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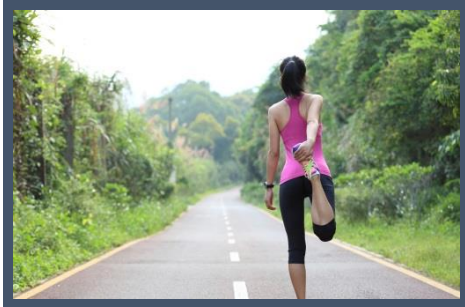
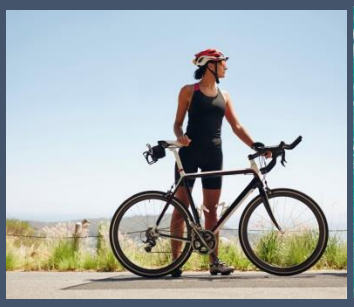


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Impact of cycling cadence on physiological responses and cycling capacity in male amateur road racing cyclists.

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Introduction: Cycling performance is influenced by various factors, including cycling cadence. The current study investigated the impact of moment of inertia cost and physiological responses to cycling at 60, 80 and 100 rev.min-¹. **Methods**: Male road racing cyclists (n=8; aged 18-38 yr.) participated in the current study. Cyclists completed graded incremental tests to volitional exhaustion on an air-braked cycle ergometer at cadences of 60, 80 and 100 rev.min-¹ in a randomised order. During each test, data were recorded at rest, and then cycling at the randomised cadence unloaded (0 Watt), the load then increased to 120 W and thereafter by 30 W every 3-min. Variables recorded during each 3-min stage included heart rate, oxygen uptake and blood lactate. Lactate curves (3rd order polynomial) were plotted for each cadence, and physiological responses (2nd order polynomial) at different cadences compared. **Results**: Costs associated with moment of inertia (unloaded cycling) were significantly higher at a cadence of 100 compared to 60 or 80 rev.min-¹ ($P<0.001$). At low sub-threshold loads heart rate and oxygen uptake data were significantly ($P<0.05$) lower, inferring improved economy at the lower cadences investigated (60 and 80) compared to 100 rev.min-¹. At, and above, threshold no significant differences in heart rate and VO_2 data were detected across cadences. However, cyclists achieved significantly higher ($P<0.05$) maximum power output at 60 and 80 when compared to 100 rev.min^{-1}. **Conclusion**s: Cycling at a higher cadence is less economical at sub-threshold workloads and higher power output is achieved when cycling at lower cadences.