

33. SWACSM Abstract

Comparison of Flights Climbed Between Garmin and Fitbit Devices

JAVEN MIGUEL¹, ALAN V. GARCIA¹, MELISSA G. STREHLOW¹, DUSTIN W. DAVIS¹, JEFF MONTES², JAMES W. NAVALTA¹, FACSM

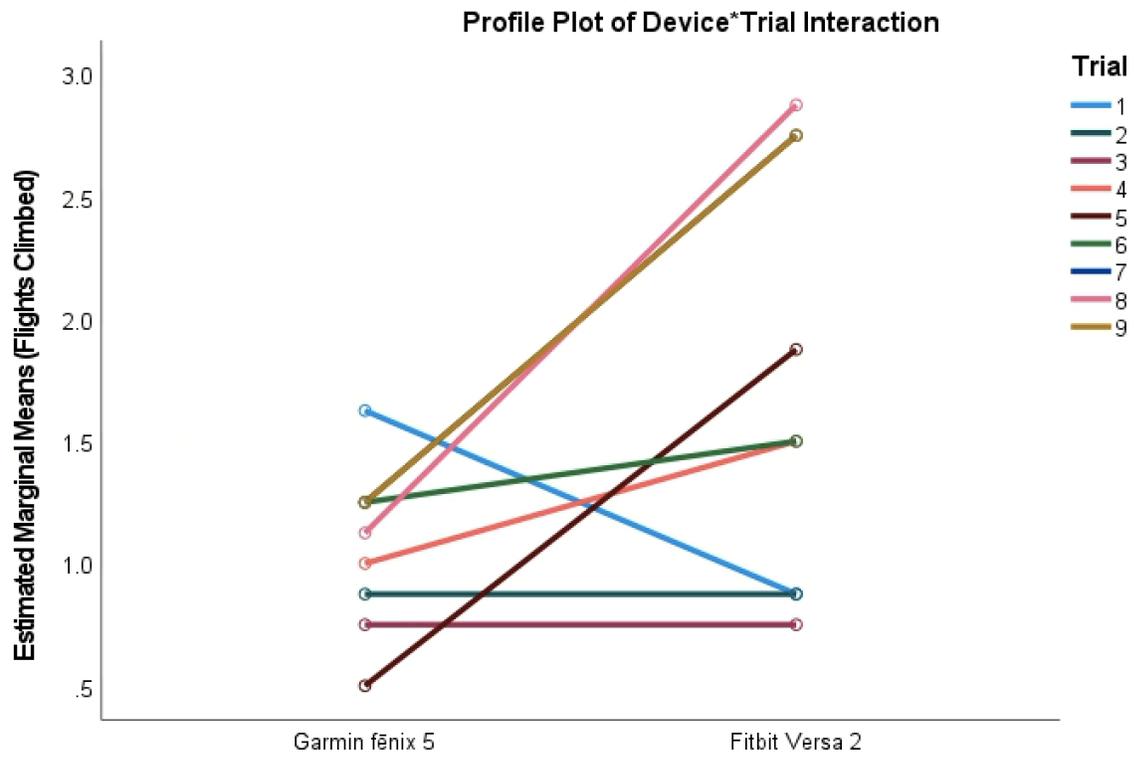
¹Exercise Physiology Laboratory; Department of Kinesiology and Nutrition Sciences; University of Nevada, Las Vegas; Las Vegas, NV; ²Department of Kinesiology, Monmouth College, Monmouth, IL

Category: Undergraduate

Advisor / Mentor: Navalta, James (james.navalta@unlv.edu)

ABSTRACT

With exercise device technology and consumer interest in the field growing, it is important for users to be confident that their wearable fitness devices accurately track their flights climbed. Two manufacturers of devices that track flights climbed are Garmin and Fitbit. Comparing the measurements of flights climbed between devices from these two manufacturers is important to inform consumers as they decide which device to purchase for flight-related activities. **PURPOSE:** The purpose of this study was to compare the measurements of flights climbed between the Garmin fēnix 5 and Fitbit Versa 2. **METHODS:** Eight participants (6M, 2F, 29 ± 8 yrs, 178 ± 8 cm, 79 ± 15 kg) were tested individually, and the fēnix 5 and Versa 2 were assigned randomly to be worn on separate wrists. The participants climbed one, two, and three flights of stairs (19, 39, and 59 steps, respectively, as per manual counts) at a pace of 50, 75, and 100 steps per minute (spm; total trials = 9). Each device's display of flights climbed was recorded at the beginning and end of each trial to calculate the difference (i.e., the flights climbed per trial). A 2x9 repeated measures (RM) ANOVA determined whether measurements of flights climbed were significantly different between the fēnix 5 and Versa 2 during each trial: 2x9 = device: 1) fēnix 5, 2) Versa 2 x trial: 1) 1 flight 50 spm, 2) 1 flight 75 spm, 3) 1 flight 100 spm, 4) 2 flights 50 spm, 5) 2 flights 75 spm, 6) 2 flights 100 spm, 7) 3 flights 50 spm, 8) 3 flights 75 spm, 9) 3 flights 100 spm. The α -level was 0.05 for the RM ANOVA and 0.006 for the post-hoc paired t-tests (adjustment = 0.05/9 comparisons). **RESULTS:** The device*trial interaction effect was significant; $F_{(8, 56)} = 4.273$, $p < 0.001$, $\eta^2_p < 0.379$ (large effect). Before adjusting the α -level, flights climbed significantly differed between the devices in the following trials: 2 flights 75 spm ($p = 0.045$), 3 flights 50 spm ($p = 0.009$), 3 flights 75 spm ($p = 0.006$), and 3 flights 100 spm ($p = 0.026$). In every significant comparison, the fēnix 5 reported a lower mean number of flights climbed than the Versa 2. However, after adjusting the α -level, flights climbed did not significantly differ between the devices for any trials (all ≥ 0.006). **CONCLUSION:** Depending on the speed of ascent and number of flights actually climbed, the fēnix 5 and Versa 2 may not provide the same number of flights.



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