

Wii Fit Exergaming = Lower Exertion, Similar Heart-Rate, and Energy Expenditure

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Significance

Many people in our society today live sedentary lifestyles. Increases in obesity and health problems associated with obesity are linked to inactivity. Finding an effective alternative to exercise could have great effect on reversing the current trend in obesity. Interactive video games such as the Wii fit could prove to be that alternative. If it is found that recommended daily activity levels could be met by playing a video game such as the Wii it could prove to be a great benefit to children, adolescents, and college age students. Secondary benefits could also come from applications in a clinical rehab setting as well as assisted living communities.



Purpose

The purpose of this study is to investigate whether or not the research group perceives a Wii Fit Free Run (WFFR) workout differently than a running/jogging workout on a treadmill (TR) by comparing their heart rate and caloric expenditure to their rating of perceived exertion (RPE) while performing the two different workouts.



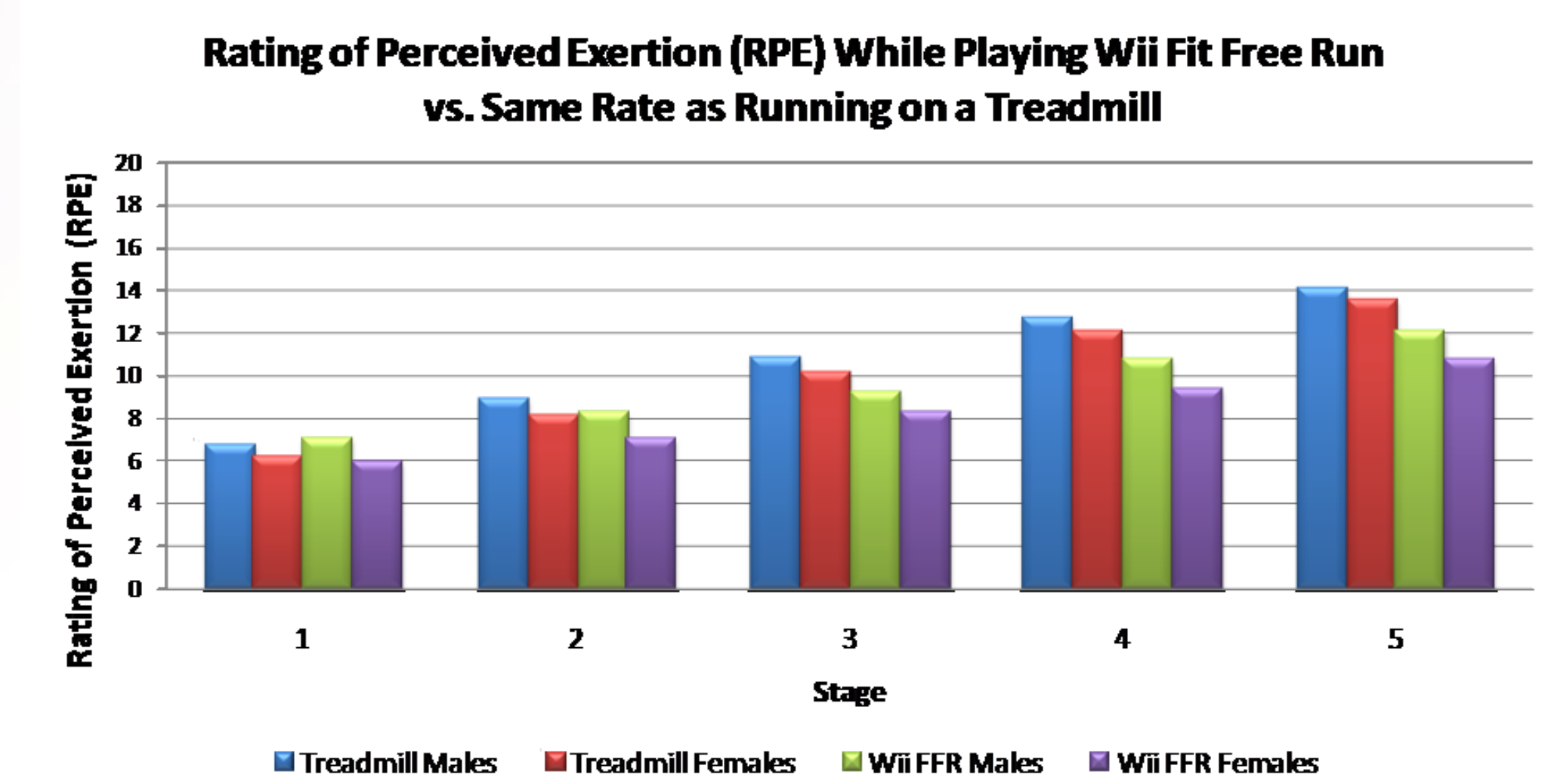
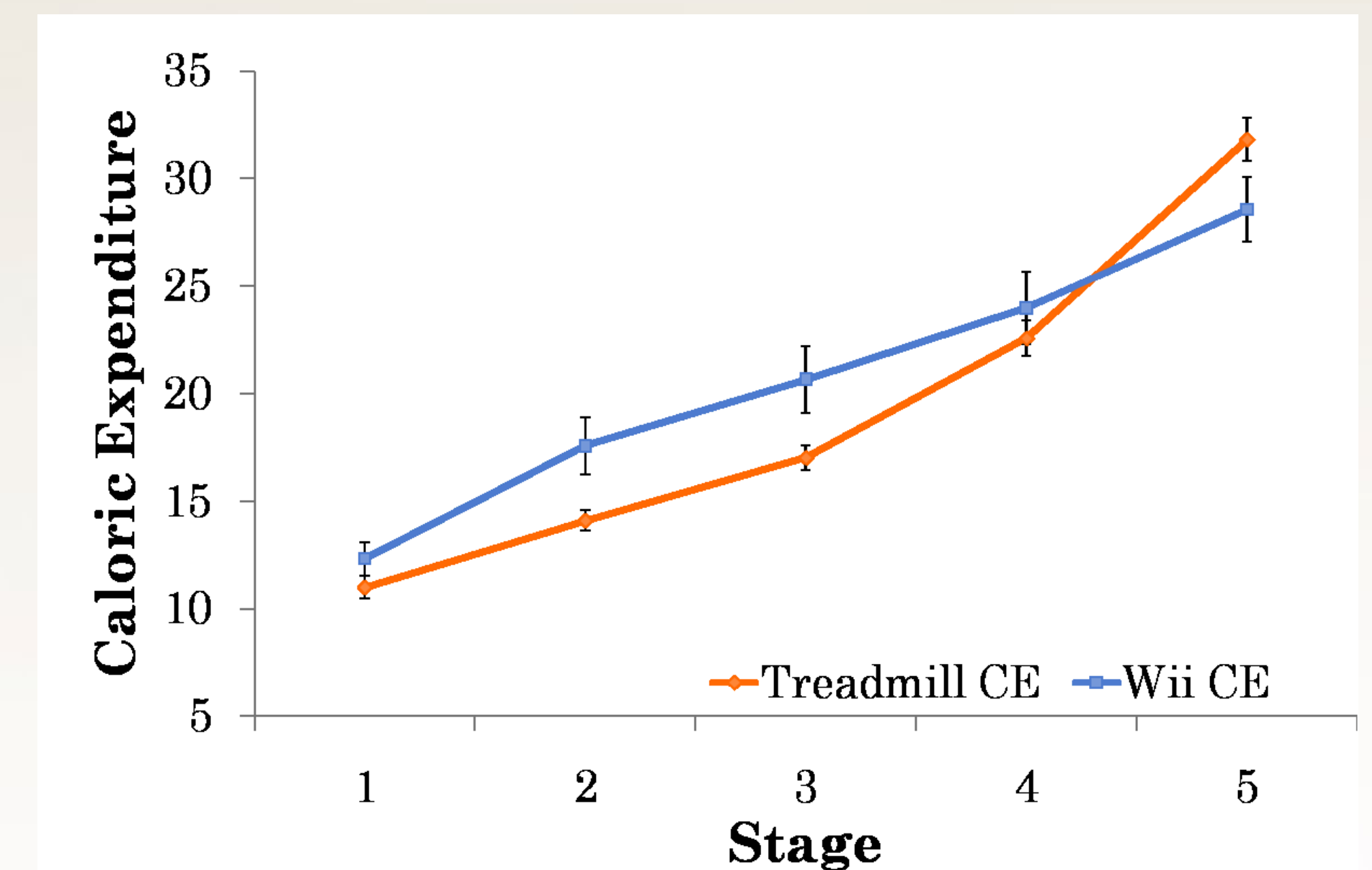
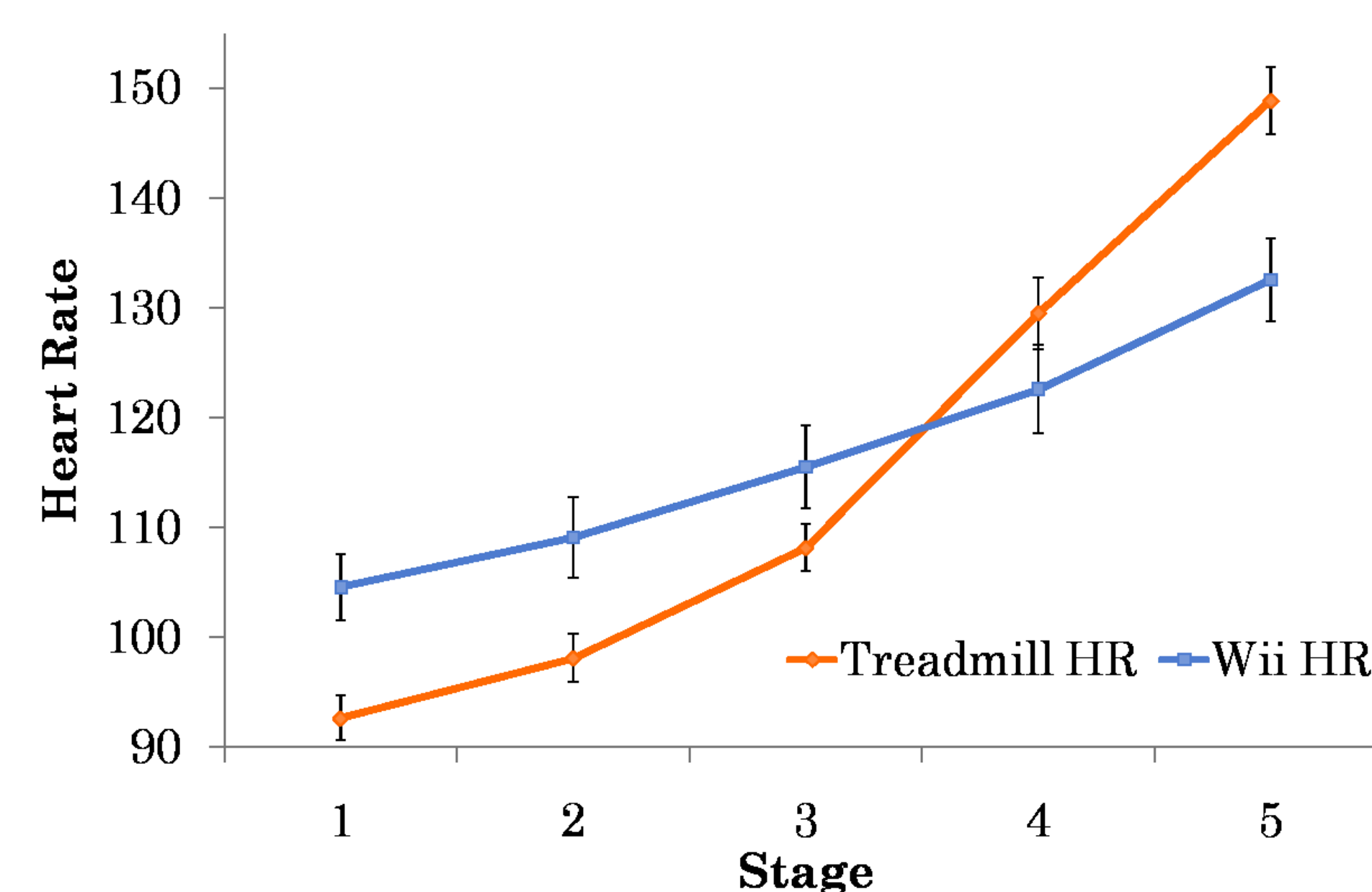
Methods

The study was conducted on 25 undergraduate students ranging from 19 to 23 years old and consisted of 15 males and 10 females. Participants performed a modified Bruce protocol (zero degree incline with a max speed of 5.0mph) on the treadmill for 15 minutes followed by a short rest to allow heart rate (HR) to return to resting level, then played WFFR for 15 minutes using a metronome to equalize step rate from the stages on the treadmill. Polar T31 heart rate monitors (HRM) were used to capture HR, SenseWear Armbands monitored caloric expenditure (CE) and the Borg scale was used to measure rating of perceived exertion (RPE).



Results

Repeated-measures ANOVA with Bonferoni post-hoc comparisons revealed: no significant differences ($p > 0.1$) between average HR and CE for the duration of both workouts; WFFR-RPE was significantly lower ($p < 0.1$); WFFR stages 1, 2 and 3 produced a significantly ($p < 0.1$) higher HR; WFFR-CE, stages 2 and 3 were higher ($p < 0.1$), and TR-CE stage 5 was significantly ($p < 0.1$) higher; WFFR-RPE, stages 2, 3, 4 and 5 were significantly lower ($p < 0.1$); WFFR-RPE mean was 9.64 ffl 2.0 and the TR-RPE mean was 11.41 ffl 1.71 for stages 2, 3, 4, and 5 combined.



Conclusion

This study shows that the Wii Fit Free Run can provide equal levels of heart rate (HR) and caloric expenditure (CE) to exercising on a treadmill and equal work loads while at a significantly lower rating of perceived exertion (RPE). The results of this study suggest that the Wii Fit Free Run may be a viable alternative to exercising on a treadmill. Further study at higher workloads is needed to examine the relationship of HR, CE and RPE at higher levels of intensity, as well as different age groups to explore viability for lifelong fitness.

