

Assessing the Reliability of Stryd 27 for Variable Speed Running

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ABSTRACT

Wearable technology is beneficial when it comes to tracking and optimizing performance. The Stryd 27 is a wearable footpod marketed as being more responsive in measuring power during running than the previous version (Stryd 25). However, the reliability of this newer device to return consistent values has not been determined. **PURPOSE:** This study aimed to observe whether Stryd 27 gives reliable metrics during variable speed running. **METHODS:** Sixteen participants ($N = 16$; 50% female; height = 174.1 ± 8.1 cm; mass = 73.0 ± 12.4 kg) were recruited, each equipped with two Stryd 27 footpods (updated to the same software version) affixed to the shoelaces of their running shoes. The researchers recorded data using the Stryd app on a mobile device that was connected to the Stryd 27 via Bluetooth. Recording on both devices were started and stopped at the same time. Each participant completed two, 10-minute runs on an indoor track. The initial run was used to establish a baseline. Following a 5-minute rest period, participants proceeded with the second run, during which they alternated between faster and slower intervals. The pace for these intervals was set to be 20% faster and 20% slower than what each participant's average pace was during the first run. Reliability of power, cadence, form power, ground contact time (GCT), vertical oscillation (VO), leg spring stiffness (LSS), and stride length during the interval run was determined using coefficient of variation (CV) and intraclass correlation coefficient (ICC), with $CV < 10\%$ and $ICC > 0.70$ ($p < 0.05$) being considered evidence of reliability. **RESULTS:** Reliability data are shown in Table 1. The following measures were found to be reliable: power, cadence, form power, GCT, and VO. The measures of LSS and stride length were not found to be reliable. **CONCLUSION:** Runners using the new Stryd 27 can have confidence that most measures return reliable values (power, cadence, form power, GCT, and VO). Unfortunately, two measures were observed to not meet the threshold for reliability (LSS and stride length). Athletes interested in these measures should be cautious when interpreting their data.

Table 1. Measurements by the Stryd 27

	Power (W)	Cadence (spm)	Form Power (W)	GCT (ms)	LSS (kN/m)	VO (cm)	Stride Length (m)
CV (%)	1.3	0.2	2.2	4.7	12.1	8.4	6.8
ICC	0.972	0.998	0.951	0.924	0.598	0.773	0.674

cm: centimeters; CV: coefficient of variation; GCT: ground contact time; ICC: intraclass correlation coefficient; kN: kilonewtons; LSS: leg spring stiffness; m: meters; ms: milliseconds; spm: steps per minute; VO: vertical oscillation; W: Watts