

Development and evaluation of foods enriched with omega-3 fatty acids (ω 3) from fish oil

KJ Murphy¹, J Mansour², CS Patch³, G Weldon⁴, D Ross⁴,
TA Mori², LC Tapsell³, BJ Meyer³, M Noakes⁵, PA Clifton⁵, IB Puddey², PRC Howe^{1,6}
*1School of Health Science, University of South Australia, Adelaide, 2School of Medicine,
University of Western Australia, Perth, 3Smart Foods Centre, University of Wollongong,
Wollongong, 4Goodman Fielder Limited, North Ryde, 5Health Sciences & Nutrition, CSIRO,
Adelaide, 6School of Molecular & Biomedical Science, University of Adelaide, Adelaide*

Aim: To develop a novel range of processed foods enriched with ω 3 from fish oil; to assess the feasibility of targeted dietary advice to achieve an intake of 1g ω 3/d based on regular use of these foods; to see if regular consumption of these foods can improve cardiovascular health.

Design: Volunteers who were overweight and had elevated plasma lipids were enrolled in a 6-month dietary intervention trial at Adelaide (n= 50) and Perth (n= 44). A variety of ω 3 enriched foods and matching control foods including bread, milk, spread, eggs, biscuits, cereals, soups, pancake mix, muffin mix, salad dressing, dips, snacks and chocolates were prepared for the trial by Goodman Fielder Ltd. Subjects were randomised to choose 8 serves per day from a selection of either control or enriched foods (~125mg ω 3 per serve) and to substitute them for equivalent foods in their regular diet. Dietary compliance, food preferences and a range of cardiovascular biomarkers were assessed initially and at 3 and 6 months.

Outcomes: The trial is still in progress; 44 Adelaide and 37 Perth subjects remain in the study after 3 months. They are consuming on average 6.5 serves of test foods (~800 mg ω 3 in the case of enriched foods) daily. Except for bread, ω 3 enriched foods are liked as much as control foods.

Conclusion: This long term study in free-living subjects indicates that intakes of marine ω 3 can be substantially increased through provision of a variety of ω 3 enriched processed foods.

Supported by an ARC Linkage grant with Goodman Fielder Ltd