

Peak match running demands in collegiate women's soccer athletes



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Introduction

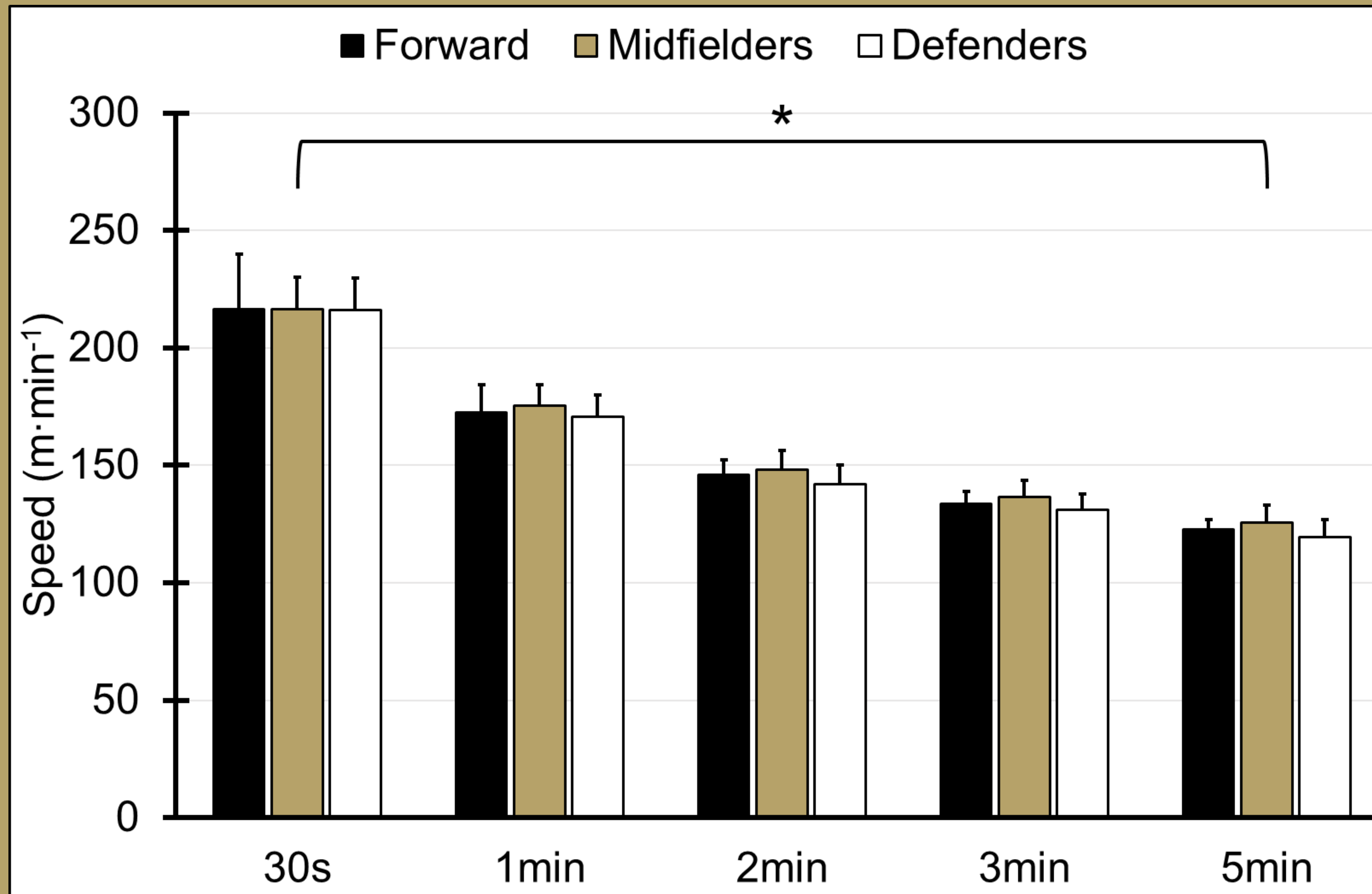
- Soccer is characterized by short bouts of high-intensity running, with longer periods of lower intensity activity.
- The outcome of a match is often determined by the explosive actions and high-intensity, short duration passages of play.
- Contemporary athlete monitoring practices utilize Global Positioning Systems (GPS) to determine training and competition profiles.
- Determination of peak match running demands, distances covered in varying time durations, is commonly examined to plan training drills, match simulations, and conditioning drills.
- To date, these peak match running demands have not been determined in collegiate female soccer athletes.

Purpose

- To quantify the peak match running demands for varying time durations in collegiate women's soccer matches and to compare these demands between positional groups.

Methods

- Twenty collegiate women's soccer athletes (forwards=4, midfielders=9, defense=7) participated in this study.
- GPS (Polar Team Pro, Polar Electro, Bethpage, NY) data were collected across an entire competitive season of 17 soccer matches.
- Data were only included in athletes who played >10 minutes in a match.
- Individual GPS files were analyzed to determine total distance covered over rolling durations lasting 30s, 1 minute, 2 minutes, 3 minutes, and 5 minutes.
- The maximum relative speed ($\text{m}\cdot\text{min}^{-1}$) value for each time duration was determined as peak match running demand.
- A two-way repeated measures ANOVA was completed with Bonferroni corrections for pairwise comparisons between positional groups and time durations ($\alpha=0.05$).



* Signifies a significant difference between time durations

Practitioners can use peak match running demands to design more specific training methods to better prepare players for worst case scenario passages of play

Results

- There was no significant statistical interaction between time duration and playing position ($p=0.713$).
- The positional groups did not differ in the average relative running velocity ($p=0.663$).
- The average rolling peak match running demands significantly decreased as time duration increased ($p<0.001$).
- 30s ($216\pm 17 \text{ m}\cdot\text{min}^{-1}$)
- 1 minute ($173\pm 11 \text{ m}\cdot\text{min}^{-1}$)
- 2 minutes ($146\pm 9 \text{ m}\cdot\text{min}^{-1}$)
- 3 minutes ($134\pm 8 \text{ m}\cdot\text{min}^{-1}$)
- 5 minutes ($123\pm 7 \text{ m}\cdot\text{min}^{-1}$)

Conclusions

- Peak running demands during collegiate women's soccer matches do not differ between the major playing positions.
- Therefore, while the physical capabilities of the athletes and tactical approaches to matches need to be considered, these results would suggest that practitioners do not need to alter these drills based on the position of the soccer athletes.
- Relative speed will decrease when examined across longer durations of a match.
- An understanding of the peak match demands in collegiate women's soccer will allow practitioners to develop appropriate training and conditioning drills to prepare athletes for the demands of competition.
- Future research should examine the peak match intensities of other related external load metrics so that practitioners may collectively apply these data to develop specific training and conditioning drills for athletes.

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