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Dietary reference intakes for DHA and EPA

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Recommendations of National or Health Organizations 多國或衛生組織的建議	Dietary Reference Intake (DRI) of EPA + DHA	
	Men (per day)	Women (per day)
Australia and New Zealand National Health and Medical Research Council 澳大利亞和新西蘭國家衛生與醫學研究委員會:	610 mg (including DPA (Docosapentaenoic acid))	430 mg (including DPA)
World Health Organization 世界衛生組織:	400 – 1000 mg per week	
Dutch Health Council 荷蘭衛生局:	450 mg	
United Kingdom Scientific Advisory Committee on Nutrition 英國科學諮詢委員會-營養:	450 mg	
The American Dietetic Association / Dietitians of Canada: 美國 / 加拿大 營養師協會	500 mg	
France法國: AFFSA, CNERNA & CNRS	500 mg (DHA 120 mg minimum)	
Superior Health Council of Belgium 比利時衛生局:	667 mg	
World Association of Perinatal Medicine, the Early Nutrition Academy, and the Child Health Foundation 世界圍產醫學協會, 早期營養學院和兒童健康基金:	200mg of DHA (Pregnant and lactating)	
International Society for the Study of Fatty Acids & Lipids 國際脂類研究社:	minimum 500 mg for cardiovascular health	

Musculoskeletal System 骨骼系統

Fish-oil supplementation enhances the effects of strength training in elderly women 魚油增強年長婦女力量訓練的效果

Cintia LN Rodacki, Andre´ LF Rodacki, Gleber Pereira, Katya Naliwaiko, Isabela Coelho, Daniele Pequito, and Luiz Cláudio Fernandes

American Journal of Clinical Nutrition 2012; 95:428–36. (ajcn.nutrition.org)

SUMMARY 概要

Muscle force and functional capacity generally decrease with aging in the older population. **Fish oil (FO)**, which is rich in n-3 (omega-3) PUFAs, has been shown to play a role in the plasma membrane and cell function of muscles, which may enhance the benefits of training.

The study of the chronic effect of FO (2 g/d for 90 d or for 150 d) supplementation and strength training on the neuromuscular system (muscle strength and functional capacity) of Forty-five women (aged 64 +/- 1.4 y) concluded that the inclusion of **FO supplementation caused greater improvements in muscle strength and functional capacity than strength training in elderly women.**

肌肉力量和能力因老齡化下降。已證明魚油（FO）所含的n-3多不飽和脂肪酸對肌肉細胞質膜和功能之角色，或可提升能力訓練的功效。

這項長期研究45名婦女（年齡 64 ± 1.4 年）每天服用2克魚油 為期 90天或150天對能力（肌肉力量和功能）訓練得出的結論是：在中老年婦女，**補充魚油比能力訓練對肌肉力量和功能有更大改善。**

Cancer 癌症

Omega-3 and omega-6 fatty acid intakes and endometrial cancer risk in a population-based case-control study 攝入 ω -3和 ω -6脂肪酸子宮內膜癌的風險的研究

Authors affiliated with Yale Cancer Center Yale School of Public Health, School of Medicine European Journal of Nutrition April 2013, 52(3), 1251-1260

SUMMARY 概要

Animal and laboratory studies suggest that long-chain omega-3 (n-3) fatty acids found in fatty fish may protect against carcinogenesis. The associations between endometrial cancer risk and intake of fatty acids in a population-based sample of 556 incident cancer cases and 533 age-matched controls were evaluated using multivariate unconditional logistic regression methods. It is concluded that dietary **intake of the long-chain polyunsaturated fatty acids EPA and DHA may have protective associations against the development of endometrial cancer.**

動物實驗室研究發現，魚類長鏈 ω -3 (N-3) 脂肪酸或可預防癌變。這項研究採用多因素非條件邏輯回歸的方法評估556個症病例和533個對照人群攝入脂肪酸對子宮內膜癌的風險，結論是攝入EPA和DHA或可對抗子宮內膜癌的發展。

British Journal of Cancer (1999) 81(1), 80–86
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Article no. bjoc.1999.0654

The effect of an oral nutritional supplement enriched with fish oil on weight-loss in patients with pancreatic cancer

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SUMMARY 概要

Previous studies have suggested that administration of oral EPA will stabilize weight in patients with advanced pancreatic cancer. This study of 20 patients with unresectable pancreatic adenocarcinoma who consumed 2 cans of a fish oil-enriched nutritional supplement (each can contained 310 kcal, 16.1 g protein and 1.09 g EPA) per day in addition to normal food intake suggests that an **EPA-enriched supplement may reverse cachexia in advanced pancreatic cancer.**

以往的研究表明，口服EPA可穩定晚期胰腺癌病人的體重。這項研究表明20例不能切除的胰腺癌病人，每天除正常食物外，服用2罐魚油補充劑（每罐含310千卡，16.1克蛋白質和1.09克EPA）或可逆轉晚期胰腺癌病人之瘦弱惡病質。

Metabolic response to feeding in weight-losing pancreatic cancer patients and its modulation by a fish-oil-enriched nutritional supplement

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It has been suggested that EPA can modify beneficially the metabolic response to cancer. 16 weight-losing, non-diabetic patients with unresectable pancreatic adenocarcinoma and 6 healthy, weight-stable controls were studied. Provision of 2g of EPA daily results in some normalization of metabolic response in both the fasted and fed states, in association with an **improvement in nutritional status**.

Review

Cancer Research

Chemoprevention of Breast Cancer by Fish Oil in Preclinical Models: Trials and Tribulations

Carina Signori¹, Karam El-Bayoumy², Jose Russo⁵, Henry J. Thompson⁶, John P. Richie³, Terry J. Hartman⁴, and Andrea Manni¹

Abstract

Despite the perception that omega-3 fatty acids (*n*-3 FA) protect against breast cancer, epidemiologic studies have yielded inconsistent results. Although preclinical data have been, in general, more supportive of a protective effect of *n*-3 FA on breast cancer, inconsistencies still remain, which preclude definite conclusions or in-depth mechanistic investigations despite 30 years of research in this area. In this review, we discuss key variables that may account for inconsistencies of results across preclinical studies and provide recommendations for future experiments testing the chemopreventive effect of *n*-3 FAs in breast cancer, as part of a multiagent approach under rigorously controlled conditions. *Cancer Res*; 71(19): 6091–6. ©2011 AACR.

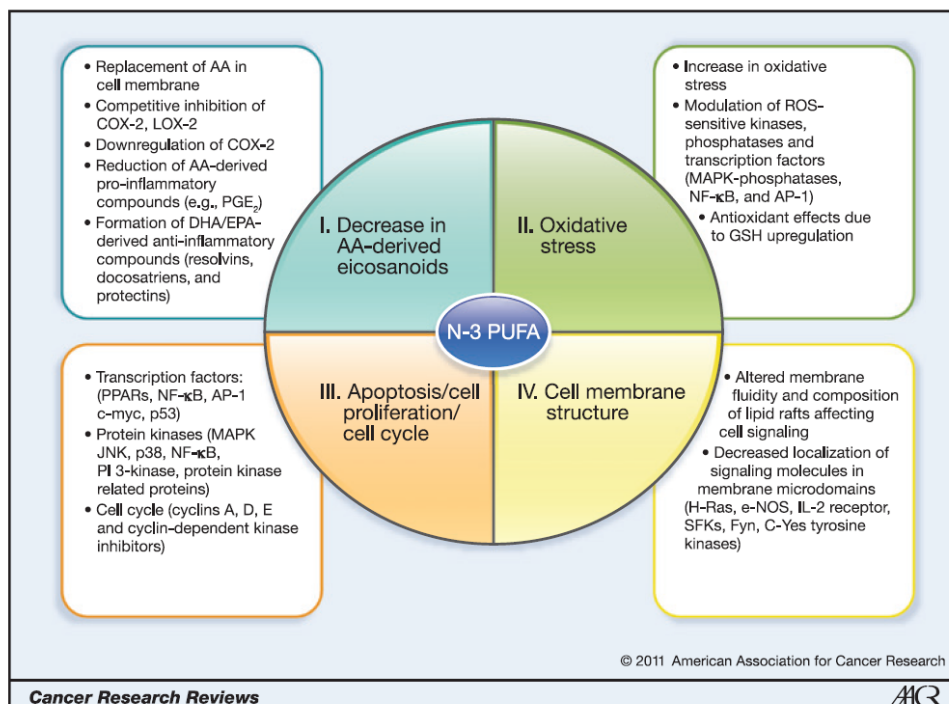


Figure 1. Simplified scheme of the multiple potential mechanisms of breast cancer prevention by *n*-3 FAs. *n*-3 Polyunsaturated fatty acids (PUFA) influence multiple cellular mechanisms, potentially mediating mammary carcinogenesis by affecting eicosanoid metabolism, oxidative stress, cell-membrane structure, and proliferation and apoptosis. AA, arachidonic acid; COX-2, cyclooxygenase-2; GSH, glutathione; IL-2, interleukin 2; JNK, *c-jun* NH₂ kinase; LOX, lipoxygenase; SFK, Src-family kinase; MAPK, mitogen-activated protein kinase; PI, phosphatidylinositol; PGE₂, prostaglandin E₂; ROS, reactive oxygen species.

Original Article

Fish oil supplementation is beneficial on caloric intake, appetite and mid upper arm muscle circumference in children with leukaemia

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SUMMARY 概要

A randomised trial was carried out to determine the effect of supplementation of fish oil among 51 children with leukaemia aged 4 to 12 years on appetite level, caloric intake, body weight and lean body mass. It concludes that supplementation of fish oil has a positive effect on appetite level, caloric intake and MUAMC among children with leukaemia.

一項隨機研究表明 51 名 4 至 12 歲患白血病兒童補充魚油對食慾，攝入熱量和體重有積極影響。

Review Article

**Fetal and Neonatal Levels of Omega-3:
 Effects on Neurodevelopment, Nutrition, and Growth**

**Juliana Rombaldi Bernardi, Renata de Souza Escobar,
 Charles Francisco Ferreira, and Patricia Pelufo Silveira**

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Omega-3 polyunsaturated fatty acids (n-3 LCPUFAs) play an important role in brain development and function. Evidence from animal models of dietary n-3 LCPUFAs deficiency suggests that these fatty acids promote early brain development and regulate behavioral and neurochemical aspects related to mood disorders (stress responses, depression, aggression, memory, and cognitive functions). Preclinical and clinical studies suggest the role of n-3 LCPUFAs on neurodevelopment and growth. n-3 LCPUFAs may be an effective adjunctive factor for neural development, growth, and cognitive development. This paper summarizes the role of n-3 LCPUFAs levels during critical periods and their effects on the children's neurodevelopment, nutrition, and growth. It concludes that n-3 LCPUFAs represent an attractive supplementary alternative as they are perceived as a natural substance rather than an artificial supplement, and the dietary consumption and supplementation of **n-3 LCPUFAs could provide physical and mental health benefits for development.**

ω -3 多不飽和脂肪酸(n-3 LCPUFAs)對大腦發育和功能起重要作用。動物研究表明 n-3 LCPUFAs 促進大腦發展和調節情緒障礙相關的行為和神經化學方面（壓力反應，抑鬱，敵對情緒，記憶和認知功能）。臨床前期和臨床研究表明 n-3 LCPUFAs 對神經發育和生長起作用。n-3 LCPUFAs 可能是神經系統的發育，生長和認知發展的有效輔助因素。這研究總結了 n-3 LCPUFAs 在兒童的神經發育，營養及成長關鍵時期的效應。其結論是 n-3 LCPUFAs 是一種天然物質，被視作有效的膳食補充，**對身體發展和心理健康帶來好處。**

Effects of fish oil supplementation on learning and behaviour of children from Australian Indigenous remote community schools: A randomised controlled trial

Natalie Parlettaa, Patrick Cooperb, Debra N. Genta, John Petkovc, Kerin O'Deaa

Available online 10 June 2013, Elsevier Ltd.

University of South Australia Sansom Institute for Health Research, School of Population Health and Health and Department of Education and Training

Summary

Omega-3 fatty acids are essential for brain function. 409 children aged 3–13 years were recruited for a randomised controlled trial supplementing with placebo or fish oil capsules (providing 750 mg DHA plus EPA, and 60 mg gamma linolenic acid/school day) for 20 school weeks (Phase 1) followed by one-way crossover to fish oil (Phase 2). The treatment group showed improvements in Draw-A-Person compared with the placebo during Phase 1 ($p=0.029$), with strongest effects in Indigenous 7–12 year olds ($p=0.008$). The placebo group showed significant within-group improvements after switching to treatment ($p<0.001$). These findings may be understood in the context that **sustained school attendance and nutrition interact to produce school-related achievement.**

Effects of dietary supplementation with fish oil on dry eye syndrome subjects: randomized controlled trial

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(Received 5 July 2013; and accepted 30 July 2013)

Summary

27 typical dry eye subjects were selected and randomized to take 1245mg of EPA and 540mg of DHA daily versus placebo. The results showed that **fish oil supplementation added to usual care may be effective in the treatment of dry eye.**

Long-Chain Omega-3 Fatty Acids Eicosapentaenoic Acid and Docosahexaenoic Acid and Blood Pressure: A Meta-Analysis of Randomized Controlled Trials

Paige E. Miller,¹ Mary Van Elswyk,² and Dominik D. Alexander³

American Journal of Hypertension 27(7) July 2014, 885 - 896

Summary

70 randomized controlled trials (RCTs) were included for meta-analysis, it is concluded that **provision of EPA+DHA reduces systolic blood pressure, while provision of ≥ 2 grams reduces diastolic blood pressure.**

RESEARCH ARTICLE

Fish Oil Supplements Lower Serum Lipids and Glucose in Correlation with a Reduction in Plasma Fibroblast Growth Factor 21 and Prostaglandin E2 in Nonalcoholic Fatty Liver Disease Associated with Hyperlipidemia: A Randomized Clinical Trial



Yu Qin^{1*}, Yong Zhou^{1*}, Shi-Hui Chen¹, Xiao-Lan Zhao², Li Ran¹, Xiang-Long Zeng¹, Ying Wu¹, Jun-Li Chen¹, Chao Kang¹, Fu-Rong Shu¹, Qian-Yong Zhang^{1*}, Man-Tian Mi^{1*}

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Summary

Fish oil has been used effectively in the treatment of cardiovascular disease via triglyceride reduction and inflammation modulation. This double blind, randomized clinical trial of 80 participants with nonalcoholic fatty liver disease NAFLD associated with hyperlipidemia who consume fish oil (n=40, 4 g/d) or corn oil (n=40, 4 g/d) for 3 months concludes that **fish oil can benefit metabolic abnormalities associated with NAFLD treatment.**

See discussions, stats, and author profiles for this publication at: <http://www.researchgate.net/publication/233848525>

Reduced medication use and improved pulmonary function with supplements containing vegetable and fruit concentrate, fish oil and probiotics in asthmatic school children: A randomis...

ARTICLE *in* THE BRITISH JOURNAL OF NUTRITION · DECEMBER 2012

Impact Factor: 3.45 · DOI: 10.1017/S0007114512004692 · Source: PubMed

Abstract

In the 16-week school-based double-blind placebo-controlled randomised trial, 192 asthmatic school children aged 10–12 years were recruited in Taipei. Compared with the placebo group, the supplement group who received **fish oil**, fruit plus vegetable concentrate and probiotics **showed significant improvement in pulmonary function and reduced medication use in asthmatic children.** The study supports an adjuvant intervention with a combination of fish oil, fruit, vegetable and probiotic foods.