



BLOOD DETOXIFICATION FACTORS™

PUBLISHED BY THE INNER HEALTH GROUP ISSUE #1063

BLOOD & DETOXIFICATION

Blood is the lifestream of the body, affecting every cell and system we possess. The bloodstream is a conglomeration of many different elements, each working in a specific way to keep us alive.

There are three main types of cells in the bloodstream. Red blood cells are the most numerous, making up about 40% of the total blood volume. White blood cells and platelets make up about 5% by volume.

The remaining half of the blood system is composed of plasma, a sticky substance made up of 95% water. The remaining 5% of plasma is composed of the many substances dissolved in the water. These include nutrients, proteins, hormones, and waste products.

Nutrients are the substances needed by the body's tissues to sustain their normal function and growth. The principal nutrients are sugars, fats, amino acids, vitamins, and minerals. All these are dissolved within the plasma and transported to each cell within the body.

The primary proteins in the plasma serve either as part of the clotting mechanism, as part of the immune system, or as transporters for nutrients or hormones. Hormones are chemicals used to regulate many of the body's functions. They are produced in the endocrine glands and then released into the bloodstream to their various target organs elsewhere in the body.

ABOUT THE DETOXIFICATION SYSTEM

The cleansing process of the blood is carried out by the body's detoxification system. Without such a system, the body would become toxic and unable to support itself. Three main examples of the body's detoxification system are the respiratory,

defecatory, and urinary systems. The respiratory system expels wastes in the form of carbon dioxide which is exhaled from the lungs. Solid organic wastes and dead blood cells are expunged by the defecatory system, and the remaining waste products, transported by plasma, are expelled by the urinary system.

The main waste product in plasma is urea. It is the combination of old blood cells and metabolism, which is transported to the kidneys to be eliminated. The kidneys receive their blood supply directly from the aorta through the renal arteries. These arteries branch off many times in the kidneys, forming small capillary tufts called glomeruli. There are over one million glomeruli in the kidneys, combining as the filtering system for cleaning the blood.

Blood cells and big molecules are kept within the glomeruli, but small molecules and water pass through their walls. Over 140 liters of fluid pass out of the glomeruli each day, back through the renal tubules, where 99% of it is reabsorbed back into the blood. At the end of the tubules, the waste products, excess salt, and some of the water remain unabsorbed. These form urine which drains down the ureters and into the bladder.

HOMEOSTASIS & THE DETOXIFICATION SYSTEM

Both old blood cells and waste products in the body are toxic. It is essential that the detoxification system works properly. As old blood cells die and are destroyed by the various transactions in the body, they must be removed. If the dead cells, and other organic waste are not removed from the blood stream, they will create a homeostatic imbalance in the body. If this occurs, it can affect one's health.

Homeostasis (*homeo*=same; *stasis*=standing still) is defined as balance and harmony within the body. It is the condition created when each cell in the body functions in an internal environment which remains within certain physiological limits. Homeostasis can be achieved when: (1) the body has the proper amounts of gases, nutrients, ions, and water; (2) maintains the optimal internal temperature and; (3) has an optimal volume for the health of cells. When homeostasis is disturbed, health may be affected.¹

NUTRITIONAL SUPPORT

For the complex operation of the body, the blood requires a constant source of nutrients. Nutrients are essential for the feeding of tissues of the body and are necessary to sustain its intricate functions as it constantly reproduces new cells. Each cell requires nutrients for their formation and specific function and when each cell within the body functions properly, homeostasis is achieved.

Some examples of essential nutrients in the blood's/body's cleansing process are:

ZINC is considered a trace element because the body requires only small amounts to function. Zinc functions mainly as an essential constituent of cell enzyme systems. There are perhaps two dozen known zinc metalloenzymes that control fundamental metabolic processes involving key nutrients.³ These oxidoreductase and transferase enzymes include alcohol dehydrogenase, carbonic anhydrase, lactate dehydrogenase, glutamate dehydrogenase, alkaline phosphatase, superoxide dismutase, and thymidine kinase.⁴ Though the body requires only small amounts of zinc, inadequate levels can affect proper

detoxification. One of these important enzymes, carbonic anhydrase, of which zinc is an integral part, acts as a carbon dioxide carrier, especially in red blood cells, and catalyzes the reaction.⁵ It takes carbon dioxide from cells and delivers it to the lungs for expulsion, and also functions in the renal tubule cells.⁶ Superoxide dismutase continuously removes the highly reactive superoxide radical, protecting cells against dangerous levels of superoxide.⁷ Alcohol dehydrogenase changes alcohol to aldehyde, the first step in the metabolism of alcohols by the liver.⁸

MANGANESE is necessary for the function of glutathione synthetase, an enzyme needed for the body to make the detox conjugator glutathione from glycine.⁹ Glutathione functions in various redox reactions: (1) in the destruction of peroxides and free radicals, (2) as a cofactor for enzymes, and (3) in the detoxification of harmful compounds.¹⁰ Glutathione also functions in the transport of amino acids across cell membranes.¹¹ Manganese is also necessary for the proper utilization of iron. Superoxide dismutase is also a manganese-containing metalloenzyme, catalyzing the breakdown of superoxide free radicals thereby protecting the cells against peroxidative damage.¹²

IRON is an element essential to life.¹³ It is essential in its role in the transportation of oxygen in the body and permits cellular respiration to occur.¹⁴

MOLYBDENUM is an essential trace mineral that functions as an enzyme co factor. Certain molybdenum metalloenzymes oxidize and detoxify various compounds that play a role in uric acid metabolism and sulfate toxicity.

HOW TO OBTAIN NUTRITIONAL SUPPORT

MICHAEL'S® BLOOD DETOXIFICATION FACTORS™ contains factors known to be essential for the proper functioning of the detoxification system, including the above mentioned minerals, complemented by red clover and burdock root, both known for their helpful attributes.

About MICHAEL'S® Products

Seasoned health food shoppers already know that a combination of nutrients is always more effective than taking single nutrients one at a time. Add in the cost savings of taking combinations, with herbs included, and the math proves to be more efficient, too. Combinations increase assimilation and reduce the amount of binders and fillers. That's why **MICHAEL'S®** created the **FACTORS OF LIFE®** programs. Your life is busy enough as it is. Why worry when synergistically complete nutrition is conveniently at hand?

MICHAEL'S® products include an expiration date to ensure freshness. He personally guarantees purity and specified content. Each product is hypo-allergenic with no artificial colors or flavors. The formulas contain cold-pressed or organically grown (when available) herbs to ensure the highest quality. Additionally there is no sugar, wheat, corn, gluten, sodium, or anything artificial in any of our supplements. These high-potency, all-natural products are even manufactured with food-grade fillers, binders and enteric coatings. Most are suitable for vegetarians and tell you so right on the front label. Every product is double safety sealed with an outer shrink wrap and inner bottle freshness seal. As is normal in all-natural products, some color and texture variations may occur, but do not affect product purity, potency or assimilation.

Above all else, all **MICHAEL'S® NATUROPATHIC PROGRAMS** are designed to produce physical results you can feel, due to the innovative nutritional supplementation with specific, targeted **FACTORS OF LIFE®** programs. As always, the newest developments, the finest ingredients and the most effective formulations for your total healthcare from **MICHAEL'S® NATUROPATHIC PROGRAMS**.

Sources Cited:

- ⁹Rogers, Sherry A. M.D. *Tired or Toxic: A Blueprint for Health*. Syracuse NY: Prestige Publishing, 1990. p. 160.
^{13,14}Taber's Cyclopedic Medical Dictionary.
¹Tortora, Gerard J. & Grabowski, Sandra. *Principles of Anatomy and Physiology*. 7th ed. New York: HarperCollins College Publishers, 1993. p. 9.
^{2,3,4,5,6}Williams, Sue Rodwell. *Nutrition and Diet Therapy (7th Ed.)*. St. Louis: Mosby Publishing, 1990. p.253.
^{7,8,10,11}Dorland's Medical Dictionary (28th Ed.)
¹²Modern Nutrition in Health and Disease. p. 274.



Amount Per Serving		% Daily Value	
Iron (as Iron Amino Acid Chelate)	1 mg	4%	
Zinc (as Zinc Amino Acid Chelate)**	3 mg	20%	
Manganese (as Manganese Amino Acid Chelate)	3 mg	150%	
Molybdenum (as Molybdenum Amino Acid Chelate)	200 mcg	267%	
Echinacea (Herb) (Echinacea angustifolia)	300 mg	*	
Red Clover Flower (Trifolium pratense)	200 mg	*	
Burdock Root (Arctium lappa)	100 mg	*	
Gotu Kola (Herb)(Centella asiatica)	100 mg	*	
Yellow Dock Root (Rumex crispus)	100 mg	*	

*Daily Value not established.

**A Trademark of InterHealth Co.
 OTHER INGREDIENTS: Dicalcium Phosphate, Microcrystalline Cellulose, Stearic Acid, Croscarmellose Sodium and Magnesium Stearate.