

**THE EFFECT OF BOX JUMP, BOX SHUFFLE, AND SQUAT JUMP
TRAINING ON SPEED IN BADMINTON UKM ATHLETES, STATE UNIVERSITY
OF MALANG**

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Abstract

Speed is a basic biomotor component that is needed in badminton. Speed is the ability to perform movements in the minimum time and move the body as quickly as possible. One of the speed exercises in badminton is box jump, box shuffle, and squat jump exercises. This study aims to determine the effect of the box jump, box shuffle, and squat jump exercises on speed in UKM Badminton athletes at the State University of Malang. The method in this study used the Pre-Experimental One Group Pretest-Posttest. In this study, 15 athletes were used as subjects, and the training program was carried out for 6 weeks. The results of the analysis show that there was a significant increase in the speed between the pretest and posttest ($p < 0.001$). Concluded that box jump, box shuffle, and squat jump training affect the speed of UKM Badminton athletes at Malang State University.

Keywords: *box jump, box shuffle, squat jump, speed, badminton*

Introduction

Sport is a physical activity that provides physical freshness and increases freshness of mind so that it can increase work productivity, because of this sport is needed by every individual. Sport is the implementation of several activities in order to develop or maintain physical fitness and overall health (Corbin & Le Masurier, 2014). According to Arief (2021) sport is a competitive means that can make someone number one. Apart from keeping the body healthy, sports can be used to find talent in each branch. One of the competitive sports is badminton.

Badminton is a multi-direction sport, moving in all directions in order to reach the shuttlecock. Athletes must be fast to reach the shuttlecock by maintaining their body balance, so that the strokes launched will have the right accuracy. In Indonesia, badminton has many fans, ranging from children to adults, lower to upper classes, as well as students at the State University of Malang.

In an effort to improve performance in sports, an athlete must have physical preparation, technical preparation, tactical preparation and mental preparation. Physical preparation is the most important thing for athletes to prepare themselves before the athlete competes. In badminton, the basic biomotor component that is indispensable is speed. Speed in a short time (acceleration) is an important component for performance in various sports activities (Sahin,

2014). One of the speed exercises in badminton is box jump, box shuffle, and squat jump exercises.

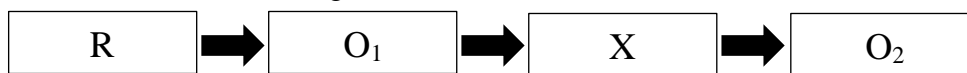
Box jump training has an effect on strengthening leg muscles, this is a reaction process that occurs by adjusting the exercise along with the physiological system when doing a heavier jumping weight, so that the muscle fibers will contract very strongly (Sabillah et al., 2022). Box shuffle training has an effect on increasing the explosive power of leg muscles (Hamonangan & Wellis, 2020). Box shuffle training has an effect on increasing leg and hip muscles (Al Hafidz et al., 2020). Squat jump is an exercise to jump and land in a squat position. Squat jump is an exercise performed by moving the muscles of the calves and thighs.

Box jumps, box shuffles, and squat jumps are exercises for the lower body that are focused on training the explosive power of the leg muscles, so they can be used to increase speed, especially in badminton athletes. Based on this introduction, the researcher will do research with the title "The Effect of Box Jump, Box Shuffle, and Squat Jump Training on Speed in Badminton UKM Athletes at State University of Malang".

Methods

The method in this study used the Pre-Experimental One Group Pretest-Posttest. The design can be seen in the table below:

Table 1 Research Design



Source : (Winarno, 2013)

Description:

R = Research subject selection

O₁ = Pretest Sprint test 30 meter

O₂ = Posttest Sprint test 30 meter

X = Treatment

The technique for taking the subject of this study using purposive sampling which sets specific criteria for subjects to be used in research. The research subjects used were Badminton UKM athletes at State University of Malang.

The treatment was given for 6 weeks for 18 meetings with a frequency of three meetings a week. The research place was held at the badminton court of the C6 building on the 7th floor of the State University of Malang and the Tampak Siring Field, Samaan. While the examination of the test results was carried out on the badminton court of the Tampak Siring Multipurpose Field, Samaan.

The initial test (pretest) was conducted to find out the initial data from the research sample about speed. The test in this study used a 30-Meter sprint test. The treatment was carried out following the training program that had been prepared, such as box jump, box shuffle, and squat jump. This research was conducted for 6 weeks 18 meetings. The final test (posttest) was carried out using the 30-Meter sprint test. After obtaining the pretest and posttest data, it will be continued with data analysis.

Data analysis was carried out after conducting the pretest and posttest. Data normality test using Shapiro-wilk with IBM SPSS Statistic version 25. Homogeneity test using Barlet Test. Hypothesis test using Paired Sample t-Test.

Results

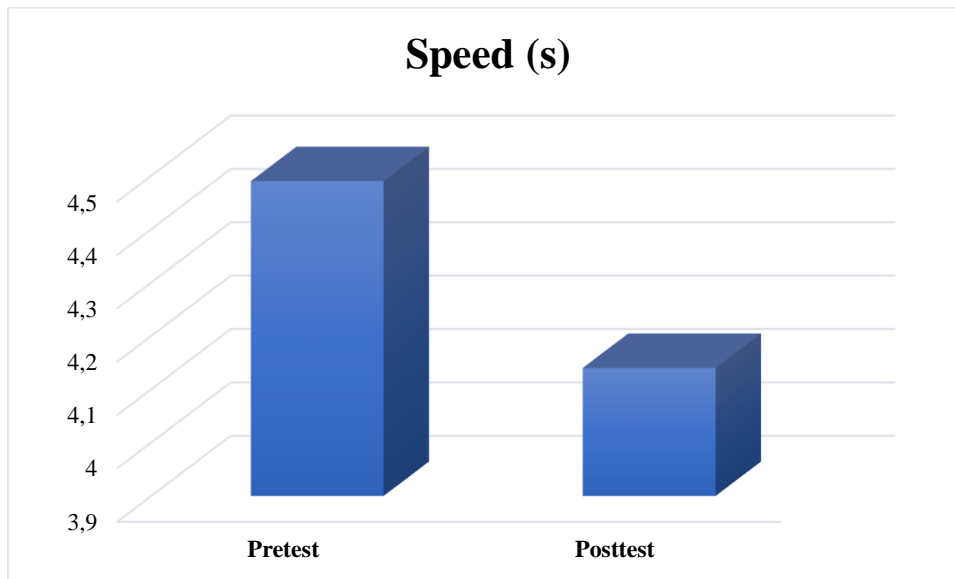


Figure 1. Mean speed (s) between pretest and posttest

Based on the results of the analysis, it shows that there was a significant increase in the average speed between the pretest and posttest ($p < 0.001$).

Discussion

Based on the analysis of the data obtained, there is a significant increase in speed on the subject after getting treatment in the form of box jump, box shuffle, and squat jump exercises in 18 meetings that are held 3 times a week for 6 weeks. The treatment of box jump, box shuffle, and squat jump exercises has an effect on increasing speed in Badminton UKM athletes at State University of Malang, totaling 15 athletes selected based on certain criteria.

Speed is one of the most important aspects that badminton athletes must have. This is because athletes with good speed are able to catch the shuttlecock quickly and position the shuttlecock well in a direction that is difficult for the opponent to reach. Bompa & Haff (2019) state that speed is the ability to cover a distance quickly. Meanwhile, Jeffreys (2013) states that speed is the time achieved in traveling a certain distance. Speed can also be shown as the ability to move from body parts quickly. In badminton, good speed is needed to support excellent performance in the success of playing badminton.

The preparation of a good training program can make the athlete's has a good physical condition. According to Bompa (1994) in Budiwanto (2012), training has the aim of meeting

psychological and physiological demands and must be carried out over a long period of time and gradually. According to Bompa (1994) and Fox & Bowers (1994) in Adi et al. (2020) so that the training program can give maximum results can be done in one week 3 to 5 times with training for 6 to 8 weeks which can provide physiological adaptation effects. The training program given to Badminton UKM athletes at State University of Malang is in the form of box jump, box shuffle, and squat jump exercises.

Box Jump is a form of plyometric exercise to increase leg muscle strength. The muscles that play a role include the hip joint muscles, hamstrings and knee joint muscles (Sabillah, 2017). Box jump training is a plyometric exercise that increases speed and speed in the leg muscles (Hidayat et al., 2018). Box shuffle is a plyometric exercise designed to increase leg muscle strength. Squat jump exercises have a strength-increasing effect because squat jump exercises place the weight on the shoulders, so a lot of muscle complexity is involved in performing squat jump movements (Rahmani, 2014). According to Sukadarwanto & Utomo, (2014), squat jump exercises train the hip flexor muscles, quadriceps, hamstrings, and gastrocnemius muscles.

Box Jump, box shuffle and squat jump performed with regular training patterns and performed repeatedly can burden the body's organs so as to cause training effects to increase explosive power and muscle endurance. In the physiological system of the exercise there will be an adaptation process, because the exercises performed in accordance with the purpose of the exercise repeatedly affect the muscles, so as to increase the explosive power of the leg muscles which will affect speed.

Box jump, box shuffle and squat jump exercises can cause muscle hypertrophy which results in an increase in muscle fibers. The number of muscle fibers increases rapidly in white muscle fibers, so this affects the speed of muscle contraction (Womsiwor & Sandi, 2014). An increase in the speed of muscle contraction affects the athlete's speed. (Santoso, 2016) states that structured training methods can improve muscle activity and function.

The results of research conducted by Baro & Sonowal (2014) stated that plyometric training for 6 weeks increases explosive power, speed, and agility. Similar research conducted by Primadinata (2015) states that there is a significant increase in speed and muscle power after doing box jump training. There are also research results from Perikles et al. (2016) there is an effect of box jump training on speed with a speed value of 0.035 m/second. According to Sugiarto's research, (2019) shows that there is an effect of squat jump training on sprint speed with a percentage of 4.144%. According to the research data above, there is an effect of box jump, box shuffle, and squat jump training on speed.

Conclusions

Based on the results of the study concluded that there was a significant effect of box jump, box shuffle, and squat jump training on speed in Badminton UKM athletes at the State University of Malang.

Suggestion

To the training division of UKM Badminton, State University of Malang, in order to provide box jump, box shuffle, and squat jump training methods which are proven to be able to significantly increase speed to athletes.

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