

Effects of Training Methods and Power on Shooting Accuracy in Football

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Abstract- this research compared the effect of fixed target training and change target training on shooting accuracy in football. 24 school athletes aged 13-15 years old participated in this study and they were grouped into 4 groups through the use of ordinal pairing technique. Each group was trained using fixed target training (n=12) and change target training (n=12). Training was conducted 3 times a week for 90 minutes at each meeting. The vertical jump test was applied to measure the power while Widiastuti test was adopted to examine football shooting accuracy. For data analysis purpose, this study applied a two-way ANOVA. Results of this study indicate that fixed target training has greater influence on shooting accuracy football than change target training with $0.004 < 0.05$ significance level. Furthermore, athletes with high power level has better shooting accuracy football than those with low power level with a significance level of $0.003 < 0.05$. The results also indicate significant influence of training method and power on football skills with $0.032 < 0.05$ significance level.

Keywords- fixed target, changes target, training, power, shooting

I. INTRODUCTION

The most popular sport in the world in recent times is the game of football [1]. Football is a team sport that requires performance across all intensity intermittent exercise [2]. Achievement is attained in football through a balanced team that is made up of individual players that are qualified and capable of implementing the techniques of playing football perfectly [3]. The ultimate goal of playing football is to find a win, and this happens when one team scores more goals against the opponent players by looking for the weaknesses of the keeper. The wicket is the weakness of the goalkeeper or goalie [4]. It can be proved in an exercise program by kicking towards goal and a player has to get it done to improve the accuracy of kick [5].

Based on interviews and direct observation during the process of training some researchers see that the method of training provided is not optimal so that the exercise is still weak against the objectives to be achieved. Given the fact that kicking is an important factor in football, a major football game player is required to develop proficiency in kicking. A good kicking in the game of football requires the ability to estimate the distance and direction in which the ball must go because football player must direct the ball to the right [6]. Besides, there is an element in a no less important in directing the force of power. Leg power is one component that affects the success of people in motor skills. If the player is supported

by leg muscle power and good biometer ability then the player can do the shooting on goal in the game of football with increase in the accuracy of shots on goal [7]. There are some forms of exercises that needs to be done by a particular forward kicker because when a player has a good kick and good accuracy; it will be easy for the team to score. There are so many methods of exercise that supports the success of football shooting accuracy examples of which are fixed target and change target training. Methods of target training exercise direct the ball to one specific goal at a step [8]. There are opportunities through more and more training because repeated training adds a good memory with more focus on one of the exercises [9]. Glowing target training system with an increase in the direction of ball towards the goal area makes the player better [10]. While target-training change is a process of shooting with direct kick change target is moving from one target to the other target in one step. Excess target may change its own displacement target which will further support accuracy. There are two different shooting techniques that can be adopted and they both include strength and placement of the target [11].

II. METHODOLOGY

A. Participant

Twenty-four school football athletes that came from Jogja, Indonesia were chosen as samples. Selection of subjects was done using random sampling techniques and ordinal pairing was used as the divisor to obtain 4 groups. Criteria for athletes was age 13-15 years. Before the pre-test, subjects were given the test limb muscle power as the divisor group. Two groups of high-power leg (n = 12) and lower limb power group (n = 12) were obtained.

B. Exercise Procedure

The treatment given during training methods and goals remain unchanged, target training methods were performed 3 times a week for a duration of 90 minutes each meeting. The exercise program was designed in accordance with the principles of exercise and intensity, volume and the corresponding recovery characteristics of an athlete at that age.

C. Shooting Accuracy Football Tests

To determine the accuracy of football athletes using shooting, instrument tests were conducted to measure the

accuracy of kicks at goal. The aim was to shoot the ball determined to the goal 3 times and then the results were aggregated. This test was a valid and reliable way to measure the accuracy of shooting football.

D. Leg Power Tests

Vertical Jump was used to measure athletes limb muscle power. The tools used to perform vertical jump consists of board with a height of 150cm to 350cm, chalk, cleaning and on the wall average. Assessment criteria were determined based on the highest jump and the athletes were given the opportunity to do that on three occasions during the test.

III. RESULT AND DISCUSSION

A. Result

Table 1. shows the significant difference between pretest and posttest results of the target group and the target group remained unchanged in the accuracy shooting of football.

TABLE I. THE DIFFERENCES BETWEEN PRE AND POST-TEST

No	High Power Group					
	Fixed Target			Change Target		
	Pretest	Posttest	difference	Pretest	Posttest	difference
1	6	14	8	3	12	9
2	4	17	13	8	11	3
3	8	15	7	10	15	5
4	15	20	5	8	12	4
5	6	14	8	3	10	7
6	6	14	8	4	10	6
Total	45	94	49	36	70	34

No	Low Power Group					
	Fixed Target			change Target		
	Pretest	Posttest	difference	Pretest	Posttest	difference
1	3	12	9	5	10	5
2	9	11	3	10	13	3
3	4	13	9	7	12	5
4	11	12	2	7	10	3
5	6	11	5	5	11	6
6	5	10	5	5	9	4
Total	38	69	33	39	65	26

TABLE II. RESULTS OF THE EXPERIMENTAL GROUP ANOVA WITH TARGETED TRAINING METHODS AND TRAINING METHODS TARGET REMAINS UNCHANGED

Source	Type III Sum of Square	df	Mean Square	F	Sig
Fixed target & change target	32,667	1	32,667	10,370	0,004

Based on the results in Table 2, ρ significance value of 0.004 <0.05 was obtained. Thus, there is a significant difference between targeted training methods and training methods target unchanged against the accuracy of shooting football. Based on the analysis, it was found that the target training remains higher (better) with differences in the mean value/average-average pretest of 7.50 and posttest at 15.67 compared with target training methods change with the difference mean value/average pretest and posttest amounted to 6.00 at 11.67. This means that the research hypothesis which states that there are significant differences in influence of fixed targeted training methods and methods of target training shooting changed against the shooting accuracy of football has been proven.

TABLE III. RESULTS OF ANOVA HIGH LEG POWER DIFFERENCES AND LOWER LIMB POWER.

Source	Type III Sum of Square	df	Mean Square	F	Sig
Power	37,500	1	37,500	11,905	0,003

Based on the results obtained in Table 3 showing a ρ significance value of 0.003 <0.05. This means that there is a significant difference between athletes with high limb muscle power and lower limb muscle power to the accuracy of shooting football. Based on this analysis, athletes with high limb muscle power with a difference of 7.50 and a value of 15.67 is better from those of athletes with lower limb muscle power with a difference of 6.00 and a value of 11.67. This means that the research hypothesis which states that there is a significant difference between athletes who have a high limb muscle power and lower limb muscle power to the accuracy of shooting football has been proven.

Table 4, results of the interaction between fixed target training and target training changes with high leg power differences and lower limb power.

TABLE IV. THE INTERACTION BETWEEN FIXED TARGET TRAINING AND TARGET TRAINING CHANGES

Source	Type III Sum of Square	df	Mean Square	F	Sig
Fixed target & change target * Power	16,667	1	16,667	5,291	0,032

Based on the results obtained in Table 4 with a ρ significance value of 0.032 <0.05, it can be deduced that there is a significant interaction between method of exercise (goals and objectives remain unchanged) and power limbs (high and low) on the accuracy of shooting football for school athletes between the ages of 13-15 years.

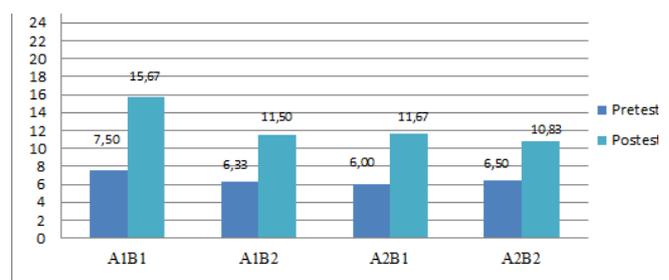


Fig. 1. Bar chart pretest and posttest shooting accuracy football.

B. Discussion

The results of this study showed the current implementation of four groups which were given treatment within 2 months. Football shooting accuracy seen in athletes aged 13-15 year in this study experienced a significant increase. In Table. 4, groups of high-power leg with fixed target exercise group increased significantly than lower limb power group with unchanged target training group which is shown by the significant value of 0.032 ρ <0.05. So, the result obtained between fixed and training target training target shows that shooting accuracy changes with football. Basically, more focused target training exercise needs to be achieved by

repeating the movement and nature-based program that is practical and relevant to the development of player skills [12]. In contrast to changed target training which does not promote exercise with a goal pattern or with a target to increase goals, change target training is used only at certain times. The role of power in kicking towards goal has become one of the very fundamental ways of assessing accuracy or measure the level of one's instincts [13]. Someone who has high leg power has a better opportunity of making a kick to the goal, as opposed to someone who has the lower leg power, because shooting would be too low, therefore, there is need to be trained to increase the strength of power in the kick [14].

IV. CONCLUSION

This study shows that the application of fixed and change target training have a significant difference on the accuracy of shooting to the goal in football for school athletes aged 13-15 years old. This research suggests that workouts remain more appropriate target in improving the accuracy of shooting to the goal. It has been demonstrated that target training is capable of delivering a significant effect in improving the accuracy of shooting football for school athletes aged 13-15 year supported by a capable leg muscle power. So, it can be concluded that it will be a right blend to increase the capability of shooting accuracy in football to achieve success.

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