

39. SWACSM Abstract

What do you Need, Coach? Translating the Relationship Between Sprint Metrics and Training Load for Practical Application in Division I Women's Soccer

DIEANNA C. PRUDHOLME†, ROBERT G. LOCKIE, Ph.D.‡

Department of Kinesiology, California State University-Fullerton, Fullerton, CA, USA

Category: Graduate

Advisor: Lockie, Robert (rlockie@fullerton.edu)

ABSTRACT

An array of athlete-generated data can be collected with GPS technology during training sessions. Sport scientists working with collegiate team sports, including soccer, must be able to contextualize data for coaches. Coaches may then manipulate the most impactful variables, such as player load (a scoring value that accounts for intensity and duration of effort based on GPS readings) and variables most impacting player load, to increase training efficiency. **PURPOSE:** To determine which sprint metric most relates to and predicts player load, that is practical to coaches. **METHODS:** Data for 16 Division I collegiate female field (forwards, midfielders, defenders) soccer players from one team were collected. Fourteen different practice sessions were analyzed. The focus of each session ranged from skills, tactical training, and conditioning. Players wore GPS units in a vest encapsulated between the scapulae. GPS variables included: player load, sprint distance (an effort with movement speed $\geq 4.75\text{m/s}$ for $\geq 1\text{s}$), top speed, and number of accelerations and decelerations in different speed zones ($\pm 1\text{m/s}$, $\pm 2\text{m/s}$, $\pm 3\text{m/s}$, $\pm 4\text{m/s}$, $\pm 5\text{m/s}$). Pearson's correlations and linear stepwise regression analysis were used to determine sprint variables most influencing player load ($p < 0.05$). **RESULTS:** Except for the number of accelerations at 3m/s , all sprint metrics significantly correlated to player load ($p \leq 0.04$, $r = 0.56-0.91$). Regression analysis revealed both sprint distance and number of accelerations at 2m/s ($p < 0.01$, $r^2 = 0.94$) significantly predicted player load. **CONCLUSION:** The correlations indicated player load reflected total sprint distance, top speed attained, and number of accelerations and decelerations in different speed zones. Sprint distance and number of accelerations at 2m/s predicted player load with 94% explained variance. This pilot data suggests that if a coach intends to manipulate player load, drills influencing total sprint distance and accelerations could most impact session intensity. An example method is via small-sided games, where field dimensions or number of players in a drill could affect the number of sprints and direction changes (accelerations/decelerations) completed by players. This is useful in situations where coaches request simplified translation of GPS data for training.