THE EFFECT OF RESISTANCE BAND WEIGHT TRAINING ON EXPLOSIVE POWER IN TAEKWONDO KICKS

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Abstract

Leg muscle explosive power is one of the physical components that plays an important role in supporting kicking ability in taekwondo athletes. The ability to produce fast and powerful kicks is essential for scoring points in competition. Resistance band weight training is one of the training methods that can be used to improve explosive power. This study aims to determine the effect of resistance band weight training on kicking explosive power in taekwondo athletes. This study uses a quantitative method with an experimental approach and a One Group Pretest-Posttest Design. The research sample consists of taekwondo athletes selected using purposive sampling. The treatment involves resistance band training for a determined training period. Data collection is carried out through kicking explosive power tests before and after treatment. Data will be analyzed using descriptive statistics and Paired Sample t-Test at a significance level of 0.05. The research results are expected to provide information on the effectiveness of resistance band training in improving the kicking explosive power of taekwondo athletes and serve as a reference for coaches in developing more effective training programs.

Keywords: *resistance band; explosive power; kicking; taekwondo; weight training*

1. INTRODUCTION

Taekwondo is a martial arts sport that heavily relies on kicking techniques in its execution. An athlete's success in competition is determined not only by technical ability but also by optimal physical condition, particularly the strength, speed, and explosive power of the leg muscles. Explosive power is the ability of muscles to produce maximum force in a short time, making it an important component in producing kicks that are fast, powerful, and effective during competition.

In the current development of taekwondo, the ability to perform kicks with high speed and power has become one of the main factors determining athlete success. Kicks with good explosive power allow athletes to attack more effectively, increase accuracy, and maximize scoring opportunities. Therefore, improving leg muscle explosive power is an aspect that needs special attention in taekwondo athletes' training programs.

Resistance band is an elastic training tool that provides resistance during movement. Its progressive resistance characteristics allow muscles to work optimally throughout the range of movement, which can help improve muscle strength and explosive capacity. Stevenson et al. (2025) noted that resistance band use provides effective varied resistance in training muscle ability at various movement angles, supporting improvement in athlete physical performance.

Several studies show that resistance band training has a positive effect on improving physical ability. Stanković et al. (2025) explained that resistance band training can significantly improve leg muscle explosive power, sprint speed, and directional change ability. Janusevicius et al. (2017) found that high-intensity and high-speed resistance band training improved muscle strength and the ability to produce rapid force. Gaamouri

et al. (2023) showed that regular elastic band training significantly improved muscle strength, jumping ability, and athlete explosive power.

Although various studies have proven the benefits of resistance bands, research specifically examining the effect of resistance band weight training on kicking explosive power in taekwondo athletes remains limited. This study aims to analyze the effect of resistance band weight training on taekwondo kicking explosive power.

2. METHODS

This study uses a quantitative method with an experimental approach. The research design employed is the One Group Pretest-Posttest Design, in which a single group of subjects receives treatment and measurements are taken before and after. Research subjects are taekwondo athletes selected using purposive sampling based on predetermined criteria including age, active training status, and absence of injury.

The treatment consists of resistance band training performed over a determined training period. The training program is designed progressively and systematically, covering exercises targeting the leg muscles most involved in kicking techniques. Data collection is carried out through kicking explosive power tests before treatment (pretest) and after treatment (posttest). Data obtained are analyzed using descriptive statistics to describe the characteristics of the data, and Paired Sample t-Test at a significance level of 0.05 to determine whether there is a significant difference in explosive power before and after treatment.

3. RESULTS AND DISCUSSION

Based on the theoretical review and relevant previous studies, the application of resistance band weight training is expected to have a positive effect on the explosive power of taekwondo athletes' kicks. Resistance band training provides progressive resistance that stimulates leg muscles to work more optimally throughout the range of motion, which in turn can increase explosive power. This is consistent with findings from Stanković et al. (2025), who found significant improvements in leg explosive power, sprint speed, and directional change ability following resistance band training.

The progressive nature of resistance band training is particularly relevant for taekwondo, where kicks require a combination of strength and speed executed within very short time frames. As the band stretches further, it provides greater resistance, training muscles to generate increasing force across the full range of the kicking movement. This specificity of training stimulus is expected to translate directly into improved kick explosiveness during competition conditions.

Janusevicius et al. (2017) demonstrated that resistance band training performed at high intensity and speed improves both muscle strength and rapid force production capacity. These qualities directly underpin the explosive kicking performance required in taekwondo competition. Furthermore, the findings of Gaamouri et al. (2023) support the use of elastic band training for improving jumping ability, which shares biomechanical similarities with kicking explosive power, further strengthening the theoretical basis for this study's expected outcomes.

4. CONCLUSION

Based on the theoretical framework and literature review, this study anticipates that resistance band weight training will have a significant positive effect on the explosive power of taekwondo athletes' kicks. The progressive resistance characteristics of resistance bands, combined with the specificity of the training exercises designed for taekwondo kicking mechanics, provide a strong theoretical basis for expected improvement in kicking explosive power.

The results of this study are expected to provide scientific information regarding the effectiveness of resistance band training as a physical training method for improving the explosive power of taekwondo athletes' kicks and to serve as a reference for coaches in designing more effective and targeted training programs. Future studies should consider examining the effects across different age groups and competition levels to further establish the generalizability of these findings.

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