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Assessment of the timing of respiration during rowing and its relationship to spinal kinematics

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The purpose of this study was to investigate the use of a nasal thermistor to measure respiration events at the nose and mouth, and to provide pilot data to allow experiments to be developed that relate respiration to the mechanics of rowing. Synchronised measures of spinal kinematics, respiratory patterns and force applied were recorded for fourteen male rowers of different abilities while rowing on a Concept II ergometer. The start of inspiration and expiration were measured and related to points in the rowing stroke. Rowers with greater experience showed more consistent synchronisation of breathing with higher stroke ratings. A pattern of 2 breaths per stroke was adopted by the majority of rowers and could be related to spinal kinematics within the stroke. In 8 out of the 9 subjects who took two breaths per stroke, expiration began at 7–16% of the stroke followed by inspiration at 34–40%. A further breath occurred during the recovery phase of the stroke. The nasal thermistor technique can be used to measure the timing of respiration in relation to spinal kinematics during rowing. Entrainment is more consistent in more experienced rowers and is related to the kinematics of the body during rowing.

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**FULL TEXT** 152 KB

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