



FARTLEK EXERCISES ON AEROBIC RESISTANCE

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Abstract

The problem in this research is the level of aerobic endurance of football players at Bina Darma University which is not good. The study was conducted to determine whether fartlek training can increase the aerobic endurance of Bina Darma University football players. This research is an experimental research. The instrument used was the blepp test. The data analysis used SPSS statistics 23. The result of $t_{\text{count}} = 11.115 > t_{\text{table}} = 1.740$ so that it states that fartlek training can increase the aerobic endurance of Bina Darma University football players.

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INTRODUCTION

Endurance is one of the ten biomotor components of humans. According to Syafruddin (2013) endurance is one of the most important elements of physical condition because it is the foundation or basis for the development of other elements of physical condition. In soccer, which has a playing time span of up to 90 minutes and with high intensity, every player is required to have good endurance, one of which is aerobic endurance. This concurs with Haris's (2018) statement

which states that the physical conditions that football players need to have include aerobic endurance / Vo2Max (aerobic endurance). If players have good aerobic endurance then they can easily carry out the techniques and tactics instructed by the coach.

According to Emral (2013) that aerobic endurance is a person's ability to cope with training loads for a period of more than 3 minutes continuously. Furthermore, according to Bafirman (2013) states that aerobic endurance is a system for mobilizing energy using

oxygen, the activity of exerting energy can be in the form of inhaling and expelling air, muscle contraction, etc. From this opinion it can be concluded that aerobic endurance is the ability a person performs physical activity without experiencing fatigue for a long time through aerobic breathing and because it is supported by good organ systems (heart, lungs, blood circulation, etc.). This means that each individual has the ability to endure that is different from one another.

Having a good aerobic endurance ability is not obtained instantly, there is a process that must be done and undertaken, namely through training. An exercise in order to get maximum results must follow the principles of a practice. These training principles include: (1) actively participating in training, (2) overall development, (3) specialization, (4) individually, (5) variety, (6) models / forms during the training process, (7) an increase in load / overload (Bompa, 1994). The improvement / progress of an exercise can be seen after undergoing 6-8 weeks of training. This is reinforced by the opinion of Muhajir (2004) who argues that an athlete who follows an intensive physical condition training program for 6-8 weeks before the competition season, will have strength.

From several forms / models of exercise to increase aerobic endurance, one of them is fartlek training. This fartlek exercise is an exercise that plays and / or combines speed. Sukadiyanto (2011) states that the fartlek training

method comes from Sweden, which means playing speed. This method is an excellent form of exercise for increasing endurance in almost any sport. Furthermore, according to Harsono (2016) fartlek is an excellent training system to increase endurance in all sports. Fartlek training should be done outdoors with varying conditions and can be used as an option to increase the player's Vo2max.

The results of observations made by researchers on Bina Darma University football players show that their aerobic endurance skills are still low. This is especially evident during the transition from attacking to defending or from defending to attacking during the match, the peak is seen in the second half of the match which is the final 25 minutes before the match.

Departing from existing theories and problems in the field, the researcher will conduct a study with the title "Fartlek Exercise Against Aerobic Endurance.

METHODS

This type of research is a type of experimental research. The research design used was one group pretest posttest design, which means that there is no comparison group, only one group will be given treatment. For details, it can be seen in the image below:

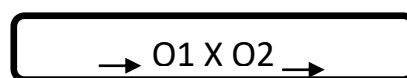


Figure 1: Research Design

The research was carried out at the Sriwijaya State Sports School Football Field, according to the training schedule on Monday, Wednesday and Friday. The sample of this research is the whole population (total sampling) of 17 soccer players at Bina Darma University. The instrument used to measure aerobic endurance is the bleep test. The hypothesis of this study is that there is an effect of fartlek training on the aerobic endurance of Bina Darma University soccer players. The data analysis technique used SPSS statistic 23.

RESULT

Description of Initial Test Result Data

The preliminary test results show that the lowest result is 37.1 while the highest result is 43.60. Complete details of the initial test results can be seen in table 1.

Table 1. Preliminary Test Results

Test Taker	Initial Test Results
S1	39.9
S2	40.8
S3	39.2
S4	38.5
S5	37.1
S6	39.9
S7	39.6
S8	42.0
S9	43.3
S10	40.2
S11	39.9
S12	44.2
S13	42.6
S14	43.60
S15	41.5
S16	40.8
S17	39.2

Final Test Result Data Description

The preliminary test results showed that the lowest result was 40.2 while the highest result was 47.10. Complete details of the final test results can be seen in table 2.

Table 2. Final Test Results

Test Taker	Initial Test Results
S1	42.90
S2	43.6
S3	40.2
S4	40.2
S5	41.1
S6	42.6
S7	43.3
S8	44.9
S9	47.1
S10	43.6
S11	43.3
S12	49.3
S13	43.3
S14	46.2
S15	44.6
S16	44.6
S17	43.6

Hypothesis testing

Table 3. One-Sample Statistics

	N	Mea n	Std. Deviatio n	Std. Mean Error
the earli est	17	40.7235	1.92111	.46594
last test	17	43,7882	2,31460	.56137

Seen from table 3, where the average value of aerobic endurance which was previously 40.7235 becomes 43.7882. this indicates an increase in aerobic endurance.

Table 4. Paired Samples Correlations

	Correlation	Sig.
Paired sample 1: first & last	.872	.000

The p-value $\alpha (0.05) > (0.00)$ above indicates that there is a significant relationship between aerobic endurance before and after treatment.

Table 5. Paired Samples Test

	Paired Differences		Sig. (2-tailed)
	Mean Difference	95% Confidence Interval of the Difference	
Paired Samples	Mean Difference	Lower Bound	Upper Bound
1	1.137	-.205	2.480

Based on the table above, fartlek training can affect and increase a person's aerobic endurance, this is shown from the results of statistical calculations where the results $t_{hitung} = -11,115 > 1,740$. These results also answer the research hypothesis. $> t_{tabel} =$

DISCUSSION

The results of the research that have been carried out show that fartlek

training can increase a person's aerobic endurance, in this case the soccer player at Bina Darma University. The results of statistical calculations show that where $t = -11.115 > t \text{ table} = 1.740$. and at the same time answering the research hypothesis.

The characteristics of fartlek training that play the speed where the activities are running, walking, jogging and carried out with a long time and distance are very in accordance with the characteristics of the game of football. Where we know that playing football is when players have to run fast, run moderately, run slowly, walk and for a long duration. Furthermore, the characteristics of fartlek training can also be adapted to the atmosphere in a soccer match.

Fartlek training is one of the aerobic endurance exercises because it is relatively long in practice so it requires a lot of oxygen intake. This is in line with Atradinal's (2018) statement that fartlek is a method of aerobic endurance training because it is a form of endurance training with a long duration. In connection with the sport of football, endurance is very important for soccer players to have because if they do not have a good level of aerobic endurance it will affect the quality and techniques that are owned and the tactics of a coach.

Increasing one's endurance is obtained through exercise. The exercises that are carried out must be based on the level of one's seriousness by referring to

the principles of practice. Without the seriousness of an exercise you will not get maximum results. Of course, the results of an exercise are also determined by supporting factors such as gender, age, genetics to a person's lifestyle. This agrees with the opinion of the World Health Organization (2010) which states that a person's endurance is influenced by several factors, namely physical activism in sports, one's nutritional intake, one's nutritional status, gender and age.

That way, a person's ability in this case aerobic endurance can be increased through a well-programmed exercise, a high level of seriousness and willingness and both internal and external supporting factors.

CONCLUSION

Departing from the results of research that has been carried out and studies on research discussion that fartlek training can increase aerobic endurance in this case, namely the aerobic endurance of football players at Bina Darma University. The increase can be shown through statistical calculations where $t_{count} = -11.115 > t_{table} = 1.740$.

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