

The Effect of Fartlek Exercise on Endurance Students in Futsal Extracurricular PAB 4 Sampali Private High School



Neysha Sarita Wili¹, Eddy Purnomo²

^{1,2} Department of Sport Science, Yogyakarta State University, Yogyakarta Indonesia

ABSTRACT: The background of the problem in this study is the lack of students' understanding of endurance training and not implementing routine endurance exercises. This study aims to determine the effect of fartlek exercises on student endurance in futsal extracurricular activities. This research was conducted using an experimental method with a research design using a One-Group Pretest-Posttest Design that is by conducting a pretest before giving treatment treatment, the population in this study was 27 students. The sampling technique is purposive sampling. The sample in this study were 18 students who actively participated in futsal extracurricular activities at the PAB 4 Sampali Private High School. The study was conducted during 15 meetings to conduct fartlek training treatments. The research instrument used the bleep test. The data analysis technique used in this study was the t-test to determine the effect of fartlek training on student endurance. Based on the results of the statistical test t-test values obtained -17.015 with a significance of 0.000 ($p < 0.05$) which means there is a significant difference (significant) physical endurance between the pretest and posttest on students. If seen from the average value, then the average value of pretest = 34.23 and the average posttest value = 38.73 is obtained, because the posttest average value is greater than the pretest, an increase in endurance of = 4.5 or 13.12%. So it can be concluded that the fartlek training has a positive effect on the endurance of students in futsal extracurricular PAB 4 Sampali Private High School.

KEYWORDS: Fartlek Training, Endurance

INTRODUCTION

Education is a very important thing for the life of the nation and the progress of a country. Education is a strategic way to produce quality human resources with sustainable policies, especially in the world of education in Indonesia. It is not impossible that education in Indonesia will create broad-minded and quality human resources. One form of education that directs the development of all human aspects is physical education, which is essentially an educational process that utilizes physical activity to produce holistic changes in individual quality both physically and spiritually. Physical education provides students with the opportunity to be directly involved in various learning experiences through physical activities, playing and exercising which are carried out systematically, directed and planned.

In this case, physical education teachers must have innovations to implement physical education learning in order to achieve the expected learning goals. Educational sports are essentially sports or physical activities carried out to achieve educational goals. One of the important goals of Penjasorkes is to improve physical health and physical fitness and sports skills. By knowing student motivation, it is hoped that teaching staff can develop programs that suit this motivation, so that extracurricular activities run well. Extracurricular activities are activities carried out outside class hours to develop students' talents, interests, abilities and skills through various programs that build children's mental health to become better. There are several extracurricular fields at school, such as sports, art, academic knowledge, and so on. Extracurricular futsal is one of the non-academic activities held at school and outside school in the field of sports, futsal is a sports game played by teams, and futsal is included in sports achievements. Futsal extracurricular aims to develop students' interests and talents in sports.

Futsal is a sport that has interesting characteristics, apart from stamina, speed and agility, it also requires mentality and strategy, especially in dribbling, passing, as well as maintaining defense and attacking the opponent's area quickly and accurately. Futsal games must be supported by good cooperation between players and must also be supported by good technique, physical, tactical and mental skills in order to play well. According to Bompa in Buzzichelli (2015: 7) the components of physical condition include strength, endurance, speed, coordination and flexibility. Futsal is a game with intermittent intensity fast and optimal heart work, because good heart work will be able to transfer oxygen to active muscle tissue, resulting in energy resistance fast and can speed

The Effect of Fartlek Exercise on Endurance Students in Futsal Extracurricular PAB 4 Sampali Private High School

up the recovery process. The results of the preliminary study using a questionnaire were that extracurricular participants did not understand the importance of endurance, and participants did not carry out endurance training programs, which would affect their performance in the sport of futsal. It can be an example that PAB 4 Private High School won several futsal championships but recently the team experienced a decline, namely the last two matches they lost in the semi-finals and lost in the top 8. Factors that cause a decrease in achievement in these sports are mainly related to biomotor aspects such as endurance. Considering the importance of endurance, researchers will conduct research on student endurance in extracurricular futsal at PAB 4 Sampali Private High School through fartlek training.

METHODS

This research is a quasi-experimental research according to Dwiyo (2010: 45) that the quasi-experimental method is a research method that remembers that not all variables (symptoms that appear) and experimental conditions can be given full control and to find out which variables may not be fully controlled and controlled.

The research design used the One-Group Pretest-Posttest Design. The research was conducted in 18 meetings with a frequency of 4 times a week for 4 weeks. The first meeting is to do a pretest on all samples using the bleep test to find out the endurance of the sample before being given training treatment, then the sample is given to do exercises, namely 15 meetings and then the researcher will give a posttest using the bleep test to see the final result whether there is an increase in endurance after doing fartlek exercises. This study aims to determine the effect of fartlek training on a person's endurance. The research instrument used was the Bleep Test, the following is an endurance test that was carried out:

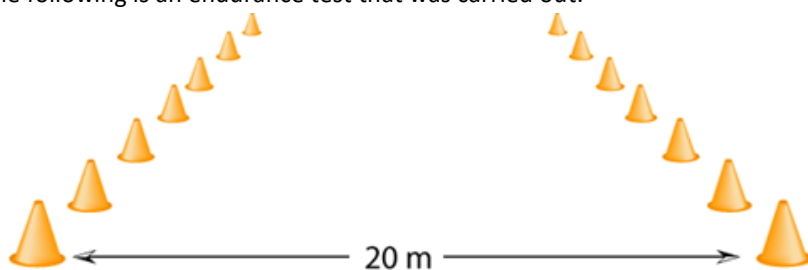


Figure 2. Bleep Test

For data analysis using statistical analysis. In this study there are independent variables and dependent variables. The independent variable is a variable that influences and causes one of the factors in the study. While the dependent variable is a variable that gives a reaction if it is associated with the independent variable. First, a normality test was performed using the Kolmogorov-Smirnov technique using a significance level of $\alpha = 0.05$; The two homogeneity tests in the homogeneity requirements test and the research used the Levene test. Data processing to test homogeneity is assisted by the SPSS computer program service; Third, a different t test was used to compare the results of the pretest and posttest in the experimental group. To test whether the results were significant or not significant, the Wilcoxon Match Pairs Test was used. The data processing process for the different t test is assisted by the services of the SPSS computer program.

RESEARCH RESULT

The results of this study were Bleep Test measurements of 18 research samples, namely futsal extracurricular participants at SMA PAB 4 Sampali Private High School. The research subjects consisted of classes X, The research was conducted for 18 days, 1 day of preparation and explanation of the program to the trainers, 1 day of pretest, 15 meetings of fartlek training and 1 day of posttest. At the time of carrying out the pretest using the bleep test, it obtained the lowest level data, namely 4 behind 6 and the highest level, namely 9 behind 2. It can be concluded that during the implementation of the pretest, student endurance in extracurriculars was still in the less category. After carrying out the pretest, then carrying out the treatment with the fartlek training program and finally, carrying out the posttest to compare the results of the pretest and posttest whether there is an increase. The results of the posttest implementation were with the lowest level, namely 8 to 4 for 2 people and the highest level, namely 12 to 8. Based on the results of endurance measurements in the form of a bleep test on futsal extracurricular participants at SMA PAB 4 Sampali Private High School for the pretest and posttest during the study, the following results can be seen:

The Effect of Fartlek Exercise on Endurance Students in Futsal Extracurricular PAB 4 Sampali Private High School

Table 1. Data on Student Endurance in Extracurricular Futsal at PAB 4 Sampali Private High School in the form of bleep tests on the Pretest and Posttest.

No	Name	Bleep test results		Enhancement
		Pre test	Post test	
1	James	31,0	41,1	10,1
2	Panca	43,9	54,8	10,9
3	Wahyu S	42,4	52,8	10,4
4	Iqbal	37,1	47,8	10,7
5	Bagus	34,3	43,6	9,3
6	Fiqri	36,4	45,5	9,1
7	Rafiq	31,8	43,2	11,4
8	Hafis	37,8	49,8	12,0
9	Aidil	32,9	42,0	9,1
10	Imam	30,5	43,3	12,8
11	Zidan	28,3	45,5	17,2
12	Bagas	37,1	52,1	15,0
13	Wahyu P	29,5	44,5	15,0
14	Farhan	38,5	52,2	13,7
15	Panji S	29,5	40,5	11,0
16	Fadrul	32,9	44,5	11,6
17	Dimas	31,8	42,2	10,4
18	Rizki	30,5	40,2	9,7
	Average	34,23	45,87	11,63
	St.Deviasi	4,51	4,61	2,28

The data above shows that the bleep test data of students in the futsal extracurricular at PAB 4 Sampali Private High School after participating in fartlek training experienced an increase of 4.5 from pre-test to post-test, namely from an average Vo2max of 34.2 at pre-test to 45.87 at pre-test. post test with Good category.

Table 2. Frequency Data Comparison of Pretest and Posttest

Data	Pre tes	Post tes
N	18	18
Mean	34,23	45,87
Std. Deviasi	4,511	4,61
Minimum	28,3	40,2
Maximum	43,9	54,8

A. Normality Test Results

Testing the normality of the sample using the SPSS Kolmogorov-Smirnov test can be seen from the following data results:

Table 3. Data Normality Test Results

Data	Hasil Sig. (Kolmogorov-Smirnov)	Criteria Normal	Information
endurance	Pre test	p > 0,05	Normal
	Post test		Normal

Note: Probability (p) value is the result of Sig. from the Kolmogorov-Smirnov column

The results of the normality test (Test of Normality) Kolmogorov-Smirnov test can be seen that the significance value for each data all has a significance value greater than alpha 0.05. Because the probability value (p) is greater than 0.05 (p > 0.05), the pre-test and post-test data are "Normal" distribution.

A. Homogeneity Test Results

Testing the homogeneity of the sample using SPSS with the One Way ANOVA (Significance Test Homogeneity of Variances) test, if it shows (p > 0.05) then the data has the same variance or "Homogeneous". The results of the homogeneity test of physical endurance data with the bleep test can be seen in the following results:

The Effect of Fartlek Exercise on Endurance Students in Futsal Extracurricular PAB 4 Sampali Private High School

Table 4. Data Homogeneity Test Results

Data	Statistical Levene Results	Hasil sig.	Criteria Homogen	Conclusion
<i>Pre tes</i>	0,009	0,926	$p > 0,05$	Homogen
<i>Post tes</i>				

The results above can be seen. The Significancy Test for Homogeneity of Variances shows that the significance figure for the pretest - posttest physical endurance data is greater than 0.05 ($p > 0.05$), so it can be concluded that the data is homogeneous.

B. Hypothesis Testing

The effect of fartlek training on students' endurance in extracurricular futsal at PAB 4 Sampali Private High School

To test the differences in pretest and posttest data on student endurance in the futsal extracurricular SMA PAB 4 Sampali Private High School in 2019/2020 a pair t-test analysis technique was used using SPSS with a significant level of $p = 0.05$.

Table 5. Differences in Pretest and Posttest Data on Futsal Players' Endurance After Physical Activity in the Experimental Group

Experiment Group	Avarange	Standar Deviasi	t count	p value	Information
<i>Pre test</i>	34,23	4,511	-21,607	0,000	Significant
<i>Post test</i>	45,87	4,607			
<i>Paired t-test</i>					

From Table 5, it can be seen that there is an increase in the physical endurance of futsal players from pretest to posttest, namely 11.63 or 33.98%. The results of the paired t-test between pre-test and post-test data on the physical endurance of futsal players obtained a t-count value of -21.607 with a significance of 0.000 ($p < 0.05$) which means there is a significant (significant) difference in the physical endurance of futsal players between pre-test and post-test on students. Thus, it can be said that there is a positive and significant influence of fartlek training on students' endurance in extracurricular futsal at PAB 4 Sampali Private High School.

DISCUSSION

Fartlek training is one method of training to increase endurance, especially endurance. Fartlek training is a training method that varies the form of exercise or exercises that play with speed from walking, jogging and sprinting. Fartlek exercises can be done alone or with a trainer program. Birch, et al in Ilmiyanto (2017: 93) explained "Fartlek or speed play is a form of continuous training whereby the athlete changes pase during the session, i.e. slow then fast then slow then fast pacing". Which means that fartlek or speed play is a form of continuous training in which the athlete changes speed throughout the session, alternating slow then fast then slow then fast intensity so on. Fartlek exercises are carried out in an open or closed area according to individual needs. In this study the fartlek training program was made by walking 1 minute, jogging 5 minutes, and sprinting 50 meters, increasing the intensity of this program by reducing recovery time for each meeting, so that it will increase the intensity of the exercise. Fartlek combines continuous training and interval training in an unstructured format. As the name suggests, this method combines continuous running exercises, at varying speeds with a predetermined duration (Greene, Pate, 2015: 161). According to Fox and Matheus in Boy (2012: 6) "Fartlek is an informal internal training program in which there are alternating fast and slow running. Sukadiyanto (2011: 73) There are two kinds of fartlek exercises, namely high-intensity fartlek exercises and low-intensity fartlek exercises. The low-intensity fartlek training method takes the form of running, jogging, interspersed with sprints, and continuous walking, while the high-intensity fartlek is only done by jogging alternated with fast running. For example, a fartlek exercise with a duration of 25 minutes, the implementation begins with jogging for 5 minutes as a warm-up, followed by a 50 meter sprint for 4 sets, followed by 7 minutes of jogging, interspersed with a 50 meter sprint for 4 sets and so on. Fartlek training is carried out with the starting position in the area that has been prepared and waiting for a signal from the trainer to start training, from walking, jogging, sprinting and recovery time so that it can stimulate the body for the next exercise. This condition must be maintained by practicing continuously, namely training that is carried out continuously every night for 15 meetings. At each meeting, the training intensity is always increased and the recovery time per set is reduced, resulting in a training effect in the form of increasing endurance and being able to optimize the work of the heart and lungs while circulating oxygen throughout the tissues optimally. Fartlek training can be said to be an effective endurance exercise because the exercise can be done outdoors or indoors. Several studies have also proven that fartlek training can increase a person's endurance.

The Effect of Fartlek Exercise on Endurance Students in Futsal Extracurricular PAB 4 Sampali Private High School

CONCLUSION

From the results obtained after conducting the research, the conclusions obtained are: Based on the statistical test results, it was obtained that the t-test value between the pretest and posttest of Fartlek Training on the endurance of futsal players had $p = 0.000$, because $p < 0.05$, there was a significant increase. Judging from the average value, the average pretest value = 34.23 and the posttest average value = 45.87, because the posttest average value is greater than the pretest average value, there is an increase in student endurance = 11.63 or 33.98%. Thus it can be concluded that there is an effect of Fartlek Training on students in the futsal extracurricular activity at SMA PAB 4 Sampali Private High School.

REFERENCES

- 1) Ahmad, Imran. 2013. Basics of Physical Training for Athlete. Medan: IMUNEDPRESS.
- 2) Alfian, Muhammad. 2016. The Effectiveness of Increasing Vo₂max with the Continuous and Fartlek Methods for the 2016 Matra Utama Football School Athletes. Thesis. Yogyakarta.
- 3) Bompa T. O. 2009. Theory and Methodology of Training. USA: Human Kinetics.
- 4) Derry, Liqa Avloren. 2014. Fartlek Training Effect Of Increased Physical Endurance students of SMP Negeri 4 Thesis Bengkulu City. Bengkulu: Bengkulu University.
- 5) Fitria. 2015. Pulmonary Endurance Evaluation of Members of the Aceh Police Headquarters in 2015. Scientific Journal of Physical Education, Health and Recreation Students. Volume 1, Number 3: 209 – 218. Banda Aceh.
- 6) Fred, L. Benu. 2019. Quantitative Research Methodology. Kupang: PRENADAMEDIA GROUP.
- 7) Hariyanto, Reza Agus. 2018. Effect of Fartlek Training on Maximum Oxygen Volume and Speed. E-Journal of IKOR Ganesha University of Education Department of Sports Science vol. 1. Bali.
- 8) Harsono. 2018. Physical Condition Training. Bandung: PT REMAJA ROSDAKARYA.
- 9) _____. (2015). Sports Coaching Theory and Methodology. Bandung: Teenager Rosdakarya Offset.
- 10) Ilmiyanto, Fajar. 2017. Differences in the Influence between the Fartlek Training Method and the Continuous Tempo Running Training Method on Increasing Cardiovascular Endurance in Long Distance Running Training Participants. Performance Journal 1 (2) p. 93. Poor.
- 11) Indrayana, Boy. 2012. Differences in the Effect of Interval Training and Fartlek Exercises on Cardiovascular Endurance in Male Junior Athletes at Teakwondo Wild Club Medan 2006/2007. Smart Sifa, Edition No.1. Jambi.
- 12) Jaya, Asmar. 2008. Futsal (Lifestyle, Rules and Game Tips). Yogyakarta: East Library.
- 13) Kurnia, Maya. The Effect of Fartlek Training with Treadmills and Running in the Field on Cardiorespiratory Endurance. (Pg. 3)
- 14) Miftahuddin. The Influence of Fartlek and Interval Training on Improving the Endurance of the Parkour And Freerun Community Pontianak, vol.- no.(p. 2). Pontianak.
- 15) Murhananto. 2008. Fundamentals of Futsal Games (according to FIFA regulations). Jakarta: PT. Library Friends.
- 16) Rahman, Firman Juniatur. 2018. Improving Endurance, Agility, and Speed in Futsal Players: An Experimental Study of the Circuit Training Method. SPORTIF Journal : Learning Research Journal vol. 4 no. 2 (p. 265). Surabaya.
- 17) Raisza, Dian Rizky Muhammad. 2017. The Effect of Circuit Training and Interval Training on the Endurance of Extracurricular Football Students at SMA Negeri 5 Bandar Lampung.
- 18) Sudjana. 2016. Statistical Methods. Bandung: PT. TARSITO BANDUNG.
- 19) Sugiyono. (2010). Business Research Methods (Quantitative, Qualitative and R&D Approaches). Bandung: Alfabeta.
- 20) Suharsimi Arikunto. (2010). Research Procedure A Practice Action. Jakarta: Rineka Cipta.
- 21) Suyudi, Ahmad. 2019. Survey on the level of physical fitness of futsal extracurricular students at SMK Negeri 2 Makassar. Thesis, Faculty of Sports Science, Makassar State University.
- 22) Suryanto, Budi. 2018. The Effect of Interval Training and Fartlek Training on Increasing O₂max in PS Futsal Athletes. Himalayas. Thesis. Faculty of Sports Science, Yogyakarta State University.
- 23) Wijaya, Gia Anggun. 2016. Cardiovascular Respiratory Endurance Study of Female Volleyball Club Athletes in Bandar Lampung City. Thesis. Bandar Lampung.



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.