

# Effects of multi-component training on the physical fitness of young taekwondo athletes

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**Background and Problem.** Taekwondo is an Olympic sport characterized by the extensive use of kicking techniques which require a significant amount of explosive force and agility [Valdes-Badilla et al. 2014; Perez-Gutierrez et al. 2015]. It is considered an intermittent- high intensity short duration discipline, in which the predominance of the aerobic and anaerobic systems is alternated [Campos et al. 2012; Bridge et al. 2009; Herrera et al. 2014; Matsushigue et al. 2009; Santos et al. 2011; Thompson, Vinueza 1991]. The aim of this study is thus to determine the effects of a 16-week multi-component training programme on the physical fitness of a group of young taekwondo athletes. **Material and Methods.** A group of 22 well-trained athletes ( $8.8 \pm 0.5$  years old, body mass  $34.6 \pm 6.7$  kg, height  $1.35 \pm 0.1$  m, and BMI  $18.8 \pm 2.7$ ) was trained throughout the 16 weeks. The training volume was divided in a constant ratio of 60% specific taekwondo training and 40% multi-component training. The multi-component training was divided into strength (10%), endurance (10%), speed (20%), agility (30%) and flexibility (30%) training. The athletes' performance in long jump, in the number of abdominal crunches completed in 30s and in speed-agility tests as well as their flexibility were measured before and after the 16-week training period. **Results.** After the 16-week training period, an increase in long jump performance was observed in both the boys ( $p < 0.01$ ;  $ES=1.60$ ) and the girls ( $p < 0.05$ ;  $ES=0.74$ ). Likewise, improvements in the abdominal

crunches in 30s test for both genders (boys,  $p < 0.01$ ;  $ES=1.50$ ; girls,  $p < 0.05$ ;  $ES=0.89$ ) were observed. Additionally, performance in the speed-agility test was improved in both the boys ( $p < 0.01$ ;  $ES=-1.37$ ) and the girls ( $p < 0.05$ ;  $ES=-1.16$ ). No significant differences were observed in the "sit and reach" test after the intervention. Conclusions. In conclusion, a multi-component training programme, in the initial stages of the sport, can be an effective way of improving physical fitness and consequently the performance of young taekwondo athletes in competition. © Idokan Poland

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