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## Genetically determined body weight loss in mice fed diets containing salmon oil.

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### Abstract

Several reports describe adverse effects of dietary fish oil. We examined the influence of dietary salmon oil (138 g/kg diet) fed without or with 5 g supplemental cholesterol/kg diet on body weight and plasma lipid concentrations of inbred mice. Salmon oil contained 0.17 g naturally occurring cholesterol/kg diet. Mice used were BALB/c, C57BL/6 and seven recombinant inbred strains derived from BALB/c and C57BL/6 (CXB). Parental strains BALB/c and C57BL/6 maintained or gained body weight when fed both salmon oil diets. Mice of recombinant inbred strains showed weight gain except for CXB-E and -H mice. Although CXB-E mice lost approximately 12% of initial body weight after 10 d of consuming either salmon oil diet, no further reductions in body weight were seen. CXB-H mice maintained or gained weight when fed the salmon oil-high cholesterol diet but showed a steady decline in body weight (up to 30% of initial weight) while consuming the salmon oil-low cholesterol diet. The biochemical basis for weight loss in CXB-H mice was studied and results suggest effects of diet on satiety and/or lipid utilization. Because nonparental body weight phenotypes were observed among recombinant inbred strains, body weight response to salmon oil feeding is controlled by multiple genes.

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