

Effect of Combining Weight Reduction with Dietary n-3 LCPUFA in Obese and Insulin Resistant Mice

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Aim: Obesity results in low grade systemic inflammation, which may be causal in developing metabolic syndrome. Weight reduction reverses symptoms of metabolic dysfunction, and n-3 LCPUFA have protective effects when included in the diet. In this study we aim to investigate the effects of combining weight reduction with dietary n-3 LCPUFA and to characterize the connection between increased fat mass and inflammation.

Methods: Mice were fed a high fat diet (60 E% fat) for 10 weeks to promote obesity, and were then shifted to a low fat test diet (6 E% fat) for 4 weeks in which the fat was either fish oil or a control fat (90 % lard + 10 % safflower oil). The control fat was design to mimic a typical Danish fatty acid composition in regard to intake of saturated, monounsaturated and polyunsaturated fat. One group of mice were kept on low-fat chow through the entire feeding period, and one group remained on the high fat diet. Oral glucose tolerance tests were carried out after 10 weeks and again 4 weeks later.

Results: The low-fat diet induced substantial weight-loss and in this presentation, we will present data that describes the effects of combining weight-loss and different fatty acid sources on gene expression of a battery of genes involved in inflammatory and adipokine pathways in adipose tissue, glucose-tolerance, circulating adipokines, insulin, glucose and lipids.