

## **BH #101 Metabolic Assessment Profile**

### **Overview**

The Metabolic Assessment Profile measures the levels of **indican, lipid peroxides, and urinary bile acid sulfates (UBAS)**. It involves the analysis of two urine samples easily collected by the patient at home. This profile provides an index of general digestive metabolism by assessing protein digestion, oxidative damage caused by free radical activity, and bile acid sulfates, a direct measurement of liver function.

### **Indican**

The level of indican is an index of the efficiency of protein digestion. The indican scale measures the presence of indol, a metabolic byproduct of the action of intestinal bacteria on the amino acid tryptophan. Insufficient gastric hydrochloric acid, insufficient digestive enzymes, adverse food reactions, parasitic infection, fungal infection, overgrowth of bacteria that metabolize specific proteins, hypermotility of the small intestine, or other gastrointestinal dysfunction can compromise protein digestion.

Poor protein digestion also can result from the dietary intake of protein from a group of food proteins called lectins. A property common to lectins is that they agglutinate specific cell-surface antigens. Lectins have many beneficial effects, and some harmful ones. A beneficial example is the agglutination of cancer cells, which makes them easier for macrophages to phagocytize. Determining which lectins will cause agglutination, however, varies among individuals, possibly because of differing blood types. A commonly found lectin is gluten, which is present in various forms in several grains. In the intestines of some individuals, gluten can agglutinate with other food proteins, which makes complete digestion difficult or impossible. Ingestion of incompatible lectin-containing foodstuffs can lead to chronic subclinical agglutination, indigestion, and eventually, putrefaction.

Putrefaction is especially detrimental, because it can produce dozens of carcinogenic substances. These substances can enter the liver through the general circulation. Undigested protein also increases systemic toxicity, burdening the detoxification capacity of the liver. Poor protein digestion can lead to other problems, such as intestinal microbial overgrowth, which can lead to unfavorable pH changes and impaired absorption. These factors can prevent the synthesis of essential proteins and other compounds.

Eventually, the inability to digest protein can compromise glycemic control, and can lead to serious hormone imbalances. This can be a prelude to chronic degenerative disorder including gastrointestinal disease and cancer. Without proper digestion, it is impossible to have optimal health.

### **Lipid Peroxides**

The level of lipid peroxides is an index of cellular membrane damage caused by the action of free radicals. The membranes of the organelles within the cells (mitochondria,

lysosomes, peroxisomes etc.) can also be damaged. Membrane proteins, membrane lipids and cholesterol can be damaged due to an insufficiency of antioxidants to deal with the level of oxidative stress/free radicals. The elevation of lipid peroxides serves as an early warning of the potential long-term effects of oxidative stress. The outcome of long-term oxidative stress is chronic degenerative disease, an example being the peroxidation of low-density lipoproteins contributing to atherosclerosis. Other associated diseases include coronary artery disease and cancer, the leading causes of death in the United States

Oxidative stress can result from exposure to toxins or pathogens; especially chemicals; inappropriate lifestyle factors; such as excessive exercise; or byproducts of normal metabolism. Monitoring the level of antioxidants is important, because while low levels can result in an excess of free radicals, high levels may be associated with fatigue and weakness. Proper free radical control is essential to good health.

### **Urinary Bile Acid Sulfates (UBAS)**

UBAS is a direct measurement of liver function. The enterohepatic circulation regulates bile acid levels and under normal circumstances, given a healthy liver; little leaks into the bloodstream and is converted to sulfate and excreted in the urine. Elevated bile acid sulfate levels in the urine are associated with impaired liver function, hepatocellular damage, and a high specificity toward hepatobiliary diseases. Since all chemicals including prescription drugs are detoxified in the liver, the UBAS can be used to monitor the effects of drug therapies on the liver and identify those who might experience problems taking prescription drugs.

Compromised liver function leads to a build up of toxic substances that can damage liver cells and lead to increased risk for cancer and a variety of other degenerative diseases.