



FITNESS OF YOUNG ATHLETES: A COMPARISON OF LIFESTYLES OF SMOKING AND NON-SMOKING ATHLETES

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Abstract

This study aims to determine the comparison between smokers and non-smokers on the level of physical fitness in U-17 futsal athletes at the Arjuna FC futsal club. The population of all futsal athletes at the Arjuna Fc club. Sampling was carried out using the quota sampling technique, namely 24 athletes consisting of 12 smoking athletes and 12 non-smoking athletes. There is a difference in the average VO₂max value of smoking and non-smoking athletes, the average VO₂max value of non-smoking athletes is higher than that of smoking athletes. So that way the physical fitness of non-smoking athletes is better than that of smoking athletes. The results of data analysis for the overall percentage of physical fitness elements (VO₂max) of 12 smoking athletes and 12 non-smoking athletes at the Arjuna Fc futsal club in the Superior category were (4%) or as many as 1 athlete, in the Excellent category (21%) or as many as 5 athletes, in the Good category (50%) or as many as 12 athletes, in the Fair category (25%) or as many as 6 athletes.

Keywords: Smokers and Non-Smokers, Physical fitness of U-17 futsal athletes

INTRODUCTION

Exercise is a form of physical activity that is planned and structured, so it involves repetitive body movements, which is aimed at improving physical fitness. Sport is also one of the necessities of life that cannot be left behind. A sports activity must be carried out continuously and in harmony. This sports activity can also be done by anyone because it does not look at race, religion or social level (Aprilianto & Fahrizqi, 2020). Physical fitness can be affected by several factors, including lifestyle, diet, and smoking habits. Physical fitness is one of the most important factors in improving performance for athletes in various sports. Including futsal. Futsal itself is a rapidly growing sport in Indonesia, futsal began to be widely known by the public in the 2000s (Kharisma & Mubarok, 2020).

In Indonesia, futsal is under the auspices (AFI) of the Indonesian Futsal Association. Futsal is also a very popular sport in Indonesia, especially among the younger generation. According to (Franji & Abady, 2022) Based on the results of initial observations from January to March 2020 conducted at the school, it is known that the school is a school that prioritizes extracurricular activities as an achievement enhancer and promotion of school success. There are many extracurriculars available, and the list of extracurriculars

is futsal, art, basketball, mersing band, and martial arts. The most popular interest of students, especially men, is futsal extracurriculars. There are many factors that can affect a person's interest in playing futsal, be it factors that come from within oneself such as emotions, pleasure, attention and so on, there are also factors that arise from outside such as parents, environment, the influence of friends, facilities, teachers and coaches or the influence of watching futsal matches on television (Mufa et al., 2021). Futsal is also known as an intermittent sport where fast, dynamic games with high intensity occur and require a high focus on individual technique and teamwork with a very short recovery period (Miftahudin et al., 2023).

The following factors such as physical fitness, technical skills, mental concentration, training support, and also individual motivation are some of the many factors that may play an important role in determining an athlete's performance (Prabowo et al., 2023). In this case, there are several factors that affect performance in the match, namely endurance, mentality, and there are also one of the other factors is athletes who have a smoking habit (Eka Iswahyudi, Muhammad Suhdy, 2024).

Futsal is one of the sports that requires physical fitness components including cardiorespiratory endurance, endurance, muscle strength and agility. In playing futsal, physical ability or high cardiorespiratory endurance is also required (Wirajaya et al., 2022). According to Junusul Hairy (1989: 176) endurance in any sports activity such as football, basketball, long-distance running, swimming, cycling and so on, is limited by the capacity of the circulatory system (heart, blood vessels, and blood) and respiratory system (lungs) to deliver oxygen to these muscles, this kind of activity is categorized as cardiovascular endurance or aerobic endurance (Ginting & Decheline, 2023).

Therefore, futsal requires optimal physical fitness to compete well on the field. Strengthened by Bafirman (2013) states "Oxygen volume is the largest volume of oxygen that can be consumed by the body in a certain period of time". From the expert quote above, it is explained that VO2Max is a foundation to improve the physical condition of an athlete, VO2Max is also needed by a futsal player (Latifa et al., 2023). Currently, among young people, many of them have consumed tobacco cigarettes and e-cigarettes. Smoking is known to reduce lung capacity and increase the risk of cardiovascular disease after at least a few years of smoking and can also impair aerobic performance (Candra et al., 2024). However, from the results of previous research, most of them show that the prevalence of smokers in Indonesia is quite high and there are still many athletes involved in the habit of smoking, which can threaten their health and performance (Kurbana et al.,

2024).

Therefore, it is important to examine these habits in the context of exercise and health. One of the factors that can affect the physical fitness of futsal athletes is the habit of smoking. From previous research, smoking has been shown to have many negative impacts on the health of both active smokers and passive smokers, including lowering a person's physical fitness level (Salsabila et al., 2022). Cigarettes are a processed tobacco wrapped in cigars and other forms, produced from the ingredients Nicotona tabacum, nicotiana rustica and other ingredients that contain nicotine and tar or with no additives.

There are two differences between the factors causing death in each age group. Deaths in the elderly age group are more caused by diseases that are chronic conditions such as stroke, hypertension, diabetes, heart, and others. As for deaths in the middle age group (productive age), it tends to be caused by diseases that originate from behavior (lifestyle). The middle age group has a vulnerability to cigarettes, alcoholic beverages, drugs, and an unhealthy lifestyle (Satriawan, 2022). Smoking behavior is often carried out in adolescence. Smoking habits in adolescents can be caused by several factors, including the influence of parents who also smoke, the influence of friends, personality factors such as curiosity and the influence of advertising. The influence is quite large in the smoking behavior of adolescents, namely their peers (Utami, 2020). The classification of smokers with the amount of consumption is divided into two, namely (i) smokers who consume more than 20 cigarettes per day are heavy smokers, and (ii) smokers with less than 20 cigarettes per day can be said to be moderate or light smokers (Ghany Vhiera Nizamie & Kautsar, 2021).

The prevalence of smokers in Indonesia is still high. 2018 data shows that the prevalence of smokers aged ≥ 15 years is 33.8%. The highest prevalence of smokers was found in the age group of 25-34 years (47.7%) and the age group of 35-44 years (47.8%). The high prevalence of smokers raises concerns because it can have a bad impact on public health (Tivany Ramadhani et al., 2023). Smokers tend to have lower lung capacity, poor stamina, and lower physical performance compared to non-smokers. According to (Rizqi & Rochmania, 2020) the impact obtained by athletes is a decrease in cardiovascular endurance. The blood vessels and lungs to supply blood to the rest of the body, especially the heart and lungs, are reduced. So that a decrease in cardiorespiratory endurance is characterized by shortness of breath and fatigue quickly. This futsal sport is played for two times and twenty minutes and is considered to require good endurance. This durability must be prioritized without neglecting other physical aspects. Maximum oxygen consumption or VO2Max is an indicator of endurance ability (Putra et al., 2024).

According to (Pokhrel, 2024) a person who has a good VO2Max indicates that the person has good endurance and fitness.

METHODS

The research method taken in this study uses a non-experimental research method using a quantitative descriptive approach. In the design of this study, the author uses a survey approach. Population in this study is the Arjuna FC futsal club and the use of samples in this study the researcher used the quota sampling technique. The number of samples in this study was 24 futsal athletes at the Arjuna FC futsal club consisting of 12 smoking athletes and 12 non-smoking athletes. Ainur and Azzizati (2020) explained that non-experimental researchers, especially on comparative causation, do not manipulate, provide treatments, or interventions where the author only deduces existing data or facts.

Research instruments can also be interpreted as a tool to collect, process, analyze and present data systematically and objectively with the aim of solving a problem. However, the researcher wants to use the instrument in this study using the MFT test method or bleep test to find out and measure the capacity of VO2 Max.

RESULTS AND DISCUSSION

Results

This study is a quantitative descriptive research through a survey test approach which will be carried out starting on May 15, 2025 at the Neper Futsal Field, Kesambi District, Cirebon City At the Arjuna FC futsal club which consists of 24 athletes consisting of 12 smoking athletes and 12 non-smoking athletes. The results of the research obtained from the ability of VO2max through the bleep test instrument or MFT (multistage Fitness Test) :

Table 1. VO2max Test Results Of Smoking Athletes At Arjuna Fc Futsal Club

VO2max test results of smoking athletes					
No	Name	Level	Shuttle	VO2max	Categor ry
1	STA	10	6	51,7	Excellent
2	BPA	10	1	50,2	Good
3	SP	9	10	49,6	Good
4	BY	9	9	49,3	Good
5	DS	9	4	47,8	Good
6	SA	8	10	46,2	Good
7	HIS	8	9	45,9	Good
8	MR	8	7	45,3	Good
9	RP	8	3	44	Fair
10	RDM	7	10	42,7	Fair
11	Ministry of National Development	7	10	42,7	Fair

12	BG	7	2	40,2	Fair
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Table 2. VO2max Test Results For Non-Smoking Athletes At Arjuna FC Futsal Club

VO2max test results of non-smoking athletes					
No	Name	Level	Shuttle	VO2max	Category
1	MFH	12	1	57,2	Superior
2	MDA	11	7	55,5	Excellent
3	YES	11	2	54,1	Excellent
4	FM	10	6	51,7	Excellent
5	FDF	10	4	51,1	Excellent
6	BUT	10	1	50,2	Good
7	EAD	9	5	48,1	Good
8	DH	9	2	47,1	Good
9	MI	8	8	45,6	Good
10	AAI	8	7	45,3	Good
11	MNF	8	1	43,3	Fair
12	BY	7	5	41,1	Fair

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Table 3. Distribution of VO2max Results for Smokers

No	Category	Interval	Frequency	Percentage
1	Excellent	51,0-55,9	1	8%
2	Good	45,2-50,9	7	58%
3	Fair	38,4-45,1	4	33%
			12	100%



Figure 1. Percentage Chart of VO2max Results of Smoking Athletes

Table 4. Distribution of VO2max Results for Non-Smoking Athletes

No	Category	Interval	Frequency	Percentage
1	Superior	>55,9	1	8%
2	Excellent	51,0-55,9	4	33%
3	Good	45,2-50,9	5	42%
4	Fair	38,4-45,1	2	17%
			12	100%



Figure 2. Non-Smoking Athletes' VO2max Results Percentage Chart

The table above shows the distribution of VO2max research scores consisting of 24 athletes, namely 12 smoking athletes and 12 non-smoking athletes. Based on the table above, out of a total of 24 athletes consisting of 12 smoking athletes and 12 non-smoking athletes involved, of the smoking athletes, 1 athlete (8%) is included in the "Excellent" category, 7 athletes (58%) are included in the "Good" category, 4 athletes (33%) are included in the "Fair" category. Meanwhile, of the non-smoking athletes, 1 athlete (8%) is included in the "Superior" category, 4 athletes (33%) are included in the "Excellent" category, 5 athletes (42%) are included in the "Good" category, 2 athletes (17%) are included in the "Fair" category. Therefore, it can be concluded that there is a difference in physical fitness level or physical condition of VO2max in non-smoking athletes better than in smoking athletes. According to (Hanana, 2022) a person who has a smoking habit can have a negative impact on decreased cardiovascular function as a result of the harmful negative impact of cigarettes on the condition of VO2Max values.

DISCUSSION

Based on the results of the analysis of the overall research data, the VO2max ability in smoking athletes obtained an average score of 36.3 and in non-smoking athletes an average score of 49.2 VO2max was obtained for Arjuna Fc futsal athletes, when viewed from the Standardization Norm for *Aerobic Endurance* (VO2max), the physical condition ability element (VO2max) of non-smoking futsal athletes was better than that of smoking futsal athletes at the Arjuna FC club.

For the entire percentage of physical condition elements (VO2max) of smoking and non-smoking athletes at the Arjuna Fc futsal club in the Superior category of (4%) or as many as 1 athlete, in the Excellent category of (21%) or as many as 5 athletes, in the Good category of (50%) or as many as 12 athletes, in the Fair category of (25%) or as many as 6 athletes. Based on the results of this study, it is hoped that Futsal coach Arjuna Fc will further improve VO2max ability for athletes known to smokers by using various training methods and tests that can make athletes happy and enthusiastic about training, so that

athletes' VO₂max abilities will increase.

CONCLUSION

Based on the results of data processing and research data analysis from the title Comparison of Smokers and Non-Smokers on the Physical Fitness of U-17 Futsal Athletes which was carried out on the futsal field neper, Kesambi District, Cirebon City with a population of 24 Arjuna FC futsal athletes consisting of 12 smoking athletes and 12 non-smoking athletes and using a sampling technique, namely quota sampling.

The results of data processing that have been carried out with the average VO₂max of the overall VO₂max of 46.3 smokers and 49.2 of non-smoking futsal athletes at the Arjuna Fc futsal club. The overall percentage of smoking and non-smoking futsal athletes for the entire percentage of physical condition elements (VO₂max) of smoking and non-smoking athletes at the Arjuna Fc futsal club in the Superior category was (4%) or as many as 1 athlete, in the Excellent category (21%) or as many as 5 athletes, in the Good category (50%) or as many as 12 athletes, in the Fair category (25%) or as many as 6 athletes.

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