
ORIGINAL RESEARCH

IMMEDIATE EFFECTS OF DEEP TRUNK MUSCLE TRAINING ON SWIMMING START PERFORMANCE

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ABSTRACT

Background: In recent years, deep trunk muscle training has been adopted in various sports, including swimming. This is performed both in everyday training and as part of the warm-up routine before competitive races. It is suggested that trunk stabilization exercises are effective in preventing injury, and aid in improving performance. However, conclusive evidence of the same is yet to be obtained. The time of start phase of swimming is a factor that can significantly influence competition performance in a swimming race.

Hypothesis/Purpose: If trunk stabilization exercises can provide instantaneous trunk stability, it is expected that they will lead to performance improvements in the start phase of swimming. The purpose of this study was to investigate the immediate effect of trunk stabilization exercises on the start phase in swimming.

Study Design: Intervention study

Methods: Nine elite male swimmers (mean age 20.2 ± 1.0 years; height 174.4 ± 3.5 cm; weight 68.9 ± 4.1 kg) performed the swimming start movement. The measurement variables studied included flying distance, and the time and velocity of subjects at hands' entry and on reaching five meters.

Measurements were taken in trials immediately before and after the trunk stabilization exercises. A comparison between pre- and post-exercise measurements was assessed.

Results: The time to reach five meters (T_{5m}) decreased significantly after trunk stabilization exercises, by 0.019 s ($p=0.02$). Velocity at entry (V_{entry}) did not demonstrate significant change, while velocity at five meters (V_{5m}) increased significantly after the exercises ($p=0.023$). In addition, the speed reduction rate calculated from V_{entry} and V_{5m} significantly decreased by 5.17% after the intervention ($p=0.036$).

Conclusion: Trunk stabilization exercises may help reduce the time from start to five meters in the start phase in swimming. The results support the hypothesis that these exercises may improve swimming performance.

Levels of Evidence: Level 3b

Keywords: Competitive swimmer, intervention, speed reduction

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