Reviewer's report

Title: Who will increase their physical activity? Predictors of change in objectively measured physical activity over 12 months in the ProActive cohort

Version: 2 Date: 15 February 2010

Reviewer: Marina M Reeves

Reviewer's report:

Minor Essential Revisions:
1. The authors state that ‘there is limited literature exploring predictors of physical activity behaviour change’ (page 3). Based on a previous reviewer comment, the authors have updated the literature for TPB however there are more recent papers related to predictors of physical activity change that have not been included in the manuscript (albeit I don’t think any of these have looked at objectively measured PA). In addition, the background section comments that the present paper looks at variables that have not been previously examined in terms of predictors of physical activity change such as BMI. There are a number of papers however, that have considered BMI as a predictor of physical activity change. For example:

2. Inclusion of predictor variables in multivariable models should not be based only on those that are statistically significant at the bivariate level. For example, the multivariable model only includes those with a p-value <0.05 (sex, fitness and self-reported alcohol). Self-reported PA and self-reported smoking status were only marginally above this cut-off and should have also been included in the multivariable model (these associations could be confounded by sex, fitness etc). I recommend that inclusion in the multivariable model should be based on a more lenient p-value or a clinically meaningful association.

3. Where the results of the multivariable model are included in the text, the regression coefficients (and 95% CI) should be included. The variance explained by the model should just be based on the final multivariable model not the individual models.

4. The regression coefficient for baseline PAEE should also be included, especially considering it accounted for most of the variance explained in the model. While the authors disagree that inclusion of this regression coefficient is
necessary as baseline PAEE was only included in the model to investigate change in physical activity, this information would be a valuable contribution to the physical activity literature. As I commented previously, some studies have shown that lower baseline PA is associated with greater change in PA, while others have shown that higher baseline PA is associated with greater change – most of which would have been based on self-reported physical activity. It would be very useful to know the direction of the association with baseline PAEE in the present study even if the authors do not wish to discuss it as a predictor.

5. Page 4, Methods section: report the consent rate.

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 declare that I have no competing interests.