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The Effect Of Fartlek Training On The Aerobic Endurance Of Men's Volleyball Players Of The Mahesa ELBA Team

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ABSTRACT

This study aims to investigate the effect of fartlek training on the improvement of aerobic endurance. The research employed a quantitative experimental method with a one-group pretest-posttest design involving a sample of 20 participants. The results showed an average pretest score of 2.45 and a posttest score of 4.45. Based on hypothesis testing through data analysis, the obtained significance value was 0.000, which is lower than the threshold of 0.05, indicating a significant difference. It can be concluded that fartlek training has a positive effect on improving aerobic endurance. Therefore, this type of training is recommended for teachers, coaches, and sports instructors as an effective method to enhance the physical capacity of their students or athletes.

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A. Conception and design of the study;
B. Acquisition of data;
C. Analysis and interpretation of data;
D. Manuscript preparation;
E. Obtaining funding

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INTRODUCTION

Volleyball is a sport that serves as a tool and educational resource. Volleyball is played by passing the ball over a net, with the goal of landing the ball in the opponent's court and winning the game. Another definition is that volleyball is a sport played by two opposing teams, each consisting of six players (Showab & Djawa, 2019). This game can be played in both indoor and indoor settings, such as indoor and outdoor courts (Deke & Nur, 2025).

The physical condition of volleyball, as seen in the agility and coordination of players, plays a crucial role in influencing the outcome of a match. Agility helps players respond quickly to the ball, avoid injury, and execute attacks and defenses more effectively. According to (Aksal et al., 2023), agility or speed is a person's ability to evade or move their body over a certain distance in a very short time. Therefore, coordination,

closely related to speed, strength, endurance, and flexibility, is essential for learning to complete processes and techniques (Deke & Nur, 2025).

Therefore, fartlek training is suitable for volleyball because it involves covering long distances using running as the speed factor. Fartlek training combines interval training with continuous training. Therefore, fartlek training is highly recommended for athletes because it significantly supports improving physical abilities, particularly endurance (Romadona & Faruk, 2021).

This training combines various forms or types of slow running, fast zigzags, jumping, or hopping over a specific distance and time. Fartlek training typically begins with a slow run, then varies with short, intense sprints, then interspersed with jogging and sprints. Fartlek training is performed at a constant, dynamic pace, with activity durations ranging from 60 to 90 seconds for approximately 45 minutes. This means that the duration is only one to one and a half minutes, but it is done repeatedly using interval time for each repetition and set until the net time of the exercise is 45 minutes. (Tampubolon, Derang, & Ginting, 2023). This exercise is a form of endurance training to increase VO2Max. This exercise also develops the aerobic system because it is a form of endurance training. This exercise aims to train athletes in terms of endurance because volleyball sports involve the whole body which forces the heart to work extra and energy to work quickly in delivering energy.

Aerobic endurance is the body's ability to effectively carry out the functions of the heart, lungs, and circulation, maximally distributing oxygen (O2) to all working muscles during prolonged activity without experiencing significant fatigue. Maximum oxygen consumption, abbreviated as VO2Max, is the amount of oxygen a person can consume during activity. Factors influencing maximum oxygen consumption (VO2Max) include the nature of the exercise, age, weight, and gender (Ashfahani, 2020). Physical conditions that play a crucial role in volleyball include: strength, endurance, explosive power of the leg muscles, speed, flexibility, and agility. Because volleyball requires fast and precise movements to produce powerful shots, athletes must maximally contract their muscles explosively and possess high levels of general endurance, including aerobic and anaerobic capacity (Amrullah, Prayoga, Wahyudi, Voli, & Tahan, 2021). Aerobic exercise results in beneficial changes in the lungs, heart, and blood vessels. Specifically, regular aerobic exercise can improve the body's ability to move air in and out of the lungs. For this type of exercise, it's always emphasized that long, slow distances are preferable to short, energy-draining distances. Good physical condition will contribute to the effectiveness of any sporting activity. Success in sports is inseparable from good skills and optimal physical condition. Physical condition determines an athlete's success because volleyball has both mental and physical elements. A strong physical and mental state leads to optimal performance. As was the case with male athlete Mahesa Elba, volleyball is highly sought after, but many athletes still lack endurance. This is due to a lack of development in terms of physical abilities that have not been fully mastered. With a well-planned training program, it is hoped that improvements in physical and functional condition will occur, enabling athletes to achieve their best performance on the field. Based on several theories above, it can be concluded that physical training has a very

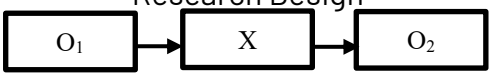
big role in the process of achieving achievement, especially in skill sports games. Therefore, this research will examine the effect of fartlek training on aerobic endurance abilities in the sport of volleyball. With the form of fartlek training that will be provided, it is hoped that all participants who take part in this exercise can increase their physical fitness capacity (aerobic endurance) significantly and get maximum results. Apart from that, this research will show whether there is an effect of fartlek training on the aerobic endurance ability of the Mahesa Elba men's volleyball team.

METHODS

Based on the research entitled "The Effect of Fartlek Training on the Aerobic Endurance of the Mahesa Elba Men's Volleyball Team," the researcher used a quantitative method with an experimental approach. Experimental research is a research method used to determine the effect of a specific treatment. This study was designed to determine the effect of Fartlek training on the aerobic endurance of the Mahesa Elba Banyuresmi Garut men's team. Therefore, two sets of variables were required: variable X and variable Y. Data for both variables were obtained from test instruments administered to all respondents in the study sample, and the results provided conclusions about the improvement between the two variables.

The research design used in this study was a One Group Pretest-Pottes Design. A One Group Pretest-Posttest Design is a research activity that administers a pretest before treatment is administered, then a posttest after treatment is administered (Sugiyono, 2019). The advantage of this research design is that the pretest and posttest are conducted, allowing for definitive identification of differences in results resulting from the treatment.

Table 1.
Research Design



The population used in this study was all 20 members of the Mahesa Elba volleyball team. The sampling technique used a simple random sampling method, which is taking the population without considering the strata in the population. Then, for the research instrument, the Multistage Fitness Test was used to collect aerobic endurance data. The test results were recorded in the form of the number of levels and shuttles entered into the bleep test norm. The aim was to determine a person's level in carrying out the test simply by looking at the results of the levels and shuttles. The data collection technique used was the implementation and test steps as follows: (a) Turn on the Multistage Fitness Test guide cassette or tape. (b) Then, periodically, a "TUT" sound will be heard. (c) Participants are expected to reach the end that coincides with the first "TUT" signal sounds and then turn and run in the opposite direction. (d) Every time the "TUT" signal sounds, test participants can reach one of the paths they are passing. (e) Every time they reach a one-minute interval, the time will be reduced so that when completing the next

level, participants must run faster. (f) Every time a test participant covers a distance of 20 meters, one of their feet must step on or cross the 20 m line or boundary. (g) Each participant must try to run as long as possible according to the rhythm set by the cassette or CD. (h) If a participant fails to reach the 20 m line twice in a row, they will be stopped or declared unable to carry out the Multistage Fitness Test. (i) Assessment is based on the level and feedback achieved by the test participant, the higher the level and feedback of the test participant's ability, the higher the participant's aerobic capacity.

The Data Analysis Technique used in this study uses a Normality Test aimed at seeing whether the data is normally distributed or not, a Hypothesis Test aimed at determining whether the results obtained from the aerobic endurance results show an increase between the pre-test and post-test one group design, and a Homogeneity Test aimed at seeing whether the two groups of data have homogeneous variance or not.

RESULTS AND DISCUSSION

Result

A normality test was conducted before conducting the hypothesis test. The purpose of the normality test was to determine whether the data were normally distributed. The analysis was conducted to determine the extent of the fartlek training's effect on the aerobic endurance of male volleyball player Mahesa Elba. The data analysis results are as follows:

Table 2.
Descriptive Test Results

			Statistic	Std. Error
Pretest	Mean		2,45	,135
	95% Confidence Interval for Mean	Lower Bound	2,17	
		Upper Bound	2,73	
	5% Trimmed Mean		2,50	
	Median		2,50	
	Variance		,366	
	Std. Deviation		,605	
	Minimum		1	
	Maximum		3	
	Range		2	
	Interquartile Range		1	
	Skewness		-,583	,512
	Kurtosis		-,459	,992
Posttest	Mean		4,45	,135
	95% Confidence Interval for Mean	Lower Bound	4,17	
		Upper Bound	4,73	
	5% Trimmed Mean		4,50	
	Median		4,50	
	Variance		,366	
	Std. Deviation		,605	
	Minimum		3	
	Maximum		5	
	Range		2	
	Interquartile Range		1	
	Skewness		-,583	,512
	Kurtosis		-,459	,992

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The descriptive test results were used to determine the minimum and maximum results from the pretest and posttest, as well as to determine the average of the data. The descriptive test revealed a significant effect of the fartlek training program on aerobic endurance. The pretest and posttest results showed an average score of 2.45 for the pretest and 4.45 for the posttest.

Table 3.
Results of Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Pretest	,318	20	,056	,737	20	,061
Posttest	,318	20	,067	,737	20	,072

From the results of data processing with the SPSS output shown in the table above, from 20 research samples, the results showed that the data was normally distributed.

Table 4.
Homogeneity Test Results

		Levene Statistic	df1	df2	Sig.
PRE_POST	Based on Mean	,000	1	38	,062
	Based on Median	,000	1	38	,062
	Based on Median and with adjusted df	,000	1	38,000	,062
	Based on trimmed mean	,000	1	38	,062

It can be seen that the significance value obtained is 0.062, therefore the data studied is homogeneous because it is >0.05.

Table 5.
Hypothesis Test Results

	Test Value = 0					
					95% Confidence Interval of the Difference	
	T	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
PRETEST	18,116	19	,000	2,450	2,17	2,73
POSTTEST	32,905	19	,000	4,450	4,17	4,73

Based on these data, a hypothesis test can be conducted by comparing the significance level with the error. If the significance level is <0.05, then Ho is accepted; if the significance level is >0.05, then Ho is rejected. In the above study, after analyzing the data using a one-sample test, the significance level was 0.000. Since the significance level is <0.05, Ho is rejected and H1 is accepted. Therefore, there is a significant effect between fartlek training and the aerobic endurance of the men's volleyball players on the Mahesa Elba team.

Based on the results of the data analysis using SPSS, the one-sample test concluded that there is a significant effect between fartlek training and the aerobic endurance of the men's volleyball players on the Mahesa Elba team.

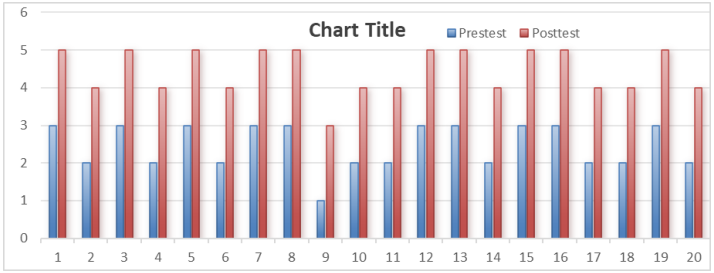

Diagram 1.
Pretest and Posttest Results

Discussion

Data collection in this study was conducted through a series of experimental training processes carried out by the 20-person Mahesa men's team. Volleyball is a sport in which the player volleys a ball back and forth in the air over a net, with the aim of landing the ball in the opponent's court to win. Volleying and bouncing the ball in the air can be done using any part of the body, as long as the contact is perfect (not double). (Kharisma & Mubarok, 2020).

By using fartlek training, the Mahesa men's team can undergo preparation levels and long-term training plans because this form of training can challenge the body's organ systems. Fartlek training is a combination of slow running and short sprints that continuously start from medium to high distances, then alternate between sprinting, jogging, and sprinting again, and so on. (Romadona & Faruk, 2021). For example, a 25-minute fartlek workout begins with a 5-minute warm-up jog, followed by four sets of 50-meter sprints, followed by seven minutes of jogging, followed by four sets of 50-meter sprints, and so on. This workout begins with jogging and then varies with sprints, walking, and strides over a set distance and time, ensuring athletes don't get bored.

In addition, the Mahesa men's team requires aerobic endurance, which is crucial for volleyball. Therefore, if the Mahesa men's team has good aerobic capacity, they will have an efficient heart, effective lungs, and good circulation. Fartlek is a training model that involves covering long distances using running as a form of speed. Fartlek training combines interval training with continuous training. Therefore, fartlek training is highly recommended for athletes because it significantly supports their physical abilities, particularly endurance. (Romadona & Faruk, 2021). Endurance is crucial for maintaining the body's ability to perform aerobic activity for extended periods, thus explaining the increase in heart rate and respiratory rate that can occur with continuous physical activity (Jasmani, Nahdlatul, & Indramayu, 2020). Endurance is one of several physical elements that need to be trained and developed as a factor that significantly supports technical ability (Allsabah, 2021).

The results of the study indicate a significant effect of fartlek training on improving the aerobic endurance of the men's volleyball players on the Mahesa Elba team, conducted using a pretest and posttest. The pretest and posttest results had an average pretest value of 2.45 and a posttest value of 4.45. Data analysis using a one-sample test revealed a significance level of 0.000. Since the significance level is <0.05, Ho is rejected and H1 is accepted. Therefore, there is a significant effect of fartlek training on the aerobic endurance of the men's volleyball players on the Mahesa Elba team.

CONCLUSION

The conclusion of the research conducted is that there is a significant effect of fartlek training on the aerobic endurance of the men's volleyball players on the Mahesa Elba team. This shows that the fartlek training program on aerobic endurance is very effective. From the results of this study, the researcher hopes that coaches and the

Mahesa Elba team/athletes can apply the results of fartlek training on aerobic endurance to improve the quality of volleyball games. Then, for readers, it can increase knowledge and awareness of the importance of using fartlek training on the aerobic endurance of volleyball players.

REFERENCES

Achmad, I. Z., Aminudin, R., Sumarsono, R. N., & Mahardika, B. (2019). Tingkat Ketrampilan Teknik Dasar Permainan Bola Voli Mahaisiwa PJKR Semester II Di Universitas Singaperbangsa Karawang Tahun Ajaran 2018/2019 Irfan Zinat Achmad, Rizki Aminudin, Rhama Nurwasyah Sumarsono, Dhika Bayu Mahardika, 5(2), 48–60.

Adhi putra, yusuf, & Sistiasih, V. S. (2021). Modifikasi Pembelajaran Permainan Bola Voli. Jurnal Porkes, 4(2), 126–133. https://doi.org/10.29408/porkes.v4i2.4705.

Allsabah, M. A. H. (2021). Jurnal Kejaora : Jurnal Kesehatan Jasmani dan Olah Raga, 6(April), 174–180.

Amrullah, S., Prayoga, A. S., Wahyudi, A. N., Voli, B., & Tahan, D. (2021). (Journal Active of Sport). PROFIL KONDISI FISIK ATLET BOLA VOLI PBV IBVOS TAHUN 2021, 1.

Ashfahani, Z. (2020). Journal of Sport Coaching and Physical Education Pengaruh Latihan Circuit Training Terhadap Daya Tahan Kardiovaskuler Pada Tim Futsal Universitas Pgri Semarang Abstrak, 5(1), 63–67.

Deke, K., & Nur, S. (2025). Pengaruh Latihan Kelincahan dan Koordinasi Terhadap Optimasi Kondisi Fisik Atlet Bola Voli Pendahuluan, 8(1), 278–288. https://doi.org/10.29408/porkes.v8i1.27530.

Didi Yudha Pranata. (2020). Latihan Fartlek Untuk Meningkatkan Vo2 Max Pemain Futsal Bbg. Penjaskesrek Journal, 7(1), 134–146. https://doi.org/10.46244/penjaskesrek.v7i1.1014.

Ismoko, A. (2022). Tingkat kebugaran aerobik atlet bola voli yunior sleman united volleyball club. Jurnal Pendidikan Jasmani, vol 6, 43–50.

Jasmani, P., Nahdlatul, S., & Indramayu, U. (2020). Physical activity journal, 1.

Kharisma, Y., & Mubarok, M. Z. (2020). Pengaruh Latihan Interval Dengan Latihan Fartlek Terhadap Peningkatan VO2Max Pemain Bola Voli. Biormatika : Jurnal Ilmiah Fakultas Keguruan Dan Ilmu Pendidikan, 6(02), 125–131. https://doi.org/10.35569/biormatika.v6i02.811

Muharram, N. A., Or, M., Kurniawan, W. P., & Pd, M. (2019). Jurnal koulutus. Pengembangan Model Latihan Farlek Untuk Meningkatkan Kemampuan Fisik Pemain Bolavoli, 2, 50–60.

Palar, C. M. (2015). MANFAAT LATIHAN OLAHRAGA AEROBIK TERHADAP KEBUGARAN FISIK MANUSIA, 3(April).

Romadona, A., & Faruk, M. (2021). Pengaruh Latihan Fartlek Dan Interval Training Terhadap Kemampuan Daya Tahan Pada Pemain Ssb Roked Gresik U-17 Tahun. Jurnal Prestasi Olahraga, 05, 73–79.

Ryzki, A., Eri, B., Ishak, A., & Yogi, S. (2021). Jurnal Patriot. Jurnal Patriot, 3(March), 71–81. https://doi.org/10.24036/patriot.v

Satria, M. H. (2018). Pengaruh Latihan Circuit Training Terhadap Sepakbola Universitas Bina Darma, 11(1), 36–48.

Satwiko, H. Z., Olahraga, F. I., Surabaya, U. N., Kumaat, N. A., Olahraga, F. I., & Surabaya, U. N. (2017). Profil daya tahan aerobik dan anaerobik atlet bolabasket.

Showab, A., & Djawa, B. (2019). Pengaruh Modifikasi Permainan Bola Voli Terhadap Kegembiraan Belajar Siswa. Jurnal Pendidikan Olahraga Dan Kesehatan2, 07(03), 307–312.

Suhadak, A., Pada, A., Sepakbola, S., Ku, T. S., & Kediri, D. I. (2020). SURVEI TINGKAT KEMAMPUAN DAYA TAHAN AEROBIK DAN ANAEROBIK PADA SEKOLAH SEPAKBOLA TRIPLE ' S KU 13 -14 DI KEDIRI, 1–8.

Surabaya, U. N., Keolahragaan, F. I., Pendidikan, J., Dan, K., Studi, P., & Keolahragaan, I. (2015). Analisis daya tahan aerobik maksimal (vo 2 max) dan anaerobik pada atlet bulutangkis usia 11-14 tahun pb. bintang timur surabaya menjelang kejurnas jatim 2014, 03

Tampubolon, L. F., Derang, I., & Ginting, T. J. (2023). Pengaruh Latihan Fartlek Terhadap Peningkatan Vo2Max Pada Mahasiswa Laki-Laki Stikes Santa Elisabeth Medan Tahun 2022. Jurnal Cakrawala Ilmiah, 3(1), 185–194.

Zabdillah, M. Z. F. (2016). Pengaruh interval training terhadap peningkatan VO2 maks peserta ekstrakurikuler futsal putra SMA Negeri 1 Pare Kabupaten Kediri. M. Zulmi Fairuz Zabdillah (Doctoral dissertation, Universitas Negeri Malang).