

Anaerobic Performance in Female Collegiate Wrestlers during Ovulation versus the Mid-Luteal Phase of the Menstrual Cycle: A Pilot Study

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ABSTRACT

Anaerobic performance may vary during different phases of the menstrual cycle. The greatest differences occur between the late-follicular phase (i.e., ovulation) and the mid-luteal phase. Optimal anaerobic performance may be observed during the mid-luteal phase. **PURPOSE:** To explore differences in upper and lower body anaerobic performance during ovulation versus the mid-luteal phase of the menstrual cycle in collegiate female wrestlers. **METHODS:** Six female collegiate wrestlers (age = 18.6 ± 0.2 yrs; height = 165.0 ± 0.5 cm; body mass = 79.7 ± 9.6 kg; lean body mass = 45.6 ± 2.8 kg; % body fat = $31.4 \pm 6.6\%$) performed both upper and lower body Wingate tests, each lasting 30 seconds, during the ovulation and the mid-luteal phases of the menstrual cycle. Upper and lower body tests were performed 24 hours apart. Menstrual cycle phases were determined by calendar tracking, reverse estimation of ovulation, and administration of a urinary luteinizing hormone test assessed daily until positive results indicated ovulation. Lower body power was measured using a Velotron cycle ergometer, with a resistance of 0.075 kg/kg applied after a 5-second sprint at a resistance of 1 kg (50 W). Peak power (W) and relative power (W/kg) were measured. Upper body power was measured using a Monark hand ergometer with a 0.045 kg/kg resistance applied after a 5-second sprint at a resistance of 0.5 kg (25 W). Peak power (W) and relative power (W/kg) was calculated using rotation count, weight applied, and distance per rotation. Paired t-tests were used to analyze differences in means during the ovulation vs mid-luteal phases with a significance level of 0.05. **RESULTS:** There were no significant differences between trials for any variables measured. Lower body peak power (W) was $848.3 \pm 126.1W$ vs $855.0 \pm 143.9W$. Lower body relative power (W/kg) was $11.8 \pm 0.7W/kg$ vs $11.9 \pm 0.8W/kg$. Upper body peak power (W) was 162.1 ± 29.6 vs $160.2 \pm 13.2W$. Upper body relative power (W/kg) was $2.3 \pm 0.4W/kg$ vs $2.2 \pm 0.2W/kg$. **CONCLUSION:** There may not be an optimal timing of significantly increased anaerobic performance in regard to menstrual phase in these wrestlers.