



Assessment of the In-Game Demands and Positional Comparison in a Division 1 Women's Basketball Team.

Jui Shah, Tolga Kaya, & Christopher B. Taber

Department of Physical Therapy and Human Movement Science and School of Computer Science and Engineering, Welch College of Business & Technology, Sacred Heart University, Fairfield, CT, USA



INTRODUCTION

Understanding the physical demands of gameplay is a prerequisite for optimal training. There is less data available describing the physiological responses of female basketball players during gameplay. Typically, data is reported as heart rate (HR) and lactate responses to games and practice with the team as a whole. Less is known about individual positional demands.. Considering all the points above, it is necessary to know each positions game demands so that they can be trained accordingly. This information will provide data on how to develop training protocols for practitioners and coaches.

PURPOSE

The purpose of this study is to assess the in-game demands and comparisons between each position in a division 1 women's basketball team.

METHODS

Sixteen Division-1 female basketball players were analyzed for this study (Age: 21.0 ± 3 years; Height: 174.21 ± 19.27 cm; Body Mass: 73.98 ± 11.52 kg). Game metrics (distance, sprints, and accelerations) were calculated through the polar team pro system (Polar Team Pro, Polar Electro, Kempele, FI) sampling at 10 Hz. All metrics were calculated using Polar's proprietary collection and analysis software. They were monitored during both home and away in-conference games. Six performance metrics were analyzed: Total distance, Sprints, and Number of Accelerations across four zones; 1 0.50-0.99 (m/s²), 2 1.00-1.99 (m/s²), 3 2.00-2.99 (m/s²), and 4 3.00-50.00 (m/s²).

METHODS cont.

Comparison was conducted on four main positions; Forward Guard (FG), Point Guard (PG), Shooting Guard (SG), and Center (C). Statistics were run with JASP (Version 0.17.1, Amsterdam, NL). A series of (metric x position) one-way analysis of variance (ANOVA) was used to compare means across the four positions. If statistical significance was present a Bonferroni post hoc analysis was conducted to examine the differences

POSITIONS & METRICS



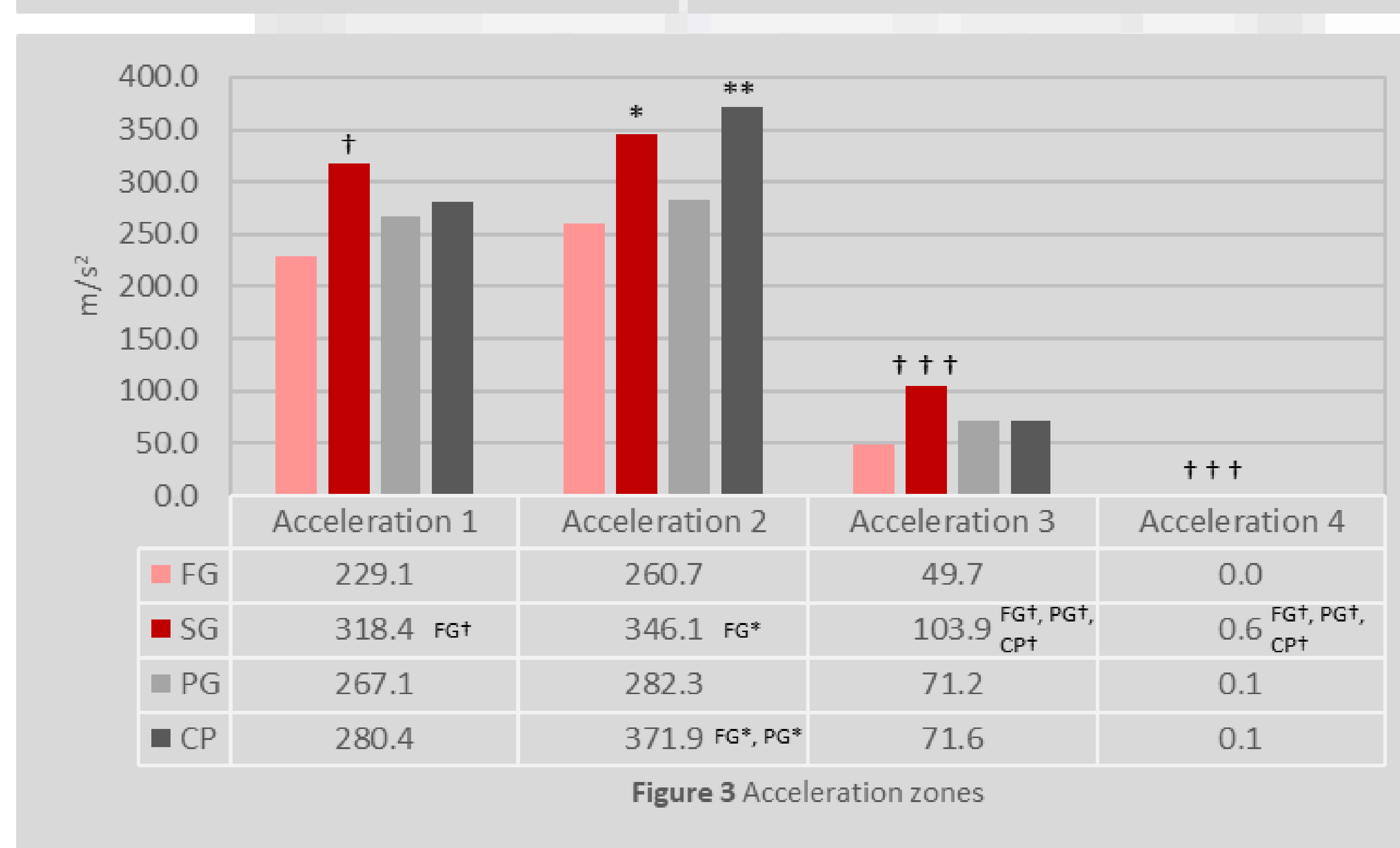
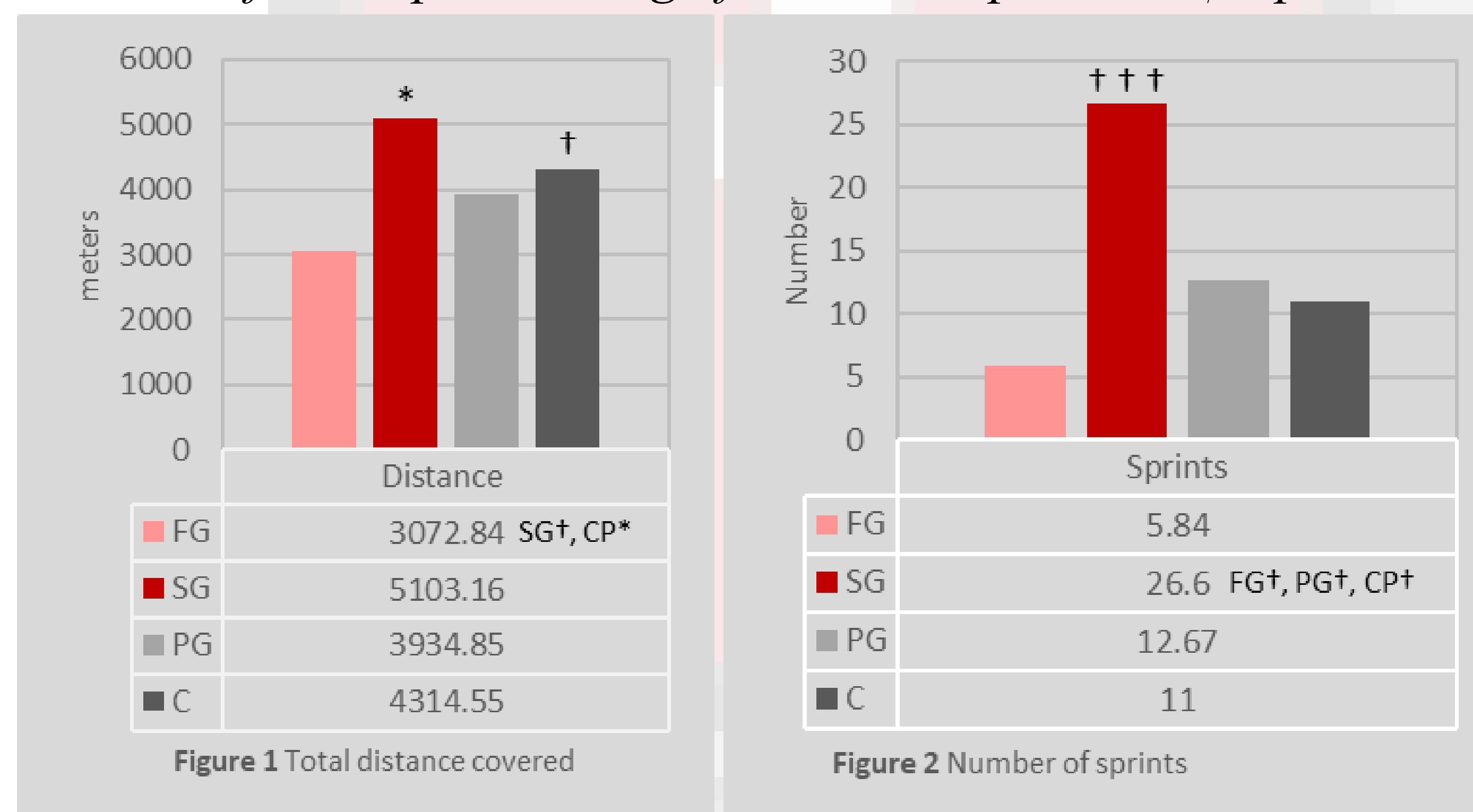
Metrics assessed:

- Total distance (meters)
- No. of Sprints (#)
- Four Acceleration zone limits
- Acceleration 1: 0.50 - 0.99 m/s²
- Acceleration 2: 1.00 - 1.99 m/s²
- Acceleration 3: 2.00 - 2.99 m/s²
- Acceleration 4: 3.00 - 50.00 m/s²

RESULTS

Statistical significance was discovered for all metrics analyzed. Total distance can be found in Figure 1. Number of sprints can be found in figure 2. Acceleration zones can be found in Figure 3. All descriptive data can be found in Table 1

Note: Bonferroni post hoc significance; * = $p < 0.05$; † = $p < 0.001$



Variable	Highest to --> lowest			
	SG	PG	CP	FG
Total Distance	5103.163	3934.163	4314.55	3072.839
Sprints	26.605	12.673	11	5.839
Acceleration 1	318.442	267.058	280.425	229.054
Acceleration 2	346.14	282.288	371.875	260.661
Acceleration 3	103.884	71.192	71.625	49.661
Acceleration 4	0.581	0.135	0.05	0.018

CONCLUSION

Statistical significance found in the post hoc analysis revealed differences for total number of sprints and accelerations (3.00 - 50.00 m/s²) when comparing SG with FG, PG, and C. Similar differences were also observed in accelerations (2.00 - 2.99 m/s²). This analysis revealed that SG tend to sprint more often and have higher number of accelerations compared to other positions.

PRACTICAL APPLICATION

The data from this study can be helpful to understand the physical demands in competition with respect to the position. Using this data as a guide, coaches can more accurately train athletes according to their position to fully prepare them for dynamics of competition.

- Conditioning models in pre-season.
- Practice intensity
- Return back to play | Red shirt play- if they're not getting stimulated then their play might deteriorate, coach can train them according to the demands required.

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