

Phospholipid and Free Fatty Acid Content of Rat Brain Mitochondria Following Linseed Dietary Supplementation

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In this study, we report changes in the phospholipid and free fatty acid (FFA) content in rat brain mitochondria following linseed dietary supplementation. Male Wistar rats at the age of three months were fed a standard chow diet supplemented with linseed at a dose of 3 g/day for three weeks. Afterwards, the control and experimental animals were sacrificed by decapitation, the brain mitochondrial fraction was isolated and lipids were extracted. The phospholipid content was measured by thin-layer chromatography and spectrophotometrically. FFA content was measured by gas-liquid chromatography.

In the brain mitochondria of rats fed linseed, we found 9% increase of the total phospholipids. Phosphatidylserine, phosphatidylethanolamine and phosphatidylcholine were the predominant phospholipid classes and they together accounted for 88.8% of the total phospholipids. The content of the total FFA increased by 42.3% and stearic acid and arachidonic acid were the most pronounced components of the FFA pool.

Key words: phospholipids, free fatty acids, mitochondria, rat brain, dietary linseed.