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Conference Abstract

The Impact of Menstrual Cycle Phase on the Power Profile of Female Cyclists During a Standardised Submaximal Training Ride

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Abstract

Introduction: The menstrual cycle is recognized as a multifaceted variable influencing training and performance in female athletes. Over the past two decades, there has been increasing attention on the impact of the menstrual cycle on sports performance. However, scant research has examined its effect on cycling performance. Therefore, this study aims to ascertain whether and how the power profile of female cyclists differs during a 60km submaximal ride conducted in the early follicular phase and mid-luteal phase of the menstrual cycle.

Materials and Methods: The power output of trained to well-trained female cyclists during a submaximal ride, simulating a typical training session, was recorded in both the early follicular phase and the mid-luteal phase of the menstrual cycle. Participants undertook a 60km submaximal ride on Zwift (comprising two loops of 30km). Mean maximal power outputs (MMPs) over durations of 5, 10, 30, 60, 180, and 300 seconds (short duration), as well as 10, 20, 30, and 60 minutes (long duration), were determined during the submaximal ride. Differences in MMPs during the submaximal ride were analysed using paired t-tests. Additionally, Cohen effect sizes will be calculated and interpreted as follows: -0.19 trivial; 0.20–0.59 small; 0.60–1.19 moderate; 1.20–1.99 large; and 2.00 very large. Statistical significance will be considered when $p < 0.05$.

Results: Data from 8 trained to well-trained female cyclists was presented, focusing on differences in short and long-duration MMPs between the early follicular phase and the mid-luteal phase. Data collection is currently ongoing, aiming to collect data from 12 more riders by the end of September 2024. Mean energy expenditure during the ride was respectively 14.6 kJ·kg-1 and 14.8 kJ·kg-1 in EF and ML. No differences in mean power output between the two phases were found. No significant differences were found between MMPs of short or long duration across the two phases.

Practical applications: A greater sample size is required before making recommendations. The findings may give novel insights into optimizing training prescriptions for female cyclists based on their menstrual cycle phase.

Conclusions: The initial findings of this study indicate that EF and ML menstrual cycle phases impact cycling performance equally.

Keywords: Menstrual Cycle, Female Cyclists, Power Profile