Reviewer's report

Title: Does cycling make the heart flutter? Six year follow-up of the Taupo Cycle Challenge

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Reviewer: Dag Steinar Thelle

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Does cycling make the heart flutter? Six year follow-up of the Taupo Cycle Challenge
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A large number of reports have been published on atrial fibrillation and physical activity since Karjalainen et al in 1998. Only a few have been referred to in the present paper, and the introduction gives a superficial impression in light of what has been reported; see for example Thelle et al. in Heart. 2013 Dec;99(23):1755-60. (Resting heart rate and physical activity as risk factors for lone atrial fibrillation: a prospective study of 309,540 men and women.) and the subsequent editorial in the same journal, Grundvold et al in Arrhythm Electrophysiol. 2013 Aug;6(4):726-31 (Low heart rates predict incident atrial fibrillation in healthy middle-aged men), and lastly for a more comprehensive review Graff-Iversen et al Tidsskr Nor Laegeforen. 2012 Feb 7;132(3):295-9.

The issue at stake, whether high physical activity will increase the risk of atrial fibrillation in a general population cannot be answered by a randomized controlled trial, and we have to make do with observational data, with all their limitation concerning exposure and end-point ascertainment, confounding and effect modifiers.

Regarding the present study, the authors have discussed the limitations implied by using self-reported activity, but little emphasis has been put on the heterogeneous nature of atrial fibrillation as an end-point and the influence of confounding variables.

Strenuous physical activity has primarily been associated with “lone atrial fibrillation”. This category constitutes only a fraction of all atrial fibrillation patients admitted to hospitals.

The lack of association between cycling and atrial fibrillation may be due to misclassification (all atrial fibrillation cases are included, disregarding underlying other causes), and thereby low power (few cases).

Negative results are needed when assessing issues only addressed by observational studies. Reports with inconclusive results because of misclassification and low power should not be published.

The authors are recommended to use the STROBE statements as guidelines for
how to report observational studies, see http://www.strobe-statement.org/.

From the above is should be evident that my answers to the nine questions in the referee guidelines are “no” for questions 1-7, and “yes” for 8-9.

**Level of interest:** An article of insufficient interest to warrant publication in a scientific/medical journal

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.