



Liver MD™

Liver MD™ is one of our most comprehensive formulas because it covers broad-spectrum liver support. Composed of all non-GMO ingredients, **Liver MD™** promotes:

- Phase I liver detoxification (detoxification)*
- Phase II liver detoxification*
- Antioxidant protection*
- Glutathione production*
- Healthy Fat metabolism*

The liver uses an enzyme-based processing and transport system to eliminate toxins and their intermediates. This enzyme-based system primarily involves Phase I & II Conjugation Liver Detoxification. Phase I and II “conjugates” or attaches molecules to the toxins to better control, process, and eliminate them. Initially conjugating a toxin can actually temporarily increase its toxicity, therefore antioxidants and toxin neutralizers are integral to this system. For example, Milk Thistle (*Silybum marianum*) and N-Acetyl Cysteine (NAC) are two superior neutralizers of many liver toxins passing through Phase I & II processing.

This entire system is essential to the study of metabonomics, a critical science important to devising optimal methodologies to practice proficient regenerative medicine.*

Liver MD™ contains many other select nutrients and phytonutrients that promote liver regeneration and facilitate the liver in its full range of vital duties.*

PHASE I CONJUGATION

Liver Detoxification Support and Healthy Fat Metabolism. Phase I Conjugation Liver Detoxification utilizes a vast system of enzymes collectively termed the cytochrome P450 system. One key job of these enzymes is to snare onto toxins in order to more efficiently pass them on into Phase II Conjugation-Liver Detoxification.* Phase I Conjugation-Liver Detoxification support includes:

- **B-Complex** Vitamins provide powerful support for Phase I Conjugation-Liver Detoxification and proper liver fat metabolism. Biotin, Choline, and Inositol are three such B-complex vitamins critical to both Phase I Conjugation and healthy fat metabolism featured in Liver MD™.^{1,2,3*}
- **DIM** (diindolylmethane) is a naturally occurring sulfur compound found in cruciferous vegetables, such as cabbage, broccoli or mustard greens. The DIM found in Liver MD™ has been enhanced for optimal absorption, and acts as a powerful

promoter to help detoxify xenobiotics and toxic testosterone and estrogen metabolites.^{4,5,6*}

PHASE II CONJUGATION

Phase II Conjugation- Liver Detoxification further processes these toxins into less toxic substances in such a manner that enables these toxins to be eliminated. Phase II Conjugation-Liver Detoxification involves six (6) pathways which may be optimized through select nutrients and phytonutrients.* Liver MD™ helps support all six (6) Phase II Conjugation-Liver Detoxification Pathways, namely: Acetylation, Amino Acid Conjugation, Glucuronidation, Glutathione conjugation (Glutathionylation), Methylation, and Sulfation.* Phase II Conjugation-Liver Detoxification support includes:

- Liver MD™ modulates and supports healthy levels of Acetylation by way of its ingredients: Turmeric (*Curcuma longa*), Alpha Lipoic Acid (ALA), and DIM.^{7,8,9,10}
- Liver MD™ modulates and supports healthy levels of Amino Acid Conjugation by way of its ingredients: L-Glycine, NAC and methionine.^{11,12,13}
- Liver MD™ is composed of ingredients that appear to modulate and support healthy levels of Glucuronidation (the most common phase II reaction and is nearly always a route for detoxifying foreign substances) including Calcium glucarate, NAC, and DIM.^{14,15,16} The glucuronidation process aids the body in detoxifying and eliminating fungal toxins, steroid hormones and automobile exhaust.*
- Liver MD™ ingredients promote healthy levels of Glutathione Conjugation. Specifically, ingredients are NAC, Methionine, Glycine, ALA, *Curcuma longa* and *Silybum marianum*.¹⁷
 - ALA helps facilitate the recharging or renewal of select antioxidants, giving them added life.¹⁸
 - Turmeric exerts powerful antioxidant effects that help quench free radicals.

- Curcuma longa and methionine exert choleric activity, which promotes the storage and release of bile (i.e., cholagogue effects) from the gallbladder.^{19,20}
- Silybum marianum reduces liver injury from alcoholism, radiation exposure, toxic mushrooms (*Amanita phalloides*) and acetaminophen.
- Plus, emerging evidence suggests Curcuma longa and Silybum marianum also induce regenerative healing effects on the liver.^{21,22*}
- **Liver MD™** ingredients promote healthy levels of Methylation. Specifically, L-Methionine is an amino acid that converts into SAMe, essential to the methylation pathway.²³ As a sulfur-containing amino acid, Methionine promotes both fat metabolism and glutathione production.^{24*}
- **Liver MD™** ingredients promote healthy levels of Sulfation. For example, Sulfation is modulated and aided by both methionine as well as NAC.^{25,26*}

Warning: If pregnant, nursing, or planning on becoming pregnant, do not take this product.

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Standard Dosage: As a dietary supplement, take 1 capsule, twice daily, or as directed by your healthcare practitioner.

*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.

References

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