

The Effect of Farlek Training on Increasing VO₂Max of Badminton Athletes



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ABSTRACT: This study aims to determine the effect of farlek training on increasing VO₂Max of badminton athletes. This study used an experimental method with a one group pretest-posttest research design). The population in this study were 25 Makassar badminton athletes. The sample in this study were 25 Makassar badminton athletes with total sampling. Data collection techniques carried out VO₂Max measurements with measuring instruments Yo-yo intermittent recovery test. The data analysis technique used is using SPSS 23 software to test the Paired sample test. The results showed that there was an increase from farlek training to an increase in VO₂Max of badminton athletes with a value of $0.00 < 0.05$

KEYWORDS: Farlek training, VO₂Max, badminton

1. INTRODUCTION

In achieving a good achievement programmed training is needed and according to the needs of each athlete. To achieve achievements in sports, consistent, disciplined, and intensive training is very important (Jihad & Annas, 2021). Badminton sport requires high physical fitness (Aisyah, 2021). Structured and diverse physical training, such as training to increase VO₂Max, strength, speed, endurance, and flexibility, is essential to improve athlete performance (Maulina, 2018).

Badminton is a fairly complex sport in terms of physical condition components, so the physical training model must truly describe the sport to be able to achieve peak performance physical fitness (Kusuma, 2022). The training method is a scientific way of providing programmed treatment to improve athlete talent, athlete skills and athlete physical condition in accordance with the sport being practiced (Adhi et al., 2017).

It is undeniable that badminton requires VO₂Max, speed and mobility of movement with egillitas which are usually used to chase shuttlecocks in all directions such as fast movement and followed by changes in direction, both to the front of the right side net, front of the left side net, right side, left side, back of the right and left sides (Gusrinaldi et al., 2020). In an effort to increase VO₂Max for badminton sports, farlek training can be done. VO₂max is a measure used to measure a person's maximum ability to use oxygen during intense physical activity. The term VO₂max is short for "maximum oxygen volume" or "maximum oxygen capacity". VO₂Max is expressed in units of milliliters of oxygen per kilogram of body weight per minute (ml/kg/minute).

VO₂Max reflects a person's cardiorespiratory efficiency, which is the extent to which the body can take in oxygen from the air and use it effectively by the muscles during strenuous physical activity (Nirwandi, 2017). The higher a person's VO₂Max number, the better their body's ability to provide oxygen to active muscles (Indrayana & Yuliawan, 2019). VO₂Max is influenced by several factors, including genetics, lung capacity, heart capacity, the ability of muscles to use oxygen, and general physical fitness level (Ninzar, 2018). Aerobic exercises such as regular and intense farlek training can increase VO₂Max.

To train physically can be done with a variety of methods including continuous running, fartlek, cross country, and interval training methods (Sungkawa et al., 2020). The fartlek training method is a slow run which is then varied with intensive short sprints of medium distance running at a fairly high constant speed then interspersed with sprinting and jogging and sprinting again and so on (Syahroni et al., 2020). Farlek training is a form of aerobic endurance exercise and can be done to increase aerobic endurance (Atradinal, 2018). Exercise from the farlek method is different from interval training because the load lasts a

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long time and the length of the loading time depends on the length of the sporting activity being carried out (Abdurahman & Hermanzoni, 2019).

The principle of fartlek training is to run with a variety of variations, which means that you can set the desired running speed while doing the exercise according to your wishes and in accordance with the athlete's condition or ability (Kurnia & Kushartanti, 2013). The above opinion is in line with the opinion by Gumantan & Fahrizqi who said Fartlek is a form of exercise to increase VO₂Max (Gumantan & Fahrizqi, 2020). The fartlek training method is a very fun exercise and aims to increase the strength and aerobic capacity of athletes in sports that use farlek training (Festiawan et al., 2020).

Based on observations in the field that farlek training is not carried out in the application of training programs and VO₂Max badminton athletes are still lacking because they are easily tired when running training programs and when playing games with each other. From the problems found in the field, it is in line with the results of research by Saputra et al, which states that there is an effect of fartlek training to increase VO₂Max in Berkah United Merangin futsal players (Saputra et al., 2022). This fartlek exercise is also expected to increase the ability to provide VO₂Max in pulmo optimally, and in turn athletes can perform their physical activities more optimally, especially when competing or competing (Akbar et al., 2021).

The purpose of this study was to determine the effect of farlek training to increase VO₂Max of badminton athletes. The benefits of this research, 1) theoretically this research opens a paradigm in the field of coaching in general and specifically in badminton sports to use a variety of forms of exercise, 2) this research is expected to add knowledge to the coaches so that they choose a form of exercise that can improve various physical conditions, 3) as a reference value for the quality of further research.

2. RESEARCH METHODS

This type of research is experimental research, so it can be interpreted that experimental research has a treatment given to the sample in the study (Eltanamly et al., 2023). The experimental method is used to be able to see whether or not there is an effect of the treatment given to badminton athletes through farlek training to increase VO₂Max (Castelnovo et al., 2023). The design in this study used a one group pretest-posttest design (The One Group pretest-posttest). This research was held at the Makassar badminton court. This research was conducted for 4 weeks or 1 month, the research began on January 09 2023 to February 09 2023. The frequency of training is 3 times a week. The number of training sessions was 12 times. Training schedule on Monday, Wednesday and Friday. Training starts at 15-17 WITA.

Population is a subject that exists in a study (Oliveira et al., 2023).The population in this study were 25 Makassar badminton athletes. The sample is part of the population that will be examined in a study which will later be given treatment and measured by measuring instruments (M. Pratt et al., 2023) .The sample in this study were 25 Makassar badminton athletes, the sampling technique was total sampling, total sampling is all the population in the population sampled to obtain research data (Wrzus & Neubauer, 2023). The instrument used in measuring VO₂Max is the Yo-yo intermittent recovery test. The data analysis technique uses the help of SPSS 23 software to test normality, homogeneity and t test (effect).

3. DISCUSSION

From the results obtained when tests and measurements were carried out with the instrument or measuring instrument Yo-yo intermittent recovery test and analyzed using the SPSS 23 software application can be seen in the table below.

Table 1. Normality Test

Keterangan	Statistic	Shapiro Wilk	
		df	Sig
Pretest	0,934	25	0,108
Posttest	0,970	25	0,643

Based on the results of the normality test, the pretest and posttest results are greater than > 0.05 so it can be concluded that the data is normally distributed.

Table 2. Homogeneity Test

Test of Homogeneity of Variances			
Pretest posttest			
Levene Statistic	df1	df2	Sig.
.719	1	48	.401

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Based on the results of the homogeneity test, the pretest and posttest results are greater than > 0.05 so it can be concluded that the data is homogeneously distributed.

Table 3. T-Test (Effect)

		Levene's Test for Equality of Variances				
		F	Sig.	t	df	Sig. (2-tailed)
Pretest	Equal variances assumed	.719	.401	7.712	48	.000
Posttest	Equal variances not assumed			7.712	46.767	.000

Based on the results of the T test, the sig (2-tailed) results are smaller < 0.05 so it can be concluded that there is a significant effect of farlek training on increasing VO2Max of Makassar badminton athletes.

An applied training method can run optimally and have an impact on the physical condition of an athlete, it can be said that the training program provided is in accordance with the training periodization (Prakoso & Sugiyanto, 2017). Physical condition training must be organized properly and perfectly and is intended to improve the physical condition and functional capacity of the body in carrying out sports activities and enable athletes to achieve high performance (Nugraha & Syafi'i, 2022). The application of farlek exercises carried out in this study is in accordance with the training periodization that has been compiled and designed before the research is carried out so that it affects the VO2 Max of badminton athletes.

The fartlek exercise given to athletes correctly will make the heart muscle stronger, the stronger the heart muscle will result in the amount of blood flow pumped by the heart throughout the body in each beat will also increase, thus the oxygen carried by the blood also increases and the amount of hemoglobin will also increase (Harianto et al., 2017). Athletes who do fartlek training feel a challenge because those who usually only jog with a slow and continuous rhythm, try other alternatives with fartlek training by combining walking, jogging and sprinting (Almy & Sukadiyanto, 2014).

Fartlek training combines aerobic demands with continuous movement at interval speed, the fartlek training method is a very fun training and aims to increase the strength and aerobic capacity of athletes, and fartlek training has an effect on cardiovascular endurance, because fartlek training strengthens the respiratory muscles so that it provides great benefits to the maintenance of heart and lung fitness, besides that the greater the lung volume, the faster the process of gas exchange (diffusion) (Almy & Sukadiyanto, 2014). Fartlek training accompanied by the correct training patterns and principles can actually be more effective in increasing cardiovascular endurance (Ilmiyanto & Budiwanto, 2017).

Along with the high and low VO₂Max is also influenced by: lungs as an organ that provides oxygen, blood quality (hemoglobin) which will bind oxygen and carry it throughout the body, the heart as an organ that pumps blood throughout the body, blood vessels (circulation) which will channel blood throughout the body and skeletal muscles as one of the organs that will use oxygen for the oxidation process of food so as to produce energy and from the training process can increase VO₂Max (Nirwandi, 2017). Fartlek training can increase cardiovascular endurance (VO₂Max), this is because fartlek training is carried out in accordance with the direction of the coach and the players who do fartlek training follow these directions in a disciplined manner (Lavenia et al., 2020).

4. CONCLUSIONS

Farlek training is the right alternative choice to improve physical condition abilities, and which includes physical conditions, namely VO₂Max. Based on the results of this study, it can be concluded that there is a significant increase in farlek training on increasing VO₂Max of Makassar badminton athletes.

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