



Meta-analysis Demonstrates That Spirulina Interventions Have Significant Impact on Lipid Profiles*

Cardiovascular diseases (CVD) are one of the most important causes of death worldwide. Dyslipidemia is one of the main causal risk factors for CVD that can be controlled by modifying lifestyle, which entails the use of healthy diets containing functional foods.

Meta-analysis was conducted to investigate the effect of spirulina supplementation on plasma lipid profile by Dr. Rahnama's research group at Mashhad University of Medical Sciences in Iran. 1107 of intervention studies were extracted from Pubmed, Scopus, Clarivate Analytics Web of Science, and the Cochrane Library database and 20 studies were included qualitatively and quantitatively in the final step.

The results of 20 studies (with 23 arms and 1076 participants) indicated that Spirulina intervention significantly reduced LDL-C (Standardized Mean Differences (SMD): -0.6, 95% Confidence Interval (CI): - 0.9, - 0.2, P<0.05), TC (SMD: - 0.6, 95% CI: - 0.9, - 0.2, P<0.05) and TG (SMD: - 0.6, 95% CI: - 0.9, - 0.2, P<0.05) levels while HDL-C levels were significantly increased (SMD: 0.3, 95% CI: 0.0, 0.6, P<0.05), showing that present meta-analysis and review strongly exhibit the usefulness of supplementing with Spirulina in improving serum levels of TC, TG, LDL-C, and HDL-C.

Dr. Toshi Ide, Sr. Technical Division Manager mentions that "This is a great publication because meta-analysis demonstrated that spirulina supplementation could improve lipid profile, total and LDL-cholesterol, Triglyceride, and HDL-cholesterol. The author described that moderate spirulina dosage is about 4g/day for HDL-C, 5g/day for TG and 10g/day for TC because 20 studies include a variety of subjects, such as type 2 diabetics, obese, HIV and healthy subjects, and dosage (0.02 to 10 g/day) and duration of intervention also vary (16 RCTs: ≤ 12 weeks; 4 RCT: ≥ 12 weeks). Some clinical studies use higher dosage than daily recommended to find the significance earlier during the study. I would suggest that consumers keep taking recommended dosages by the manufacturers for more than 3 months to maintain healthy lipid profiles. Furthermore, I hope that spirulina will be used for more well-designed studies and find impacts on more cardiovascular outcomes in the future."

Reference

Rahnama, I., *et al.*, (2023). The effect of Spirulina supplementation on lipid profile: GRADE-assessed systematic review and dose-response meta-analysis of data from randomized controlled trials. *Pharmacol. Res.* 193: 106802. <https://doi.org/10.1016/j.phrs.2023.106802>

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