

The Effect Of Squat Jump And Lunges Training On Lofted Kick Ability Among U-17 Football Players Of Integral Lombok In 2024

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Abstract

Objectives: This study aimed to determine the effect of squat jump and lunges training on lofted kick ability among U-17 football players of Integral Lombok in 2024.

Materials and Methods: This study used an experimental method with a two-group pretest–posttest design. The participants were 22 U-17 football players of Integral Lombok. The sample was divided into two groups using ordinal pairing: 11 players in the squat jump training group and 11 players in the lunges training group. The treatment was conducted for six weeks with 18 training sessions. Lofted kick ability was measured using a football lofted kick test before and after the training program. Data were analyzed using normality, homogeneity, and paired sample t-tests with SPSS.

Results: The squat jump group showed an increase in mean score from 27.36 in the pretest to 29.00 in the posttest. The paired sample t-test showed a significant difference, $t(10) = -6.708$, $p = 0.000$. The lunges group also showed an increase from 27.27 in the pretest to 28.45 in the posttest, with a significant difference, $t(10) = -4.485$, $p = 0.001$.

Conclusions: Squat jump and lunges training significantly improved lofted kick ability among U-17 football players of Integral Lombok. Squat jump training produced a slightly higher mean improvement than lunges training. Therefore, both exercises can be used as alternative lower-limb power training methods to improve lofted kicking performance in football.

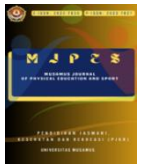
Keywords: squat jump, lunges, lofted kick, football, lower-limb power

Introduction

Football is one of the most popular team sports and is widely played in both rural and urban communities. The game requires players to master several basic techniques, including passing, shooting, dribbling, heading, controlling the ball, and moving without the ball. Among these techniques, kicking is one of the most important skills because it is used for passing, shooting, clearing the ball, and building attacks.

In football, lofted kicking or long passing is often used to move the ball over a long distance, switch play, deliver crosses, take corner kicks, and create attacking opportunities. A good lofted kick requires proper technique, accurate ball contact, and sufficient lower-limb power. Players with weak leg power often produce kicks that are short, inaccurate, or easy for opponents to intercept.

Initial observations at Integral Lombok in January 2024 showed that several U-17 players still



had difficulty performing lofted kicks effectively. Their kicks were not optimal because lower-limb power was not sufficiently developed. In addition, the training methods used by coaches were still less varied and were not supported by a structured physical training program.

Lower-limb power is an important physical component in football because it supports kicking strength, jumping, sprinting, acceleration, and explosive movement. Squat jump and lunges are two forms of lower-limb training that can be used to improve leg strength and explosive power. Squat jump emphasizes rapid extension of the hips, knees, and ankles, while lunges strengthen the quadriceps, hamstrings, gluteal muscles, and improve balance and movement control.

Previous studies have shown that plyometric and lower-limb strength training can improve explosive power and football kicking performance. Faidlullah and Kuswandari (2009) reported that plyometric training contributed to the improvement of lofted kicking performance among beginner football athletes. Saudini and Sulistyorini (2017) also found that squat training significantly improved lower-limb power. Based on these findings, this study was conducted to examine the effect of squat jump and lunges training on lofted kick ability among U-17 football players of Integral Lombok.

Materials and Methods

Study Design

This study used an experimental method with a two-group pretest–posttest design. The study compared lofted kick ability before and after treatment in two different training groups: the squat jump group and the lunges group.

Study Participants

The participants were 22 U-17 football players of Integral Lombok in 2024. The sampling technique used was a population study because all available players were included as research participants. The participants were divided into two groups using ordinal pairing. The first group consisted of 11 players who received squat jump training, while the second group consisted of 11 players who received lunges training.

Study Organization

The study was conducted at Malomba Field, Ampenan. The training program lasted for six weeks, from April 24 to June 2, 2024. The intervention consisted of 18 training sessions and two testing sessions for pretest and posttest.

Before the training program, all participants completed a lofted kick ability test. After the treatment period, the same test was administered again to measure improvement. The squat jump group performed squat jump exercises, while the lunges group performed lunges exercises as the main lower-



limb power training intervention.

Research Instrument

The instrument used in this study was a football lofted kick test. The test was used to measure players' ability to perform lofted kicks. The score obtained from the test represented the players' kicking performance before and after the training intervention.

Statistical Analysis

The data were analyzed using SPSS. Descriptive statistics were used to calculate mean, standard deviation, and standard error. Normality and homogeneity tests were conducted before hypothesis testing. A paired sample t-test was used to determine the significance of differences between pretest and posttest scores in each group. The level of significance was set at $p < 0.05$.

Results

Pretest and Posttest Scores of the Squat Jump Group

Table 1. Lofted Kick Scores in the Squat Jump Group

No.	Player Name	Pretest	Posttest
1	Rafi Alifski	28	31
2	Dhaffa Dinejad	28	30
3	Made Pramana	27	30
4	Mathias Alfat	26	27
5	Aldiansyah	26	27
6	Abimanyu	28	30
7	Egik Apriansah	28	29
8	Ridho Dwi	27	29
9	AhmadHariri	26	7
10	Zulfani	27	28
11	Azka Haris	30	31

Pretest and Posttest Scores of the Lunges Group

Table 2. Lofted Kick Scores in the Lunges Group

No.	Player Name	Pretest	Posttest
1	Davin Pratama	28	29
2	Lalu Nabil	26	26
3	Lalu Azza	26	27
4	Galih Wastu	25	25
5	Rizal Rafki	28	30
6	Almaesar Hidayat	27	30
7	Turibius Menthor	27	28
8	Raka Iksanul	27	28
9	Epandra Galuh	28	29
10	Safa Labib	29	31
11	Muhammad Ali	29	30

Descriptive Statistics

Table 3. Mean Scores of Squat Jump and Lunges Groups

Group	Test		Mean	Standard Deviation
Squat Jump	Pretest	11	27.36	1.206
Squat Jump	Posttest	11	29.00	1.549
Lunges	Pretest	11	27.27	1.272
Lunges	Posttest	11	28.45	1.864

The descriptive statistics showed that both groups improved after the training program. The squat jump group increased by 1.64 points, while the lunges group increased by 1.18 points.

Normality Test

Table 4. Normality Test Results

Variable	Sig.	Description
Pretest Squat Jump Group	0.812	Normal
Posttest Squat Jump Group	0.991	Normal
Pretest Lunges Group	0.802	Normal
Posttest Lunges Group	0.911	Normal

All data had significance values greater than 0.05, indicating that the data were normally

distributed.

Homogeneity Test

Table 5. Homogeneity Test Results

Variable	Sig.	Description
Pretest Squat Jump Group	0.591	Homogeneous
Posttest Squat Jump Group	0.699	Homogeneous
Pretest Lunges Group	0.581	Homogeneous
Posttest Lunges Group	0.601	Homogeneous

The homogeneity test showed that all data had significance values greater than 0.05. Therefore, the data were homogeneous and suitable for parametric analysis.

Paired Sample t-Test

Table 6. Paired Sample t-Test Results

Group	Mean Difference	t	df	Sig. (2-tailed)
Squat Jump	-1.636	-6.708	10	0.000
Lunges	-1.182	-4.485	10	0.001

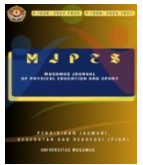
The paired sample t-test showed that both squat jump and lunges training significantly improved lofted kick ability. The squat jump group obtained $p = 0.000$, while the lunges group obtained $p = 0.001$. Both values were lower than 0.05.

Discussion

The results of this study showed that both squat jump and lunges training significantly improved lofted kick ability among U-17 football players of Integral Lombok. The squat jump group improved from a mean score of 27.36 to 29.00, while the lunges group improved from 27.27 to 28.45. These findings indicate that lower-limb power training can contribute positively to kicking performance in football.

The improvement in the squat jump group may be explained by the characteristics of squat jump training, which emphasizes explosive movement through rapid hip, knee, and ankle extension. This movement activates major lower-limb muscles, including the quadriceps, hamstrings, gastrocnemius, gluteus maximus, and hip flexors. These muscles are also involved in producing force during football kicking. Radcliffe and Farentinos (2002) stated that plyometric exercises such as squat jumps stimulate explosive muscle action and improve power production.

The result is also supported by Faidlullah and Kuswandari (2009), who found that plyometric



training improved lofted kicking performance among beginner football athletes. Their findings are relevant because lofted kicking requires explosive lower-limb movement to generate ball distance and height. In the present study, the repeated squat jump training conducted for 18 sessions likely improved the players' ability to generate greater kicking force.

The findings are also consistent with Saudini and Sulistyorini (2017), who reported that squat training had a significant effect on increasing lower-limb power. In football, increased leg power can improve kicking distance, ball speed, and overall kicking quality. Therefore, squat jump training can be considered an effective exercise for developing explosive strength in young football players.

The lunges group also showed a significant improvement. Lunges training strengthens the quadriceps, hamstrings, gluteal muscles, and stabilizing muscles around the hip and knee. In addition to strength development, lunges also improve balance and movement control. Baechle (2000) explained that lunges are useful for strengthening the upper leg muscles and developing lower-limb stability. This is important in football because lofted kicking requires not only kicking leg strength but also support-leg stability.

The improvement in the lunges group is also supported by Hutanty (2015), who found that walking lunges influenced kicking ability in martial arts. Although the sport context is different, the movement principle is similar because both football kicking and martial arts kicking require lower-limb strength, balance, and controlled force production.

When compared descriptively, squat jump training produced a greater mean improvement than lunges training. This may be because squat jump training has a stronger explosive component, while lunges training emphasizes strength, balance, and control. However, both exercises were effective and can complement each other in football training programs.

Overall, the findings indicate that structured lower-limb training is important for improving lofted kick ability. Coaches should include squat jump and lunges exercises in football training programs, especially for young players who need to develop leg power, kicking strength, and movement stability. However, the training must be performed progressively and supervised properly to reduce the risk of injury.

Conclusions

Based on the results of the study, squat jump and lunges training significantly improved lofted kick ability among U-17 football players of Integral Lombok in 2024. The squat jump group improved from 27.36 to 29.00, while the lunges group improved from 27.27 to 28.45.

The paired sample t-test showed that the squat jump group obtained $p = 0.000$ and the lunges



group obtained $p = 0.001$. Therefore, both training methods had a significant effect on lofted kick performance. Squat jump training showed a slightly greater improvement than lunges training, but both exercises are recommended as lower-limb power training methods for football players.

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