International Journal of Yoga, Physiotherapy and Physical Education
www.sportsjournal.in
ISSN: 2456-5067
Received: 14-07-2022, Accepted: 01-08-2022, Published: 16-08-2022
Volume 7, Issue 4, 2022, Page No. 62-65

Lay-up results: is there a relationship between leg power and body balance in junior high school students in central java?

Pramudya Wisnu Priambodo, Tomoliyus, Oktavian Arianto
Sport Science, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia

Abstract
This study aims to determine the relationship between leg power and lay-up, to determine the direct relationship between lay-up balance, to determine the direct relationship between leg power and balance to lay-up. The method used in this research is correlational descriptive by collecting data using surveys. The research sample was 42 students consisting of two schools in Central Java. The results of this study indicate that there is a significant relationship between balance and lay-up skills in basketball games for junior high school students in Central Java. There is a significant relationship between leg power and balance with lay-up ability in basketball games for junior high school students in Central Java. Based on this research, it shows that there is a relationship between leg power and body balance as a result of layups in basketball games for Junior High School students in Central Java.

Keywords: keseimbangan, lay-up, power tungkai

Introduction

Education is a lifelong need, every human being needs education whenever and wherever he is (Tilaar, 2013) [11]. Education is very important, because without human education it will be difficult to develop and even be retarded. Thus education must really be directed to produce quality human beings who are able to compete, and have noble character and good morals. Physical education is an integral part of overall education, aiming to develop aspects of physical fitness, movement skills, critical thinking skills, social skills, reasoning, emotional stability, moral action, aspects of a healthy lifestyle and the introduction of a clean environment through physical activity (Suherman, 2019) [10].

Physical education in schools is very meaningful for national development where the ultimate goal of various fields of development is for physically and mentally healthy humans (Jones & Cheetham, 2020) [5]. The benefit of physical education is to meet students' needs for movement. In it students can learn while having fun through channeling their desire to move. The more fulfilled the need for movement in its growth period, the greater the quality of growth itself (Le Masurier, G., & Corbin, 2019) [6]. Thus students are expected to achieve maximum learning achievement so that educational goals can be achieved.

Sport means to improve physical fitness, sport can also be a means of unifying the nation (Zhu *et al*., 2011) [13]. Sports activities are activities that teach oneself to compete in sportsmanship, learn to accept failure, and foster an unyielding spirit, also, on the other hand, sports activities can improve the physical condition (Lyngstad *et al*., 2020) [7]. All humans can do sports activities because sports can be done anywhere and anytime. Therefore the school facilitates several sports facilities and infrastructure. Such as table tennis, badminton, sepak takraw, futsal, and volleyball, and there are also basketball facilities and infrastructure (Brownell, 2020) [2].

Basketball is a game whose movements are complex, namely a combination of walking, running and jumping as well as elements of strength, speed, accuracy, flexibility and others (Anshel *et al*., 2014) [1]. To be a good basketball player, you must master the basic techniques of playing basketball, because the better a player in dribbling, shooting and passing the better the chances of success, this must also be supported by good physical condition (Wicaksono, 2014) [12]. In the game of basketball to get effective and efficient movements, it is necessary to be based on good mastery of basic techniques. The game of basketball really requires cohesiveness, speed, reaction, accuracy, power, balance and flexibility. It is very important to make movements that can make the ball enter the ring, one of which is the lay up shoot technique. The winning team's basketball game is the team that gets the most points, techniques to get points in basketball games such as under basketball shoot, hook shoot, lay up, jump shoot, set shoot, and all movements that make it easier for the ball to enter the ring.

Shoot distance is one of the most important factors in making a shoot, the closer to the basketball hoop, the greater the chance to get points (Conde *et al*., 2021) [4]. The lay-up shoot is a type of shoot that is profitable and very effective because this shoot is taken from a distance so close to the basket that it looks as if the ball has just been placed in the basket. Lay-up shoots are very good because they are done at close range, in contrast to ordinary shoots that can be taken from distance the chances of getting the ball in are very small. When going to

do a lay-up on this last jump, try to jump as much as possible so that the body can be positioned as close as possible to the ring and continue by entering the ball (Masullo *et al*., 2016) [8].
Lay-up shots can be taken from the right or left side of the ring. When going to do a lay-up, you also maximize the last jump to be as close as possible to the ring (Conde *et al*., 2021) [4]. To perform the lay-up technique requires leg power and balance, because leg power and balance greatly affect to obtain maximum results. Strength is needed to maximize the last jump so that the body is very close to the basket, while balance is needed to maintain body position in the lay-up technique. If the pedestal cannot defend the body at the time of the lay-up, it is likely that the ball will not enter the ring and the player will easily fall.
Based on observations made by researchers and information from physical education teachers, basketball learning activities taught at SMP A Central Java and SMP B Central Java are basic materials which include: passing, dribbling, and lay-up movements. In practice, this sports learning activity, the teacher has never held a strength test of limb power and balance to find out how well the level affects the lay-up movement of students. Therefore, based on the facts, researchers need to conduct a study to compare the level of leg power and balance on the lay-up results of students who study in lowland areas with those who attend highland areas.

Methodology
This type of research is correlational which is carried out to find out whether there is a relationship between one variable and another. This study uses a design or observation design of research variables that are measured at the same time and are momentary in a certain period of time. The sample used in this study was 42 students consisting of two schools in Central Java. The instruments used in this study were (1) leg power measurement using a vertical jump, (2) balance measurement using a balance-one, and (3) lay-up is the athlete's ability to shoot close to the ring in one minute using the Kerbleger test. The data analysis techniques in this study are (1) The normality test of the data is carried out to determine whether the data to be analyzed is normal or not. Normalization test using Kolmogorov-Smirnov, (2) Data Linearity Test Linearity test uses variance analysis technique for regression or F test with test criteria, namely if significance < 0.05 the data is declared linear, otherwise if significance > 0.05, and (3) hypothesis testing using correlation technique with a significant level of 5% ($p<0.05$).

Results
The results of this study obtained descriptive statistical measurement results and continued to determine the results of hypothesis testing using the correlation technique below as follows.

Table 1: Analisis Statistik Pengukuran Power Tungkai, Keseimbangan, dan Hasil Lay-up

No	Hasil	Variabel		
		***Power* Tungkai**	**Keseimbangan**	***Lay Up***
1	Mean	38,48	29,50	5,17
2	SD	7,44	11,92	2,17
3	Minimum	24	10	2
4	Maksimum	63	55	9

Based on the results of statistical analysis in the table above, it shows that the mean value for leg power is 38.48, the balance value is 29.50, and the lay-up value is 5.17. In the standard deviation results, the value for leg power is 7.44, the balance value is 11.92, and the lay-up value is 2.17. Then, for the minimum value for leg power, it is 24, the balance value is 10, and the lay-up value is 2. At the maximum value, the value for leg power is 63, the balance value is 55, and the lay-up value is 9. Below is table 2 which has presented the results of the hypothesis testing of this study as follows.

Table 2: Analysis of the Relationship between Leg Power and Balance Lay-up Results

No	Hasil	Variabel	
		***Power* Tungkai**	**Keseimbangan**
1	Korelasi	0,704	0,662
2	Koefisien Determinasi	0,495	0,438
3	t_{hitung}	6,265	5,586
4	t_{tabel}	2,021	2,021
6	Kesimpulan	Ada hubungan yang signifikan	Ada hubungan yang signifikan

Based on the results of the hypothesis in the table above, it shows that the value of t count > t table, then there is a significant relationship between leg power and the balance of the lay-up results.

Discussion

This study was designed to determine the relationship between leg power and balance on lay-up results in junior high school students in Central Java using the correlational method of the variables above. In this study, lay-up results were used as the dependent variable and leg power and balance as independent variables.

The results of the analysis of the relationship between the independent variables and the dependent variable in hypothesis testing need to be studied further by providing an interpretation of the relationship between the results of the analysis achieved and the theories that underlie this research. This explanation is needed in order to know the suitability of the theories put forward with the research results obtained. The results obtained when associated with the framework of thinking and the theories that underlie it, basically the results of this study support the existing theory.

From the results of data analysis that has been carried out, it can be concluded that there is a significant relationship between leg power and lay-up ability in basketball games for junior high school students in Central Java. Judging from the movement when shooting lay-up shoots, leg power is used when jumping, leg power is the foundation when going to make a jump, this can be seen when students make a jump, the better the student's leg power, the higher the jump made to enter the ball into the ground. in the ring. Basically, leg power is used to jump when doing lay ups. In addition, the legs function to withstand the weight of the body and also the influence of the earth's gravity so that it becomes a double burden that the legs must accept (Sporiš *et al*., 2017) [9]. For that leg muscles are required to have power. This situation shows that the better the leg power, the better the basketball lay-up ability.

On the balance variable, based on the results of data analysis and research findings, it can be concluded that there is a significant relationship between balance and lay-up skills in basketball games for junior high school students in Central Java. Body balance is an important factor to achieve good mobility. Good movement skills will underlie movement skills. Chua *et al* (2016) [3] argue that balance is a person's ability to control the muscle nerve organs, in order to obtain or maintain dynamic balance. Balance is important in sports activities. If someone does not have a good dynamic balance, it will be very difficult to carry out sports activities, especially those that use balance such as gymnastics, diving or sports games such as basketball and so on (Sporiš *et al*., 2017) [9]. From the explanation stated above, it can be concluded that the better a person's balance, the better the results of the lay-up carried out, this is in accordance with the theory above which says that it affects balance, so for that, if these factors are met, one's balance will be good and yield rate in performing directional lay-ups.

Leg power and balance together have a significant relationship with the lay-up ability in basketball in junior high school students in Central Java. Therefore, improving the quality of leg power and balance must be the main thing in improving lay-up ability. Leg power has a function to be the main focus in making movements in the game in general and specifically in influencing lay-up abilities. Lay-ups require a good throwing accuracy factor. The position of the player's focus can also affect the accuracy of the throw. Therefore, every player must have leg muscle explosive power and good balance.

Conclusion

Based on the results of data analysis, description, testing of research results, and discussion, conclusions can be drawn, namely. There is a significant relationship between leg power and lay-up ability in basketball games for junior high school students in Central Java. There is a significant relationship between balance and lay-up ability in basketball games for junior high school students in Central Java. There is a significant relationship between leg power and balance with lay-up ability in basketball games for junior high school students in Central Java. The limitations of this study are that the sample used is still too small, and there are still students playing around during the lay-up. Researchers suggest leg power and balance need to be trained by doing the forms of exercises provided by the trainer and independent exercises to be able to improve lay-up skills.

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