

Is Supplementation Prior to Diet Therapy in Management of Non-Alcoholic Fatty Liver Disease?

Saeede Saadati* and Khadijeh Abhari

Department of Clinical Nutrition and Dietetics, Faculty of Nutrition and Food Technology, National Nutrition and Food Technology, Research Institute, Shahid Beheshti University of Medical Sciences, Tehran, Iran

***Corresponding Author:** Saeede Saadati, Department of Clinical Nutrition and Dietetics, Faculty of Nutrition and Food Technology, National Nutrition and Food Technology, Research Institute, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Received: November 24, 2019; **Published:** November 29, 2019

One of the great concerns in health system is related to suffering from consequences of unhealthy diet and sedentary lifestyle. The most common disorder of this condition leads to Non-alcoholic fatty liver disease (NAFLD) incidence [1,2].

NAFLD in early stages is characterized by triacylglycerol accumulation (> 5% of hepatocytes) in the absence of alcohol consumption. It can make headway to the more aggravating non-alcoholic steatohepatitis (NASH) and in the end stages to the hepatic cirrhosis and hepatocellular carcinoma [3]. Currently, the multiple-hit hypothesis is confirmed, in which genetic and epigenetic factors are interacting with each other. Insulin resistance, inflammatory response, oxidative stress, obesity, environmental or nutritional factors, gut microbiota, are stated in the pathogenesis of NAFLD [2-4].

Owing to NAFLD's growing prevalence ranging from 25% to 45% [5] and its threatening outcomes and comorbidities [6], it recently attracted superfluous attention. Since there is no proven and definite treatment for NAFLD and considering difficulties in following individuals due to absence of significant symptoms, it is necessary to scrutinize the improving trend of this disorder [1-3, 5-7].

A great number of studies suggested lifestyle modification (healthy and low calorie diet and increasing physical activity) along with some anti-inflammatory and anti-oxidant components consumption can be effective in the treatment of NAFLD [1,3,8].

Seemingly, the major investigated supplements in management of NAFLD are Flaxseed, Ginger, Resveratrol, Curcumin, Nigella Sativa, Citrulline, Symbiotic and Cinnamon [1-3,5-7,9-12]. Co-administration of flaxseed along with lifestyle modification, at least partially through improvement in weight management, lipid profile, insulin resistance and inflammatory cytokines, can mitigate this condition [5]. Ginger supplementation in combination with lifestyle modification has led to significant reduction in inflammatory markers level, liver enzymes and liver steatosis [6]. Resveratrol intakes with lifestyle modification alleviated conditions by reducing ALT, liver steatosis, markers of inflammation, and hepatocellular apoptosis in patients with NAFLD [7]. Curcumin regarding to its anti-inflammatory and anti-oxidant effects, can be another effective component in NAFLD management. Significantly reduction in hepatic fibrosis, serum Cholesterol and glucose was demonstrated while curcumin supplemented along with lifestyle modification [2].

Nigella Sativa administration along with balanced diet and physical activity decrease high sensitive c reactive protein (hs-CRP) and nuclear kappa-B (NF-kB) [9]. As well as Citrulline through reduction in inflammatory markers is another component in management of NAFLD [10].

Symbiotic supplementation following lifestyle modification in comparison with lifestyle modification alone through anti-inflammatory effects can be more effective [11]. The last investigated supplement is Cinnamon that studies demonstrated that it along with lifestyle modification can reduce significantly HOMA (Homeostatic Model Assessment) index, FBS (Fasting Blood Sugar), total cholesterol, triglyceride, hs-CRP and liver enzymes [12].

Presumably, all researchers are trying to figure out the most effective supplement for relieving NAFLD and diminishing the intensity of this condition. In case that we observe carefully, it will be illuminating that none of mentioned supplements is not effective lonely; it can just amplify the lifestyle modifications efficacy and importance. Hence, some sufferers from NAFLD state that as an unsurmountable problem, but if they focus on healthy and low calorie diet under surveillance of expert nutritionist, in addition exercise as much as recommended value, they will find it in improving way.

Bibliography

1. Saadati S., et al. "The effects of curcumin supplementation on liver enzymes, lipid profile, glucose homeostasis, and hepatic steatosis and fibrosis in patients with non-alcoholic fatty liver disease". *European Journal of Clinical Nutrition* 73.3 (2019): 441.
2. Saadati S., et al. "Comparing different non-invasive methods in assessment of the effects of curcumin on hepatic fibrosis in patients with non-alcoholic fatty liver disease". *Gastroenterology and Hepatology from Bed to Bench* 11.1 (2018): S8.
3. Saadati S., et al. "Curcumin and inflammation in non-alcoholic fatty liver disease: a randomized, placebo controlled clinical trial". *BMC Gastroenterology* 19.1 (2019): 133.
4. Abhari K., et al. "The effects of prebiotic, probiotic and synbiotic diets containing *Bacillus coagulans* and inulin on serum lipid profile in the rat". *Veterinary Science Development* (2015).
5. Yari Z., et al. "Flaxseed supplementation in non-alcoholic fatty liver disease: a pilot randomized, open labeled, controlled study". *International Journal of Food Sciences and Nutrition* 67.4 (2016): 461-469.
6. Rahimlou M., et al. "Ginger supplementation in nonalcoholic fatty liver disease: a randomized, double-blind, placebo-controlled pilot study". *Hepatitis Monthly* 16.1 (2016).
7. Faghihzadeh F., et al. "Resveratrol supplementation improves inflammatory biomarkers in patients with nonalcoholic fatty liver disease". *Nutrition Research* 34.10 (2014): 837-843.
8. Darand M., et al. "Fructose Consumption is Associated with Non-Alcoholic Fatty Liver Disease Risk: A Case-Control Study from Iran". *Hepatitis Monthly* 19.4 (2019).
9. Darand M., et al. "Nigella sativa and Non-Alcoholic Fatty Liver Disease: A Review of the Current Evidence". *Hepatitis Monthly* 18.10 (2018).
10. Darabi Z., et al. "Inflammatory markers response to citrulline supplementation in patients with non-alcoholic fatty liver disease: a randomized, double blind, placebo-controlled, clinical trial". *BMC Research Notes* 12.1 (2019): 89.
11. Eslamparast T., et al. "Synbiotic supplementation in nonalcoholic fatty liver disease: a randomized, double-blind, placebo-controlled pilot study". *The American Journal of Clinical Nutrition* 99.3 (2014): 535-542.

12. Askari F, *et al.* "Cinnamon may have therapeutic benefits on lipid profile, liver enzymes, insulin resistance, and high-sensitivity C-reactive protein in nonalcoholic fatty liver disease patients". *Nutrition Research* 34.2 (2014): 143-148.

Volume 6 Issue 12 Dcecember 2019

©All rights reserved by Saeede Saadati and Khadijeh Abhari.