Reviewer’s report

Title: Fatty fish intake and attention performance in 14-15 year old adolescents: FINS-TEENS - a randomized controlled trial

Version: 0 Date: 30 Jul 2017

Reviewer: Sangeetha Shyam

Reviewer's report:

The enclosed manuscript investigates the effect of fatty fish intake on attention ability and processing speed among adolescents. While considerable data is available for the effect of fatty fish intake/ N3 fatty acids on cognitive performance of elderly or middle aged adults, the relationship has not been sufficiently established among adolescents. The authors are commended for their efforts in elucidating this interesting relationship in this age group. This is especially important because adolescence is a time when academic expectations begin to demand greater cognitive discipline.

Overall, it is a well written manuscript. The authors present their arguments in a logical sequence and this helps with the readability of the article. Minor rephrasing in some places will help with further improving the manuscript.

The term “developing adolescents” is repeated in the manuscript. I find the word "developing" redundant. Also when the authors say "typical developing adolescents" there is an element of ambiguity. The authors are encouraged to rethink these descriptions.

Abstract: - Results- the authors talk of greater improvement in processing speed/ total performance in the fish vs. meat or supplement group, but present the results as negative numerals. The authors should reconsider this presentation. The abbreviation IRR appears first in the abstract without expansion of the abbreviation.

Abstract: - Conclusions- The first sentence needs improvement in terms of clarity.

Main Text- Methods

Subjects and Randomization: First sentence needs to be rewritten using proper syntax to improve readability.

Dietary Intervention procedure- 'The supplement group continued to eat their habitual lunch'. So was this a standard lunch provided by the school? Did this lunch contain fatty fish? If so how much of n3-PUFA did it contain? While the authors mention that the fish meal was matched to the supplements for n3-LCPUFA , the mean weight of the fish meal contained more n3-
LCPUFA than one capsule. How many capsules were the supplement group students advised to consume?

Can the test outcomes and the tools used be listed in a table for ease of reference when reading the results section?

Statistical analysis: line 238- additional analyses with further adjustments. What were these adjustments?

Main Text- Results

Dietary Compliance and background diet- dietary compliance showed that the total intake was significantly lower in the fish group? What intake does this refer to? Dietary compliance for fish meal was very low. This limitation needs to be discussed in greater detail.

Main Text- Discussion

First paragraph- 2nd sentence: "This corresponds to approximately 2% of the characters...".. It would be helpful to add details on the length of the text provided and the duration of the test.

The second paragraph in discussion section talks of association reported in earlier studies. It would be helpful if the direction of the associations are mentioned. The authors could also consider shortening this paragraph. This can be done by grouping all the studies that showed positive association and further identifying the outcomes that were positively associated with fatty fish intake and the age groups in which the associations were observed.

Paragraph 4 in discussion suggests heterogeneity in dosage as a possible reason for contradictory results in studies investigating the association of interest. Could the discrepancy in the results between the fish and supplement group in this study be due to additional bioactives (other than n3-LCPUFA) in the fatty fish?

Strengths and Limitations

The last sentence in this section mentions that the study did not exclude those with cognitive disorders etc…. However, were subjects with anomalies in this aspect equally distributed among the three groups? Could some learning disorders have had implications on the type of tasks required of subjects in this study?

The fact that improvement of outcomes in this study is not correlated with compliance is problematic to comprehend. Since the authors only talk of standardising the lunch at school, and
obtained reported intake of fish at other meals the validity of these self-reported dietary intake requires needs discussion, especially among adolescents.

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