

## 研究業績 英文表記

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表題	背泳ぎスタート用プレート <small>の</small> 設置は 15m 通過時間を短縮するか？
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英文	
Title	Does installation of the backstroke start device reduce 15-m start time in swimming?
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Abstract	<p>The purpose of this study was to determine the installation of the backstroke start device reduces 15-m time. Thirteen college swimmers participated in this study. The aerial start and underwater motions were recorded with two digital video cameras. The center of mass (CM) of the swimmer, angular displacements and velocities of the shoulder, hip and knee joints were calculated. As an indicator of performance, the 5- and 15-m times were measured. The 5- and 15-m times in the backstroke start device condition were significantly shorter than in the non-backstroke start device condition. The vertical velocities of the CM at hand-off and toe-off in the backstroke start device condition were significantly greater than in the non-backstroke start device condition, while there was no significant difference in the CM horizontal velocity at toe-off. As a result, the height of the great trochanter at entry of the fingertips, with the backstroke start device, was 15 cm higher than in the non-backstroke start device condition. In addition, the CM horizontal velocities at 5 m in the backstroke start device condition were significantly greater than those of the non-backstroke start device. Thus, the use of the backstroke start device may reduce the 15-m time by diminution of the entry area.</p>
keyword	Kinematics; biomechanics; velocity.

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