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Is time limit at the minimum swimming velocity of VO₂ max influenced by stroking parameters?

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Abstract

The aim of this study was to observe the relationship between time limit at the minimum velocity that elicits maximal oxygen consumption (TLim-v VO₂ max) and stroke rate, stroke length, and stroke index. 13 men and 10 women, highly trained swimmers, performed an intermittent incremental test for v VO₂ max assessment and an all-out swim to estimate TLim-v VO₂ max. The mean +/- SD TLim-v VO₂ max, v VO₂ max, stroke rate, stroke length, and stroke index values were 233.36 +/- 53.92 sec., 1.40 +/- .06 meter/sec., 35.58 +/- 2.89 cycles/min., 2.39 +/- .22 meter/cycle, and 3.36 +/- .41 meter²/(cycle x sec.), respectively. The correlation between TLim-v VO₂ max and stroke rate was -.51 (p < .01), and values for TLim-v VO₂ max with stroke length (r = .52, p < .01) and stroke index (r = .45, p < .05). These results seem to suggest that technical skill is a key factor in typical efforts requiring prolonged aerobic power.

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MeSH Terms, Substances

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