Reviewer's report

**Title:** Senior orienteering athletes as a model of healthy ageing: a mixed-methods approach

**Version:** 3  
**Date:** 7 January 2015

**Reviewer:** Janice Thompson

**Reviewer's report:**

A. Major Compulsory Revisions

1) The premise of the paper is that orienteering serves as a model of healthy ageing. Throughout the paper the authors emphasise the fact that the participants have been engaging in orienteering throughout their adults lives. Thus I would argue that these data are not necessarily specifically related to orienteering as a model of healthy ageing, but that engaging regularly in rewarding physical activity throughout the lifespan is a model of healthy ageing. Does it really matter if this is in the form of orienteering? Couldn't this be as true for older adults involved in regular cycling, hiking, walking, etc throughout their lives? The authors need to consider this issue, and provide a more robust justification that there is something unique about orienteering (above other forms of physical activity) that make it an optimal model of healthy ageing above other activities. Alternatively, authors may wish to consider rethinking their approach and focus of the paper to emphasise that their data represent lifelong physical activity (in this case, in the form of orienteering) as a model of healthy ageing.

2) The results from the focus groups have been distilled into a list of topics, which is unfortunate as one of the advantages of conducting a mixed-methods approach is enhancing the richness of quantitative data with qualitative data. As currently reported, these results are not particularly insightful as they would be what I would expect to see with this population. Thus the uniqueness of these findings needs to be emphasised in the discussion in reference to other literature on physical activity in older adults. Additionally, there are changes to the methods and results that will substantially enhance the clarity of the methods and richness of the findings. These include: a) in the methods, you need to identify and describe the guiding framework for the qualitative component of the research. Did you employ a phenomenological approach? Ethnographical? Grounded Theory? It is impossible to put the qualitative results into context without this information; b) in the methods, provide more detail on how many focus groups were conducted, and the gender mix and age range within the focus groups. It is not clear how many focus groups were conducted, if men and women were in the same groups, etc; c) in the methods, provide a table that includes the interview schedule for the focus groups. Lines 211-212 are not useful, as asking for further description and examples are always done in focus groups. It would be much more useful to see the questions asked and the additional probes put forth by the interviewer; d) in the results, provide illustrative quotes for each of the main findings. Typically two quotes per finding are
reported - doing this will enhance the richness of the findings and make the most of the qualitative data you collected.

3) In the results section, it is not clear how you distinguished (in the focus groups and through your analysis) between “factors contributing to experiences of health” and “factors contributing to the maintenance of health.” How are these different/distinct from each other? This might become more clear when the interview schedule is provided, but I think it would be helpful to provide more clarity on how you distinguished between these two topics.

4) As the authors clearly state, this is a study examining a very homogeneous group of older adults. However, the population of 'older adults’ is very heterogeneous with regards to income, health, function (physical and cognitive), and experiences of physical activity. More can be done to compare this group of participants with older adults in general, but also with other physically active older adults - although I would fully agree that participating in life-long physical activity, particularly an activity such as orienteering which provides vigorous intensity activity and cognitive challenges, would be a way to optimise health. But how can this apply to the majority of older adults who are currently very sedentary and doing little or no activity? Are you suggesting that they should get involved in orienteering? Or that they should be more active throughout life? The former would not be realistic, and the latter is something everyone would agree with (and thus is not new). I feel the authors need to be more clear about the implications of this current research to both future research and to public health policy. How can policy makers and local governments use this information to promote more activity amongst older adults (many of whom would struggle to engage in higher intensities and durations of physical activity that are required in orienteering)?

B. Minor Essential Revisions

1) Line 206 - wording is awkward. Do you mean that each participant briefly introduced him/herself?

2) Line 277 - insert comma after 'FGD sample'

3) Line 280 - what does this level of activity translate into with regards to intensity and duration (what does 83.3% mean specifically)? Also, during what season was data collection conducted?

4) Line 288 - edit to "These scores indicate…"

5) Line 329 - should be "pre-requisite"

6) Line 331 - should be "one's"

7) Line 338 - should be "partaking"

8) Line 339 - should be "one's"

9) Line 343 - should be "orienteers' "

10) Line 347 - interesting that men highlighted having 'good genes' - this has nothing to do with orienteering and is not a modifiable factor. I think by providing illustrative quotes will enhance what these men mean by this statement (see
above)
11) Lines 356 and 358 - it is not clear what is meant by the term "childhood conditions" - to what are people referring (illnesses in childhood that they have overcome, or social/family conditions within which they were raised?).
12) Line 366 - should use a full stop (not comma) - 72.1%
13) Lines 367-373 - this is a very brief section, and no data are shown. Building up to this you highlight the 3 phases of the study, but the results then minimise this phase of the research. I am not sure why more was not made of these findings?
14) Lines 403-407 - the way that the data are reported may be masking associations between physical activity levels and various scales related to health within your sample. In addition to grouping and reporting the data as you have done, it would be worth considering correlating the raw data scores from each of the health-related questionnaires with the score from the FGAS - this would give some insights as to whether activity levels overall were correlated with various areas of health.
15) Line 429 - revise to "...FGD results together…"
16) Line 441 - awkward wording (until high age)
17) Line 444 - should be "one's"; also you need to consider people who may have been very active when younger, but now no longer can participate in activities such as orienteering due to over-use injuries - what are the risks involved with participating in these types of activities where one can get injured and not be able to continue? It is great for people who can sustain the activity, but can participating also put some at risk for orthopaedic injuries that then prevent them from continuing with participation?
18) Line 445 - revise to, "Our results are also supported by…"
19) Line 455 - revise to, "As proposed, the model of SA highlights…"
20) Line 456 - delete 'upon'
21) Line 472 - revise from 'at high age' to 'in older age.'
22) Line 476-477 - awkward wording

C. Discretionary Revisions
None

**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.

**Declaration of competing interests:**
I declare that I have no competing interests