

# Effects of post-activation potentiation exercises on kicking frequency, fatigue rate and jump performance in taekwondo athletes: A case study [Efectos de los ejercicios de potenciación post activación sobre la frecuencia de pateo, tasa de fatiga y saltabilidad en atletas de taekwondo: Un estudio de caso]

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The aim of the present study was to establish the effects of three conditions of post-activation potentiation (PAP) exercises on kicking frequency, fatigue rate (FR) and jump performance in novice and advanced taekwondo athletes. Secondly, to establish if the PAP strength plus plyometrics exercises produced a significantly higher increase with respect to exercises of isolated strength and plyometrics. Eight university taekwondo athletes (n=4 novices and «=4 advanced) were randomized into four (one control and three experimental) intervention conditions. Kicking frequency and FR were evaluated with the Frequency Speed of Kicks Test (FSKT), and countermovement jump test (CMJ). Effect size (ES) was calculated and the significance level was stabilized at /K0.05. Advanced taekwondo athletes obtained significantly higher results when compared to novices in the control condition for the fifth FSKT-10s (p=0.019; ES=2.382); in the strength condition for the second FSKT-10s 2 (p=0.028; ES=2.590); and in the strength plus plyometrics condition for the first FSKT-10s (p=0.037; ES=1.805) and third FSKT-10s (p=0.027; ES=2.117). Furthermore, the control

condition showed a difference when compared to strength plus plyometrics: on the first ( $p=0.040$ ;  $ES=0.552$ ) and second FSKT-10s ( $p=0.032$ ;  $ES=0.687$ ), respectively. The FR and CMJ did not significantly differ between the athletes nor between the intervention conditions. In conclusion, the PAP exercises did not improve kick frequency, FR and jump performance in the taekwondo athletes evaluated. However, these exercises did not produce adverse effects in the FR; thus, they could be used in taekwondo athletes with previous strength training. © 2020 Federacion Espanola de Docentes de Educacion Fisica. All rights reserved.

Combat sports

Martial arts

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Strength

Taekwondo