How can seafood promote health and prevent diseases in young European families?

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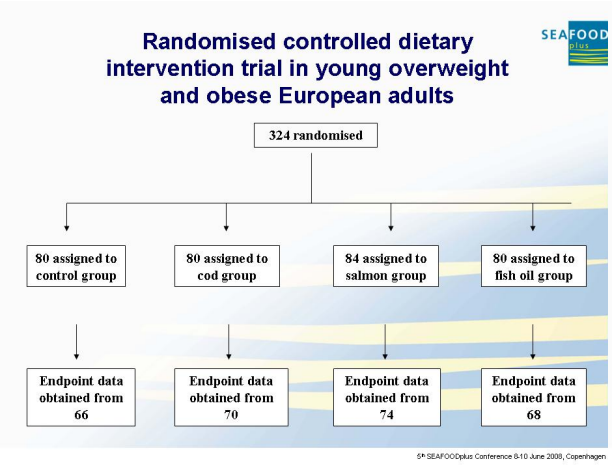

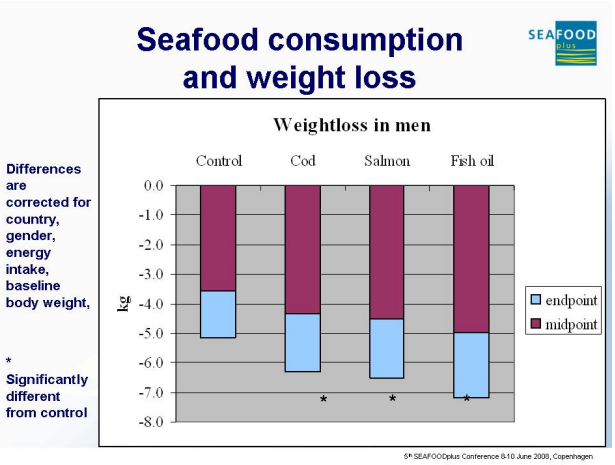

The aim of the YOUNG project in SEAFOODplus was to investigate the effects of seafood consumption on body composition and various health related measures in overweight and obese participants during energy restriction.

In this 8 week dietary intervention, 324 participants (20–40 years, BMI 27.5-32.5 kg/m2, from Iceland, Spain and Ireland) were randomised by computer to one of four energy-restricted diets (–30E%) of identical macronutrient composition but different seafood content: control (n = 80; no seafood; single-blinded); lean fish (n = 80; 150 g cod, three times/week); fatty fish (n = 84; 150 g salmon, three times/week); (4) fish oil (n = 80; daily docosahexaenoic/eicosapentaenoic acid capsules, no other seafood; single-blinded). Anthropometric measurements were conducted at baseline, midpoint and at endpoint of the study, blood was drawn in fasting condition at baseline and endpoint and analysed, a.o., for blood lipids, hormones and bone markers. Dietary intake was assessed using a two-day food record at baseline and during the last two weeks of the intervention, and fish consumption was measured using a FFQ.

The FFQ was suitable for ranking young adults according to their intake of fish and fish oil and could therefore be used as a tool to identify high- and low-fish consumers. Weight-loss-diets containing lean or fatty fish or fish oil resulted in ~1 kg more weight-loss in young adult men already after four weeks, a difference which remained significant after 8 weeks. Circulating triglycerides decreased significantly more by 0.09, 0,13 and 0.086 mmol/L in the groups receiving lean fish, salmon and fish oil, respectively, when compared with the control group. Endpoint insulin resistance was reduced by 16.1% in the fish-oil group compared to the control group. The cod diet was accompanied by improvements on oxidative stress markers. Neither fish nor fish oil consumption had an effect on the changes in bone markers induced by weight loss, however salmon consumption significantly increased serum 25-hydroxyvitamin D. Compliance to varying seafood consumption was good which was cofirmed by changes in erythrocyte long-chain n-3 fatty acids and by the FFQ.

Regular seafood consumption, fish as main course three times a week or daily fish oil intake, can be regarded as a well accepted way to increase weight loss on a moderate energy restriction during eight weeks. Fish intake corresponding to ~65 g on average a day or a daily intake of fish oil (1.5 g n-3 fatty acids) also improves independently several health related measures during energy restriction in overweight and obese people.