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Effect of cycling position on oxygen uptake and preferred cadence in trained cyclists during hill climbing at various power outputs.

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Numerous researchers have studied the physiological responses to seated and standing cycling, but actual field data are sparse. One open issue is the preferred cadence of trained cyclists while hill climbing. The purpose of this study, therefore, was to examine the affect of cycling position on economy and preferred cadence in trained cyclists while they climbed a moderate grade hill at various power outputs. Eight trained cyclists (25.8 +/- 7.2 years, [Formula: see text] 68.8 +/- 5.0 ml kg(-1) min(-1), peak power 407.6 +/- 69.0 W) completed a seated and standing hill climb at approximately 50, 65 and 75% of peak power output (PPO) in the order shown, although cycling position was randomized, i.e., half the cyclists stood or remained seat on their first trial at each power output. Cyclists also performed a maximal trial unrestricted by position. Heart rate, power output, and cadence were measured continuously with a power tap; ventilation [Formula: see text], BF and cadence were significantly higher with seated climbing at all intensities; there were no other physiological differences between the climbing positions. These data support the premise that trained cyclists are equally economical using high or low cadences, but may face a limit to benefits gained with increasing cadence.