



## CLINICAL APPLICATIONS

- Support for Balanced Detoxification (Phases 1 & 2)
- Optimize Body's Ability to Excrete Toxins
- Promote a Variety of Phase 2 Pathways
- Support the Body's Natural Antioxidant Mechanisms.

*BioDetox™ is a convenient, cost-effective, unique, powerful formula delivering potent levels of ingredients formulated to promote balanced activity between Phase 1 and Phase 2 detoxification processes. BioDetox™ should be used as part of an overall detoxification protocol that supplies adequate high quality protein, carbohydrates, fats and fiber.*

**All 3rd Opinion Inc® Formulas Meet or Exceed cGMP Quality Standards.**

## DISCUSSION

The term “Dual Phase Optimizers” refers to those substances with the ability to simultaneously influence and “optimize” the activity of certain Phase 1 and Phase 2 enzyme systems. Optimizers generally upregulate or induce Phase 2 enzymes; however, optimizing Phase 1 enzymes may mean down-regulating them when they are too high without totally inhibiting them. Dual Phase Optimizers may further balance the phases of detoxification by acting as antioxidants and binding dangerous free radicals formed between the two phases.

Examples of Dual Phase Optimizers in BioDetox™ are ellagic acid from pomegranate, catechins from green tea extract and glucosinolates from watercress powder. Ellagic acid can bind directly to DNA to protect it and bind directly to some toxic substances to promote their excretion. In addition, ellagic acid induces Phase 2 enzymes at the gene level and makes sure these are not over-induced by its modulation of CYP1A activities.<sup>1,2</sup> The catechins in green tea, besides being strong antioxidants, also can bind directly to toxic substances. They have the ability to modulate Phase 1 enzymes, moderately up-regulating them when carcinogens are not present and limiting the enzyme production when toxic substances are encountered.<sup>3</sup> Glucosinolates are precursors to isothiocyanates. In particular, watercress is metabolized by gut flora into phenylethyl isothiocyanate (PEITC) which like the other ingredients above, can selectively inhibit Phase 1 enzymes and induce the activities of Phase 2 enzymes.<sup>4</sup>

As the liver is one of the main organs for detoxification, silymarin (milk thistle seed extract) and artichoke leaf extract and alpha lipoic acid have been added to the formula because they are hepatoprotectant. They also increase glutathione and provide potent antioxidant protection.<sup>5,6,7</sup>

The remaining ingredients in this formula are present to support the various Phase 2 detoxification pathways. Vitamins B6, B12 and folate, along with MSM support methylation. Calcium D-Glucarate has been added to support glucuronidation. The sulfate donors, sodium sulfate and NAC are especially important in cases of heavy metal burden because they support glutathione production and the sulfation pathway.

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**BIODETOX™**



## Supplement Facts

Serving Size: 4 Capsules  
Servings Per Container: 30

	Amount Per Serving	%Daily Value
Vitamin B6 (as pyridoxal 5' phosphate)	50 mg	2500%
Folate (as folic acid)	800 mcg	200%
Vitamin B12 (as methylcobalamin)	200 mcg	3333%
Artichoke Leaf Extract	600 mg	**
Watercress Powder	500 mg	**
Silymarin (as Milk Thistle Seed Extract)	210 mg	**
Alpha Lipoic Acid	200 mg	**
N-Acetyl Cysteine	200 mg	**
Sodium Sulfate	200 mg	**
Catechins (from Green Tea Leaf Extract)	150 mg	**
Ellagic Acid (from Pomegranate Fruit)	100 mg	**
MSM (Methylsulfonylmethane)	100 mg	**
Calcium D-Glucarate	100 mg	**

\*\* Daily Value not established.

**Other Ingredients:** Cellulose, Stearic Acid and Silicon Dioxide.

## DOSING:

Take two capsules twice a day or as directed.

## REFERENCES

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Additional references available upon request .

## CAUTIONS:

If pregnant or nursing or taking medications, consult your practitioner. Green tea catechins may decrease platelet aggregation.<sup>8</sup>

The information contained in this paper has not been evaluated by the FDA. The associated product is not intended to diagnose, treat, cure or prevent any disease.