Reviewer's report

Title: An Increase in Dietary n-3 Fatty Acids Improves Bone Health in Humans

Version: 2 Date: 4 November 2006

Reviewer: Hope A Weiler

Reviewer's report:

General
This study is aimed at demonstrating in a convenience sample the effects of dietary n-3 PUFA on bone metabolism in predominantly overweight men with hypercholesterolemia. The study was originally planned to investigate the benefits of n-3 PUFA on cholesterol. Recently, there has been some debate over the benefits of n-3 PUFA for heart health at the possible expense of bone health. This study demonstrates that n-3 PUFA would be beneficial to both systems. The authors should make this statement stronger in the conclusions. It should also be made clear that the LA was similar across the groups in the diet and in the biological specimens suggesting that adding in ALA is the key not just changing amounts of LA.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
There are some errors in citations and also some key papers missing such as Dodin et al (1) in which flaxseed was the source of ALA and bone mass studied. A study in Japan what contains epidemiological data plus a small intervention by Terano (2) should be included along with the pilot work of Kruger prior to the full study in Aging Milano. Lastly a study in Crohn’s disease should be mentioned (3).


Title: the title should be revised to accurately reflect the observations as related to bone resorption specifically.

Abstract: the first line is not correct since some human studies also have shown effects on n-3 fatty acids. Units for NTx are nM BCE.

Introduction: the reports above should be included in the second paragraph. It should also be pointed out that the study by Bassey used whole body and had little chance of observing a difference given the error of measurement and the 1 year study. The study by Kruger was better designed and used spine and hip scans and was able to show differences over time.

Methods: For the biological samples, were they stored in a manner to preserve the fatty acids? IT is well known that blood samples oxidize and a statement as to storage would help the readership know how good the values are. How long were they in storage? Naturally with the cross-over design time is a consistent factor in the study but overall the values might be lower if not stored ideally.

Table 2 is not just of macronutrient composition, change the title. Is en the standard abbreviation for energy? Was the assay used to chemically measure the nutrients provided in the methods and for vitamin D did the assay have a detection limit to 0.001 ug?

Results: The figure is a repeat of the values in the text.
Discussion: the over 5 pg discussion must be reduced in length.
Both the LA and ALA diet caused reductions in NTx. This is not well discussed. In Table 2, it is clear that the ADD was lower in LA and ALA with higher n-6 to n-3 ratio. Perhaps the best conclusion is that reducing the n-6:n-3 fatty acid ratio in the diet from 9 to 3.5 or lower has a positive outcome, reduced bone resorption.
Minor Essential Revisions
I’m not certain if SI units are preferred by the journal but a mix of nM and ng/L are used throughout. The citations on page 15 line 4 are not correct; should be 14,15.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.