

A Comparison of Self Reported Physical Activity and ActiGraph Recorded Physical Activity Amongst Young Adults

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HEALTH and HUMAN PERFORMANCE

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Introduction

- A quick, inexpensive, and non-invasive method to assess the physical activity (PA) level of an individual is to use a questionnaire in which a subject recalls their usual weekly activity.
- The information from the questionnaire can then be compared to healthy guidelines and the PA level of the subject can be determined.
- Although efficient, questionnaires are highly subjective and their accuracy can vary.
- A direct method, such as using an activity monitor, may improve accuracy.
- Using an activity monitor removes subjectivity and allows for data collection of true physical activity.

Purpose

- Examine how accurately young adults can report their PA via questionnaire by comparing self report to direct recording with an activity monitor.

Hypothesis

- There will be a difference between what the subject reports for PA and what the measured PA is, but the results will be moderately or strongly correlated.

Methods

- Subjects: Fourteen young adults (age: 22.4 ± 2.2 years; body mass: 73.5 ± 16.7 kg; BMI: 26.2 ± 3.2 kg/m²) self-identifying as physically active or inactive completed this study.
- During the initial visit subjects completed a detailed CHAMPS activity questionnaire.
- Subjects were given an activity monitor (ActiGraph) and were instructed on how to wear and use it.
- The device was worn for 7 days and the collected data was then compared to the CHAMPS self reported data.

Results

Figure 1: Reported/Recorded light PA correlation

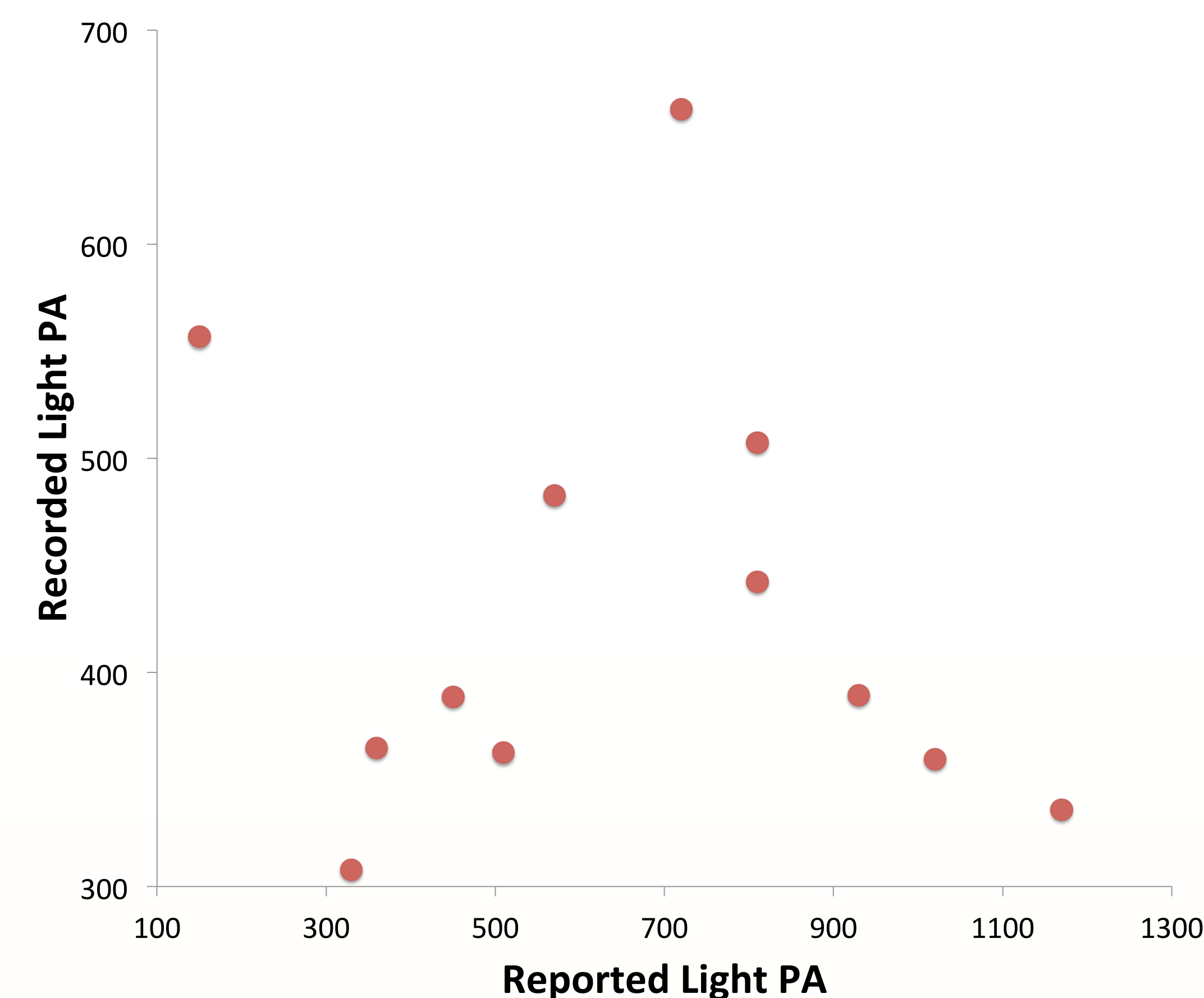


Figure 1: No correlation ($R^2=-0.169$) was found between reported and recorded light PA. Two subjects (3 & 4) were considered outliers (>3 SD from the mean) and were not included in this plot.

Figure 2: Reported/Recorded MVPA correlation

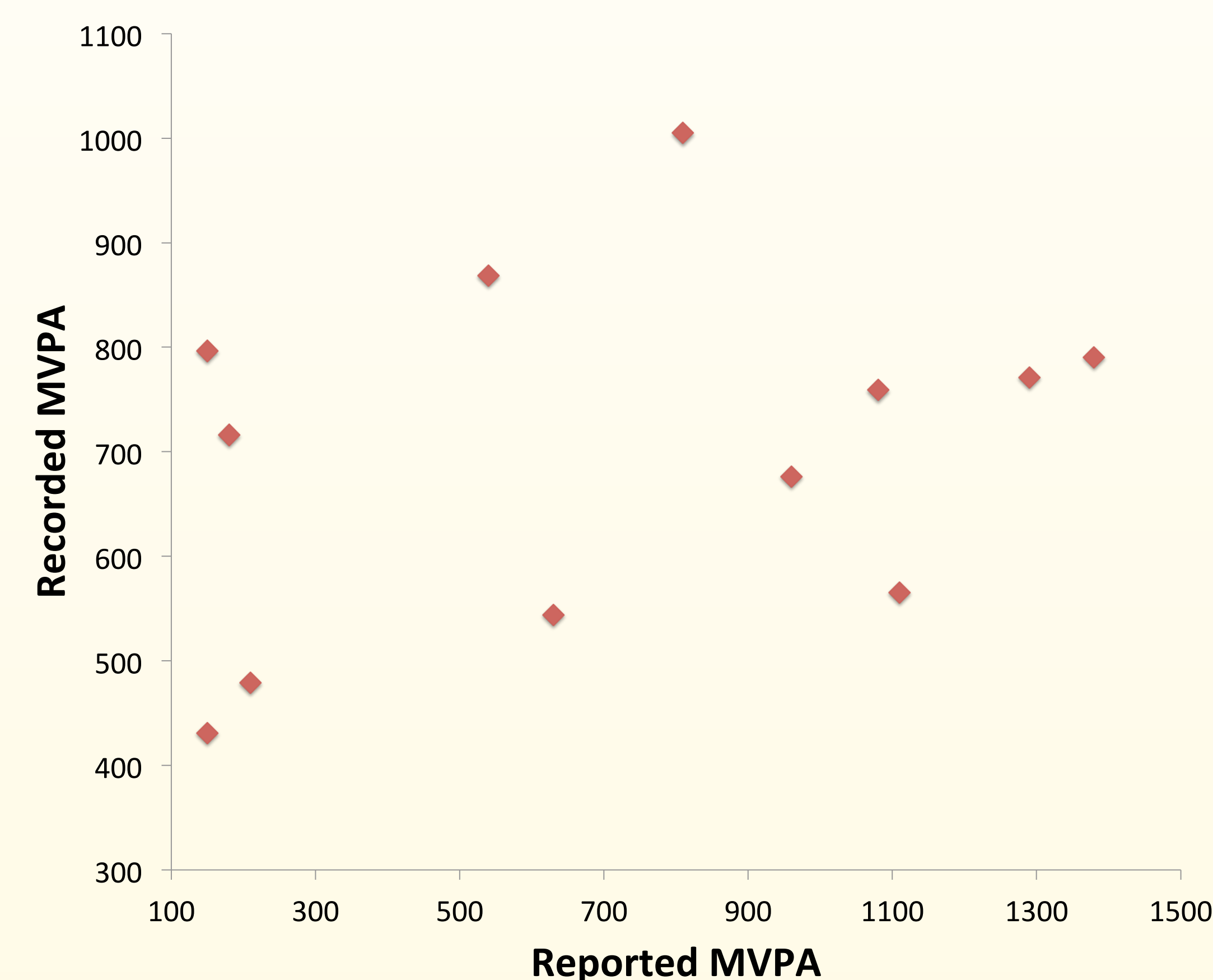


Figure 2: No correlation ($R^2=0.048$) was found between reported and recorded MVPA. Two subjects (2 & 5) were considered outliers (>3 SD from the mean) and were not included in this plot.

Figure 3: Subject reported & recorded light PA data

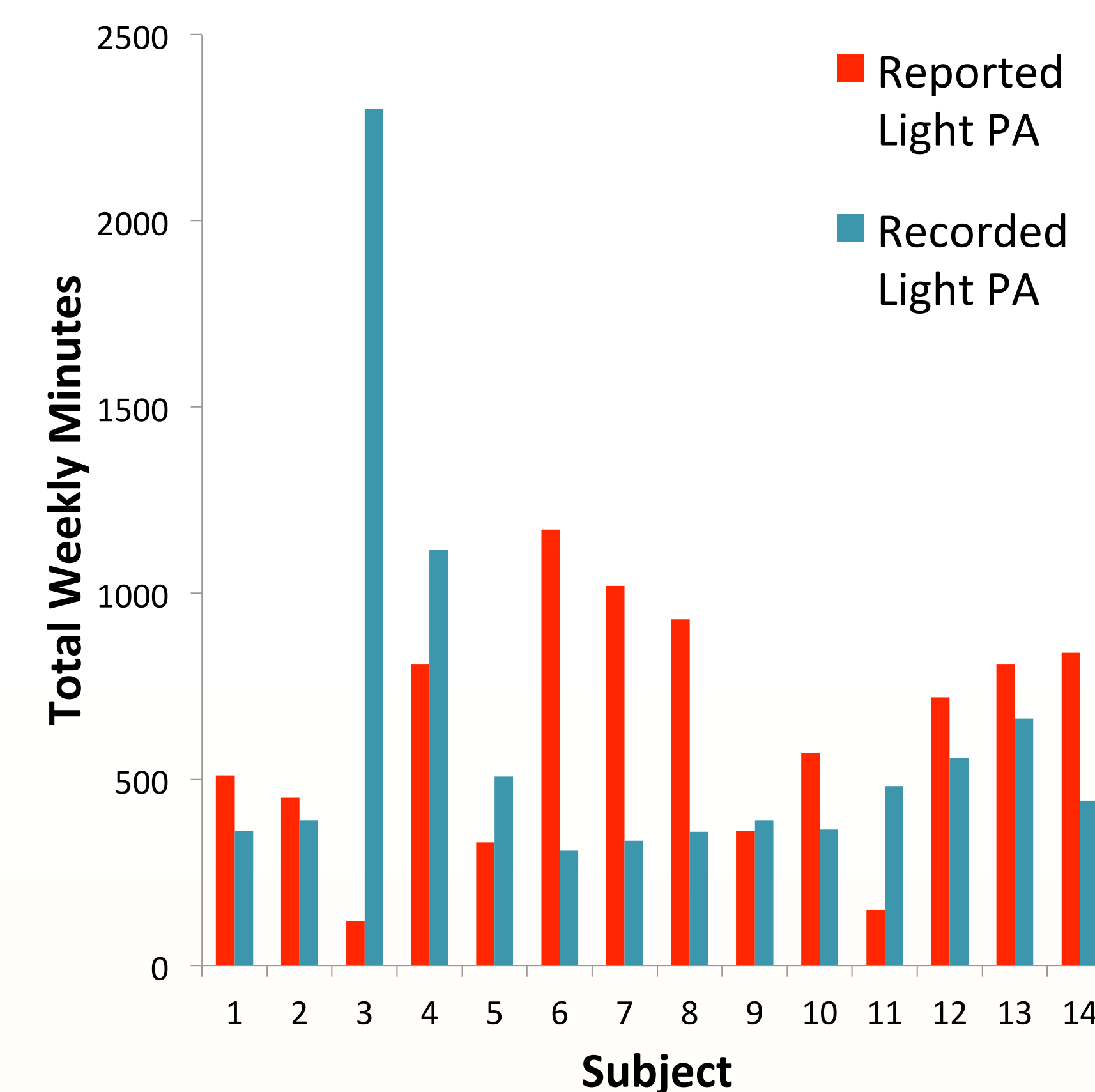


Figure 3: Subject reported and recorded light PA data. Subjects 3 and 4 are considered outliers and were removed from Figure 1.

Figure 4: Subject reported & recorded MVPA data

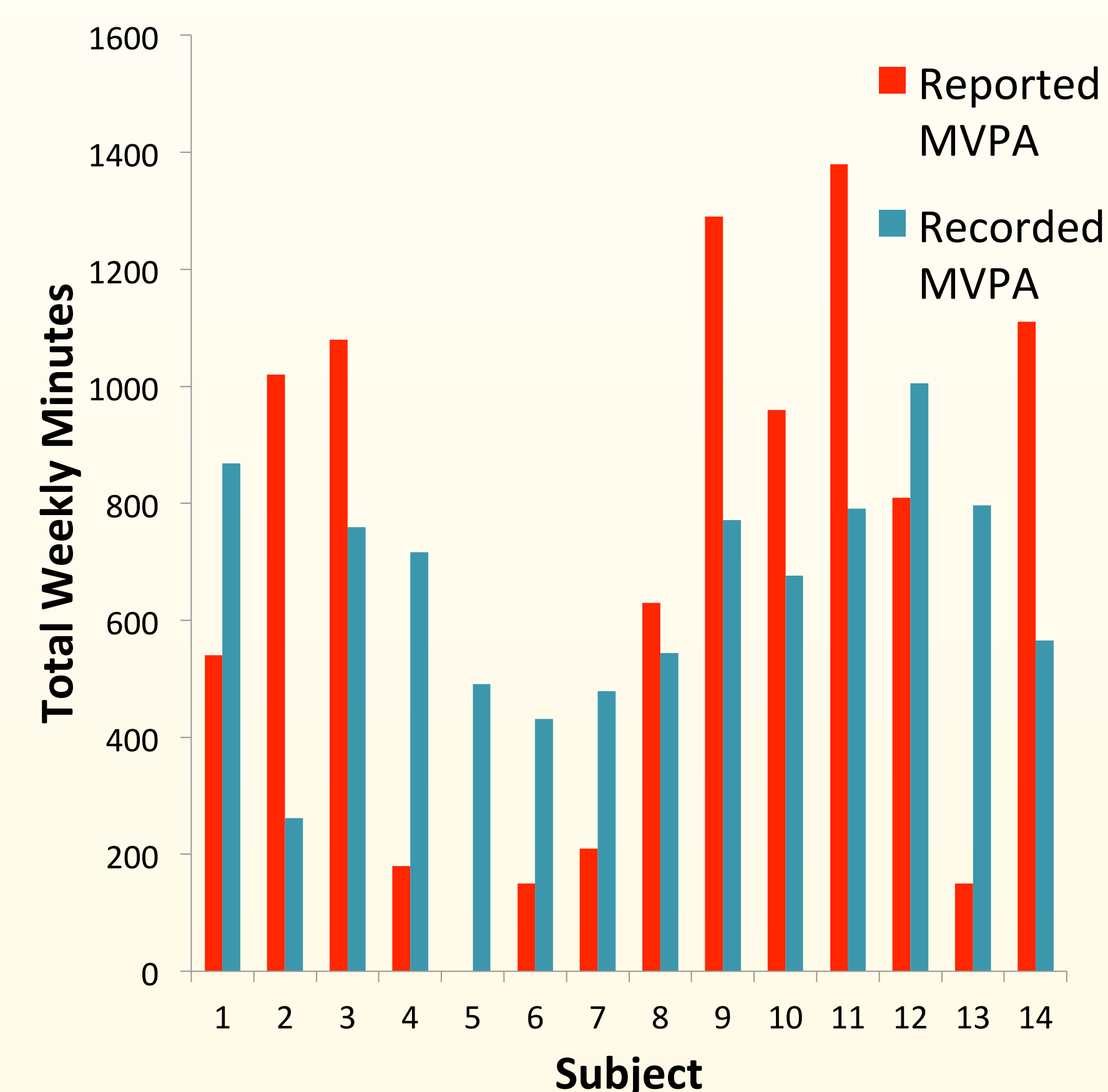


Figure 4: Subject reported and recorded MVPA data. Subject 17 reported no MVPA, yet did engage in MVPA according to recorded data. Other subjects either greatly underestimated or overestimated their activity. Subjects 2 and 5 were considered outliers and were excluded from Figure 2.

Results

- 4 out of 14 subjects reported themselves as inactive. Of these subjects only one was shown to be inactive when their reported data was compared to recommended PA guidelines, but all subjects were active according to the recorded data.
- All subjects shown to be active through reported and recorded data correctly identified themselves as active.
- Data shows young adults were unable to accurately report their light PA via questionnaire ($R^2=-0.169$, $p=0.144$) and were also unable to accurately report their MVPA ($R^2=0.048$, $p=0.451$).
- The Mann-Whitney U test shows high disproportion between the reported and recorded light PA ($U=78$) as well as the reported and recorded MVPA ($U=91$).

Discussion

- It was hypothesized that young adults would underestimate their physical activity, but these subjects were not able to accurately report their PA.
- This outcome could be due to the level of specificity of the CHAMPS questionnaire. Questions should be more targeted and inquire about all possible activities the subjects might overlook.
- The majority (3 out of 4) physically inactive subjects were not able to correctly classify their PA level. This could contribute to inaccuracies in subject recruitment and introduce more variability than desired in research studies targeting physically inactive young adults.

Conclusion

- Although questionnaires can be an inexpensive, efficient way to determine ones physical activity level the young adults in this study demonstrated that they cannot accurately report their physical activity.
- Direct measurement of PA, such as with accelerometry, should be used to acquire an accurate PA record. Alternatively, questionnaires with more targeted questions may aid young subjects in recalling and reporting all PA they engage in and which may allow for greater accuracy.