Reviewer’s report

Title: The association between physical fitness and depressive symptoms among young adults: results of the Northern Finland 1966 birth cohort study

Version: 1 Date: 2 April 2013

Reviewer: Joel Hughes

Reviewer’s report:

This cross-sectional study was well executed and written. The data are exceptional; large sample size, good measures (not all self-report), etc.

The authors note that there is an epidemiological literature on depression and physical activity, as well as some longitudinal studies and some intervention studies. Therefore, demonstrating what this manuscript adds to the literature is important. This made some parts of the introduction confusing. For example, “the etiological mechanisms and causal directions underlying the link between physical activity and depression are, however, unknown.” Will this study uncover etiology or causal directions? I didn’t think so.

The discussion does a better job of “selling” the novelty of measures of muscle strength in addition to cardiorespiratory fitness.

The null findings for fitness could be a ceiling effect? Were most participants “good enough” at sub-maximal stepping?

How can you control for motivation of depressed participants? Do they give the best possible effort given their higher depressed mood?

- Major Compulsory Revisions

Revise the introduction to lead to specific research questions that the design can evaluate. Avoid critiquing the literature in ways that your study does not address.

- Discretionary Revisions

Consider the critiques above re; ceiling effects and motivation-I don’t know the answer. Just thoughts for consideration.

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No

- Do you have any other financial competing interests?
No

- Do you have any non-financial competing interests in relation to this paper?
No

'I declare that I have no competing interests'

What next?

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- Accept after minor essential and discretionary revisions (which the authors can be trusted to make)

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

'I declare that I have no competing interests'