

## DIFFERENCES OF LUNG FUNCTION ELEMENTARY SCHOOL STUDENTS FOLLOWING FOOTBALL EXTRACURRICULAR WITH FUTSAL

Fitriani Dewi

<sup>1</sup>Sport Education Study Program, University of Education Indonesia, Bandung, Indonesia  
Fitrianidewi04@gmail.com

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### Abstract

This study aims to determine differences in the level of lung function of students who take part in football extracurricular and futsal extracurricular in elementary school. This research is a comparative descriptive research. The population in this study were students who took part in football extracurricular and futsal extracurricular at SD Negeri Pameungpeuk, totaling 50 students. The sample used purposive sampling technique, with the following criteria: (1) male, (2) active in football and futsal extracurricular activities, (3) maximum age 12 years, and (4) not sick. Based on this, the sample amounted to 60 students. The instrument used is the Vital Capacity Meter. Data analysis used t test of 5% significance. . The difference in the function of vital lung capacity following extracurricular futsal and extracurricular futsal showed sig. (2-tailed) 0.008 which has a smaller value  $< 0.050$  which indicates that  $H_0$  is rejected. This figure shows that there are differences in lung function of elementary school students who take extracurricular football and futsal. The results showed that there was a significant difference in the level of lung function of the students who took part in the football extracurricular and the futsal extracurricular at the Pameungpeuk State Elementary School. This means that the level of lung function of students who take futsal extracurricular is better than football extracurricular at Pameungpeuk public elementary school.

### Keyword:

*Lung Vital Capacity, Vital Capacity*

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\*Corresponding address:

\*Corresponding e-Mail:



## Introduction

Elementary school children are a phase where children begin to recognize and interact with the surrounding environment. Children at this age have the desire and openness to gain new knowledge and experiences. Therefore, it is necessary to optimize growth and development in order to achieve maximum academic and non-academic achievements (Haff & Triplett, 2016).

Vital capacity is a reflection of the elasticity of the lung tissue, or the rigidity of the movement of the chest wall. In addition to its value depending on the anatomical shape of the body, vital capacity is also influenced by a person's position during measurement, the strength of the respiratory muscles and the power of lung compliance. The value of adult male capacity is 20-25% higher than that of adult women. This is partly due to differences in muscle strength of men and women. The amount of vital capacity in young adult men is  $\pm 4.6$  liters and in young adult women  $\pm 3.1$  liters. People who are tall and thin usually have a greater vital capacity than people who are short and fat, while the state of exercise can add 30%-40% of normal (Khonsary, 2017).

In the era of globalization, the sedentary lifestyle is developing so fast. Technologies such as the internet, cell phones, and social media reduce people's interest in physical activity or exercise. Lack of physical activity and a sedentary lifestyle has a bad effect on health. A sedentary lifestyle is often associated with health risks such as obesity or adiposity (Griffiths et al., 2016), cardiometabolic risk factors (Ekelund et al., 2012) decreased bone mineral density (Chastin et al., 2014), mental health poor health (Herman et al., 2015), and overall decline in fitness (Tremblay et al., 2011) A sedentary lifestyle and the above diseases will affect health in adulthood (Owen et al., 2011) Cardiorespiratory fitness is considered one of the best parameters for health, surpassing other parameters such as body weight, blood pressure, or cholesterol levels (Blair, 2009).

Based on observations in the field, there are several problems related to differences in lung function of students who participate in extracurricular football and futsal. Where teachers who teach extracurricular football must give their respective portions of students and according to their portions, the portion of elementary school children tends to move and play more, so they get tired more easily, while their junior high school students the same as high school level, only distinguishing high school and high school lung capacity levels are greater than elementary school children's lung function. So the portion of their training is adjusted to the fitness level of each individual in order to achieve maximum training results.

## Methods

This study uses a comparative descriptive to see the difference between variables with other variables. The location of this research is SD Negeri Pameungpeuk, West Bandung Regency. This location was chosen because this school strongly supports soccer and Futsal extracurricular activities, because soccer and Futsal extracurricular activities are very positive for students because students can provides their talents, interests, and hobbies.

The population in this study were all 5th grade students, totaling 80. Sampling used a purposive sampling technique (*Fraenkel, J. R., Wallen, N. E., & Hyun, 2017*) So the sample used in this study were all students who were still actively participating in extracurricular football and Futsal at SD Negeri Pameungpeuk, totaling 36 people.

The instrument used to measure the vital capacity of the lungs is the Vital Capacity Meter. Vital Capacity Meter is a tool to measure the flow of air into and out of the lungs and is recorded in a volume per time graph.

The analysis uses the Dependent T-test to find differences in the function of vital lung capacities of students who take part in extracurricular football and futsal, and analyzed statistically using the SPSS software (IBM SPSS version 26).

## Result



Fig 1. Graphic 1

Based on the table above, it shows that the pulmonary function scores of students who take part in football extracurricular are on average 1.69 liters/minute and Futsal extracurricular is 2.13 liters/minute.

Before conducting further analysis, the normality test of the data was first performed. The significance value of the test of normality (vital lung capacity) for soccer extracurricular is  $0.086 > 0.05$  and for futsal extracurricular  $0.060 > 0.05$ , it shows that the data obtained from the variable (lung vital capacity) is normally distributed.

The next step is to calculate the comparative coefficient which aims to find out how big the difference is between one variable and another. The difference in the function of vital lung capacity following extracurricular futsal and extracurricular futsal showed sig. (2-tailed) 0.008 which has a smaller value  $< 0.050$  which indicates that  $H_0$  is rejected. This figure shows that there are differences in lung function of elementary school students who take extracurricular football and futsal.

### Discussion

This study aims to determine differences in the level of lung function of students who take part in football extracurricular and futsal extracurricular in elementary school. The results showed that there was a significant difference in the level of lung function of students who took part in football extracurriculars and elementary school swimming extracurriculars. The level of lung function of students taking futsal extracurricular is better than football extracurricular in elementary school. These results are supported by the results of research by (Mahotra & Shrestha, 2013) and (Atan, 2012) which show that each sport has differences in its training methods which have an impact on differences in the athlete's lung function values between these sports.

### Conclusion

Based on the analysis of the data obtained and the descriptions that have been put forward, the conclusions that can be drawn from the results of the study are that there are differences in lung function of elementary school students who take extracurricular football and futsal. From the calculation of data processing that has been carried out using the SPSS 26 program, which shows the value of R square 0.008, then the R square means that there are differences in lung function of elementary school students who take extracurricular football with futsal with a total percentage (22.7%) and the rest (77.3%) is influenced by other factors.



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