

Environmental Detoxification Support Protocol[‡]

DEVELOPED IN COLLABORATION WITH OUR SCIENTIFIC AND MEDICAL ADVISORS



Modern life exposes individuals to a wide range of environmental chemicals, including pesticides, plastic-associated compounds, heavy metals, air pollutants and other xenobiotics. While complete avoidance is neither practical nor possible, research suggests that reducing exposure and supporting the body's natural detoxification systems may help optimize resilience to environmental stressors. The liver, gastrointestinal tract, kidneys, skin and lungs work together to transform and eliminate potentially harmful compounds through a series of highly regulated biochemical pathways that depend on adequate nutrient availability and healthy lifestyle practices.^{1,2}

This protocol outlines an science-led approach to environmental detoxification centered on three key principles: supporting endogenous detoxification and elimination pathways, reducing ongoing toxic burden and implementing targeted dietary and lifestyle interventions that promote healthy biotransformation and excretion.^{1,2}

TARGETED SUPPORT

Products in this category offer targeted support for environmental detoxification and related clinical objectives. All products in this category are intended to be administered concurrently.[‡]

CLINICAL OBJECTIVE [‡]	PRODUCT RECOMMENDATIONS	SUGGESTED USE
Comprehensive support for detoxification	<u>UltraDetox 10-Day Pure Pack</u> (Order Code: UDPPB1) Comprehensive daily packet providing core nutrients, broccoli, taurine, NAC, DIM, modified citrus pectin and chlorella for liver health and detoxification support [‡]	1 packet daily, with a meal

ADDITIONAL CONSIDERATIONS

The products in this category offer alternative or added support. Choose from the options listed below based on clinical objectives.[‡]

CLINICAL OBJECTIVE [‡]	PRODUCT RECOMMENDATIONS	SUGGESTED USE
Immune support	<u>Vitamin D₃ 25 mcg (1,000 IU)</u> (Order Code: VD1/ VD12/ VD16) Supports musculoskeletal, cardiovascular, neurocognitive, cellular and immune health [‡]	Dosage determined by 25-hydroxyvitamin D assessment
Healthy gut motility	<u>MotilPro</u> (Order Code: MOP1) Healthy gut motility and function support [‡]	3 capsules, 1-2 times daily, between meals
Intestinal barrier and immune support	<u>Probiotic G.I.</u> (Order Code: PGI6) Promotes healthy immune balance within the G.I. tract. Helps maintain the integrity of the intestinal mucosa [‡]	1 capsule, 1-2 times daily with or between meals

[‡]This statement has not been evaluated by the Food & Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

ADDITIONAL CONSIDERATIONS *CONTINUED*

The products in this category offer alternative or added support. Choose from the options listed below based on clinical objectives.[†]

CLINICAL OBJECTIVE [†]	PRODUCT RECOMMENDATIONS	SUGGESTED USE
Support for occasional stress and anxiety	<u>Daily Calm</u> (Order Code: DCM6) Relieves occasional stress and anxiety while supporting a positive, relaxed mood. Supports sleep with continued use[†]	1 capsule, 2 times daily, between meals
Support for sleep onset and efficiency	<u>Pure Sleep</u> (Order Code: PSL6) Melatonin-free product improves sleep quality, efficiency and duration with continued use[†]	2 capsules, 30-60 minutes before bedtime
Cytokine balance	<u>CurcumaSorb</u> (Order Code: MCU1) Promotes cytokine balance to support tissue and cellular health[†]	2 capsules, 1-3 times daily, between meals
Additional support for positive mood, lipid metabolism and lean body mass	<u>Magnesium (glycinate)</u> (Order Code: MG1/ MG3/ MG9) Less likely to cause loose stools than other forms of magnesium[†]	1-4 capsules daily, with a meal
Promote intestinal immune cell health	<u>Epi-Integrity Powder</u> (Order Code: EIP1) Supports microbiome environment, mucosal protection, and epithelial cell health[†] or <u>Arabinogalactan</u> (Order Code: ARA1 / ARA9) Prebiotic fiber for immune support[†]	1 scoop, 1-2 times daily. Add 1 serving to 8 ounces water or juice 1 capsule, 3 times daily, between meals

ASSESSMENT RECOMMENDATIONS

Environmental toxicant burden and detoxification capacity can vary substantially among individuals. A thorough clinical assessment may help identify relevant exposures, nutrient status and functional factors that influence biotransformation and elimination pathways. The following assessments are recommended:^{2, 3}

- Detailed diet/lifestyle history including occupational, household and food exposures
- Urinary environmental chemical panels (heavy metals, glyphosate, phthalates, parabens, mycotoxins), where clinically indicated
- Glutathione status and oxidative stress markers
- Liver function tests (ALT, AST, GGT) as indirect markers of hepatic detoxification capacity
- Genetic/genomic testing (MTHFR, GSTM1, GSTT1, CYP1B1) to identify individual detoxification variability

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SUPPORTING HEALTHY DETOXIFICATION

The body's natural detoxification systems continuously process and eliminate environmental compounds, metabolic byproducts, and other substances encountered through daily living. A comprehensive approach focused on reducing toxicant exposure, supporting hepatic detoxification pathways, optimizing elimination, along with nutritional and lifestyle strategies can help maintain healthy detoxification capacity.

Step 1: Exposure Assessment & Reduction

Avoidance of ongoing toxin exposure is one of the most evidence-supported and cost-effective intervention strategies for reducing total toxicant burden.^{2,4, 5, 6, 7}

Common Dietary Sources

- Prioritize organic produce to help lower pesticide exposure, particularly when choosing foods commonly identified as having higher pesticide residues.^{5,8}
- Reduce canned and packaged food consumption to minimize exposure to plastic-associated compounds such as bisphenol A (BPA) and phthalates.^{4,9,10,11,12}
- Avoid fish high in methylmercury (swordfish, king mackerel, shark, tilefish); favor lower-mercury options such as salmon, sardines and shrimp.²
- Filter drinking water (reverse osmosis or activated carbon) to reduce common drinking-water contaminants when clinically appropriate.^{2,6}

Household & Product Exposure

- Replace plastic food storage with glass or stainless steel; avoid microwaving food in plastic.^{6,7,9}
- Prioritize switching out products used most frequently and for the longest duration, such as lotions, air fresheners, cookware and mattresses.⁶
- Use low-VOC paints, flooring and cleaning products; ensure good ventilation.⁶
- Choose fragrance-free personal care products, since fragrances may contribute to phthalate exposure.^{6,9}

Step 2: Supporting Endogenous Hepatic Detoxification

The liver processes xenobiotics through three sequential phases, each requiring specific nutritional cofactors.^{1,3,13}

Phase I (Cytochrome P450 — Transformation/Oxidation)

Phase I detoxification is carried out primarily by the cytochrome P450 enzyme system, which transforms fat-soluble compounds into intermediate metabolites that are more chemically reactive and can be prepared for conjugation and elimination. These enzymes metabolize endogenous compounds such as hormones as well as environmental chemicals, medications and dietary xenobiotics, making adequate antioxidant and Phase II support critical for maintaining balance.^{1,3}

Although Phase I biotransformation is an essential first step in detoxification, it can temporarily generate reactive intermediates and oxidative stress. When Phase I activity exceeds Phase II conjugation capacity, these intermediates may accumulate, highlighting the importance of adequate nutrient status and coordinated support of all detoxification phases.^{1,13}

Key cofactors: B vitamins (B₂, B₃, B₆, B₁₂, folate), magnesium, iron and antioxidants such as vitamins C and E.^{1,3}

Step 2: Supporting Endogenous Hepatic Detoxification (Continued)

Phase II (Conjugation — Neutralization)

Phase II detoxification consists of a series of conjugation reactions that convert reactive Phase I intermediates into water-soluble compounds that can be safely eliminated from the body. These pathways depend on adequate availability of amino acids, B vitamins, minerals and antioxidants, particularly glutathione, which plays a critical role in both antioxidant defense and xenobiotic metabolism. Genetic variation in key conjugation enzymes may further influence detoxification efficiency and nutrient requirements.^{1,3,13,14}

Phase II Conjugation Pathways and Key Nutrient Support

PATHWAY	KEY NUTRIENTS	FOOD SOURCES
Glucuronidation	Glucuronic acid precursors	Cruciferous vegetables, apples
Sulfation	Sulfur amino acids (cysteine, methionine)	Eggs, garlic, onions, cruciferous vegetables
Glutathione conjugation	Glutathione, N-acetylcysteine (NAC), selenium	Asparagus, avocado, walnuts
Methylation	Folate, B12, B6, choline, magnesium	Leafy greens, legumes, eggs
Amino acid conjugation	Glycine, taurine, glutamine	Animal proteins, legumes
Acetylation	Acetyl-CoA (B vitamins)	Whole grains, vegetables

Phase III (Transport & Elimination)

Phase III detoxification involves the active transport of conjugated compounds from the liver into bile and urine for elimination. Effective clearance depends on healthy transport mechanisms, adequate bile flow, kidney function, hydration and regular bowel movements. Dietary fiber and a healthy gut microbiome further support detoxification by promoting fecal excretion and helping prevent enterohepatic recirculation of bile-bound compounds.^{1,3,15,16}

- Adequate fiber (25–35 g/day) is essential to bind bile-conjugated compounds and support fecal excretion.^{15,16}
- Hydration (minimum 2–2.5 L/day filtered water) supports renal elimination.²
- Intestinal barrier and gut microbiome integrity help reduce enterohepatic recirculation of compounds targeted for elimination.^{1,16}

Step 3: Nutritional Support

Dietary interventions provide a practical and science-led means of supporting the body's natural detoxification processes. Specific foods supply the nutrients and bioactive compounds required for hepatic biotransformation, antioxidant protection, healthy bile flow, gut microbial balance and elimination. A nutrient-dense, food-first approach remains the foundation for promoting healthy detoxification and excretion pathways.^{1,15,16}

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		Cruciferous vegetables (broccoli, kale, watercress, Brussels sprouts, cabbage): support Phase II enzyme activity through glucosinolate-derived compounds such as isothiocyanates, including sulforaphane from broccoli sprouts. ^{17,18,19,20,21}
		Allium vegetables (garlic, onions, leeks): support CYP enzyme modulation and glutathione S-transferase (GST) activity. ²²
		Apiaceous vegetables (cilantro/coriander, parsley, dill, celery): may support detoxification enzyme modulation; evidence for heavy metal excretion remains limited. ¹
		Polyphenol-rich foods : curcumin, resveratrol, quercetin and green tea catechins have evidence supporting Nrf2-related antioxidant and Phase II enzyme activity. ²³
		Lycopene (cooked tomatoes): may support Phase II detoxification-related gene expression. ²³
		Omega-3 fatty acids (wild salmon, sardines, flaxseed, walnuts): help support a healthy inflammatory and oxidative stress response in the context of environmental exposures. ²
		Fiber sources (legumes, oats, flaxseed, psyllium): bind bile acids and support healthy gut transit and elimination. ^{15,16,24}
		Algal supplements (chlorella, Parachlorella): have limited but emerging evidence for supporting excretion of select heavy metals. ²



STEP 4: LIFESTYLE SUPPORT

Lifestyle factors play a critical role in supporting the body's natural detoxification and elimination processes. Regular physical activity, restorative sleep, stress management, hydration and healthy bowel function help support the physiological systems responsible for transporting and eliminating metabolic waste and environmental compounds. When combined with targeted nutrition strategies, these foundational habits may help optimize the body's capacity to maintain a healthy toxicant balance.^{2,26}

STRATEGY	EVIDENCE/ MECHANISM
Regular aerobic exercise	Supports circulation, hepatic blood flow, healthy bile flow and gradual reduction of adipose-stored toxicant burden over time. ²²
Sauna/heat therapy	Promotes sweating as one route of excretion; evidence is limited but suggests potential support for select persistent toxicants and metals. ²
Adequate sleep (7–9 hrs)	Supports physiologic repair, mitochondrial health and clearance of metabolic waste. ^{27,28}
Stress reduction	Supports HPA-axis regulation and may help maintain healthy metabolic and detoxification-related processes.
Bowel regularity	Essential for Phase III elimination; helps reduce reabsorption of bile-bound compounds; target at least one bowel movement daily. ^{2,26}

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Clinical Considerations

Rapid fat loss can temporarily increase circulating levels of lipophilic toxicants stored in adipose tissue, including persistent organic pollutants (POPs). Ensuring adequate nutrient intake, hydration, fiber consumption and elimination support during periods of significant weight loss may help promote efficient clearance of these released compounds.^{30,31}

Available for download at PureEncapsulationsPro.com/Protocols

ADDITIONAL RESOURCES

- [Stress Management and Relaxation Protocol*](#)
- [Sleep Protocol*](#)

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*All assessments may not be necessary. Testing should be performed at the discretion of the healthcare provider.
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