

Improved plasma lipids and body weight in overweight/obese patients with type III hyperlipoproteinemia after 4 weeks on a low glycemic diet. Kjetil Retterstøl et al. *Clin Nutr* 2009;28(2):213-215.

Background & aim: The optimal diet for type III hyperlipoproteinemia is unknown. We examined blood lipids and body weight following low or high glycemic index diets in comparison with a lipid-lowering diet. **Materials and methods:** Sixteen overweight/obese men completed a cross-over study where they followed a standard lipid-lowering diet, a high and a low glycemic index diet, each lasting 4 weeks. Measurements were obtained at the end of each diet intervention. **Results:** The lipid-lowering diet reduced significantly LDL cholesterol, and apolipoprotein B by 24%, and 17%, whereas high glycemic index increased LDL cholesterol with 21%. The low glycemic index diet reduced ($p < 0.05$) total and LDL cholesterol and apolipoprotein B compared with the lipid-lowering diet. A moderate weight loss ($p < 0.05$) was achieved after the lipid-lowering diet compared with baseline: 1.4 (–3.6–0.2; median, 95% CI) kg and similar to that after high glycemic index diet. A low glycemic index diet resulted in 2.4 (–3.9–1.4) kg weight loss compared with the high glycemic index diet ($p < 0.05$). **Conclusion:** A low glycemic index diet may be superior to that of a standard lipid-lowering diet in type III hyperlipoproteinemia. **Keywords:** Diet; Glucose; Glycemic index; Lipids; Type III hyperlipoproteinemia; Weight loss.

Effect of fat saturation on satiety, hormone release, and food intake. Jeroen Maljaars et al. *Am J Clin Nutr* 2009;89(4):1019-1024.

Background: Ileal delivery of fat reduces hunger and food intake through activation of the ileal brake. Physicochemical properties of fat have been shown to affect satiety and food intake. **Objective:** The objective of this study was to assess the effect of ileal fat emulsions with differing degrees of fatty acid saturation on satiety, food intake, and gut peptides (cholecystokinin and peptide YY). We hypothesized that long-chain triacylglycerols with diunsaturated fatty acids would increase satiety and reduce energy intake compared with long-chain triacylglycerols with monounsaturated or saturated fatty acids. **Design:** We performed a double-blind, randomized, crossover study in which 15 healthy subjects [mean age: 24 y; mean body mass index (in kg/m²): 22] were intubated with a naso-ileal catheter and participated in 4 experiments performed in random order on 4 consecutive days. After consumption of a liquid meal, subjects received a fat or control infusion in the ileum. Fat emulsions consisted of 6 g of 18:0 (shea oil; mainly 18:0), 18:1 (canola oil; mainly 18:1), or 18:2 (safflower oil; mainly 18:2) oils. Food intake was measured during an ad libitum lunch. Satiety questionnaires (visual analog scale) and blood samples were collected at regular intervals. **Results:** Compared with the control, only 18:2 and 18:1 significantly increased fullness and reduced hunger. No effect on food intake was observed. 18:1 and 18:2 increased cholecystokinin secretion significantly compared with the control. Fatty acid saturation did not affect peptide YY secretion. **Conclusions:** When infused into the ileum, triacylglycerols with unsaturated fatty acids increase satiety, whereas triacylglycerols with saturated fatty acids does not. This trial was registered with the Dutch Trial Register as ISRCTN51742545.

Cardiovascular risk factors in young, overweight, and obese European adults and associations with physical activity and omega-3 index. Alfons Ramel et al. *Nutr Res* 2009;29(5):305-312.

Abstract: Excess body fat is associated with increased cardiovascular disease (CVD) risk. The hypothesis of the study was that physical activity and omega-3 index, a marker of past long chain n-3 polyunsaturated fatty acids consumption, counteract the negative associations between fatness and CVD risk factors in young overweight and obese adults. A total of 324 subjects (20-40 years, body mass index [BMI], 27.5-32.5 kg/m², from Iceland, Spain, and Ireland) were investigated cross-sectionally. Dietary intake, anthropometric measurements, blood pressure, CVD risk factors, and fatty acids in erythrocyte membrane were analyzed. Information on physical activity was collected. Linear models were constructed to find out the associations of BMI, physical activity (quartiles), and omega-3 index with CVD risk factors. The most frequently increased risk factors were blood lipids (41.4%) and blood pressure (32.1%); fewer participants experienced disturbed glucose metabolism (11.8%). Body mass index was significantly associated with increased CVD risk factors ($P = .001-.029$), with the exception of total cholesterol, low-density lipoprotein, and high-density lipoprotein. The highest physical activity quartile had a lower fat mass ($P = .005$, at a given BMI), leptin ($P = .008$, in male

participants only), and interleukin 6 ($P = .021$) but higher high-density lipoprotein ($P = .020$) than other quartiles; however, an approximate dose-response relationship could only be observed for leptin. The omega-3 index was not associated with lower low-density lipoprotein ($P = .056$), but docosahexaenoic acid in erythrocyte membrane was associated to it ($P = .016$). It is concluded that physical activity and docosahexaenoic acid diminish some of the negative health effects associated with overweight and obesity; however, body fatness remains the most important variable associated with increased CVD risk factors in young overweight and obese adults. **Keywords:** Cardiovascular risk factors; Physical activity; Omega-3-index; BMI; Human.