

## The Influence Of Fartlek Training On Maximum Aerobic Capacity Of Futsal Extracurricular Students At SMPN 28 Bengkulu Utara

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**Abstract.** This study aims to determine the effect of Fartlek training on the maximum aerobic capacity of extracurricular futsal students at SMPN 28 North Bengkulu. This type of research is an experimental study with a sample of 20 players. The results of this study are that Fartlek training carried out by players can increase the maximum aerobic capacity of extracurricular students at SMPN 28 North Bengkulu, with  $t_{hit} (6.84) > t_{tab} (2.26)$ . The results of this study indicate that the Fartlek training method has a significant effect on the maximum aerobic capacity of players. There is a difference in both maximum aerobic capacities before and after doing Fartlek training. The maximum aerobic capacity after being given Fartlek training treatment clearly increased, although the increase was only slight. This can be seen from the difference between the average before Fartlek training. (38.3) with the average after Fartlek training (42.2) is 3.8. Thus, there is a significant effect of the Fartlek training method on the maximum aerobic capacity of players.

**Keywords:** *Fartlek Training, Maximum Aerobic Capacit, Futsal.*

### INTRODUCTION

In Indonesia, sports are not only for educational purposes, recreation, and physical fitness, but also as a means of achievement. This is outlined in Law No. 3 of 2005 concerning the National Sports System. Chapter II, Article 4, explains: "National sports aims to maintain and improve health and fitness, achievement, and human quality, instill noble moral and ethical values, sportsmanship, and discipline, strengthen and foster national unity, strengthen national resilience, and elevate the nation's dignity and honor."

This means that Indonesians are expected to implement noble moral and ethical values, and to enhance sportsmanship, discipline, and achievement in their chosen sports. Maximal aerobic capacity is a crucial indicator of a player's physical performance, including in futsal. Futsal, as a sport that emphasizes speed, agility, and endurance, requires a good level of fitness to sustain the high tempo of play. Therefore, increasing maximum aerobic capacity is crucial to support the performance of futsal players. At SMPN 28 North Bengkulu, futsal extracurricular activities have become a platform for students to develop their talents and skills in this sport.

### LITERATURE REVIEW

Fartlek training, derived from the Swedish word for "speed play," is a training method that combines elements of aerobic and anaerobic exercise. It involves varying intensity and speed within a single training session, providing different stimuli to the body and aiding in the development of endurance and speed. Research shows that fartlek training can improve aerobic

capacity and player performance, particularly in sports that require endurance and resistance like futsal.

## METHODS

This type of research is experimental. Experimental Method. According to Arikunto (2010:207), "the experimental method is to determine whether there is an effect from something imposed on the subject of investigation. In other words, experimental research attempts to examine the existence of a cause-and-effect relationship." Experiments always aim to observe the effects of a treatment. In this study, the Maximum Aerobic Capacity test was used;

1. Test equipment
2. Field for conducting the test, more than 20 meters long and 1.5 meters wide: Tape recorder to play the MFT guide cassette, Stationery.

## RESULTS

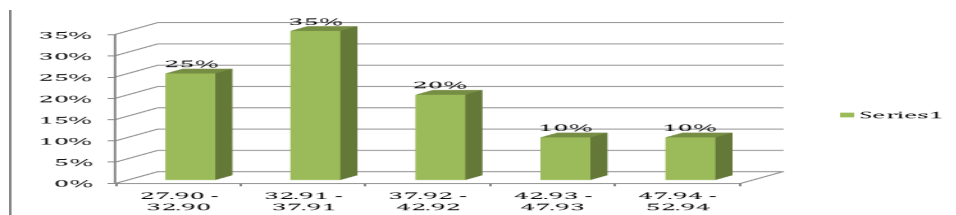
### Preliminary Test Results of the *Fartlek* Training Method on Maximum Aerobic Capacity (Pre Test)

Based on analysis against test data beginning influence *Fartlek* training method on maximal aerobic capacity Student Extracurricular activities at SMPN 28 North Bengkulu were obtained results *Beep Test* with condition highest 50.2 and results *Beep Test* with condition lowest is 27.9 with an average of 38.43 and a standard deviation 7.08 For more clear data results test this , made table distribution frequency as following :

**Table 1 Pre-Test Results Data of *Fartlek* Training Method on Maximum Aerobic Capacity Student Extracurricular Activities at SMPN 28 North Bengkulu**

No	Interval class	Frequency (Fa)	Frequency Relative (Fr)
1	27.90 - 32.90	5	25 %
2	32.91 - 37.91	7	35 %
3	37.92 - 42.92	4	20 %
4	42.93 - 47.93	2	10 %
5	47.94 - 52.94	2	10 %
Amount		20	100%

Based on the table distribution frequency above of 20 samples , it turns out as many as 5 samples (25%) have results *Beep Test* with condition class interval 27.90 - 32.90 , then as many as 7 samples (35%) have results *Beep Test* with condition class interval 32.91 - 37.91, then as many as 4 samples (20%) have results *Beep Test* with condition class interval 37.92 - 42.92, whereas as many as 2 samples (10%) have results *Beep Test* with condition interval class 42.93 - 47.93 and the rest there are 2 samples again (10%) have results *Beep Test* with condition class interval 47.94 - 52.94 . For more to be clear can seen in the graph following :



**Figure 1 *Fartlek* Training Method on Maximal Aerobic Capacity Student Extracurricular Activities at SMPN 28 North Bengkulu**

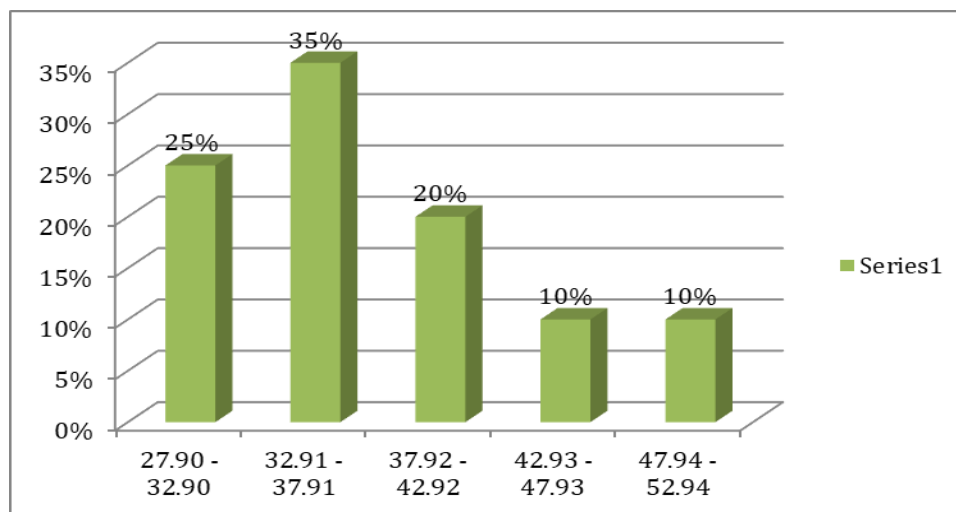
**Post-Test Results of the *Fartlek* Training Method on Students' Maximum Aerobic Capacity Extracurricular Activities at SMPN 28 North Bengkulu**

Based on analysis against test data end influence *Fartlek* training method on maximal aerobic capacity Student Extracurricular activities at SMPN 28 North Bengkulu were obtained results *Beep Test* with condition highest 51.9 and results *Beep Test* with condition lowest is 32.9 with an average of 42.20 and a standard deviation 7.03 For more clear data results test this , made table distribution frequency as following :

**Table 2 Test Result Data *Fartlek* Training Method on Maximal Aerobic Capacity Student Extracurricular Activities at SMPN 28 North Bengkulu**

No	Interval class	Frequency (Fa)	Frequency Relative (Fr)
1	32.90 - 36.90	2	10 %
2	36.91 - 40.91	4	20 %
3	40.92 - 44.92	4	20 %
4	44.93 - 48.93	4	20 %
5	48.94 - 52.94	6	30 %
Amount		20	100%

Based on the table distribution frequency above of 20 samples , it turns out as many as 2 samples (10%) have results *Beep Test* with condition class interval 32.90 - 36.90 , then as many as 4 samples (20%) have results *Beep Test* with condition interval class 36.91 - 40.91, then as many as 4 samples (20%) have results *Beep Test* with condition class interval 40.92 - 44.92, whereas as many as 4 samples (20%) have results *Beep Test* with condition interval class 44.93 - 48.93 and the rest there are 6 samples again (30%) have results *Beep Test* with condition class interval 48.94 - 52.94 . For more to be clear can seen in the graph following :



**Figure 2 *Fartlek* Training Method on Maximal Aerobic Capacity Student Extracurricular Activities at SMPN 28 North Bengkulu**

**Test Requirements Analysis**

**Normality Test with the *Lilliefors* Test**

**Before Given Treatment *Fartlek* Training Method on Maximal Aerobic Capacity**

Data normality test analysis was carried out with the *Lilliefors* test . The results of the normality test analysis for each variable are presented in form table in lower This ;

**Table 3 Data Normality Test with *Lilliefors* Test Before Given Treatment *Fartlek* Training Method on Maximal Aerobic Capacity Student Extracurricular Activities at SMPN 28 North Bengkulu**

No	Test	L o	L t	Information
1	Pre -Test	0.1443	0.2580	Normal
2	Test Post	0.1823	0.2580	Normal

In the table above can seen that L o results variables Maximum Aerobic Capacity more small from L t , then can concluded that the data is normally distributed .

#### **After Given Treatment *Fartlek* Training Method on Maximal Aerobic Capacity**

Data normality test analysis was carried out with the *Lilliefors* test . The results of the normality test analysis for each variable are presented in form table in lower This ;

**Table 4 Data Normality Test with *Lilliefors* Test After Given Treatment *Fartlek* Training Method on Maximal Aerobic Capacity Student Extracurricular Activities at SMPN 28 North Bengkulu**

No	Test	L o	L t	Information
1	Pre -Test	0.1554	0.2580	Normal
2	Test Post	0.2554	0.2580	Normal

In the table above can seen that L o results variables Maximum Aerobic Capacity more small from L t , then can concluded that the data is normally distributed .

#### **Homogeneity Test with *Fisher's* Test**

**Table 5 Data Homogeneity Test with Two-sample F test Before Given Treatment *Fartlek* Training Method**

N Group	F count	F table	Information
20	1,1961	3,1800	Homogeneous

n the table above can seen that F count results more small from the F table , then can concluded that the data comes from from population homogeneous .

#### **Testing Hypothesis**

For test whether the proposed hypothesis in study This accepted its existence or No so done data testing using t-test testing hypothesis . From the analysis conducted , the *calculated* t value between test start and test end method exercise *Fartlek* to maximum aerobic capacity player show number as big as 6,8103 furthermore value obtained compared to with t *table* at level significant 0.05 with degrees n-1 freedom (19) turns out value obtained is 2, 2620 pages This show that t - value ( 6.8103 ) > t *table* ( 2, 054) with thus can concluded that hypothesis which states there is influence method exercise *Fartlek* to maximum aerobic capacity Student Extracurricular activities at SMPN 28 North Bengkulu.

#### **DISCUSSION**

Maximal aerobic capacity, or VO<sub>2</sub>max, is the body's ability to maximally consume oxygen per minute. VO<sub>2</sub>max is the maximum amount of oxygen, in milliliters, a person can use in one minute per kilogram of body weight. VO<sub>2</sub>max is a fundamental measure of exercise physiology, and in combination with the concept of the VO<sub>2</sub>max plateau, has been described as "the most influential concept in modern exercise physiology" (1). VO<sub>2</sub>max is widely recognized as both a

representation of the functional limitations of the cardiovascular system and a measure of aerobic fitness.

A person's maximal aerobic capacity is influenced by several factors, such as the heart's ability to pump blood throughout the body, the lungs' ability to absorb oxygen from the outside air, the quality of blood (hemoglobin) that binds oxygen and transports it to all cells, the blood vessels that transport blood throughout the body, and the ability of skeletal muscles to utilize oxygen for metabolic processes (oxidation), thus producing sufficient energy to support prolonged physical activity (endurance). In other words, maximal aerobic capacity is influenced, in part, by aerobic fitness.

A person's maximum aerobic capacity is influenced by age, gender, height, and activity level. A high maximum aerobic capacity is not only necessary for endurance activities but also for recovery. Once a player's maximum aerobic capacity is determined, a training program can be developed to improve it. The training regimen used must meet the threshold of maximal aerobic capacity, with the goal of increasing a player's maximum aerobic capacity as a guideline. The training intensity that can increase a player's maximum aerobic capacity is 70-80% of their maximum heart rate. Therefore, the Fartlek training method is characterized by its ability to increase a player's maximum aerobic capacity. To determine the effect of the Fartlek training method, a t-test was used. The results showed no significant difference between the two methods on players' maximal aerobic capacity. Both Fartlek training methods affected players' maximal aerobic capacity, but neither method had a superior effect on maximal aerobic capacity.

The data analysis clearly revealed a difference in maximal aerobic capacity before and after Fartlek training. Maximal aerobic capacity after Fartlek training clearly increased, although only slightly. This can be seen from the difference between the pre-Fartlek training average (38.3) and the post-Fartlek training average (42.2) of 3.8. Thus, the Fartlek training method significantly influences players' maximal aerobic capacity.

Many factors influence maximal aerobic capacity, such as physical activity, age, and gender. A person who engages in physical activity that requires a lot of energy (such as an athlete) to complete their work has a higher level of maximum aerobic capacity than someone who engages in less vigorous physical activity. After the age of 20, maximum aerobic capacity gradually declines. At age 55, maximum aerobic capacity is approximately 54% lower than at age 25.

Differences between individuals are seen in their anatomy and physiology. After puberty, women of the same age generally experience lower maximum oxygen consumption than men. (Umar, 2014: 123)

Maximal aerobic capacity is also influenced by the types of physical training a player engages in. The more physical training a player engages in, the better their maximum aerobic capacity will be. Performing physical training will improve the ability to perform movements in a sport, particularly maximum aerobic capacity. If the body is able to adapt to physical training to its full potential, this will automatically affect maximum aerobic capacity. The results of this study indicate that the Fartlek training method has a significant influence on players' maximal aerobic capacity. The findings of this study indicate that both Fartlek training methods have an impact on players' maximal aerobic capacity, but neither training method is more effective in influencing players' maximal aerobic capacity. The results of this study indicate that the Fartlek training method can increase players' maximal aerobic capacity. This fact is evident from the available data, indicating that the hypothesis is accepted and that the Fartlek training method significantly influences players' maximal aerobic capacity.

Maximum aerobic capacity requires an appropriate training method to increase it. With regular Fartlek training, players can increase their maximal aerobic capacity, making it easier for

them to master situations and control their movements, especially during training. The Fartlek training method is essential for increasing maximal aerobic capacity during training, as it determines the body's ability to consume maximum oxygen per minute. VO<sub>2</sub>max is the maximum amount of oxygen, in milliliters, that a player can use in one minute per kilogram of body weight.

A person who engages in physical activity that requires a lot of energy to complete their work has a higher level of maximal aerobic capacity than someone who does physical activity that does not require much energy. Therefore, good maximal aerobic capacity requires programmed training to increase it. The Fartlek training method is one important factor that influences maximal aerobic capacity. The Fartlek training method is a training method that players must do, because with the Fartlek training method, routinely can increase the player's maximal aerobic capacity.

## CONCLUSION

The conclusion of this study is that Fartlek training carried out by players can increase the maximum aerobic capacity of Extracurricular Students of SMPN 28 North Bengkulu, with  $t_{hit} (6.84) > t_{tab} (2.26)$ . The results of this study indicate that the Fartlek training method has a significant effect on the maximum aerobic capacity of players. There is a difference in both maximum aerobic capacity before and after doing Fartlek training. The maximum aerobic capacity after being given Fartlek training treatment clearly shows an increase, although the increase is only slight. This can be seen from the difference between the average before Fartlek training. (38.3) with the average after Fartlek training (42.2) is 3.8. Thus, there is a significant influence of the Fartlek training method on the maximum aerobic capacity of players.

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