

# A comparison of physiological and psychological factors during game vs practice warm-up in female collegiate soccer players


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# Background

A decorative graphic at the top of the slide features the word "Background" in a bold, dark blue font. The text is partially overlaid by a large, semi-transparent purple circle. To the right of the text, there are three smaller purple circles arranged horizontally: a solid purple circle, a hollow purple circle, and another solid purple circle.

- ◉ Research done on content, duration, and intensity
- ◉ Studies incorporating similar variables
- ◉ Little research using these metrics to compare



**Aim:** • Use physiological variables (TRIMP, caloric expenditure) and psychological variables (RPE, PR) to compare practice vs game warm-ups

**Purpose:** • insight to develop best practices

**Hypothesis:** • Low correlation in all above-mentioned variables between practice and game warm-ups.

# Subjects

- 33 NCAA Division 1 female soccer players
- 6 subjects excluded + others during data analysis

<b>Average Age (years)</b>	20.3 +/- 1.08 years
<b>Average Height (cm)</b>	165.6 +/- 5.94 cm
<b>Average Body Mass (kg)</b>	62.9 +/- 7.8 kg
<b>Max Heart Rate (bpm)</b>	202.2 +/- 7.2 bpm

# Study Design

- ◉ Prospective
- ◉ Quantitative comparative

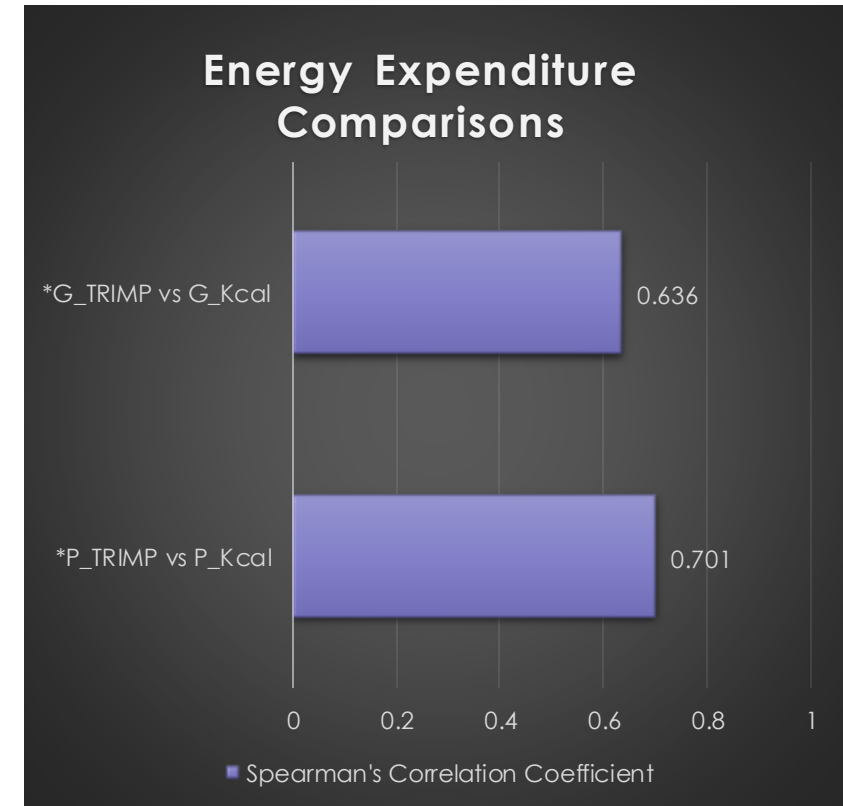
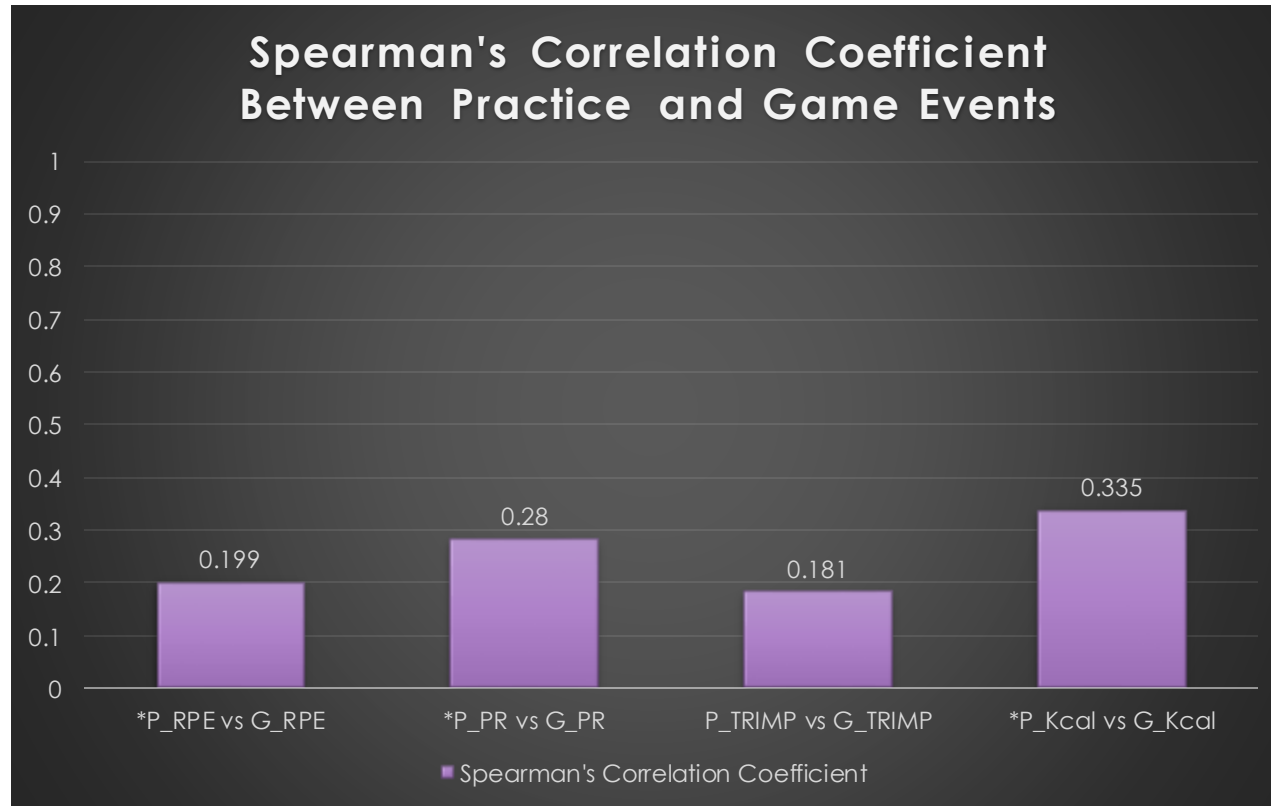


# Methods



- Measurement Equipment
  - FirstBeat system
  - Surveys
- Content
  - Practice warm-up
  - Game warm-up
  - Practice and game criteria

# Results



**Figure 1.1 and 1.2.** Spearman's rank correlation coefficients shown both for variables compared between practice and games as well those compared within similar events.

\*All correlations were found to be significant at the .01 level with the exception of Training Impulse\*

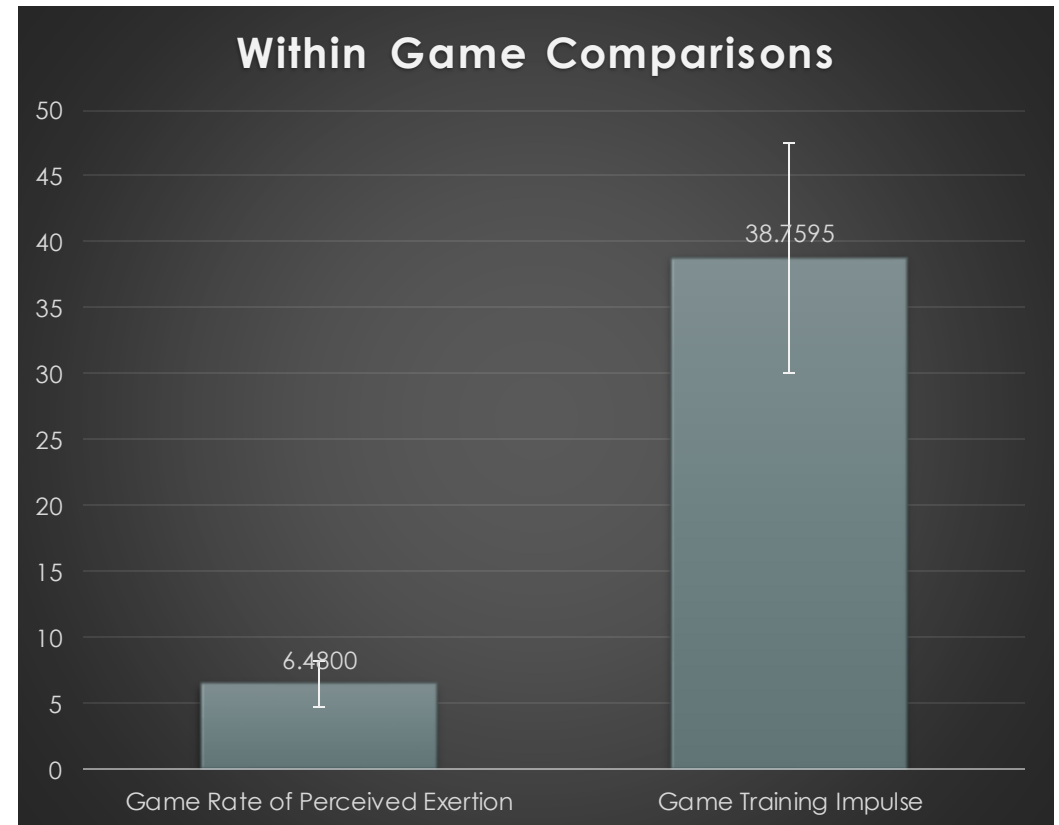
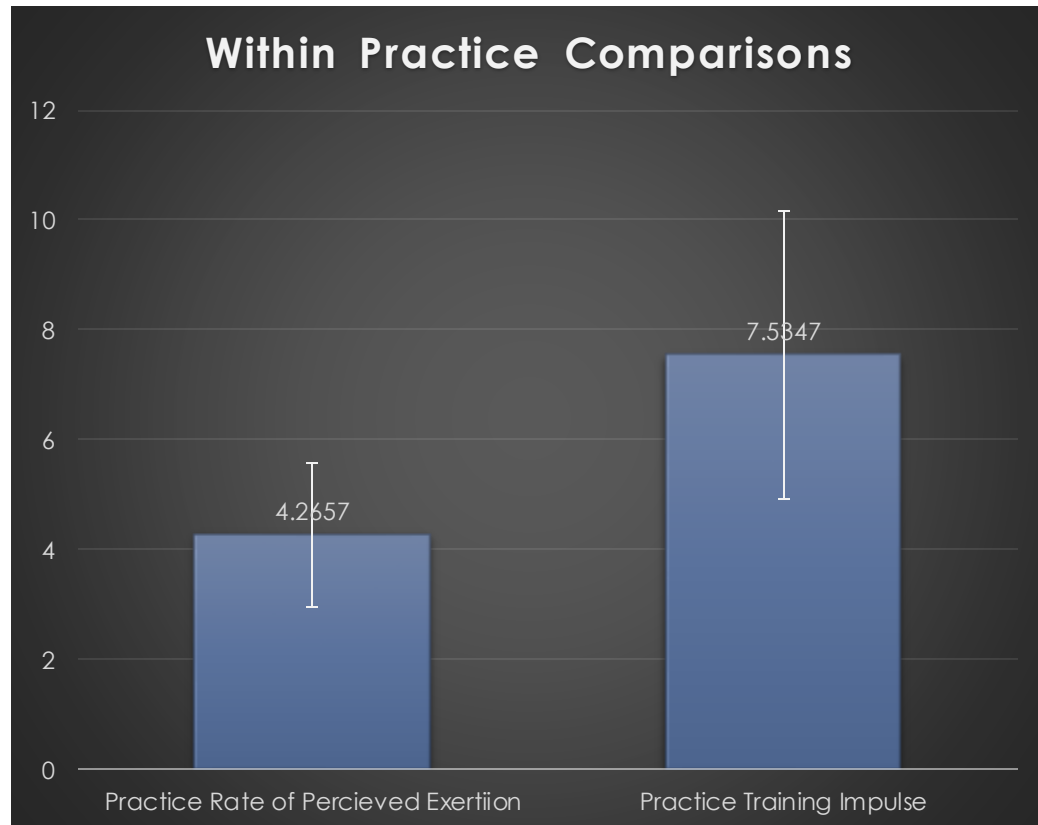
# Results Cont.

## Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Practice Rate of Percieved Exertiion	100	1.00	8.00	4.2657	1.30789
Practice Percieved Readiness	100	2.00	10.00	6.2888	1.25075
Practice Training Impulse	100	.27	18.57	7.5347	2.61867
Practice Caloric Expenditure	100	15.62	106.56	59.4665	17.43314
Game Rate of Perceived Exertion	100	3.00	9.00	6.4800	1.71103
Game Perceived Readiness	100	3.00	10.00	7.9742	1.44821
Game Training Impulse	100	6.52	62.86	38.7595	8.71630
Game Caloric Expenditure	100	44.47	326.58	221.7880	47.15349
Valid N (listwise)	100				



# Results Cont.



**Figure 2.1 and 2.2.** TRIMP and RPE Mean and Standard Deviation's shown for both practice and game event selections.

# Discussion



- ◉ consistency across events important to analysis
- ◉ work load measurable in TRIMP or kcal
- ◉ low correlation in variables between practice and game
  
- ◉ Other research:
  - ◉ longer duration, higher heart rate, greater fatigue
  - ◉ short duration, high intensity, increase performance
- ◉ Our research:
  - ◉ varying duration, content between practice and game
  - ◉ Low correlation between RPE and PR linked to environment

# Conclusion



- ◉ Why is there a low correlation?
- ◉ Future direction...
  - ◉ What is the best combination of variables?
  - ◉ What does the data look like within practices/games?
  - ◉ Can we eliminate time as a factor with using TRIMP/min?
- ◉ Challenges/changes

# Acknowledgements



- ◉ Dr. Tom Palmer
- ◉ College of Allied Health Faculty
- ◉ Department of Athletics Faculty

# References

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- ◉ 12) "Effects of Various warm-up protocol on special judo fitness test performance"