Physiological responses to training using PowerCranks on trained cyclists

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PowerCranks™ are cycling cranks that are independent of each other, requiring force application throughout the pedal stroke, theoretically increasing muscle recruitment and stimulus in the legs. This study examined the physiological adaptations to PowerCranks, and the time course of responses in maximal and submaximal cycling performance. Eight Trained cyclists (35.1 ± 6.8 yr) participated in 6 wks of 100% immersion training using solely PowerCranks, consisting of ~8 h/wk of aerobic and anaerobic (~80:20) cycling training. A continuous incremental cycling test to exhaustion (50 W increase every 2 min) was performed prior to and following the training program using normal cranks. In addition, 10 min of submaximal cycling (70% of VO_{2max} wattage) were performed with both normal cranks and PowerCranks at an approximate cadence of 85 rpm, pre and post training. VO_{2max} increased 15.6% (58.1 ± 5.8 to 67.3 ± 6.6, P=0.013). Maximum power increased 11.6% (316.7 ± 25.8 to 358.3 ± 20.4, P=0.011) following PowerCranks training. In summary, our data suggest that PowerCranks increased maximal aerobic capacity and power in trained cyclists.

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