D. J. Palmer, T. Sullivan, and M. Makrides
Fish oil supplementation in pregnancy and childhood allergies: reply
Allergy: European Journal of Allergy and Clinical Immunology, 2014; 69(3):411-412

© 2014 John Wiley & Sons A/S. Published by John Wiley & Sons Ltd

This is the peer reviewed version of the following article: D. J. Palmer, T. Sullivan, and M. Makrides, Fish oil supplementation in pregnancy and childhood allergies: reply, Allergy: European Journal of Allergy and Clinical Immunology, 2014; 69(3):411-412, which has been published in final form at http://dx.doi.org/10.1111/all.12353. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Self-Archiving.

PERMISSIONS

http://olabout.wiley.com/WileyCDA/Section/id-820227.html

Publishing in a subscription based journal

Accepted Version (postprint)

Self-archiving of the accepted version is subject to an embargo period of 12-24 months. The embargo period is 12 months for scientific, technical, and medical (STM) journals and 24 months for social science and humanities (SSH) journals following publication of the final article.

The accepted version may be placed on:

• the author's personal website
• the author's company/institutional repository or archive
• certain not for profit subject-based repositories such as PubMed Central as listed below

Articles may be deposited into repositories on acceptance, but access to the article is subject to the embargo period.

The version posted must include the following notice on the first page:

"This is the peer reviewed version of the following article: [FULL CITE], which has been published in final form at [Link to final article using the DOI]. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Self-Archiving."

5 August 2015

http://hdl.handle.net/2440/89768
Reply to Qun Ui Lee

D. J. Palmer\textsuperscript{1,2}, T. Sullivan\textsuperscript{3}, M. Makrides\textsuperscript{1,4,5}.

\textsuperscript{1}Women’s & Children’s Health Research Institute, 72 King William Road, North Adelaide, South Australia, 5006, Australia.

\textsuperscript{2}School of Paediatrics and Child Health, University of Western Australia, Subiaco, Western Australia, 6008, Australia.

\textsuperscript{3}Data Management and Analysis Centre, University of Adelaide, Adelaide, South Australia, 5005, Australia.

\textsuperscript{4}School of Paediatrics and Reproductive Health, University of Adelaide, Children, Youth, Women’s Health Service, 72 King William Road, North Adelaide, South Australia, 5006, Australia.

\textsuperscript{5}Healthy Mothers, Babies and Children, South Australian Health and Medical Research Centre, North Terrace, Adelaide, South Australia.

Correspondence to: Prof Maria Makrides

Address: Women’s & Children’s Health Research Institute, 72 King William Road, North Adelaide, South Australia, 5006, Australia

Telephone number: +61 (0)8 8161 6067

Fax number: +61 (0)8 8239 0267

Email: maria.makrides@health.sa.gov.au

Word count: 572 words
Funding Declaration: The trial was supported by a grant from the Australian National Health and Medical Research Council (ID 399389) and a grant from the Australian Egg Corporation Limited. The treatment and placebo capsules were donated by Efamol, UK.

Key words

Allergy prevention; eczema; fatty acids; pregnancy; randomised controlled trial.

Lee¹ has raised some questions that we are pleased to address regarding our randomised controlled trial (RCT) on the effect of n-3 long-chain polyunsaturated fatty acids (LCPUFA) supplementation, predominantly as docosahexaenoic acid (DHA), in pregnancy on the cumulative incidence of IgE-mediated allergic disease in the first 3 years of life². As reported in our paper published in the British Medical Journal (BMJ)³, which focussed on eczema and food allergy outcomes over the first year of life, compliance with the trial products were good, with less than 2% of mothers in each group choosing not to take any capsules. At 28 weeks' gestation, 284/368 (77.2%) of mothers in the n-3 LCPUFA group and 280/338 (79.9%) of mothers in the control group reported that they had missed 0 to 3 capsules per week from a total of 21 capsules³. The cord blood concentrations of total n-3 LCPUFA, DHA and eicosapentaenoic acid in the plasma phospholipids from women in the n-3 LCPUFA group were higher (median 8.8%, 7.5% and 0.54%) compared to the control group (median 7.2%, 6.2% and 0.27%, \(P<0.0001\) for all comparisons)³. Hence we do not consider that lack of compliance contributed to our finding that overall n-3 LCPUFA supplementation during pregnancy did not significantly reduce IgE-associated allergic disease in the first three years of life.
We specifically chose the panel of allergens to be tested at 3 years of age to reflect those found to be most commonly associated with allergen sensitisation in Australian children. Another study found that the most common allergens to which children are sensitised at 4 years of age are house dust mite (11.9%), grass pollen (7.8%) and cat (5.8%). Dog sensitisation was only reported in 2.5% of children in this study and was not associated with the presence of a dog in the household. In our trial, 62.9% of families in the n-3 LCPUFA group had a dog as a pet in the first 3 years of life compared to 65.7% of families in the control group ($P=0.44$), hence dog ownership was unlikely to have influenced our trial outcomes.

More infants (96.1%) in the n-3 LCPUFA group were initially breastfed than in the control group (91.0%). As breastfeeding was a post-randomisation variable we did not adjust for this in statistical analyses, however in exploratory analyses we found no relationship between the initiation of breastfeeding and atopic eczema or egg sensitisation. Although the cow’s milk allergen extract became unavailable from the supplier for an extended period during the 3 year assessments, cow’s milk skin prick testing was performed on 666/706 (94.3%) of infants at 1 year of age, by which age 99% infants had been introduced to cow’s milk. We did not find a difference between the groups for cow’s milk sensitisation at 1 year of age, with 1.7% infants in the n-3 LCPUFA group having a positive skin prick test compared with 1.0% infants in the control group ($P=0.51$). This was despite more infants in the control group (79.8%) consuming cow’s milk protein formula in the first six months of life than the n-3 LCPUFA group (72.0%). Collectively these data suggest that the small imbalance between breastfeeding and formula feeding in the first 6 months of life did not influence the outcomes of the trial.
In summary, we thank Lee\textsuperscript{1} for raising their questions, however we do not believe that any of the issues raised influenced the allergy outcomes of the children in the trial.

Debra J Palmer, Thomas Sullivan and Maria Makrides

References:

1. Lee QU. Fish oil supplementation in pregnancy and childhood allergies. \textit{Allergy} \textbf{2014}; \textit{XX}(X): XXX-X.

