

Camelina sativa oil and fatty fish have positive effects on lipid metabolism

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Camelina sativa oil and fatty fish are rich in polyunsaturated omega-3 fatty acids, but their health benefits seem to differ. A new study from the University of Eastern Finland shows that camelina sativa oil reduces

the formation of fatty acid derivatives that may be harmful to cardiovascular health. Camelina sativa oil also seems to protect against oxidative stress. Fatty fish, on the other hand, increases the circulatory concentration of fatty acid derivatives that alleviate inflammation.

The study, conducted in collaboration between the University of Eastern Finland and Karolinska Institutet in Sweden, examined the associations of fatty and low-fat [fish](#), and camelina sativa oil, with [lipid metabolism](#) and low-grade inflammation. The 12-week study involved 79 men and women between 43 and 72 years of age who had impaired fasting glucose. The study participants were divided into four groups. One group replaced fats in their daily diet with camelina sativa oil and reduced their intake of fish to one serving a week. Two of the groups ate fish four times a week: two servings of [fatty fish](#), such as salmon or vendace, and two servings of low-fat fish, such as saithe or pike. The fourth group was a control group.

A high intake of omega-3 [fatty acids](#) from camelina sativa oil and fatty fish reduced the circulatory proportions of arachidonic [acid](#), which is a long-chain omega-6 fatty acid. Those using camelina sativa oil also had lower concentrations of mediators derived from arachidonic acid, which may be harmful to cardiovascular health. Moreover, the intake of fatty fish increased the circulatory concentration of fatty acid derivatives that alleviate inflammation.

"Camelina sativa oil and fatty fish had a major effect on lipid metabolism. Our study shows that dietary fats can be used to target metabolic pathways that are linked to cardiovascular diseases and type 2 diabetes," says early stage researcher Topi Meuronen from the University of Eastern Finland, the lead author of the article.

In addition to its other [beneficial effects](#), camelina sativa oil was also observed to reduce the circulatory concentration of markers that are

indicative of oxidative stress. Low-fat fish, however, did not have an effect on the [metabolic pathways](#) studied.

In addition to measuring traditional fatty acid concentrations from blood, the researchers were also interested in changes that occur in fatty acid metabolites, which serve as mediators. An examination of fatty acid metabolism on this level makes it possible to study the effects of dietary polyunsaturated fatty acid in more detail than before. These results are promising and support earlier findings on the health benefits of fatty fish. However, further research into fatty-acid-derived mediators, and especially into the effects of camelina sativa oil's metabolites, is required.

More information: Topi Meuronen et al, Intake of Camelina Sativa Oil and Fatty Fish Alter the Plasma Lipid Mediator Profile in Subjects with Impaired Glucose Metabolism – A Randomized Controlled Trial, *Prostaglandins, Leukotrienes and Essential Fatty Acids* (2020). [DOI: 10.1016/j.plefa.2020.102143](#)

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