

Posters

Growth of preterm infants fed high dose docosahexaenoic acid

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Background - Some early trials in preterm infants suggested that formula supplementation with n-3 long-chain polyunsaturated fatty acids (LCPUFA) was associated with poor weight gain and reductions in linear growth, despite improvements in visual function. Although some subsequent trials have shown no effect of supplementation on growth the area remains controversial.

Objective - To determine if preterm infants fed breast milk or formula supplemented with high DHA (1% of total fat w/w) have altered growth when compared with infants fed the standard dose (0.3% w/w of total fat) of DHA.

Design - Infants born at <33 weeks gestation were enrolled in a double-blind randomised controlled trial of DHA supplementation. Enrolments were stratified for gender and birth weight (<1250 g and ≥1250 g). Infants were fed the test diets from enrolment until their due date. Daily weight and weekly length and head circumference measurements were taken during hospitalisation. Growth was measured at discharge, at expected due date (EDD), and at 2 and 4 months corrected age (CA).

Outcomes - Of 143 infants enrolled, 138 were invited to attend follow-up assessment appointments (4 withdrawals and 1 infant died). Mean birth weight was 1278 ± 401 g for females, and 1398 ± 463 g for males. Intention-to-treat comparisons of the control and treatment groups demonstrated no significant differences in weight, length or head circumference at the end of the intervention period or at 4 months CA. Boys demonstrated greater weight gain and linear growth than girls.

Conclusion - Negligible effects of high dose DHA supplementation were found on growth performance of preterm infants.

Quality assessment of canned tuna in brine during storage based on changes in composition of lipids, fatty acids and thiobabuturic acid production

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Background - Fish and fish product are known as a good source of n-3 polyunsaturated fatty acid (PUFA). Canned fish is an important food item, especially for bush walkers, travellers and armed service personnels. However, there is no data on effect of storage length on composition of lipids and fatty acids in canned tuna in brine.

Objective - The aim of the present study was to investigate the effect of storage length on composition of lipids and fatty acids in canned tuna in brine.

Design - Twenty-five canned tuna in brine were obtained from the same batch production, they were supplied by Thai-Ruamsin Co. Ltd., and kept at room temperature until analysis. The lipids were extracted by chloroform-methanol (2:1, v/v) containing 10mg/L of butylatedhydroxytoluene (BHT) and 0.2 mg/mL of tricosanoic acid (23:0) as internal standard. Lipids were separated by Iatroscan TLC/FID, fatty acids and thiobabuturic acid (TBA) were analyzed by standard methods.

Outcomes - The most predominant lipid was phospholipid (PL). Cholesterol ester was stepwise increasing ($P < 0.05$), and triacylglycerol, free fatty acids, sterols and PL were stepwise decreasing with storage time. The concentrations of total PUFA, total n-3 and n-6 PUFA were decreased from 0 to 3 to 6 to 9 and 12 months ($P < 0.05$), DHA, 22:5n-3 and 22:5n-6 started decreasing from 6 months, and 20:5n-3, 20:4n-6 and 22:4n-6 decreasing from 3 months ($P < 0.05$). Decreased DHA and total n-3 PUFA were associated with an increased TBA values.

Conclusions - Based on the present results, we suggest that the canned tuna in brine should not be stored longer than 6 months in respect with decomposition of n-3 PUFA and production of TBA.