

Compliance with Intensity-Focused Prescription of Physical Activity Using Real-Time Cadence

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ABSTRACT

The utility of wearable activity monitors can provide a better guide to increase adherence to the recommended physical activity levels for health improvement. However, the extent of participants' ability to comply with the physical activity prescription using a newly developed, intensity-focused value, real-time cadence, remains unclear. **PURPOSE:** To examine the participants' ability to comply with a given physical activity prescription focusing on intensity (i.e., real-time cadence). **METHODS:** Thirty-six healthy adult individuals (age 18-65 yrs; 18 female) participated in the study. During a 2-min over-ground walking trial, participants were prescribed to walk at any cadences (steps/min; an indicative of intensity of ambulatory activities) faster than 120 (i.e., equivalent to a brisk walking) using either one of the following devices in a counter-balanced order: (1) Garmin Forerunner 235 (GM) and (2) Polar M430 (PL), (3) Garmin Foot Pot (FP) and (4) Polar Stride Sensor (SS). Descriptive statistics were used to calculate the % of participants who complied accordingly with the given physical activity prescription as well as the means of cadence performed in each trial. Pearson correlation was conducted to determine the relationship between a criterion (i.e., hand count) and the measures from each device. **RESULTS:** In general, greater than 90% of the participants (91.7%, 97.2%, 100%, and 97.2% for the device (1) through (4), respectively) were able to maintain walking intensity at the prescribed level using real-time cadence. Mean cadences performed in the protocol were barely above the prescribed intensity, 120 steps/min (i.e., approximately 123 steps/min). The correlations showed strong relationships between the criterion and the measures of the monitors ($p < .001$). GM and PL sometimes showed a value of zero (0), indicating no detection of steps, during the protocol (from 4 and 11 participants, respectively). **CONCLUSION:** The results suggest the potential to use the activity monitors providing real-time cadence for physical activity prescription and clarify the participants' capability to manipulate the values of real-time cadence to maintain the targeted intensity of physical activity. A highly aimed intensity prescription rather than minimum requirement might help individuals ensure the compliance with targeted intensity.