

Incorporation of Phytanic Acid into Hepatic Lipids, after 3 weeks Feeding of Dietary Induced Obese Mice 0,5 mass% Phytanic Acid in a High Fat Diet.

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Phytanic acid (PA), 3,7,11,15-tetramethyl hexadecanoic acid, is a branched chain fatty acid with reported agonist-activity for retinoid-x-receptor (RXR) and peroxisome proliferator-activated receptor- α (PPAR α), which have been suggested to have preventive effects on metabolic dysfunctions, at the same time, others have suggested that phytanic acid might be implicated in development of prostate-cancer. The only source for phytanic acid in the diet, is dairy products and ruminant meat. In milk, concentrations up to around 0.5mass% of the fat fraction have been reported [1]. To reveal whether intake of natural concentrations of phytanic acid is enough to alter metabolic function and cause incorporation in the hepatic lipid pool, a feeding study have been performed in obese mice. In this poster, data on lipid incorporation will be presented.

Obesity was induced in eight male C57bl/6 mice through feeding 60E% fat (75% High oleic acid sunflower oil and 25% Lard) *ad lib* for 10 weeks. Subsequently the mice were fed for three weeks with a similar feed with addition of 0,5 mass% phytanic acid of the total fat. Hereafter was the animals sacrificed and hepatic lipid composition was determined.

The phytanic acid feeding led to an increased percentage of PA in PL, TAG and FFA in hepatic tissue, compared to corresponding mice not given PA, indicating that the concentration of phytanic acid in dairy fat, will affect the concentration phytanic acid in the liver and might either lead to the positive or negative health effects, that have been suggested.

References:

1. Leiber, F. *et al.* Lipids, Vol 40, no. 2, 2005.