

Support For Healthy Metabolic Detoxification

Developed and reviewed by the clinical, chiropractic, and naturopathic members of the Standard Process team

Detoxification System Health and Function

The human body is in a continual state of detoxification. There is a need to process and eliminate everything from byproducts of normal metabolic activities to the environmental toxins we are regularly exposed to as a part of daily living. Many organs and systems in the body play a role in supporting detoxification processes including the liver, gallbladder, urinary tract, skin, and digestive tract. The liver plays a particularly important role in breaking down harmful substances which are then excreted into the blood and bile.

At times, the liver may have trouble keeping up with the body's detoxification needs. Certain medications, alcohol intake, nutrient deficiencies and fatty infiltration of the liver cells can contribute to a stressed, overburdened organ.

Whole food nutrition and botanical herbs can provide nutrient co-factors and phytochemicals that support healthy liver function. Implementing lifestyle practices like exercise and keeping a non-toxic home can provide additional daily support for the organs and systems of detoxification and elimination.

Supportive Lifestyle Practices

- Regular sweating through exercise or sauna can reduce the body burden of toxins, including heavy metals.¹
- Reduce or eliminate alcohol and highly processed foods that may contribute to liver dysfunction.^{2,3}
- Exposure to chemicals like BPA, phthalates, parabens, and pesticides can lead to gut dysbiosis and compromised liver function. Choose non-toxic personal care products and household products.⁴

- Air pollution adds to the body burden of toxins. Investing in a quality home air filtration system can reduce exposure to fine particulate matter and improve indoor air quality.^{4,5}
- As chronic stress can impair the function of the immune system, stress relieving activities should be considered as adjunctive support.⁴ For additional psychosocial support, an emphasis on community and human connection can be helpful, as this has been shown to support a healthy immune response.⁵

Whole Foods Nutritional Recommendations

- Recommend daily consumption of cruciferous vegetables like broccoli, cauliflower, kale and brussels sprouts. Crucifers are inducers of critical CYP-450 enzymes that metabolize procarcinogens, hormones and pharmaceuticals.⁶
- Encourage regular consumption of black radish, a cruciferous vegetable rich in glucosinolates, as well as sulfates and cysteine-rich proteins. These compounds are considered precursors to glutathione, a major antioxidant in the human body.⁶⁻⁷
- Recommend sufficient intake of quality protein from foods like meat, eggs, fish, and dairy. These foods provide critical vitamins, minerals and amino acids that support detoxification pathways.⁶
- Foods rich in omega-3 fatty acids like wild salmon, mackerel, sardines and anchovies may improve liver inflammation and hepatic lipid metabolism.⁸
- Dietary fiber may improve the quality and frequency of bowel movements and thus the elimination of toxins via the feces. Fiber also promotes the growth of beneficial bacteria which leads to decreased gut permeability and inflammation. This is also thought to lead to improved liver and kidney function.⁹

Dietary Supplement Regimen



Spanish Black Radish

Suggested Use: **1-3 tablets per day**

Spanish Black Radish is an organic supplement designed to support liver health with daily use, and support toxin elimination with acute use.*

- Research shows that Spanish black radish induces the body's detoxification enzymes in cell and animal models*
- Supports healthy liver and gallbladder function*
- Encourages healthy digestion*
- 3 tablets per day supports the body's normal toxin-elimination function*
- Contains organically grown Spanish black radish from the Standard Process certified organic farm^



LivCo®

Suggested Use: **1 capsule 3-4 times per day**

LivCo® provides herbs for liver health and contains Schisandra, Rosemary and Milk Thistle to provide liver cleansing support.* These herbs have been traditionally used in herbal preparations to:

- Aid in the elimination of naturally occurring toxins and support healthy general detoxification*
- Support healthy liver function*
- Support and maintain cellular health*



SP Detox Balance™

Suggested Use: **2 heaping scoops in 10-12 ounces water, 1-3 servings per day**

SP Detox Balance™ supports whole body detoxification and helps your liver in the processing and removal of toxins.*

- Supports the body's natural metabolic detoxification processes*
- Supports the body's natural toxin elimination function*
- Excellent source of protein (17 g per serving) from pea isolates, pumpkin concentrate, oat flour and buckwheat flour
- Provides amino acids required for conjugation enzymes (phase II enzymes)*
- Good source of choline, dietary fiber, and plant-based magnesium



GI Adsorb™

Suggested Use: **4 capsules per day, prior to a meal with a full glass of water**

GI Adsorb™ is a GI health supplement that contains clinoptilolite, an adsorbent zeolite mineral, and is formulated to support GI health and elimination.* It also:

- Contains purified Clinoptilolite (G-PUR®) — a mineral that has adsorbent properties towards naturally occurring toxins*
- Contains Collinsonia Root, which has been historically used to support normal elimination and digestive health*
- Helps support a healthy gut barrier*
- Helps with the removal of naturally occurring toxins by supporting a healthy GI barrier and normal elimination*

Assessment of Detoxification Systems

In Office/Physical Exam

- Palpation of the liver and gallbladder
- Lab studies: comprehensive metabolic panel (CMP), gamma glutamyl transferase (GGT), triglycerides
- Quantify alcohol intake
- Signs/Symptoms such as constipation, lack of sweating, headaches, brain fog, PMS, skin issues
- Consider ultrasound imaging of the liver and gallbladder

REFERENCES

1. Sears, M., et al. (2012) J Environ Public Health. 184745.
2. Puppala, J., et al. (2013) Journal of genetics and genomics 40(1), 15–22.
3. Asrani, S., et al. (2019) Journal of hepatology, 70(1), 151–171.
4. Barouki, R., et al. (2023) Journal of hepatology, 79(2), 492–505.
5. Chen, C. F., et al (2022) International journal of environmental research and public health, 19(18), 11517.
6. Hodges, R., et al. (2015) J Nutr Metab. 760689.
7. Hanlon, P., et al. (2007) J Agric Food Chem. 55(16):6439-46.
8. Scorletti E., et al. (2013) Annu Rev Nutr. 33:231-48.
9. Kieffer, D., et al. (2016) Adv Nutr. 7(6):1111-1121.