A COMPARISON OF EXTERNAL WORKLOADS ACROSS FIELD SPORTS IN WOMEN COLLEGIATE ATHLETES

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KEY FINDINGS

Soccer achieved greater external load <u>volumes</u> compared to Lacrosse and Field Hockey

Lacrosse and Field Hockey achieved greater external load <u>intensities</u> compared to Soccer

For Field Hockey, Midfielders achieved the greatest <u>volumes</u> compared to Attackers and Defenders

BACKGROUND

- Although match demands of National Collegiate Athletic Association (NCAA) women soccer players have been previously described, limited information is available on match demands of other field-based intermittent sports, such as lacrosse and field hockey.

PURPOSE

- To compare external workloads by sport and position during match play across NCAA Division III women soccer (SOC), lacrosse (LAX), and field hockey (FH) athletes.

MATERIALS & METHODS

- External load metrics (Figure 1) were collected during each game (SOC: n=15; LAX: n=15; FH: n=14)
- Differences in external loads across sports and positions were assessed by one-way MANOVAs ($p<0.05$).
- Only high-volume players were included for analysis (i.e., > average Total Distance per match)

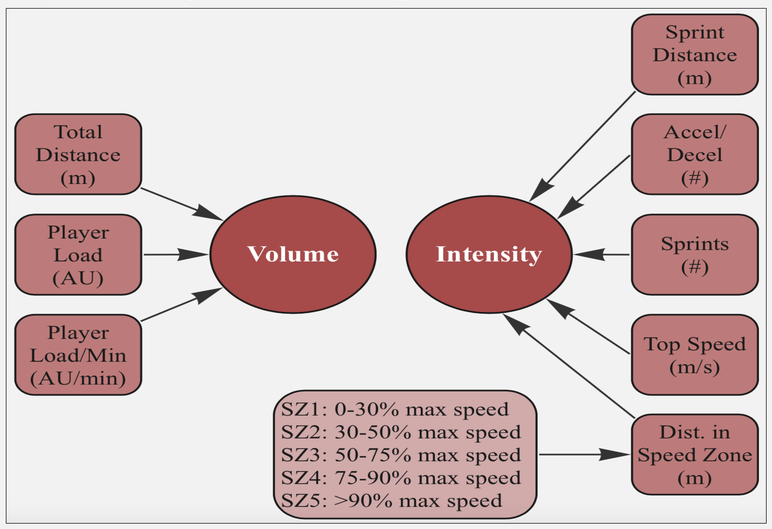

Figure 1. External load metrics collected for analysis

RESULTS

- **Table 1:** SOC sustained higher volume metrics (Total Distance, Player Load, PL/min) compared to LAX and FH ($p<0.001$).
- **Figure 2:** LAX and FH incurred greater distance is SZ3 and SZ4 compared to SOC ($p<0.001$).
- **Table 2:** Midfielders incurred greater loads compared to Attackers and Defenders ($p<0.001$).
- **Figure 3:** Midfielders sustained greater total distance compared to Attackers and Defenders; driven by distances in SZs 1-3.

Table 1. Match demands by sport

	SOC (n=15)	LAX (n=15)	FH (n=14)	p-value
Total distance (m)	8439 ± 1621 ^#	6532 ± 1796 *#	6936 ± 1061 *^	**<0.001**
Sprint distance (m)	182 ± 101 ^#	358 ± 179 *#	252 ± 135 *^	**<0.001**
Accelerations (#)	45 ± 15 #	48 ± 21 #	35 ± 13 *^	**<0.001**
Decelerations (#)	62 ± 21 ^#	46 ± 18 *#	56 ± 20 *^	**<0.001**
Sprints (#)	5.5 ± 3.5 ^#	11.4 ± 6.2 *#	8.1 ± 4.8 *^	**<0.001**
Player load (AU)	387 ± 74 ^#	310 ± 79 *	305 ± 42 *	**<0.001**
PL/min (AU/min)	3.4 ± 0.7 ^	6.9 ± 0.5 *	3.3 ± 0.6	**0.025**
Top Speed (m/s)	7.2 ± 0.5 ^#	6.8 ± 0.5 *#	6.4 ± 0.5 *^	**<0.001**

Values are mean ± SD; PL/min: player load/minute
Significantly different than: SOC: *; LAX: ^; FH: #

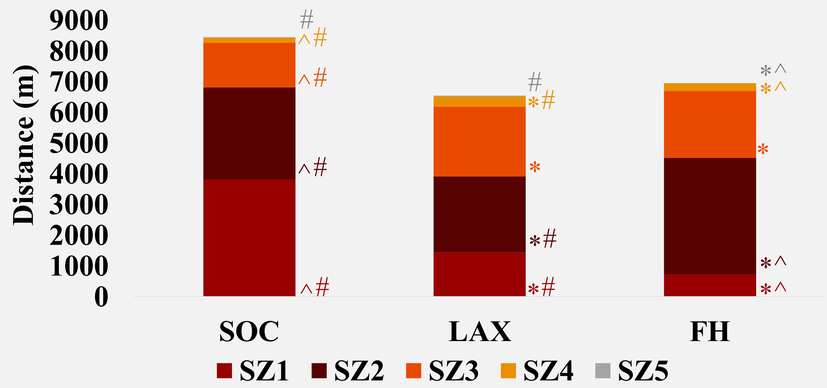

Figure 2. Distances in different speed zones by sport

Table 2. Field Hockey match demands by position

	Attackers (n=6)	Midfielders (n=4)	Defenders (n=4)	p-value
Total distance (m)	6431 ± 1079 ^	7672 ± 957 *#	6611 ± 1062 ^	**<0.001**
Sprint distance (m)	319 ± 130 ^#	255 ± 130 *#	183 ± 111 *^	**<0.001**
Accelerations (#)	35 ± 10 ^#	41 ± 13 *#	27 ± 11 *^	**<0.001**
Decelerations (#)	57 ± 21 #	64 ± 17 #	48 ± 17 *^	**<0.001**
Sprints (#)	10.3 ± 4.8 #	8.3 ± 5.0 #	5.7 ± 3.5 *^	**<0.001**
Player load (AU)	291 ± 43 ^	331 ± 33 *#	291 ± 38 *	**<0.001**
PL/min (AU/min)	3.1 ± 0.6 ^	3.6 ± 0.5 *#	3.2 ± 0.5 ^	**<0.001**
Top Speed (m/s)	6.6 ± 0.4 ^#	6.3 ± 0.4 *	6.3 ± 0.6 *	**0.004**

Values are mean ± SD; PL/min: player load/minute
Significantly different than: Attackers: *; Midfielders: ^; Defenders: #

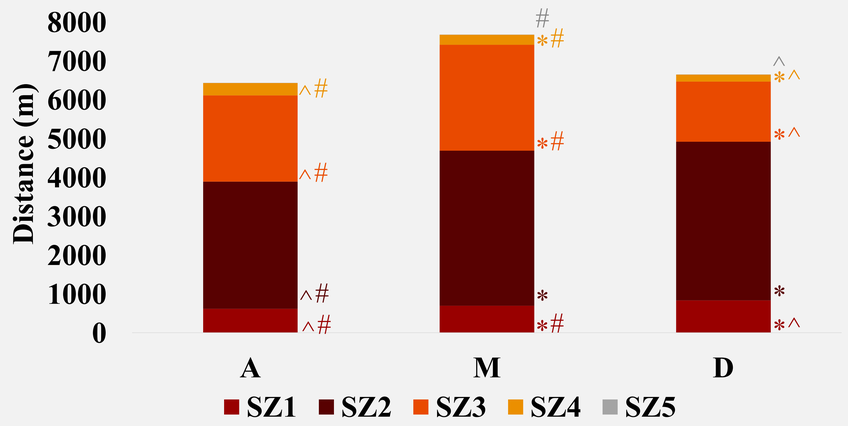

Figure 3. Field Hockey distances in different speed zones by position

CONCLUSIONS & PRACTICAL APPLICATION

- It is recommended coaches consider the specific match volume and intensity demands of their sport – and how they may differ by position – when prescribing and periodizing training loads.