



THE EFFECT OF PLYOMETRIC TRAINING AND LOWER LIMB FLEXIBILITY ON DOLLYO CHAGI KICKING ABILITY IN TAEKWONDO GLADIATOR ATHLETES IN SEMARANG

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Abstract

The background of this study is the suboptimal dollyo chagi kicking ability among the taekwondo athletes of Gladiator Semarang. The research problem focuses on the lack of effectiveness in dollyo chagi kicks by taekwondo athletes of Gladiator Semarang during competitions. This research aims to analyze the impact of plyometric training and lower limb flexibility on the speed of dollyo chagi kicks by taekwondo athletes of Gladiator Semarang. This experimental study used a 2x2 factorial design. The population consisted of 40 taekwondo athletes of Gladiator Semarang, with a sample of 32 athletes selected through purposive sampling based on specific criteria (flexibility). The instruments included a lower limb flexibility test (side split) and a dollyo chagi speed test. Data analysis employed ANOVA (two-way). The results indicated: 1) Significant differences in the effects of single-leg hurdle hop training 0,002 (better) compared to single-leg bounding. 2) Significant differences in lower limb flexibility, with higher flexibility showing 0,000 < 0.05. 3) Significant interaction between plyometric training and lower limb flexibility on kick speed. In conclusion, using single-leg hurdle hop and single-leg bounding, plyometric training can significantly improve dollyo chagi performance, especially when adjusted to the athlete's lower limb flexibility level. These methods are recommended for training programs, with intensity and variations adjusted to the athlete's needs and characteristics.

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INTRODUCTION

Sports are moving activities or activities that develop and shape the body into optimal self-potential (Indrayana, 2017). Taekwondo is a martial art from Korea that is also popular in Indonesia, this sport is also a national sport of Korea (Yoyok Suryadi in Rozikin, 2015:36). Taekwondo is a martial art that relies on kicking and punching techniques. One of the main techniques in taekwondo is the dollyo chagi kick, which is a circular kick that requires strength, agility, and flexibility of the leg muscles to achieve maximum effectiveness.

Kicking techniques are very important because their power is much greater than the hands, although kicking techniques are generally more difficult to do than punching techniques. Through correct, systematic and targeted training, kicking techniques will become a powerful weapon to paralyze opponents (Suryadi, 2002:15).

In other words, training is a process that lasts for several years or a certain period of time until the athlete reaches a high standard of performance (Bompa, 1999). The training method is a planned procedure and method regarding the types of training and its adjustments based on the level of difficulty, complexity, and weight of the load (Furqon, 1995). To support a kicking ability in taekwondo, plyometric training is a common method used to increase muscle explosive power and kicking speed. Plyometric is a form of training first introduced by Fred Wilt in 1975 in America. This training has the characteristics of training with jumping or bouncing activities of the body.

Plyometric training is a type of training or exercise used to increase strength and explosive power (Johnson, 2012:4). The type of plyometric exercise chosen in this training is one-leg jumping exercise, namely single leg hurdle hop and single leg bounding.

Single leg hurdle hop is a form of exercise jumping over hurdles or obstacles arranged in a row forward. This exercise is one form of plyometric exercise that is very good for improving physical condition abilities, especially in explosive power abilities such as jumping. Chu (1992:2) single leg hurdle hop exercise is an

exercise carried out on hurdles or obstacles placed on a line with a distance determined by ability.

Single leg bounding is a forward jumping movement with a jump as high and as far as possible. The goal of single leg bounding training is to increase an athlete's reactive strength, the more flexible the knee and the less time the foot is in contact with the ground, the more effective it will be.

Flexibility is a person's ability to use a wide range of movements through their joints optimally (Nossek, 1995: 89). Flexibility as one of the component elements of physical fitness is the ability to move the body or its parts as widely as possible without joint tension and muscle injury (Ismaryati, 2008).

Looking at the results of field observation on July 20 2024, several Gladiator Semarang taekwondo athletes who took part in championships and semi-competitions showed poor kicking abilities. Apart from conducting field observation, on July 20 2024, researchers also conducted interviews with the Gladiator Semarang taekwondo trainer, to obtain information in carrying out performance coaching. Sabeum Eko expressed his dissatisfaction with the athletes' dollyo chagi kicking skills. Therefore, several things need to be developed, one of which is the dollyo chagi kicking ability of Gladiator Semarang taekwondo athletes.

Based on the background above, the researcher is interested in researching the effect of plyometric training and leg muscle flexibility on dollyo chagi kicks in Gladiator Semarang taekwondo athletes. The researcher feels that this research needs to be done so that problems related to kicking abilities in Gladiator Semarang taekwondo athletes can be reduced. If this problem is not resolved immediately, then improving the achievements (which of course goes hand in hand with the achievements) of taekwondo athletes will become increasingly difficult.

METHODS

This research is a qualitative experimental study that aims to compare two different treatments of research subjects using factorial design techniques. The data in this study was arranged within a research design framework with a 2x2 factorial design. The data analysis technique used Analysis of Variance (ANOVA) at a significance level (α) of 0,05. The population in this study were 40 Taekwondo Gladiator Semarang athletes. The sample in this study were 32 Semarang Gladiator taekwondo athletes. The sampling technique in this study was purposive sampling. The independent variables in this study were single leg hurdle hop and single leg bounding. The attribute variables in this study were high and low leg muscle flexibility. The dependent variable in this study was the dollyo chagi kick. Data collection techniques were carried out using tests and measurements to obtain objective data. To measure leg muscle flexibility using the side split test and to measure kick speed using the dollyo chagi kick instrument (Wulandari, 2023). The data analysis technique used was a 2x2 factorial design analysis of variance (ANOVA) technique at $\alpha = 0,05$. To fulfill the assumptions in the ANOVA technique, a Normality test (Lifiefors Method) and a Homogeneity of Variance test (Bartlet Method) were carried out. Hypothesis testing uses an analysis test with the help of the SPSS program.

RESULTS AND DISCUSSION

The results of the data analysis on dollyo chagi kicking ability were carried out according to the treatment group. In the research, plyometric exercises were given which were linked to the initial ability of leg muscle flexibility.

The first hypothesis test showed that there was a difference in the average results of the dollyo chagi kick in taekwondo athletes for both types of plyometric training, single leg hurdle hop and single leg bounding, of 0.002 <0.05, meaning that based on the decision it could be accepted.

The results of the data processing obtained stated that the single leg hurdle hop training method had a mean value of 16.125, Std. Deviation of 0.83. Then for the single leg bounding training method, it still obtained a Mean value of 20.5, Std. Deviation of 1.69. From these results it can be stated that "The single leg hurdle hop and single leg bounding training methods still have differences in the results of dollyo chagi kicks in Semarang Gladiator taekwondo athletes."

The results of the second hypothesis test show that there is a difference in the average results of dollyo chagi kicks in Gladiator Semarang taekwondo athletes for both types of high and low leg muscle flexibility, the significance value for the leg muscle flexibility variable is 0.000 <0.05. This value is less than 0.05, meaning that the decision can be accepted. The results of the third hypothesis test are that there is no interaction effect between plyometric training and leg muscle flexibility on the average results of dollyo chagi kicks in Gladiator Semarang taekwondo athletes.

CONCLUSION

Based on the results of the analysis and discussion that have been carried out, the following conclusions are obtained. There are differences in the average results of the dollyo chagi kick in Gladiator Semarang taekwondo athletes for both types of plyometric training, single leg hurdle hop and single leg bounding. There are differences in the average results of dollyo chagi kicks in Semarang Gladiator taekwondo athletes for both types of high and low leg muscle flexibility. The increase in dollyo chagi kick ability in athletes who have high initial ability of leg muscle flexibility is better than athletes who have initial ability of low leg muscle flexibility. There is no

interaction effect between plyometric training and leg muscle flexibility on the average results of the dollyo chagi kick in taekwondo athletes.

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