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## Agreement Between 3 Physical Activity Monitors for Estimating Step Count

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## Presenters

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## Agreement Between 3 Physical Activity Monitors for Estimating step count

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**PURPOSE:** The ActiGraph GT3X, ActiGraph GT9X, and ActivPAL 4 are accelerometry devices used to measure human physical activity for both research and clinical data. The accelerometer selection is important to yield the most accurate data. This study tests the association and agreement between estimated step counts measured by these accelerometry devices. **METHODS:** Two males and five females participated (Age: 19.6±3.0 years, BMI: 23.2±6.0 kg/m<sup>2</sup>). Three accelerometers were worn simultaneously for at least 19 hours. Two ActiGraphs (GT3X and GT9X) were worn on the waist and one ActivPAL monitor was affixed to the right thigh. Step count data from the 3 devices were compared using ANOVA test and were associated using Pearson correlation test. Agreement was determined by calculating the correlation between the difference in step count between 2 devices and the average of the step counts from the 2 devices. **RESULTS:** Average step count recorded from the GT3X (5644±2410.3), GT9X (5229.2±2088.1), and ActivPAL 4 (5836.4±2641.6) appear to be similar (p=0.924). Strong correlations were found in step count between GT3X and GT9X (r= 0.978, p= 0.001), GT3X and ActivPAL 4 (r=0.995, p=0.001), and GT9X and ActivPAL 4 (r= 0.968, p=0.001). Step count data was in agreement between GT3X and GT9X (r= 0.479, p= 0.316), GT3X and ActivPAL 4 (r= -0.463, p= 0.355), GT9X and ActivPAL 4 (r= -0.568, p= 0.183) were also found. **CONCLUSION:** These findings suggest that for estimating step count, the three devices may be used interchangeably.

**Key Words:** Accelerometry, step count, physical activity