

PUSHCATCH®

LIVER DETOX



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PushCatch® Liver Detox is a simple, two-step cleansing system comprised of Dr. Shade's Liver Sauce®, a comprehensive botanical formula that supports all stages of liver detox,^{1,2,3} and Ultra Binder®, a broad-spectrum binder that assists with toxin capture in the gut, supporting toxin elimination via the stool. Dr. Shade's Liver Sauce® offers potent nutrients bitter phytochemicals, such as R-lipoic acid and milk thistle, that support critical detoxification pathways and bile flow,⁴ preparing toxins for excretion. These nutrients and botanicals also provide antioxidant and immune support by activating the Nrf2 pathway and increasing glutathione.⁵ Ultra Binder® supports effective toxin removal via the gut. Together, these two formulas provide efficient support for detoxification.*



LIVER SAUCE®

Supplement Facts

Serving Size: 5 mL (1 tsp.)
Servings Per Container: 20

| | Amount Per Serving | % Daily Value |
|--|--------------------|---------------|
| Sodium | 15mg | <1% |
| Lipoic Acid (from Sodium R-Lipoate) | 48mg | ** |
| Proprietary Blend: | 750mg | ** |
| Liquid extracts of Dandelion root, Gentian root, Solidago gigantea aerial parts, Myrrh Oleo-gum-resin, and Essential Oil of Sweet Orange | | |
| Proprietary Blend: | 60mg | ** |
| Diindolylmethane, Milk Thistle Seed Extract (80% Silymarin), Quercetin, and Luteolin Extract | | |

**Daily Value not established

Other Ingredients: Ethanol, glycerin, water, tocopherol, phospholipids (from purified sunflower seed lecithin), medium chain triglycerides, acacia gum, natural mixed tocopherols.

ULTRA BINDER®

STICK PACKS

Supplement Facts

Serving Size: 1 packet: (4 g)
Servings Per Container: 20

| | Amount Per Serving | % Daily Value |
|---|--------------------|---------------|
| Dietary Fiber | 1g | 4% |
| Fiber/Clay Proprietary Blend: | 1.36g | ** |
| Fibregum™ Bio (gum Arabic), Zeolite, Sodium Bentonite Clay | | |
| Proprietary Blend: | 2.64g | ** |
| Activated Charcoal, Chitosan, BiAloe® Aloe Vera leaf, Silica extract† | | |

†Percent Daily Values are based on a 2,000 calorie diet.
** % Daily Value Not Established

†IMD (Proprietary thio-functionalized silica)

EDUCATION

BILE FLOW IS CRITICAL FOR DETOXIFICATION

An intact intestinal barrier, balanced gut microbiome, and sufficient bile flow are essential elements of successful detoxification. Deficits in intestinal barrier integrity, otherwise known as "leaky gut," allows substances to leak from the intestinal lumen into systemic circulation, triggering a chronic inflammatory response. Chronic inflammation, in turn, impairs liver and gallbladder function as well as the detoxification of xenobiotics like mercury and endotoxins.⁶

Bile salts are antimicrobial, can denature bacterial endotoxins, and modify lipids.⁷ They have a profound influence on the balance of beneficial and harmful bacteria in the gut. Inadequate bile flow thus contributes to gastrointestinal dysbiosis and small intestinal bacterial overgrowth (SIBO).^{8,9} Furthermore, commensal gut bacteria are essential components of detoxification, transforming and eliminating mycotoxins, heavy metals, and pesticides.^{10,11,12}

Finally, stagnant bile movement impedes the flow of toxins, including bacterial endotoxins, out of the liver and gallbladder, and into the gut for elimination by downregulating critical cellular pumps called phase III transporters that transport toxins out of cells.^{13,14}

Bile flow is essential for detoxification due to its effects on intestinal barrier integrity, the gut microbiome, and phase III transporters. Bitter herbs are invaluable tools that can support detoxification efforts by promoting bile flow and its numerous downstream health.*

BITTER HERBS STIMULATE BILE FLOW

Bitters support digestion, help regulate blood sugar, and activate the immune response.^{15,16,17,18} Dandelion, gentian, goldenrod (solidago), and myrrh are potent bitters that enhance toxin elimination via the bile and urine while also offering protective antioxidant benefits.

Gentian (*Gentiana lutea*) is one of the strongest herbal bitters and a liver protective agent that can increase levels of glutathione and superoxide dismutase.^{19,20}

Dandelion (*Taraxacum officinale*) has long been used for its diuretic effects, which enhance the urinary elimination of toxins. Dandelion also potently activates bile production, decreases inflammation, and upregulates the antioxidant Nrf2 pathway.^{21,22,23}

Goldenrod (*Solidago*), a flowering plant with tiny, bright yellow blossoms, has a long history of use in traditional herbalism for supporting the urinary tract. It promotes diuresis and toxin elimination while simultaneously increasing the activity of glutathione S-transferase, a critical enzyme in phase II detoxification.^{24,25}

Myrrh (*Commiphora myrrha*), a resinous substance derived from the *Commiphora mukul* tree native to India, supports healthy bile flow by increasing the expression of the human bile salt export pump, promotes a healthy microbial balance, and normalizes elevated cholesterol levels.^{26,27}

POTENT PHYTONUTRIENTS PROTECT AND SUPPORT LIVER DETOX

When bile flow is enhanced and liver detoxification is stimulated, all three phases of detoxification must be supported. Milk thistle (*Silybum marianum*) is a premier liver-support herb that is anti-cholestatic, antioxidant, anti-inflammatory, hepatoprotective, and protects against estrogen-induced decreases in bile flow.^{28,29,30,31} Milk thistle's therapeutic benefits are primarily attributed to the presence of silymarin, a mixture of three phytochemicals including silybin, silidianin, and silicristin. R-lipoic acid, quercetin, and DIM (3,3'-Diindolylmethane) complement milk thistle's detoxification-enhancing properties by activating the Nrf2 pathway, a "master pathway" that turns on glutathione production and detoxification enzymes.^{32,33,34} DIM, quercetin, and luteolin, also alleviate inflammation, preventing inflammation-induced impairments in detox.^{35,36} Finally, quercetin reduces intestinal permeability, supporting gut barrier integrity.³⁷ Together, these nutrients provide additional support for detoxification.

BINDERS FACILITATE GUT DETOXIFICATION

Binders are substances that intercept and bind to toxins within the gut, including heavy metals, pesticides, herbicides, endocrine disruptors, drug residues, food additives, and mold and bacterial toxins. Examples of binders include bentonite clay, activated charcoal, chitosan, thiol-functionalized silica, acacia gum, and aloe vera. Many natural binders also function as antioxidants³⁸, reduce inflammation^{39,40,41,42}, promote healthy immune function⁴³, stimulate the growth of beneficial gut flora⁴⁴, increase mineral absorption⁴⁵, reduce susceptibility to toxic xenobiotics^{46,47}, and bind to and inactivate harmful microbes.^{48,49}

ENDOTOXINS: AN OVERLOOKED CAUSE OF INFLAMMATION AND IMPAIRED DETOXIFICATION

Seventy percent of our immune system is located in the gut.⁵⁰ Endotoxin, a cell wall component found in many gram-negative bacteria is usually found in the gut in small amounts. However, when the intestinal barrier is compromised, it can be released into systemic circulation, triggering an aggressive pro-inflammatory response.⁵¹ Endotoxin-producing bacteria can be found in the gut, urinary tract, and even pockets in the jaw and around the gums.^{52,53,54}

Endotoxin-induced inflammation shuts down essential detoxification transporters and enzymes in the liver that generally prevent bacterial and dietary antigens from entering systemic circulation.^{7,55,56,57,58} This ongoing inflammation creates a vicious cycle, further increasing susceptibility to toxins.⁶ Binders halt the vicious cycle, downregulating inflammation, and facilitating detoxification. Each natural binder has a different affinity and capacity for binding toxins.⁵⁹

ACTIVATED CHARCOAL: A TIME-HONORED UNIVERSAL ANTIDOTE

Ultrafine, activated charcoal contains millions of tiny pores that capture and remove positively charged toxins in the gastrointestinal tract; charcoal has thus long been considered a universal antidote in acute and chronic poisoning.^{60,46} Charcoal is effective at removing multiple metals, bacterial endotoxins, phytotoxins (plant toxins), pharmaceutical drugs, gases and vapors, and bile salts.^{61,62,63,64} By binding toxins in the gut and excreting them in the stool, charcoal spares the kidneys from toxin-induced damage.⁶⁵

CHITOSAN SUPPORTS FRIENDLY FLORA AND IMMUNE FUNCTION

Chitosan is a water-soluble polysaccharide derived from the hard exoskeleton of shellfish. This long-chain sugar is devoid of allergens and has been extensively studied for its ability to lower cholesterol.^{66,67} Interestingly, chitosan also promotes fat loss, possibly helping to reduce a primary physiological repository for lipophilic toxins.⁶⁸

From a detoxification perspective, chitosan is most useful for binding metals and microbes. The positive charge of chitosan oligosaccharides binds with negatively charged microbial cell membranes, inhibiting bacterial survival.⁶⁹ Chitosan also promotes the growth of beneficial gut bacteria, enhances immunity, and combats oxidative stress and inflammation.^{39,41,45}

BENTONITE CLAY: A BROAD-SPECTRUM BINDER

Bentonite clay is a creamy, grey substance with a fine consistency derived from volcanic ash. Due to its small particle size, bentonite clay has a vast surface area capable of binding to a variety of toxins, including mycotoxins, harmful microbes, and endotoxin.^{70,71,72}

THIOL-FUNCTIONALIZED SILICA ELIMINATES METALS THROUGH THE INTESTINES

Thiol-functionalized silica that delivers sulfur-based thiol groups, which bind and eliminate heavy metals in the intestine while quenching free radicals. Thiol-functionalized silica enhances phase III detoxification, a system of transporters that ushers mobilized toxins out of the body. It 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. By doing so, this allows organ and tissue-bound mercury to safely drain into the blood at a natural rate.⁷³

ALOE VERA & ACACIA GUM IMPROVE BOWEL REGULARITY

Aloe vera contains a glucose-rich, mannose-containing oligosaccharide called acemannan that soothes the gastric mucosa, promotes a healthy gut microbiome, and aids the immune system and tissue repair.^{74,75,43,76} Aloe also contains other polysaccharides and phenols that function as antioxidants.⁷⁷

Acacia gum has a long history of use in normalizing gut motility and function. It is packed with soluble fiber, which boosts levels of beneficial gut bacteria and reduces gut transit time, a crucial aspect of effective detoxification, by forming a viscous gel that maintains optimal hydration in the colon.⁷⁸ Acacia gum also has beneficial effects on blood sugar control, blood pressure, and body weight.⁷⁹ Finally, acacia gum improves leaky gut and is well tolerated even at higher doses.^{80,81}

Quicksilver Delivery Systems® improve upon liposomal and emulsification technology with smaller, more stable particles made from the highest-grade ingredients available. In addition to exceptional absorption rates, these tiny liposomal and nanoemulsified particles increase diffusion across mucous membranes, enhance lymphatic circulation of nutrients, and support cellular delivery.*

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References available at quicksilverscientific.com/pushcatchreferences

WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

WARNING: NOT FOR USE BY INDIVIDUALS UNDER THE AGE OF 18 YEARS. DO NOT USE IF PREGNANT, BREAST-FEEDING, OR PLANNING TO BECOME PREGNANT. KEEP OUT OF REACH OF CHILDREN. Consult a healthcare professional before use if you have any medical condition or are taking any other supplements or medications. Do not exceed recommended dosage. See www.quicksilverscientific.com for additional safety information.

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