

Health-promoting Nordic diet reduces inflammatory gene activity in adipose tissue

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A Nordic study led by the Institute of Public Health and Clinical Nutrition at the University of Eastern Finland discovered that the health-promoting Nordic diet reduces the expression of inflammation-associated genes in subcutaneous adipose tissue. In overweight persons, the expression of these genes reduced without weight loss. To a certain extent, the adverse health effects of overweight are believed to be caused by an inflammatory state in adipose tissue. The results were published in the *American Journal of Clinical Nutrition*.

Overweight is associated with problems in sugar and lipid metabolism as well as with atherosclerosis, and these may be caused by a low-grade inflammatory state resulting from disturbed [adipose tissue](#) function. Long-term research into the role of diet in the function of adipose tissue genes and inflammatory state remains scarce.

This newly published study was part of the Nordic SYSDIET Study. The objective was to find out whether the health-promoting Nordic diet affects the expression of genes in adipose tissue without weight loss. The study participants were middle-aged men and women exhibiting at least two characteristics of metabolic syndrome, such as elevated blood pressure or fasting blood sugar levels, abnormal blood lipid values, or at least slight overweight.

For a period of 18 to 24 weeks, half of the study participants followed the health-promoting Nordic diet consisting of whole grain products, vegetables, root vegetables, berries, fruit, low-fat dairy products,

rapeseed oil and three servings of fish per week. The [control group](#) consumed low-fibre grain products, butter-based spreads, and had a limited intake of fish. The participants were asked to maintain their body weight unchanged during the intervention, and no significant weight changes occurred during the study period. Samples of the [study participants'](#) adipose tissue were taken at the beginning and end of the study, and a transcriptomics analysis was performed in order to study the expression of genes.

Differences in the function of as many as 128 different genes were observed in the adipose tissue of the health-promoting Nordic diet group and the control group. In the health-promoting Nordic diet group, the expression of several inflammation-associated genes was lower than in the control group. According to the study researchers, the fact that diet can be used to affect the function of inflammation-associated genes without [weight loss](#) is significant. The study sheds further light on the significance of diet in the healing of low-grade inflammation, which is associated with several chronic diseases.

More information: "Healthy Nordic diet downregulates the expression of genes involved in inflammation in subcutaneous adipose tissue in individuals with features of the metabolic syndrome" *Am J Clin Nutr* January 2015 101: 228-239; First published online November 19, 2014. [DOI: 10.3945/ajcn.114.092783](https://doi.org/10.3945/ajcn.114.092783)

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