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Fatty Liver Support

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Updated Nov 18th, 2024

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Overview

Elevated liver enzymes may indicate hepatic pathology. The most common cause for liver enzyme elevations is non-alcoholic fatty liver disease (NAFLD). (18) NAFLD has a global prevalence of roughly 25% and is associated with comorbidities such as obesity, type 2 diabetes, hyperlipidemia, hypertension, and metabolic syndrome. (19) Having one of the comorbidities associated with NAFLD also increases risk of NAFLD. (18) A specific type of NAFLD is nonalcoholic steatohepatitis (NASH), which describes when there is also inflammation and/or liver damage with NAFLD.

Treatment for NAFLD typically consists of lifestyle changes such as diet, exercise and weight loss. (8) When NAFLD is progressive, such as in the case of NASH, pharmacological intervention may be recommended. (8) Supplements offer a promisir alternative for managing the elevations in liver enzymes and other aspects of NAFLD

The ingredients presented in the protocol below reflect research findings that demonstrate efficacy to support hepatic function.

Milk thistle

Milk thistle (*Silybum marianum*)

70-140 mg, two to three times per day, minimum 12 weeks (20)

- Compared to control, significant reduction of AST and ALT levels were observed (20)(9)(2)
- Demonstrated decrease in transaminases of NASH patients, which led to a revival of liver function in NASH patients, hence improving prognosis and progression of liver cirrhosis (20)(9)(2)
- Meta-analysis of eight randomized controlled trials found silymarin extract to decrease AST by 6.57 UI/L and ALT by 9.16 UI/L in patients with non-alcoholic fatty liver disease (NAFLD) (20)
- When given Realsil, a silybin phytosome complex with phosphatidylcholine and vitamin E, normalization of body mass index (BMI) occured in 15% of the treatment group compared to 2.1% in the control; improved liver function also occurred as demonstrated by improved ALT, AST, and HOMA (9)
- Improved hepatic function as demonstrated by a decrease in ALT, AST, hepatic steatosis, and GGT (2)

Vitamin E

Vitamin E

800 IU, once per day, minimum 2 years (16)

- A meta-analysis showed that, compared to control, vitamin E was shown to be effective in reducing fibrosis, AST, ALT, ALP, steatosis and inflammation (17)
- A review of trials supports the use of vitamin E on biomarkers and liver enzymes, likely due to its anti-inflammatory, anti-apoptotic and antioxidant properties (13
- Lobular inflammation and hepatic steatosis improved accompanied by normalization and/or decrease in liver enzymes in nondiabetic patients with nonalcoholic steatohepatitis (NASH) (13)
- Hepatic function improved as shown by a decrease in AST by 19.43 U/L, ALT by 28.91 U/L, alkaline phosphatase (ALP) by 10.39 U/L, steatosis by 0.54 U/L, and hepatocellular ballooning by -0.34 U/L in random effect model analysis; as well as a

decrease in inflammation by .20 U/L when compared to control group in patients with NAFLD (17)

- A systematic review and meta-analysis found that the use of vitamin E in adults with NAFLD significantly improved ALT and AST scores (1)
- Treatment with vitamin E at a dose of 800 IU for 96 weeks, compared to placebo, significantly improved NASH by 43% and significantly improved markers of ALT and AST (16)

Turmeric

Turmeric (*Curcuma longa*)

500-1000 mg, total per day, minimum 8 weeks (7)(12)(15)

- As a result of its anti-inflammatory, anti-apoptotic, and antioxidant properties, turmeric (Curcuma longa) has been shown to improve enzyme levels and histology of the liver. For example, turmeric (Curcuma longa) increases lipid peroxyl radical scavenging, decreases COX2, and decreases caspases 9, 8, and 3 (3)(15)
- Higher dosing of 1000 mg per day or more for at least 8 weeks was found to have superior effects as shown by a decrease in ALT by 11.36 IU/L and AST by 9.22 IU/L (10)
- Mean deviation decreases in ALT by 7.31 U/L and AST by 4.68 UL/L were found in a pooled analysis of curcumin supplementation for less than 12 weeks (5)
- Fermented turmeric powder decreased AST and ALT in patients with mild to moderately elevated ALT as well as decreased gamma-glutamyl transferase (GGT) (7)
- Hepatic function improved as demonstrated by 75% of subjects having improved ultrasonic findings (4.7% in placebo), decreased AST and ALT (increased in placebo), and a more significant decrease in BMI and waist circumference in patients with grade 1-3 NAFLD (12)
- Liver fat content improved in 78.9% of treatment group compared to 27.5% in placebo while BMI, total serum cholesterol, LDL, all decreased in patients with NAFLD (15)

Artichoke

Artichoke (*Cynara scolymus*)

600 mg, once per day, minimum 2 months (11)

- Symptoms associated with NASH have been shown to be alleviated by artichoke leaf extract in addition to improving lipid levels and liver enzymes (14)

- Improved liver profile as shown by decreases in ALT and AST, improved AST:ALT ratio and AST to platelet ratio (APRI), increased hepatic flow, and decreased portal vein diameter and liver size (11)
- Hepatic function improved as demonstrated by increase in biliary sludge elimination and decrease in pain syndrome for 87% of patients as well as decrease in dyspeptic manifestations of 65.2% of patients in patients with NASH and metabolic syndrome given chopytol from purified artichoke extract (14)

Vitamin D

Vitamin D

50,000 IU once per week, 12 weeks (6) or 2100 IU per day, up to 48 weeks (4)

- Improved liver function, inflammatory status, and metabolic profile shown by a decrease in HOMA-IR, ALT, and AST, serum CRP and increase in adiponectin in patients with NAFLD when given 50,000 IU once weekly for 12 weeks (6)
- Serum levels for vitamin D improved while ALT and cytokeratin 18 fragments decreased in patients with NASH, elevated ALT, and low serum vitamin D when given 2100 IU per day for 48 weeks (4)

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