

Bond University  
Research Repository



**The effect of oral omega-3 polyunsaturated fatty acid supplementation on muscle maintenance and quality of life in patients with cancer: A systematic review and meta-analysis**

Lam, Chung Nga; Isenring, Elisabeth; de van der Schueren, Marian; Van der Meij, Barbara S

*Published in:*  
Clinical Nutrition ESPEN

*DOI:*  
[10.1016/j.clnesp.2020.09.788](https://doi.org/10.1016/j.clnesp.2020.09.788)

*Licence:*  
CC BY-NC-ND

[Link to output in Bond University research repository.](#)

*Recommended citation(APA):*  
Lam, C. N., Isenring, E., de van der Schueren, M., & Van der Meij, B. S. (2020). The effect of oral omega-3 polyunsaturated fatty acid supplementation on muscle maintenance and quality of life in patients with cancer: A systematic review and meta-analysis. *Clinical Nutrition ESPEN*, 40, [LB-237].  
<https://doi.org/10.1016/j.clnesp.2020.09.788>

**General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

For more information, or if you believe that this document breaches copyright, please contact the Bond University research repository coordinator.

# ESPEN 2020 Late Breaking Abstracts

*Topic: Nutrition and cancer*

Abstract Submission Identifier: ESPEN20-LB-2108

## THE EFFECT OF ORAL OMEGA-3 POLYUNSATURATED FATTY ACID SUPPLEMENTATION ON MUSCLE MAINTENANCE AND QUALITY OF LIFE IN PATIENTS WITH CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

C. N. Lam<sup>\*</sup>, <sup>1</sup>, A. Watt<sup>2</sup>, E. A. Isenring<sup>1</sup>, M. A. de van der Schueren<sup>3, 4</sup>, B. S. van der Meij<sup>1, 5, 6</sup>

<sup>1</sup>Bond University, Gold Coast, <sup>2</sup>Royal Brisbane and Women's Hospital, Brisbane, Australia, <sup>3</sup>Department of Nutrition and Health, HAN University of Applied Sciences, Nijmegen, <sup>4</sup>Division of Human Nutrition and Health, Wageningen University & Research, Wageningen, Netherlands, <sup>5</sup>Dietetics and Foodservices, Mater Health, <sup>6</sup>Mater Research Institute, University of Queensland, Brisbane, Australia

**Rationale:** Omega-3 polyunsaturated fatty acid (PUFA) supplementation is a promising therapy for cancer-related malnutrition, which affects 20-70% of patients with cancer<sup>1,2</sup>. This systematic review aimed to examine the effects of oral omega-3 PUFA supplementation on muscle maintenance and quality of life in patients with cancer.

**Methods:** Randomised controlled trials in cancer patients aged >18 years were retrieved from 5 electronic databases; MEDLINE (via PubMed), EMBASE, CENTRAL, CINAHL (via EBSCOhost), and Web of Science, from database inception until 31<sup>st</sup> of December 2019. Trials supplementing  $\geq 600$  mg/d omega-3 PUFA (oral capsules, pure fish oil or oral nutritional supplements) or a control intervention for  $\geq 3$  weeks were included. Meta-analyses were performed in RevMan to determine the mean differences (MD) in muscle mass and quality of life between omega-3 PUFA and control groups with 95% confidence intervals (CI) and  $I^2$  for heterogeneity.

**Results:** We included 33 studies in patients with various types of cancers and degrees of malnutrition. The Cochrane risk of bias tool graded most trials as 'unclear' or 'high' risk of bias. Meta-analyses showed oral omega-3 PUFA supplements improved physical functioning (MD: 6.33; 95% CI: 0.32, 12.34,  $p=0.04$ ;  $I^2=0\%$ ) and potentially reduced fatigue (MD: -6.21; 95% CI: -13.473, 1.05,  $p=0.09$ ;  $I^2=14\%$ ). However, there was no significant effect of omega-3 PUFA supplements on muscle mass, global health status, emotional functioning and symptoms (nausea and vomiting, loss of appetite and diarrhoea).

**Conclusion:** This review provides evidence for the benefits of oral omega-3 PUFA supplementation on quality of life but not on muscle maintenance in patients with cancer. Well-designed large-scale randomised controlled trials in homogenous patient cohorts are required to confirm these findings.

**References:** 1. Hébuterne X, Lemarié E, Michallet M, de Montreuil CB, Schneider SM, Goldwasser F. Prevalence of malnutrition and current use of nutrition support in patients with cancer. JPEN J Parenter Enteral Nutr. 2014;38(2):196-204. 2. Zhang X, Tang T, Pang L, Sharma SV, Li R, Nyitray AG, et al. Malnutrition and overall survival in older adults with cancer: A systematic review and meta-analysis. Journal of geriatric oncology. 2019;10(6):874-83.

**Disclosure of Interest:** None Declared

**Keywords:** cancer, malnutrition, omega-3 fatty acids