Reviewer's report

Title: On Your Feet: Protocol for a Randomised Controlled Trial to compare the effects of moderate intensity pole walking and regular walking on physical and psychosocial health in older adults

Version: 2 Date: 14 January 2014

Reviewer: Garry Tew

Reviewer's report:

Major compulsory revisions:
- Need to state a hypothesis before the methods section
- The study is underpowered as the effect size on which the sample size is based is unrealistically large (20%). I think you will be lucky to see a within-group change from baseline in either group of >20%, let alone a difference in change of this magnitude. I appreciate that the absolute intensity of the training in the PW group may be higher than that of RW, but it is unlikely to be that much higher to induce marked differences in the training responses. It is also unclear exactly how you performed the sample size calculation as not all input parameters were provided (eg, what is the primary outcome and SD on which calculations are performed?). You will need to provide a better justification of the expected effect size or reframe this as a preliminary pilot study. You will also need to be clearer in your description of the sample size calculations- to the extent that a reader could replicate them.
- You need to provide more detail on the randomisation process. Who is responsible for conducting this? Is it simple randomisation or block randomisation? If simple, you wouldn't be guaranteed to end with 30 in each arm. Is it rolling recruitment or will you for example recruit the 15 required people at a given site and the randomise 1:1 for that site?
- Accelerometer assessment: please provide details on how many participants will undergo these assessments, how long they will wear the devices for, what counts as a valid wear (how many hours in a day), and what cut-offs will be used for classifying sedentary behaviour and other intensities of PA.
- SF12: please reword so that it's clear that only the physical and mental component summary scores can be obtained from the SF12, and not the 8 sub-domains that can be scored from the SF36.
- Intervention methods: need to state 3x/week for 12 weeks; what PA advice is provided for outside of sessions?; there's no mention of how you will quantify the training load - you state the target RPE, but I suggest you record actual RPE and heart rate responses in both groups; I wonder if some people would be embarrassed to use walking poles in public - could you capture info on this some how?
- Analysis plan: overall is too simplistic - please provide more details; no need for
statistics testing of group similarity in baseline characteristics - there’s several papers on this; what's the primary analysis?; which covariates in the ANCOVA?
- What procedures are there for trial management and recording and reporting of adverse events?

Discretionary revisions:
- Relating to a previous point, I seriously question how likely it is that you will observe appreciable changes in some of the outcomes. For example, do you really expect 30-a arm-curl performance and grip strength to really change in either group? Please comment.

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

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I have no competing interests.