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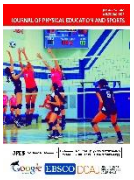

The Effect of Weight Training Method and Arm Muscle Power on the Result of Distant Throw-in without Beginning of YATPI Godong Extracurricular

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Abstract

Throw in is a way to start the match again by throwing it into the field. This study aims to determine the difference in effect between weight training methods and arm muscle power to the results of the far throw-in without the start of YATPI Godong extracurricular participants. This research uses a quasi-experimental method with a 2x2 factorial design. The sampling technique used was purposive random sampling, which was taken by 20 players. Data analysis techniques in this study using ANOVA. Based on the results of the study, weight training (sig value 0.000 < 0.050), the arm muscle power variable obtained sig value 0.255 > 0.050. In the variable type of arm muscle power training (interaction) obtained a sig value of 0.500 > 0.050. From the results of this study, that is, the method of arm muscle weight training affects the throw-in; there is no difference in the arm muscle strength of the throw-in. There is no interaction between weight training methods with arm muscle power in influencing the throw-in. Conclusion there is no interaction between weight training methods with arm muscle power in influencing the throw-in without the start of YATPI Godong extracurricular participants. Suggestions for YATPI Godong football extracurricular players, physical conditions need to be considered for achieving optimal results and need to develop more effective and appropriate training programs.

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INTRODUCTION

Football is a team game, with each team consisting of a maximum of eleven players, and one of them is a goalkeeper. This game is almost entirely played using the legs, except the goalkeeper who can use his arms in the area according to Sucipto punishment (Mukhtarudin, 2017). The football game is a branch of team play or team play, so a team consisting of players capable of holding a compact game means having good teamwork, according to Sukatamsi (Candra, D. R, 2015). The basic techniques of football that must be adequately mastered and perfectly are (1) techniques without the ball, among them, are (a) running fast-changing direction, (b) jumping, (c) motion trickery without the ball, which is a trick of the body, (d) special goalkeeper movements; (2) ball techniques, including (a) kicking the ball, (b) receiving the ball or stopping the ball and controlling the ball, (c) dribbling the ball, (d) heading the ball, (e) throwing the ball, (f) motion trickery with a ball, (g) take away, and win the ball, (h) special goalkeeper techniques (Fredrik Alfert Makadada, 2012).

All the existing components must develop physical conditions. However, in practice, it needs a priority to determine which elements need to get a more significant portion of training according to the sport occupied. In improving physical condition, trainers usually provide training that contains several components related to physical conditions, which consist of strength, flexibility, speed, agility, and endurance training (Hasyim Ahmad Asy'ari, Sugiharto, and Prapto Nugroho, 2013).

Nurhadi Santosa (2014) said that a soccer player must master the correct basic techniques and must also have good physical conditions, the components of physical conditions that are indispensable include strength, endurance, explosive power, speed, flexibility, balance, coordination, agility, accuracy, and reaction.

Power or explosive power has two components, namely strength, and speed, which are essential mobility abilities to support activities in every sport, according to Widiastuti (Mohammad Syahrir, 2018). Power is the ability of muscles to exert maximum strength in a very fast time, according to Harsono (Bayu Purwo Adhi, 2017). With more muscle, the human body can carry out its activities properly without experiencing significant fatigue. Arm muscles consist of upper arm muscles and forearm muscles. Syarifudin (Hernando Hernrik, 2017) Upper arm muscle consists of flexor muscles, namely M. Biceps Braki, M. Brakialis, M. Korakobrakialis, and extensor muscles, namely M. Tricep Braki while the forearm muscles consist of the extensor muscle of the carpiradialis longus, extensor carpi radialis brevis, extensor carpi ulnaris, supinator, pronator teres, flexor digitorum profundus, extensor digitorum.

Throw-in is one skill that is often overlooked in football. The use of the correct throw-in can create many opportunities to control the ball and score goals during matches (Joan Rhobi Andrianto, 2013). One key to success in throwing-in is communication. Throwers and ball receivers must know what each will do before the toss is carried out. The direction and speed of the ball receiver will determine how the ball thrower throws the ball (Danny Mielke, 2009). If the throw-in is not carried out according to the procedure of implementing the throw-in, it will result in the ball moving to the opposing party. Still, if the throw-in is carried out in a planned and following the procedure of implementing the throw-in, it will be a dangerous initial attack in the opponent's defense area. Throw-in is more often done in football games, according to Tulus Dwi Prasetyo (2012).

Throw-in test evaluation results on YATPI Godong football extracurricular participants, it is known from 25 students there are six athletes in the medium category (13-14), nine athletes in the less category (11–12), ten athletes in the very poor category (10 and below). Based on the data that has been presented, the results of a throw-in for football extracurricular students at YATPI Godong are still relatively low.

The mistakes that are often made by the players include how to stand up, how to hold the ball, how to throw the ball, and continuous motion. The authors see from the players when

throwing in, and these mistakes are mistakes that do not need to be done by football players. These things need attention because the throw-in that is often underestimated by the players is an important part of the advanced strategy. Poor throw quality can not be maximized in terms of technical and physical conditions. In throw-in, physical factors are very influential in achieving maximum results.

Many factors influence the mistakes made by football players in a throw-in. Because of the lack of coaches about throw-in for players, not all players can throw-in, lack of throw distance of the players, and movements that are not efficient at throw-in, so much energy is expended but the results achieved are not following the amount of energy that has been expended. Efforts to increase power require training. Appropriate and effective exercises for increasing power in the arm muscles, especially the ability to throw, need to find a form of exercise. Concerning exercises for power strength, there are several types of exercises used, according to A. Hamidsyah Noer (Aditia, E. N., 2017). These types of exercises include vertical jumps, pull-ups, push-ups, squat jumps, setups, weight training, and many other forms of exercise.

Based on the theories that have been put forward, the researchers tried to offer arm muscle training, and abdominal weight training to increase the throw-in distance without beginning to YATPI Godong extracurricular participants, Grobogan Regency, to improve the throw-in throw distance.

METHODS

This type of research is quantitative research with quasi-experimental methods, which aims to compare two different treatments to research subjects with factorial design techniques. Factorial experiments are experiments that almost or all levels of a factor combined or crossed with all levels each of the other factors that exist in an experiment (Sudjana, 2005). The design of this study is the two-factor design. The treatment is arranged so that each individual can be a subject together in two different factors, each of which consists of several levels (Dantes, 2012). The data in this study were arranged in a research design framework with a 2x2 factorial design.

Table 1. Research Design

Leg length (B)	Method of exercise	
	Front barrier hop (A_1)	Jump to box (A_2)
Long legs (B_1)	A_1B_1	A_2B_1
Short legs (B_2)	A_1B_2	A_2B_2

The population is the whole subject of research (Arikunto, 2010). Sugiyono (2015) population is a generalization area that consists of objects or subjects that have qualities, and certain characteristics determined by research to be studied, and then conclude. Budiwanto (2014) populations with certain characteristics are finite and infinite. The population is all extracurricular football participants at YATPI Godong, totaling 25 athletes. Arikunto (2010) sample is part or representative of the population under study. The sample size used was 20 male athletes obtained by purposive sampling technique. Sugiyono (Aditia, E. N., 2017) purposive sampling technique is a sampling technique based on certain considerations. The independent variable in this study is arm muscle weight training, and abdominal weight training, the attribute variable in this study is arm muscle power.

In contrast, the dependent variable is the result of throw-in without the start. The instrument used in this study was the measurement of arm muscle power with an expanding dynamometer, as well as a throw-in test with manipulation of a 45° elevation angle trajectory with the best distance assessment of 3 tests. Measured perpendicular to the throwing

line, from the foot closest to the throwing line, and recorded on the form.

The analysis prerequisite test data collection technique with the normality test is intended to find out that the sample comes from a normally distributed population. Testing data normality with SPSS is done by applying the Kolmogorov Smirnov technique (Candiasa, 2010), which is assisted by an SPSS 24 computer program with a significant level of $\alpha = 0.05$. Furthermore, the homogeneity test is intended to show that two or more sample groups come from populations that have the same variance. The data analysis technique used to test the hypothesis of this study is by using a two-way analysis of variance (Two Way Anova). Arikunto (2010) two-way analysis of variance (ANOVA) is a research data analysis technique with factorial design with two factors. The conclusion whether H_0 is accepted or rejected is obtained by interpreting the significant value in the test table between-subject effects from the analysis of variance through the SPSS 24 for windows program. The criteria used for concluding are if the probability of error ($p < 0.05$), then H_0 is rejected, and H_1 is accepted.

RESULTS AND DISCUSSION

This study aims to determine the results of the far throw-in without the start of football extracurricular participants at YATPI Godong. This study was conducted to analyze the effect of weight training methods, and arm muscle power on the results of the throw-in without the extracurricular football participants at YATPI Godong. Before conducting the data analysis technique using ANOVA, in this study, several prerequisite tests must be carried out, namely the data normality test and the variance homogeneity test.

Based on the normality test conducted using SPSS 24 for windows, the information obtained sig = 0.976 > 0.05 so that the data is far throw-in without beginning is the normal distribution. While the homogeneity test can be obtained the significance value of the far throw-in results variable without beginning with a value of 0.200 > 0.05 so that based on the results that have been described, it can be concluded that the sample tested can be said to be homogeneous or come from the same sample.

After the normality test and the homogeneity test, the next step is to test the hypothesis. The research hypothesis test was carried out using SPSS 24 for windows with the ANOVA test. Hypothesis test results can be seen in table 2 tests of between-subject's effects below.

Table 2. Tests of Between-Subjects Effects of Weight Training Methods, and Arm Muscles Power on Outcomes of Distant Throw-in without beginning for extracurricular football participants at YATPI Godong

Source	Variable dependent	df	Mean square	F	Sig.
Training	Throw-in	1	36.450	24.078	.000
Power arm	Throw-in	1	2.112	1.395	.255
Training * Power arm	Throw-in	1	.722	.477	.500

The first hypothesis test in table 2 shows that the significance value of the influence of arm weight training and abdominal weight training on the results of the far throw-in without beginning for YATPI Godong football extracurricular participants. Calculation results on the variable weight training method obtained sig = 0.000 < 0.050, indicating that there is a difference in the distance of the throw-in without beginning between the respondents with the arm weight training method, and respondents who were given abdominal weight training.

The second hypothesis test in table 2 shows the results of testing the second research hypothesis proved that the arm muscle power variable obtained sig = 0.255 > 0.050, that there is no difference in throw-in without beginning between respondents with high arm muscle power category, and respondents with low arm muscle power category.

The third hypothesis test in table 2 shows that the variable type of arm muscle power training (interaction) obtained sig = 0.500 > 0.050. There is no interaction between arm muscle power with the weight training method in influencing the throw-in without beginning.

In general, it can be said that the approach to the method of arm weight training, and the technique of abdominal weight training with high and low arm muscle power are variables that influence the increase in throw-in without beginning. For this reason, in this study, the researchers used the method of arm weight training and the technique of abdominal weight training, which is one form of exercise that aims to increase the distance of the results of the throw-in without beginning in the game of football. This exercise serves to build strength, concentration, and speed of movement needed to increase the distance of the throw into the game of football. The method of arm weight training is an exercise to increase the strength of the arm that is needed when throw-in. In contrast, the technique of abdominal weight training is an exercise that focuses on abdominal strength as the initial force of whipping during a throw-in. Researchers use the weight training method, and muscle power arm to increase the distance of the throw-in without beginning for YATPI Godong extracurricular students, Grobogan Regency.

In addition to the arm muscle power of the throw-in technique, one of the factors outside the research that was not examined in the study was the flexibility factor of the motion in throwing, the flexibility of the movement of the throw-in greatly influences the results of the throw-in (Mokhamad Ridwan, 2012).

As stated by Moeloek, D. (Khoirul Anwar, 2013) who explained that flexibility is the maximum possible movement that can be done by a joint, so it includes the relationship between the form of joints (bones that form joints), muscles, tendons, and ligaments around the joints. So the writer can conclude that the flexibility of movement can produce movement efficiency so that an efficient movement will produce maximum movement. Movement of the body segment, when throwing can be seen from the kinetogram image.

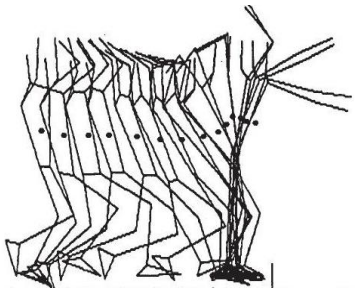

Figure 1. Illustration of Kinetogram before Throw (Rielly, 2013)

CONCLUSION

Based on the results of the analysis and discussion, this study concludes that there are differences in the level of throw-in without beginning between respondents with the method of arm weight training with respondents who were given the method of abdominal weight training, there is no difference in the level of throw-in without beginning between respondents with power High arm muscles with respondents with low arm muscle power, there is no interaction between weight training methods with the category of arm muscle power in influencing away throw-in without beginning.

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