

EFFECT OF AN ACTIVATION PROTOCOL BASED ON POSTACTIVATION POTENTIATION ON SWIMMING START PERFORMANCE

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Introduction: There is a potentiation method called Postactivation Potentiation (PAP) which is based on the application of near maximal loads, conducted prior to the exercise performance, which improves the ballistic movement (Tillin & Bishop, 2009). The purpose of this study was to compare the effect of an activation protocol on swimming start performance (SS).

Methods: Fourteen trained volunteer swimmers participated in the study. An intra-group design of randomized repetitive measurements was applied. A previous standard SS trial after a standard warm up served as reference (P1). One method of activation was applied: Four repetitions in the flywheel YoYo Squat (P2). Kinematic variable of SS were collected using video analysis

Results: After P2, the subjects achieved a higher mean horizontal velocity during the flight (V_{xH}) (4.89 ± 0.12 m/s) than after P1 (3.63 ± 0.11 m/s) ($p < 0.001$). After P2, it took the subjects less time to cover a distance of five meters ($T5m$) (1.65 ± 0.052 sec) compared to P1 (1.75 ± 0.057 sec) ($p \leq 0.001$)

Discussion: The use of the flywheel device was based on two clear objectives: taking advantage of the high lower limb activation which provokes potentiation; and the possibility to execute an activation gesture almost identical to the real action. The results obtained in this study are clear evidence that an improvement of the peak forces occurred on the block as was observed by Breed and Young (2003). We observed that V_{xH} ostensibly improved, which means that the swimmer's flight was longer and faster. $T5m$ also showed to be shorter after P2 application, suggesting that take-off potentiation provokes that swimmer enter into the water with more velocity. These results suggest that a warm up based on the PAP by repetitions on the flywheel improves the SS.

References:

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