

Metabolic effects of flaxseed oil supplementation (ω 3/ALA) in mice

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Introduction: Liver plays a key role in pathological conditions of insulin resistance, such as diabetes mellitus and metabolic syndrome. The anti-inflammatory effects of polyunsaturated fatty acid ω 3 EPA and DHA have been studied. The α -linoleic acid (ALA) found in seeds oil, little is known about its effect on liver. The aim of this study was to evaluate the effects of supplementation of ω 3/ALA in mice.

Methods: 40 mice (C57/BL6) were divided into 4 groups: control (C), control+ ω 3 (CW), obese (O) and obese+ ω 3 (OW). For a period of eight weeks, the groups O and OW received a high-fat diet with 60% fat, while the C and CW received regular chow. After, the groups CW and OW received supplementation of ω 3 10% of flaxseed extract, daily, for another 8 weeks.

Results: After 8 weeks, CW had greater weight gain in relation to C. The same result was founded between O and OW. Serum total cholesterol and HDL was significantly higher in CW, while groups O and OW the values were similar; Triglycerides values were similar between all groups. Area under the curve of glucose by GTT test showed a significant decrease compared O to the OW, and was similar between C and CW. Moreover, total liver fat levels were significantly lower in CW and OW, comparing to C and O.

Conclusion: ALA supplementation changed the animals' weight between the groups. However, supplementation of ω 3/ALA showed to be effective in preventing hepatic steatosis, elevated serum levels of HDL and the reduction of insulin resistance.

Biography

Natalia Bonissi Goncalves has completed his graduation in Nutrition, in Medical School of Ribeirão Preto (FMRP), University of São Paulo (USP), Brazil. Now, he is doing his master's degree at the same university in the Department of General Medicine, with emphasis on Endocrinology and Metabolism. He is under orientation of Professor Dr. Maria Cristina Foss de Freitas.

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