

Plyometrics Training Interventions On Jumping Performance And Confidence For Long Jump Athletes In Elementary School

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Abstract: In sports, athletes not only need to focus on their skills but must have a high level of self-confidence to ensure they can do their best in the competition. Athletes must master various skills to succeed, especially in the sport they're involved in. Therefore, many sports methods and training have been created to ensure that athletes can achieve the best results and increase their confidence to a higher degree. This study has been done to find out the effect of Plyometrics Training Interventions On Jumping Performance And Confidence For Long Jump Athletes In Elementary School. Plyometric training is often used to connect repetitive jumps and movements or stretch reflexes from the muscles to produce an explosive response, especially in sports requiring individual jumping and speeding. This study used an experimental research design where a questionnaire method was conducted to identify the level of self-confidence in sports for long jump athletes. The Questionnaire was modified based on the objective requirements of the study, and this study was carried out on 50 respondents consisting of Year Four and Year Five students in primary school. The data obtained will be analyzed and discussed. In the end, this study has the potential to create new knowledge for athletes regarding the use of plyometric training in their sports.

Keywords: Plyometric Training, Long Jump

1. Introduction

This study aims to identify the effect of Plyometrics Training Interventions On Jumping Performance And Confidence For Long Jump Athletes In Elementary School. As we know, an athlete should have complete preparation in terms of skills, physical and mental. Failing to provide one of these requirements may affect the athlete's performance. Thus, this study focuses on the training that has the best effect on athlete performance and confidence in the long jump.

The fundamental element in improving performance in sports is preparation, including technical, tactical, psychological and physical elements. To achieve good performance in sports, physical fitness is important because it improves the quality of body movement, mastery of skills, and injury prevention (Dick, 2002). Without constant training, it is difficult to reach the highest level of physical fitness. The need for physical fitness in sports is indisputable in order to perform at your best. Success in competitive sports for high-performance athletes is highly dependent on muscular strength and explosive power. Therefore, the main component of success in team sports such as basketball, volleyball, netball, rugby, and soccer is having strong and explosive muscles (Kroon, 2000; Rahimi & Behpur, 2005). The main method of obtaining muscle work potential is the athlete's capacity to create fast muscle action. In this situation, the production of muscle power is greatly influenced by muscle strength and movement speed (Asmadi, 2007).

There is no denying that if talent is developed early or at a young age, it can create champions when a person grows up. According to some authors, small athletes can participate in training regimens that include moderate jumping (Lohman, 1989). The explosive power of the muscles can be increased more effectively with the use of efficient training techniques.

Results from previous research indicate that various training techniques, including weight and plyometric training, can increase muscle power (Rimmer & Slievert, 2000).

According to Rimmer and Slievert (2017), plyometric training, which emphasizes jumping and muscle strength among athletes, is one of the training frequently used in long jump sports. Plyometric training use the movement of muscle groups to respond to weight and develop explosive power. Once the athlete has achieved, an ideal or adequate level of strength is, plyometric training used to prevent injury, particularly to tendons and ligaments. Training is done from the end of the relevant preparation period until the pre-competition phase. This training, which can be done with either your own body weight or equipment such as a box of various heights and a new ball, aims to increase explosive power and strength.

However, based on the researcher's observations, many of the athletes can do all the activities organized by the school due to good health factors. The athletes are highly interested in education, especially in Physical Education subjects. In research conducted by Singh, T., & Nongdren, R. (2014), Many athletes in school are active in sports and have great potential to go further if they get solid and positive encouragement and support from all parties. Based on the teaching and learning reflection that has been done, after the researcher taught the title of the essential skill of jumping and landing with both feet with the correct behaviour too long jump athletes, the researcher found that 15 people out of 24 athletes involved seemed quite difficult to perform activities that involve jumping and landing movements. The researcher felt a little aggrieved because the researcher had already demonstrated and progressed before asking them to jump and land with both legs. They cannot perform the landing technique with the correct behaviour, and their jump performance is somewhat degraded when they get a low

jump. Their self-confidence is disturbed during the teaching and learning process.

Thus, this study aims to measure the effectiveness of Plyometric Training on long jump performance and sports confidence for long jump athletes, especially in primary schools.

2. LITERATURE REVIEW

2.1 Long Jump Event

An athletic competition known as the long jump involves jumping from a springboard to a sandy landing area. It is one of the sports requires elements of strength, speed and agility to land as far as possible from the launch point. Competitors will run as fast as possible on a running track made of rubber, jump as far as they can through a wooden plank used as a runway, and land on the sand. The drop point for each participant will be identified and display how far they are from the release point.

Athletes have to jump far in the long jump, so they need their legs to move quickly and explode. Weight training, resistance training, plyometric training, and a combination of resistance and plyometric training are some of the activities that can be done to increase explosive leg power.

The target phase, the jump phase, the flight phase, and the landing phase are the first steps in the prolonged jump activity jump process. Aspects of each of these stages, including speed during the target phase, push force during the surge phase, kite style during the kite phase, and body balance during landing, must be emphasized (Irwansyah et al. 1, 2012). The ability to jump is an essential component for athletes to achieve long flights (Swope, 2008). Therefore, specific training is essential to increase leg muscle strength to develop explosive power in the legs (Laura, Margaret & Turner, 2012). The sport of the long jump is divided into four different divisions. It covers the running technique (run), how to jump (takeoff), hovering the body in the air (flight) and landing technique (landing). Running fast and jumping high on the release is the basis for success in the long jump. For that reason, it is not surprising when we can see that there are sprinters who can succeed in this event like Carl Lewis.

2.2 Self-Confidence

Athletes need to be confident in their abilities, optimistic, and responsible for the decisions taken to maintain their self-confidence. A sense of self-confidence, or in English called self-confidence, is vital for everyone, especially young people. Self-confidence, according to the American heritage dictionary, is defined as "consciousness of one's own powers and abilities" ("awareness of one's own powers and abilities"). While Webster's new world dictionary defines it as "reliance on one's powers". ("Depend on your own strength") (Widarso, 2005).

The concept of self-fulfilment and self-confidence are closely related. Those with a strong sense of self-confidence will be able to do as they expect. The optimistic expectation that he can complete the task significantly impacts this. However, someone who lacks confidence will not be able to communicate what is needed. Negative hope is the

experience of a person who lacks self-confidence.

According to Komarudin (2013), confident athletes always strive to present themselves in the best possible way and allow themselves to feel competent so that their appearance is maintained. However, athletes who think negatively and do not believe in themselves may succeed, which affects their image. Satiadarma (2000) stated that self-confidence is the belief that an athlete will be able to perform his task successfully during an athletic performance.

2.3 The Relationship Between Performance and Self-Confidence In Athletes

The performance and potential of athletes in their specific sports sector are enhanced through sports psychology training. Coaches can assist athletes in preparing for upcoming opponents or competitions by using sports psychology. Sports coaches can assist in the form of intrinsic or extrinsic motivation. That help may boost the athlete's self-confidence and focus. When an athlete's opponent is credible and potentially beneficial to their performance, anxiety often surrounds them. This confidence is important to overcome nervousness.

Self-confidence is one of the most important qualities and requirements for achieving sporting success. Athletes who have self-confidence are capable and eager to perform well. Athletes who compete in the final round need to believe in themselves because this kind of mentality will help them learn how to deal with intense pressure, help them achieve their goals and prevent them from getting angry if they fail. Therefore, in certain circumstances, a full guarantee should be shown.

Athletes need a certain quality, self-confidence, to succeed in a competition. According to Husdarta (2012), an athlete needs to be confident to step into the final stage of the competition. Athletes need to feel trusted to manage their emotions, achieve their goals, and avoid dissatisfaction with failure.

Most of the research findings show that elite athletes have a higher level of self-confidence when compared to athletes who are new or low-skilled (Hanton, O'Brien & Mellalieu, 2013; Perry & William, 1998; Williams & Krane, 1998). Self-confidence studies conducted in Malaysia are too far focused only on a few selected talents without comprehensively investigating all skill-related factors. In other words, research on self-confidence tends to ignore less skilled athletes and instead focuses more on competent or elite athletes. Several studies have been conducted to date comparing bumiputra athletes of various ability levels. Therefore, this study focuses on Bumiputera athletes of all ability levels as well as those with lower skill levels. In this study, several talent categories of Bumiputera athletes representing universities, districts, states, and countries will be compared.

Since the government's main objective is to ensure that students have a high level of competitiveness in the university market and future careers, these extracurricular activities must be worked on. Participation in sports will increase children's self-confidence. A study by Nurnadhira and Norlena (2019) found that athletes' performance and

focus improve when they have a high level of self-confidence. The results are consistent with Nor Fatin and Faridah's study from 2021, which found that students who have a strong self-concept generate better students from the perspective of their mind, body, spirit, and intellect, in line with the National Education Philosophy (FPK).

3. METHODOLOGY

In this study, the research design used is a quantitative method. This method is used to identify the extent to which a relationship exists in a population or sample between two or more variables. Then, the Descriptive method was applied in order to identify the level of jump performance through the effectiveness of plyometric training by using a questionnaire to collect data for the level of self-confidence in sports for long jump athletes. Next, the study respondents comprised students in years four and five of Sekolah Kebangsaan Scientex Taman Scientex, Pasir Gudang District, Johor Baharu, who were involved in the event. Fifty students participated in this study, with a total of 25 male students and 25 female students in year four and year five from both classes were easily selected as the sample of this study. The sample selection was based on students who participated in field events such as the long jump, high jump and so on. This random selection was conducted based on the best level among 50 respondents during the research test and to identify the group of respondents who were selected to meet the researcher's requirements when answering the survey questions. The remaining survey questions were found to be defective because the respondents did not meet the requirements of the questions and made mistakes in their answers. In addition, the sample selection consisted of different years, but the students consisted of all Malay, Chinese and Indian students. These students have the same culture and school environment, although there are differences in background, such as different family socio-economic status.

A questionnaire was used as one of the means of data collection for this study. After the questionnaire was approved, it was given to 50 respondents and collected for two days at the study location. The researcher completed each questionnaire individually as part of the data collection procedure. Although using a questionnaire is a quick and efficient approach to obtaining a lot of data, the validity of the information obtained through this method also depends a lot on the willingness of the study participants to complete the survey.

Respondents were informed of all information after receiving the questionnaire and that their answers would be kept confidential. This can persuade respondents to be honest in their answers. In addition, each respondent completed the questionnaire on their own and was informed in advance to answer based on their own opinions and experiences. There is no time constraint to answer, discouraging respondents from responding quickly. If respondents have problems answering the questionnaire, an explanation will be provided. This can avoid mistakes made by respondents due to misinterpretation of questionnaire items.

The data in this study will be analyzed using SPSS software (Statistical Package for Social Sciences) version 22.0. Descriptive statistical methods, comprising frequency (f) and

percentage (%), are used to analyze Part A, which is the respondents' demographic data. For Sections B, C, and D, the mean score distribution, standard deviation and classification according to the mean score value interpretation table are used to analyze the data. The results of this pilot study show that the reliability value for the questionnaire items in part B is 0.918. As for the item in part C, it has a reliability value of 0.795. Next, the items of part D have a reliability value of 0.832. The overall reliability value of the questionnaire is 0.926.

4. RESEARCH FINDINGS

Based on the study a total of 50 respondents have been involved in this study. To obtain data for the study, respondents need to answer questions involving the demographics of those involved in this study. The respondents in this study are female, with a total of 25 respondents representing 50%. The number of male respondents is equal to 25 respondents, with a percentage of 50%. Next, the race of the respondents who participated in this study at the School. The majority of respondents who participated in this study were Malay, with 40 respondents (80%). This number is followed by Indian respondents, with a total of 10 respondents (20%). Then, the majority of respondents are between the ages of 10 - 11 years, where 25 respondents are ten years old with a percentage of 50%, and 25 respondents are 11 years old with the same percentage.

Next is a question related to the frequency of long jump training in a week. The majority of respondents do training 3-4 times a week, with a total of 33 people, with a percentage of 62%. Next, respondents who underwent training 5-6 times a week were 19 respondents, with 38%.

Last but not least is the experience of respondent in the Long Jump Event. The majority of those who participated had represented the School in the Long Jump Event at the District Level, with a total of 22 respondents with a percentage of 44%. Next, 19 respondents have no experience in Long Jump Sports, with a total of 38%, and lastly, 9 respondents represent Schools in Long Jump Events at the State Level, with a percentage of 18%.

Table 1 Demographic Analysis of Respondents

	Characteristics	Total	Percentages
Gender	Men	25	35.8
	Female	25	64.2
Race	Malay	40	80
	India	10	20
	Chinese	0	0
	Others	0	0
Age	10 Years	25	50
	11 years	25	50
Frequency of Doing Long Jump Training in a Week	1-2 Times In A Week	0	0
	3-4 Times In A Week	31	62
	5-6 Times In A Week	19	38
Experience in the Long Jump Event	No Experience in Long Jump Sports	19	38
	Representing the School in the Long Jump Event at the District Level	22	44
	Representing the School in the Long Jump Event at the State Level	9	18
	Representing the School in the Long Jump Event at the National Level	0	0

4.1 Shapiro-Wilk Normality Test

Table 2 Shapiro-Wilk Normality Test

Section	Shapiro-Wilk		
	Statistic	df	Sig.
Mastery Level, Ability Demonstration And Physical And Mental Preparation	0.973	50	0.300
Levels of Physical Self-Performance, Social Support and Trainer Leadership	0.933	50	0.007
Representative's Level of Experience, Environmental Comfort and Situational Appropriateness	0.942	50	0.016

The standard of significance is 0.05 ($\alpha = 5\%$). To determine whether the data is normally distributed or not can be seen from the results of testing the normality of the data. Based on the output from SPSS above, it is known that the significant value is less than >0.05 where the Level of Mastery, Ability Demonstration and Physical and Mental Preparation Shows a Value Exceeding $P > 0.05$ with a Value of 0.300. Next, the Level of Physical Self-Presentation, Social Support and Trainer Leadership showed the opposite value below $p < 0.05$ with a value of 0.007. Finally, the Level of Experience of the Representative, the Comfort of the Environment and the Situation's Suitability show a $p < 0.05$ with a total of 0.016. From this result, it can be determined that the data distribution is not normal.

4.2 Skewness and Kurtosis Tests

Table 3 Skewness and Kurtosis Test

Section	N	Skewness	Kurtosis
Mastery Level, Ability Demonstration And Physical And Mental Preparation	50	-0.236	-1.002
Levels of Physical Self-Performance, Social Support and Trainer Leadership	50	1.560	1.482
Representative's Level of Experience, Environmental Comfort and Situational Appropriateness	50	0.293	-1.413

Based on the results obtained from the Skewness and Kurtosis Test, it can be concluded that the data distribution in this study is normal because the values obtained in the test are in the range of -1.96 and +1.96.

Study conducted by Suna and Kumartasli (2017), stated that using quantitative parametric analysis should be carried out even if the number of respondents is less than 50 people. This study is also supported by Lopez-Samanex, who conducts the same test, which is a quantitative parametric analysis, even though the total number of respondents is only 9 respondents.

Therefore, based on the normality test that has been carried out, the researcher has decided to use a parametric test in this study.

4.3 Pre And Post Test

Table 4 The mean value and standard deviation of the pre- and post-test of the control group

Pair	Eta	Min	N	Std. Deviation	Std. Min Error
		2.3000	50	0.61445	0.08690
	Pasca	2.5400	50	0.61312	0.08671

Paired sample t-test was carried out to answer the second hypothesis, which is to evaluate the effect of the intervention through the Plyometric Training Intervention on students aged 10 and 11 years. Based on the results obtained in the long-standing pre-jump test, the control group was 2.3, while the standard deviation was 0.61. Looking at the post-test, there was an increase where the mean value increased to 2.54 with a standard deviation of 0.61.

Table 5 Differences between pre and post tests after being given Plyometric Training on Jumping Performance and Sports Confidence for Primary School Long Jump Athletes

Pair	Pre - Post	Difference of Variables				P	df	Sig. (2 tails)	
		Min	Std. Deviation	Std. Min Error	95% Confidence Interval of the Difference				
			Bawalan		Down				Up
		-0.24000	0.55549	0.07856	-0.39787	-0.08213	-03.055	49	0.004

Based on the table above, statistically, it can be concluded that there is a significant difference reported between the pre-test and post-test standing long jump with a value of $t(49) = -3.97, p = 0.078 p > 0.05$.

4.4 Ancova Test

Table 6 Ancova Test of Sports Confidence for Primary School Long Jump Athletes before and after Plyometric Training intervention

Dependent Variable: Differences					
Source	Type of Power Sum Two	df	Mean Square	F	Sig.
Pre Test	.040	1	.040	.118	.734
Post Test	6.476	25	.259	.756	.752
Error	7.876	23	.342		
Total	17.000	50			

Based on the data obtained, the significant value is greater than >0.05 . This means that there is no significant difference between Plyometric Training and the self-confidence of long jump athletes based on the three phases of the test. This means that the first hypothesis in the study was accepted while the second hypothesis in the study was rejected

5. DISCUSSION AND CONCLUSION

5.1 DISCUSSION

The long jump is one of the most popular sports in the community. According to (Iswandi & Purnomo, 2013; Church et al., 2017), the long jump is a type of jump number together with contagious, high, and pole jump. In this study, a long jump involves moving the whole body from a certain point by running, pushing, floating in the air, and landing (Thompson, 2019; Fraser et al., 2019). In general, it is a movement that requires a jump to lift the leg forward while in the air by making a push on one leg to reach a long distance (Later, 2017a; Organism et al., 2019). It is an athletic number that combines speed, strength, and agility to land as far as possible from the push-off point (Iswandi & Purnomo, 2013; Qi et al., 2019). To be the best, setting specific Training is essential for athletes, especially in long jump sport.

Time is of the essence in a tight situation in sports; plyometric training are the best choice to increase leg muscle strength and explosive power quickly. Elementary and high school coaches can start working with their athletes to improve their leg strength and power as early as 10. If you offer someone routine exercise, you need to follow the process and take care of different aspects of the training based on their age. School teachers and coaches try to train students or athletes in the techniques and tactics of games or sports but do not pay attention to the creation and improvement of motor fitness abilities. This is one of the ways in which the findings of this study are expected to increase awareness of the value of motor fitness among educators and coaches. It is important to organize one's Training properly and to maintain a regular training schedule if one wants to achieve the desired results. Sand school teachers and coaches are strongly encouraged to use plyometrics in any Teachers and coaches who incorporate plyometrics into their Training have a better chance of developing future athletes.

In this study, there are two null hypotheses that need to be answered in the study to determine whether it is acceptable or not. The first hypothesis is that there is no significant difference between Plyometric Training on the performance of long jump athletes based on the three test phases. The second null hypothesis is that there is a significant difference between Plyometric Training on the self-confidence of long jump athletes based on the three test phases. Based on the results obtained in the study, Based on the data obtained, the sig value is more than >0.05 . This means that there is no significant difference between Plyometric Training and the self-confidence of long jump athletes based on the three phases of the test. This means that the first hypothesis in the study was accepted, while the second hypothesis in the study was rejected.

The researchers observed excellent compliance (100%), and no adverse events were observed in the long jump training program. The test that plyometric training intervention in the long jump can have a good effect, especially the athletes. This can be seen based on the test before and after the intervention that has been done in this test. Athletes have an increase in speed and muscle strength after performing plyometric training that help them achieve a better position

after the test is repeated. Next is related to Sports Confidence for Elementary School Long Jump Athletes. Self-confidence allows athletes to thrive in their environment. Self-confidence gives athletes the belief that they can overcome any obstacle and that they can achieve their goals. A low opinion of yourself leads to undesirable choices and poor performance, whereas having confidence in your abilities leads to better decision-making. Based on the findings of this study, there was no significant difference in the athletes' confidence before and after the plyometric training intervention was applied. This means that they have a fixed stance and high confidence from the beginning to achieve what they want in this sport.

The study's limitations can be detected in three issues: data analysis techniques, samples, and the restricted length of the thesis report. First, the limitation of the study is related to the data collection technique that only uses textual analysis, which potentially raises issues related to subjectivity in the results of the analysis. The second limitation of the study is related to the data sample used in this study, where a large number of samples may affect the data. The last limitation of the study is related to the maximum length of the research report, which means that not all parts of the text can be presented in the report. As for the advantages of the study, this study is important, especially for sports teachers and athletes in the country. With this study, sports teachers can find out the advantages of Training emphasized in this study and can apply it in sports training in their schools. This study will also give importance, especially to the youth and sports in the country, in emphasizing training that can improve the short-term performance of athletes as well as their confidence in playing the sport.

Research on Training to improve the performance of jumping athletes is far behind the advanced research done in Malaysia. Here are some suggestions for future research studies:

1. Future studies can investigate other training that can improve the performance of long jump athletes in a shorter time.
2. Future studies can aim to find problems that arise as well as factors that can affect the performance of athletes, especially in long jump sports.

Future research is recommended that further research should be conducted to determine the validity of the questionnaire through exploratory and confirmatory factor analysis

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