

UNDERSTANDING FATIGUE RESPONSE IN FEMALE YOUTH ATHLETES

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Youth sports have become increasingly competitive within the last decade¹. As a result, interest has increased on ways to improve athletic performance in youth^{1,2}. There is no doubt that resistance training is a safe and effective way to improve a child's natural athletic ability². When considering the physical demand that skill practice, gym training and competition can place on the body, it is important for those working with youth athletes to understand how their single session may impact performance over a week². However, there is limited information available to date within female youth athletes.

Baseline & Fatigue Tests

- Height, Weight, Seated height
- Vertical Jump Height
- Isometric Mid-Thigh Pull (IMTP)

Strength Session³

- Squat, Chin Ups, Bench Press, Leg Press, DB Shoulder Press
- 10 reps x 3 sets
- 70 % RM
- 2 minute rest between sets

Ballistic Session³

- Power Clean, MB Bench Throw, Box Jump, Seated OH MB Throw, DB Split Jerk
- 8 reps x 3 sets
- 80 — 90 % RM
- 2 minute rest between sets

The main aim of this study was to find the fatigue response in female youth athletes when completing a single strength and ballistic training session, both immediately post and 24-hrs post session.

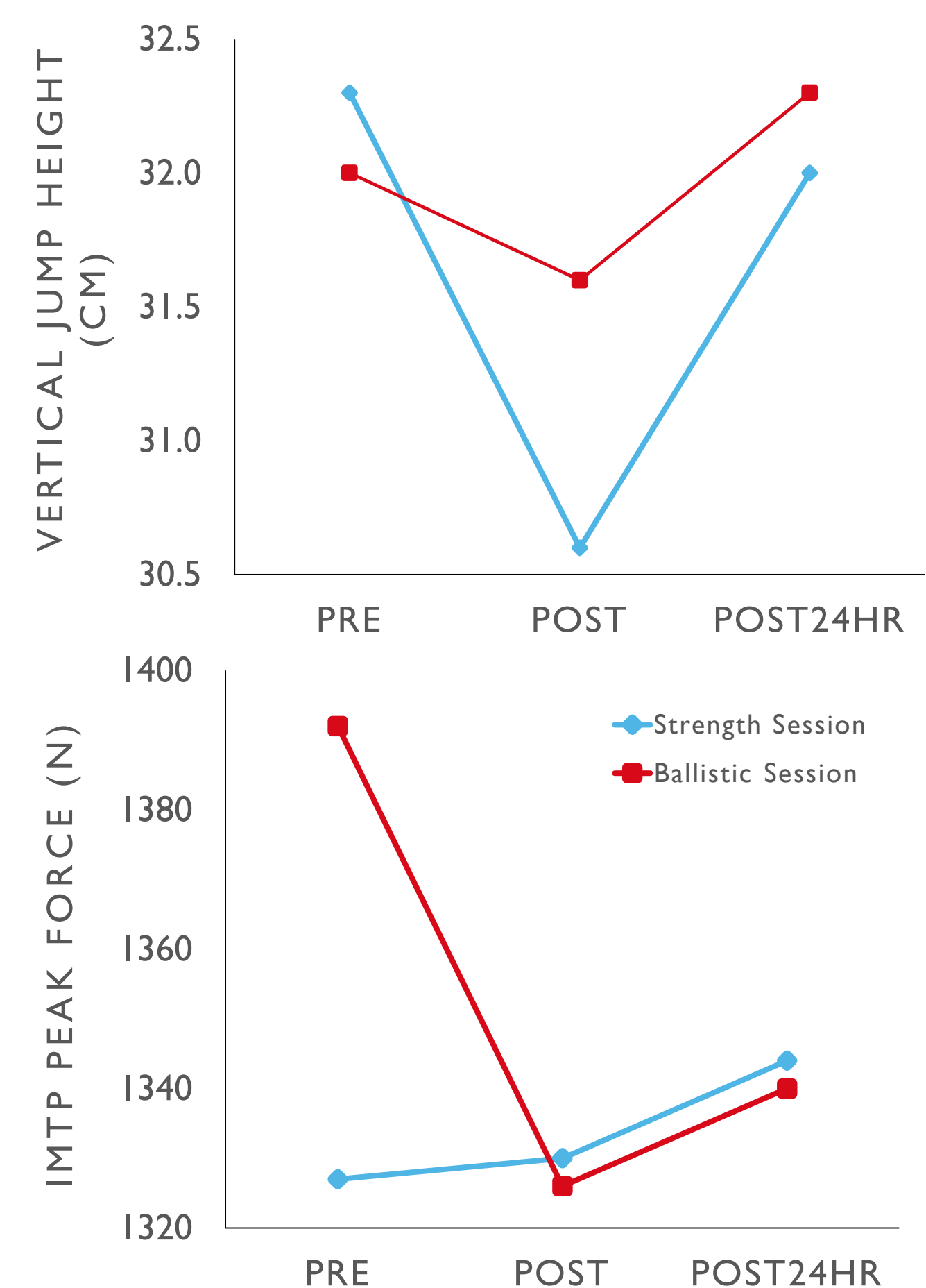
METHOD

This investigation was completed over the course of three weeks. Participants completed two different S&C sessions (strength and ballistic) while also completing fatigue tests before, immediately after and 24-hours post each session. Of the three fatigue tests, only vertical jump height and IMTP peak force¹ results were deemed reliable and used. Eight female youth athletes (age: 15.7 yrs; height: 172.6 cm; weight: 66.5 kg) completed the study.

Trends indicate that ballistic training may be more appropriate to use 24-hrs prior to competition than strength training. Further investigation into the best way to combine strength, ballistic and balance exercises would be beneficial.

PRIMARY FINDINGS

- Trivial differences were found in 24-hrs post session vertical jump height ($2.6\% \pm 90\% \text{ CL: } 5.5\%$) and IMTP peak force ($-3.3\% \pm 90\% \text{ CL: } 10.8\%$) results when compared to pre-session results.
- Ballistic session results showed a heightened state 24-hrs post-session (4.8% difference $\pm 90\% \text{ CL: } 4.7\%$) when compared to the strength session in vertical jump height.
- Strength session results showed a heightened state immediately post ($2.3\% \pm 90\% \text{ CL: } 11.8\%$) and 24-hrs post-session ($3.3\% \pm 90\% \text{ CL: } 10.8\%$) when compared to the ballistic session in IMTP peak power.
- Though these trends were trivial it provides an insight into the fatigue considerations needed to be made by Sport Science practitioners.



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