

NAFLD Support

Nonalcoholic fatty liver disease (NAFLD), defined by excessive lipid accumulation in the liver, is the hepatic manifestation of insulin resistance and the metabolic syndrome. Due to the epidemics of obesity, NAFLD is rapidly becoming the leading cause of altered liver enzymes in Western countries (Valenti et al).

Steatosis may be associated with oxidative hepatocellular damage, inflammation, and activation of fibrogenesis, defining nonalcoholic steatohepatitis (NASH). And, NASH is potentially a progressive liver disease leading to cirrhosis and hepatocellular carcinoma.

Therapeutic Foods support for reducing Nonalcoholic Fatty Liver Disease:

- **Blueberry Extract**- one daily
- **Phyto Power**- two daily
- **Cruciferous Sprouts Complex**- two daily
- **Original Synbiotic**- one tsp. daily

Food Science:

Anthocyanins decrease hepatic lipid accumulation and counteract oxidative stress and hepatic inflammation (Valenti 2013).

Blueberry Extract contains pure anthocyanin extract from *Vaccinium corymbosum*- a North American blueberry cultivar with an exception broad spectrum of anthocyanins. It takes us 80 pounds of blueberries to get one pound of this precious extract.

Phyto Power contains four species of wild-crafted Alaskan blueberries (the whole berry), with exceptionally highly concentrated anthocyanins. Plus it contains the flavonoids of three species of whole wild-crafted rose hips (including its seeds) and four species of wild-crafted Alaskan dandelion (including roots, leaves and flowers). The roots increase liver bile flow.

Dietary supplementation with broccoli sprout extract containing sulforaphane precursor glucoraphanin is likely to be highly effective in improving liver function through reduction of oxidative stress (Kikuchi 2015).

Cruciferous Sprouts Complex contains broccoli sprouts, daikon radish sprouts, red radish sprouts, water cress sprouts, kale sprouts, mustard sprouts and cabbage sprouts, all together containing high levels of not only glucosinolates, but also high levels of myrosinase (from red radish), the enzymes necessary for high production of sulforaphane.

The effects of probiotics and prebiotics have proven to be beneficial in NAFLD (Iacono 2010).

Original Synbiotic contains 5 pedigreed strains of *L. acidophilus*, *L. rhamnosus*, *L. plantarum*, *S. thermophilus* and *B. longum*, plus inulin derived from organic chicory root.

Inulin is very bifidogenic and it enhances the growth of *Lactobacillus* as well. These good bacterial produce copious amounts of butyrate which facilitates tightening of gut junctions. Delzenne and Kok demonstrated that FOS, modifying the gene

expression of lipogenic enzymes, reduced the de novo liver fatty acid synthesis (Delzenne 1999).

Lactobacillus acidophilus reduced liver oxidative stress and improved insulin resistance (Yadav 2007). Lactobacillus plantarum reduced liver and serum cholesterol and triglycerides (wang 2009). Lactobacillus rhamnosus reduced hepatic steatosis (Lee 2006).

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