Reviewer’s report

Title: Accelerometer-Measured Versus Self-Reported Physical Activity Levels in Women Before and up to 48 Months After Roux-en-Y Gastric Bypass

Version: 0 Date: 28 Oct 2019

Reviewer: Jean-Michel Oppert

Reviewer's report:

General comments

In this paper, authors compared self-reported and accelerometer-assessed moderate-to-vigorous intensity physical activity (MVPA) in 26 women before and 9 and 48 months after bariatric surgery (Roux-en-Y gastric bypass). They found no significant difference between self-reported and accelerometer-assessed MVPA duration before surgery, but found a higher estimation of MVPA duration of about 20 min/d with questionnaire compared to accelerometer at the two time points after bariatric surgery. The study is interesting because physical activity after bariatric surgery is a field of growing importance and there are few long term assessments of physical activity with objective measurements after bariatric surgery. It is also an interesting and valuable follow-up study of what has been previously published by the same authors.

There are however limitations that would need to be taken care of. First, it is unclear how the sum of (walking/cycling and exercise) from the questionnaire equates with MVPA, to be compared with MVPA estimates from the accelerometer. Asking about exercise in this questionnaire seems to be any leisure-time physical activity, some of which could well be of light intensity (eg taichi yoga etc). The questionnaire asked about the duration in specified domains or type of activity, without explicitly referring to intensity, from what is explained in the text of this manuscript. It may explain in part the error found. Of course, it would be interesting to have a questionnaire asking specifically the given type of physical activity performed, along with duration and frequency. Second, the statistical approach would need to be checked. For serial data over time, it is usually recommended to perform ANOVA for repeated measures and then post-hoc two-by-two tests, or to use mixed model analyses. This is not the approach presented here. Third, it is understandable that the approach here is rather to test the concordance between methods at each time point. But in this perspective SDs of the differences are of interest (not CI) and Bland Altman plots is a most commonly used method. Fourth, authors should express some caution when using accelerometry as the reference method. Indeed, previous studies have usually reported only moderate validity of accelerometers compared to doubly-labelled water to assess PA (eg see Chomistek et al. MSSE 2017; 49(9):1935-44).

Specific comments

1. Abstract line 40: "overestimation" here means higher values with questionnaires compared to accelerometry but it should be more clearly stated

2. Abstract, line 42: this sentence should be rephrased (eg: Compared to pre-surgery, self-reported MVPA increased with self-report 46.9 and 36.5% from pre- to 9- and 48 months, respectively, whereas changes were a 6.1% increase and 3.5% decrease with accelerometers)
3. Abstract, line 50: correlations are not "small" but of "low magnitude"

4. Background, page 3, line 40 and following, references 9-12: recent systematic reviews and meta-analysis should be cited here (eg, Ren et al 2018 BMJ Open, Bellicha et al 2018 Obesity Reviews)

5. Background, page 3, line 50: a reference should be provided for the contention that studies using self-report show increased MVPA post-surgery

6. Background, page 3, lines 47-50: according to a recent meta-analysis, exercise training after bariatric surgery was not significantly associated with changes in lean body mass (Bellicha et al. 2018 Obesity Reviews); it is suggested to adapt the sentence accordingly.

7. Background, page 4, lines 37-42: The stated aim here in the introduction section does not match with the one in the abstract: "how intensities of PA differ" in the text, "how MVPA differs" in the abstract (which should actually read "how the estimated duration of MVPA differ")

8. Results, page 8, line 46: "with" should be replaced by "by"

9. Results, page 9, lines 3-5: According to Table 3, this difference was not significant.

10. Discussion, page 10, line 24: same comment as comment 6

11. Correlation coefficients below 0.5 are usually considered indicative of poor correlation (see eg. Mentiplay 2015 Plos One 10(10): e0140822)

12. Discussion, page 10, line 44: intensity of physical activity was not specifically asked in the questionnaire used here

13. Discussion, page 10, starting line 46: this part is very interesting and well thought about the potential explanations of the overestimation of physical by self-report in this setting; for this reviewer it would also mean that questionnaires remain of value especially to assess the context in which physical activity occurs and the associated feelings

14. Discussion, page 11, lines 34-36: The sentence "With the longitudinal..." is unclear

15. Discussion, page 12, starting line 6: add to the limitations that only one type of bariatric surgery was studied (line 8)
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

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