we don't have the tools to complete the detoxification processes, toxins are stored in the liver until such nutrients are provided to allow removal.

As is the case with most cellular functions, key nutrients must be present to allow the processes to occur properly. Nutrients important for healthy Phase I function include: Vitamins B-1, B-2, Niacin, Magnesium, Selenium, Vitamins C & E, Alpha-Lipoic Acid, Milk Thistle (Silymarin), *N*-Acetyl Cysteine

## Phase II Detoxification

In Phase II, a second set of enzymes completes the transformation of fat-soluble compounds into water-soluble forms that can be eliminated in urine. This process is known as conjugation, as the liver binds molecules such as glutathione and sulfur to the toxin, converting it into a less harmful and more soluble compound. Phase II uses antioxidants to neutralize the free radicals created in Phase I reactions.

A number of natural compounds found in plants are recognized as potent Phase II detoxification inducers, including isothiocyanates from wasabia and curcumin from turmeric. Artichoke extracts also promote Phase II toxin elimination via bile production. Often such nutrient tools are missing in the diet, causing individuals to experience imbalanced detoxification and suboptimal liver function. Some individuals have the ingredients needed to complete Phase I detoxification, but not Phase II, so a complete liver support product should assist both phases, allowing stored toxins to be released and properly eliminated.

Traditionally, the following herbs have been used to promote the flow of bile, cleanse, detoxify, and restore the liver: Artichoke Leaf, Bupleurum Root, Calcium D-Glucarate, Dandelion Root, Milk Thistle (Silymarin), *N*-Acetyl Cysteine, Oregon Grape Root, Turmeric, Wasabia

## Fat Metabolism

The liver is the primary metabolizer of fats and cholesterol, so it is particularly important to keep these substances circulating freely. Bile is a caustic greenish fluid produced by the liver and is stored in the gall bladder. Bile is the medium through which fat-soluble toxins and excessive cholesterol are flushed from the liver and eliminated via the colon. Bile is highly alkaline,

and when released into the small intestine from the gall bladder, it emulsifies fats. This allows lipase, our fat-digesting enzyme, a greater surface area for fat digestion. Healthy bile flow means that bile salts remain in solution, moving freely, keeping excess cholesterol, hormones and fat-soluble toxins in motion. By promoting healthy fat digestion, bile assists the process of fat-soluble vitamin absorption.

LIVER GUARD contains nutrients traditionally used to emulsify fats and maintain healthy bile flow. Bile-stimulating ingredients and lipotropic agents function to mobilize lipids and remove excess fats from the liver. These include: Choline, Inositol, Artichoke Leaf & Root Extract

## Antioxidant Defense

In the process of its metabolic and detoxification functions, the liver generates and is exposed to many free radicals, which could potentially affect liver function. Other toxins absorbed from foods and the environment expose our liver to a constant stream of oxidative compounds. LIVER GUARD provides a variety of antioxidants for cellular defense, including herbal compounds and precursors to glutathione, perhaps the most abundant antioxidant in the liver.

Reduced glutathione, superoxide dismutase and additional nutrients such as beta carotene, vitamin E, selenium and *N*-acetylcysteine (NAC) will act as antioxidants. The liver synthesizes the antioxidant, glutathione, and the antioxidant enzyme, glutathione peroxidase—perhaps the most important of the antioxidants made by the body. Glutathione peroxidase is an enzyme that, along with the chemical cysteine, helps create glutathione. Glutathione peroxidase and glutathione safeguard cells against oxidation and maintain the integrity of red blood cells. LIVER GUARD provides nutrients needed for glutathione synthesis, including *N*-acetyl cysteine, selenium and vitamin B-2.

The antioxidant compounds in LIVER GUARD protect the protein, lipid and DNA of the liver from free radicals. Vitamin E and

coenzyme Q10 are active in cell membranes, while vitamin C and lipoic acid function in the intracellular fluid.

LIVER GUARD contains the following for antioxidant activity: Alpha-Lipoic Acid, Coenzyme Q10, N-Acetyl Cysteine, Silymarin, Turmeric, Selenium, Zinc, gamma E, Vitamins B-2, C & E

### Energy Generation

The liver requires a tremendous amount of energy to perform its diverse metabolic functions, which include maintaining a normal blood glucose concentration, forming cholesterol and phospholipids, and synthesizing amino acids, plasma proteins and other important compounds. In addition, this vital organ converts vitamins into their active coenzyme forms, so the body can utilize them.

Alpha-Lipoic Acid, Coenzyme Q10, Vitamins B-1, B-2, B-5, B-6 & B-12, Folic Acid, Niacin, and Niacinamide are all nutrients required by the liver for its energy needs.

### Scientific Nutrition: Cornerstone of the Wellness Revolution

Source Naturals brings you the science of LIVER GUARD as part of our commitment to offer the latest emerging wellness strategies. Adding Source Naturals LIVER GUARD to your supplement regimen is a profound yet accessible way to deal with the challenges to liver health posed by lifestyle, environmental and genetic factors. Source Naturals is pleased to partner with your retailer in bringing to market cutting-edge supplements to help you take personal charge of your health.

## Liver Guard is a Bio-Aligned Formula™

<b>Liver/Detox: Pollutants</b>	Vitamins B-1, B-2, Niacin, Magnesium, Selenium, Vitamins C & E, Alpha-Lipoic Acid, Artichoke Leaf, Bupleurum Root, Calcium D-Glucarate, Dandelion Root, Milk Thistle (Silymarin), N-Acetyl Cysteine, Oregon Grape Root, Turmeric, Wasabia
<b>Liver/Detox: Fats</b>	Choline, Inositol, Artichoke Leaf Root and Extract
<b>Antioxidant Defense</b>	Alpha-Lipoic Acid, Coenzyme Q10, N-Acetyl Cysteine, Silymarin, Turmeric, Selenium, Zinc, gamma E, Vitamins B-2, C & E
<b>Antioxidant Production</b>	N-Acetyl Cysteine, Selenium, Vitamin B-2
<b>Energy</b>	Alpha-Lipoic Acid, Coenzyme Q10, Vitamins B-1, B-2, B-5, B-6, & B-12, Folic Acid, Niacin, Niacinamide



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