

## The Effect of 12-Week Pilates Training on Flexibility and Level of Perceived Exertion of Back Muscles among Karate Players

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**Abstract :** Developing flexibility, by using pilates, would be useful for karate players by reducing the stiffness of muscles and tendons. This study aimed to determine the effects of 12-week pilates training on flexibility, and level of perceived exertion of back muscles among karate players. In this experimental study, 29 male karate players (age: 16-18 years) were randomized to pilates (n=15), and control (n=14) groups and the assessments were done in baseline and after 12-week intervention. Both groups completed 12-week of intervention (2 hours of training, 3 times weekly). The experimental group performed 30 minutes pilates within their warm-up and preparation phase, where the control group only attended their usual karate training. Digital backward flexmeter was used to evaluate the trunk extensors flexibility, and digital forward flexmeter was used to measure the trunk flexors flexibility. Borg CR-10 Scale was also used to determine the perceived exertion of back muscles. Independent samples t-test and paired sample t-test were used to analyze the data. There was a significant difference between the mean score of experimental and control groups in the level of backward trunk flexibility ( $P < 0.05$ ), forward trunk flexibility ( $P < 0.05$ ) after 12-week intervention. The results of Borg CR-10 scale showed a significant improvement in pilates group ( $P < 0.05$ ). Karate instructors, coaches, and athletes can integrate pilates exercises with karate training in order to improve the flexibility, and level of perceived exertion of back muscles.

**Keywords :** pilates training, karate players, flexibility, Borg CR-10

**Conference Title :** ICSMSS 2018 : International Conference on Sport Medicine and Sport Science

**Conference Location :** Paris, France

**Conference Dates :** June 25-26, 2018