PREDICTING MATCH DAY SUCCESS FROM TRAINING LOAD IN NCAA DIVISION I WOMEN'S SOCCER

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nutrition metabolism performance body composition
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INTRODUCTION

The dominance and popularity of women's soccer has become difficult to ignore. External load monitoring using combined accelerometry and GPS is a common method to quantify volume and intensity of soccer-specific training. Scarce data exist regarding the utility of training load (TL) as a modifiable predictor of match day (MD) success in female athletes.

PURPOSE

The purpose of this study was to evaluate differences in readiness and TL variables between MD outcomes (win vs. lose/draw) two days (MD-2) and one day (MD-1) prior to MD in elite women's soccer and identify significant MD-2 and MD-1 predictors of MD wins.

METHODS

Readiness (%) – Electronic Daily Survey
Aggregate: perceived stress, fatigue, mood, soreness, sleep duration and quality (range: -3 to +3)

FIT FOR 90

Training Load – Wearable GPS Devices

- Distance (DIST; m):
  Total meters covered during session; meters.
- Maximum Speed (MS; km/h):
  Top speed reached during session; kilometers per hour.
- High-Intensity Running (HIR; m):
  Meters covered above 15 km/h; meters.
- High-intensity Events (HIE; #):
  Number of HIR efforts lasting at least 5 seconds; number.
- Sprint Distance (SPD; m):
  Meters covered above 90% of individual MS; meters.

playerdata

STATISTICAL ANALYSES

Successful and unsuccessful MD outcomes in MD-2 and MD-1 readiness scores and TL variables were evaluated with t-tests. Stepwise logistic regressions were used to identify significant predictors of successful MD outcomes.

RESULTS

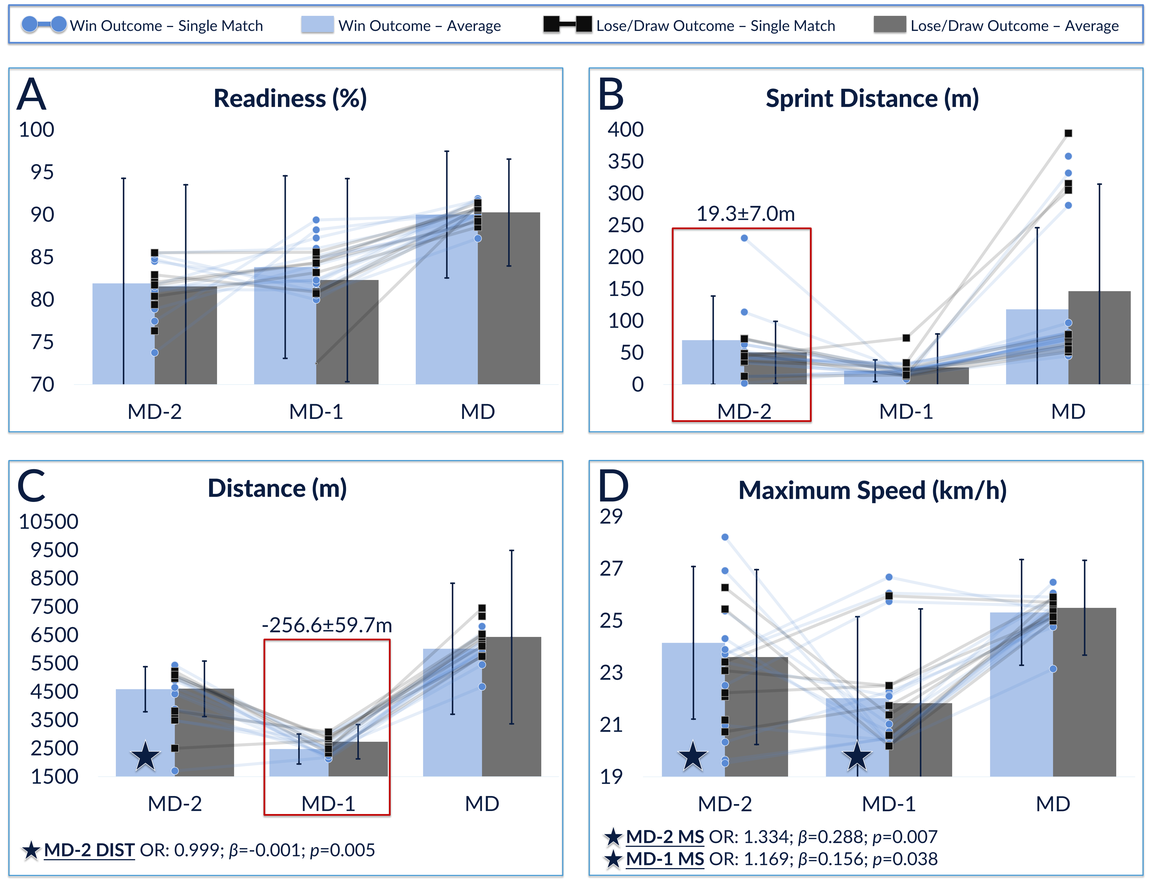

FIGURE 1. Individual effects (all player average for each game) and average (all games) values of successful and unsuccessful match day outcomes for A: Readiness (%); B: Sprint Distance (m); C: Distance (DIST; m); D: Maximum Speed (MS; km/h); E: High-Intensity Events (HIE; #); F: High-Intensity Running (HIR; m). ★ denotes a significant predictor for successful MD outcome. Red boxes indicate a significant difference (p>0.05) between win and lose/draw MD outcomes; MD: mean difference [win-lose/draw]; SE: standard error.

PARTICIPANTS

TABLE 1. Athlete demographics as mean ± standard deviation (SD) from the 2023 season. NCAA Division I women's soccer athletes who averaged ≥20 minutes per match, excluding goalkeepers, were evaluated.

	Age (years)	Avg. MD Minutes	Avg. MD Readiness (%)
Sample (n=20)	19.7 ± 1.4	50.1 ± 20.7	90.1 ± 7.0
Forwards (n=7)	19.1 ± 1.3	37.5 ± 15.4	89.0 ± 9.0
Midfielders (n=7)	20.1 ± 1.5	49.6 ± 18.8	88.9 ± 5.5
Defenders (n=6)	19.7 ± 1.4	65.4 ± 20.5	89.4 ± 2.2

CONCLUSION

Tracking volume (DIST) and intensity (MS) prior to MD are important components for periodizing external load and is associated with increased likelihood of MD success. Greater MD-2 volume (DIST, HIE) reduced the likelihood of MD wins. Decreasing volume and increasing intensity going into MD appears to produce the most favorable MD outcome.

PRACTICAL APPLICATION

Reducing total practice volume (DIST) by half (e.g., MD-2: 4600m, MD-1: 2300m) and load density (HIR) by 75% (e.g., MD-2: 375m, MD-1: 95m) allows for increased MD-1 intensity (measured via Maximum Speed), increasing likelihood of a MD win.

PRACTICE PLAN EXAMPLES