CAPSULES

ULTRA BINDER®

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Ultra Binder® Capsules are a comprehensive combination of activated charcoal, chitosan, zeolite, modified citrus pectin, bentonite clay, Quicksilver Scientific's proprietary thiol-functionalized silica, and aloe vera leaf, designed to support detoxification and elimination of toxins from the body.* Our universal binder formula is conveniently packaged in capsules for mess-free, easy dosing.

Supplement Facts

Serving Size: 1.8 grams (4 Capsules)
Servings Per Container: 30

	Amount Per Serving	% Daily Value
Dietary Fiber	0g	0%
Proprietary Blend	1.8g	**
Activated Charcoal, High Density Chitosan, Zeolite, PectaSol-C® Modified Citrus Pectin, Silica Extract, BiAloe® Aloe Vera Leaf, Sodium Baentonite Clay		

††Percent Daily Values are based on a 2,000 calorie diet.
** % Daily Value Not Established tuer adipiscing elit, sed diam nonummy nibh

Other Ingredients: Plant-derived cellulose capsule

†IMD (Proprietary thiol-functionalized silica)

EDUCATION

FOR SUCCESSFUL DETOXIFICATION, ADDRESS THE ENTEROHEPATIC CIRCULATION

The small and large intestines comprise a "superhighway" through which toxins can be eliminated from the body. However, this powerful superhighway also harbors "off-ramps," or junctions between intestinal cells that can allow toxins to exit the intestine, enter systemic circulation, and recirculate throughout the body. The biological system that enables toxins to be reabsorbed in the gut and recirculated between the gut, blood, liver, and bile is called the "enterohepatic circulation." If we do not intervene in the vicious cycle of the enterohepatic circulation, toxins will tend to be reabsorbed and redistributed throughout the body rather than eliminated promptly. This process can lead to a worsening of one's health. Endotoxin is one of the most insidious toxins that can cycle through the enterohepatic circulation.

ENDOTOXIN: AN OVERLOOKED CAUSE OF INFLAMMATION AND IMPAIRED DETOX

Eighty percent of our immune system is located in the gut.[1] Of particular concern to intestinal health and systemic inflammatory balance is endotoxin, a pro-inflammatory substance found in the cell walls of Gram-negative bacteria.[2] Where does endotoxin come from? Endotoxin is released into the gut during gut dysbiosis, a persistent imbalance in the gut's microbial community. Endotoxin-producing gram-negative bacteria can also populate the urinary tract and the jaw in chronic infections.[3,4] Endotoxin is well-tolerated in small amounts. However, when the gut microbiota is imbalanced, and the intestinal lining is inflamed, the proteins that bind intestinal cells break down, causing the intestine to become "leaky." A leaky gut allows endotoxin to escape into systemic circulation, triggering a profound inflammatory response.[5] Symptoms triggered by endotoxin-induced inflammation include brain fog, headaches, joint pain, malaise, and skin irritations. In addition, endotoxin-induced inflammation compromises detoxification by impairing cellular detoxification transporters involved and enzymes that generally prevent bacterial and dietary antigens from entering the systemic circulation.[6,7,8,9,10] This ongoing inflammation further increases susceptibility to toxins and xenobiotics.

A compound similar to endotoxin, peptidoglycan, is released by pathogenic bacteria involved in systemic infections, mainly when they die in response to antibiotic and antimicrobial herbal therapies. However, if not eliminated by the body promptly,

peptidoglycan may also circulate throughout the body, triggering systemic inflammation.[11] Borrelia burgdorferi, the microbe that causes the prominent vector-borne infection Lyme disease, does not make endotoxin but does produce a similar compound, peptidoglycan, with powerful inflammatory properties.[12]

BINDERS ADDRESS INFLAMMATION AND DETOXIFICATION

Binders, which adhere to toxins in the gastrointestinal tract and prevent them from being reabsorbed, are thus an essential strategy for downregulating inflammation and facilitating detoxification. In fact, according to animal research, the binding of toxins in the gastrointestinal tract increases general detoxification capacity. However, binders must capture an array of toxins, and different natural binders have different affinities and capacities for toxin removal.[13]

A variety of natural binders have been found to effectively bind toxins, ushering them out of the body via the stool. Potent natural binding agents include activated charcoal, chitosan, bentonite clay, silica, zeolite, and modified citrus pectin.

ACTIVATED CHARCOAL: A UNIVERSAL ANTIDOTE

Ultrafine, activated charcoal contains millions of tiny pores that capture and remove positively charged toxins in the gastrointestinal tract.[14] Thus charcoal has long been considered a universal antidote in acute and chronic poisoning.[15,16] Charcoal effectively binds metals, bacterial endotoxin, plant toxins, pharmaceuticals, gases, and vapors, among other substances.[17] Activated charcoal can also bind onto cholesterol in a manner similar to the drug cholestyramine.[18] During detoxification, charcoal's absorbent properties spare the delicate kidneys by binding to urinary toxins, such as urea and indoxyl sulfate, thus limiting kidney damage.[19] In addition, charcoal is well tolerated and readily excreted in the feces.

CHITOSAN: A POWERFUL BINDER THAT SUPPORTS FRIENDLY FLORA AND IMMUNE FUNCTION

Chitosan is a water-soluble polysaccharide derived from the hard outer skeleton of shellfish; the long-chain sugar is devoid of allergens and has been extensively studied to lower cholesterol, including LDL cholesterol to reduce obesity.[20,21,22,23]

The positive charge of chitosan oligosaccharides binds with negatively charged microbial membranes, providing antibacterial and antifungal properties.[24,25,26] It also increases mineral absorption,[27] supports the growth of beneficial gut bacteria,[28] modulates inflammatory responses,[29,30] and improves the function of key antioxidant enzymes, such as superoxide dismutase (SOD) and catalase (CAT).[31] Chitosan is particularly useful in addressing chronic inflammatory response syndrome (CIRS), which is often activated by conjugated toxins from mold and algae and has been extensively described by Ritchie Shoemaker, MD.

BENTONITE CLAY: A BROAD-SPECTRUM ANTIMICROBIAL BINDER THAT AIDS DIGESTION

Bentonite clay made from volcanic ash known as "Montmorillonite" is a creamy grey color with a soft and fine consistency. Due to the small particle size, bentonite clay has a vast surface area capable of binding to multiple harmful substances. In addition, clay has extraordinary absorptive properties and is rich in minerals, including silica, magnesium, sodium, calcium, iron, and potassium.[32] Clay is a broad-spectrum antimicrobial that binds mold toxins, heavy metals, microbes, and various chemicals.[33] Clay has been shown to specifically bind endotoxins and lipopolysaccharides.

SILICA HELPS ELIMINATE METALS THROUGH THE GUT

Thiol-functionalized silica extract delivers sulfur-based thiol groups, which bind and eliminate heavy metals in the intestine while quenching free radicals.[34] It also enhances phase III detoxification, a system of transporters that ushers mobilized toxins out of the body.

Thiol-functionalized silica does not enter the bloodstream and thus does not cause redistribution or surge of mobilized metals in the body that could potentially harm the liver or kidneys. Instead, it intercepts methylmercury and other metals trapped in enterohepatic circulation, binding them and escorting them out of the intestines. It thus allows organ and tissue-bound mercury to safely drain into the blood at a natural rate.

ZEOLITE

Zeolite is a microporous mineral compound that occurs naturally in the earth's crust. The unique molecular structure of zeolite makes it a powerful "cation exchanger," or a substance capable of binding small molecules, including toxins such as heavy metals and organophosphate pesticides.[35] Zeolite has also been found to improve the health of the intestinal microenvironment and support balanced immune function.

PECTASOL-C® MODIFIED CITRUS PECTIN

Modified citrus pectin is a soluble dietary fiber derived from the white fleshy inner portion of citrus peels. Supplementation with modified citrus pectin reduces the body burden of several toxic metals, including lead, arsenic, and cadmium. It also alleviates inflammation, an important barrier to effective detoxification.[36] PectaSol-C® is an enzymatically modified form of citrus pectin that is exceptionally effective at mopping up metals in the gut and ushering them out of the body via stool.

ALOE VERA

Aloe vera leaf contains polysaccharides that soothe the intestine, addressing inflammation that can hinder successful detoxification. Aloe vera also supports the growth of beneficial gut bacteria responsible for maintaining a healthy gut ecosystem, exerts immunomodulatory activity,[37] and dampens intestinal free radical activity.[38,39]

This information is for the use of licensed healthcare practitioners only and is intended to use as a basis for determining whether or not to recommend these products to their patients. This medical and scientific information is not for use by consumers.

*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.

QUICKSILVER SCIENTIFIC®