

## THE EFFECT OF VITAL CAPACITY OF THE LUNGS, NUTRITIONAL STATUS, PHYSICAL ACTIVITY AND EXERCISE MOTIVATION TOWARDS PHYSICAL FITNESS ON THE ATHLETE PACKAGE NATIONAL SPORTS COMMITTEE INDONESIA DEPOK CITY

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### Abstract

*The purpose of this study was to determine the effect of vital capacity of the lungs, nutritional status, physical activity and exercise motivation to physical fitness on the athlete Package National Sports Committee Indonesia Depok city. This research uses survey method to see the relationship between variables. Data analysis techniques use path pathology. Path analysis techniques can be used to test the direct and indirect effects on vital capacity of the lungs, nutritional status, physical activity and exercise motivation against Physical fitness the athlete package National sports Committee Indonesia Depok City. Overall, it can be concluded that after tested statistically to empirical data which have been obtained from field, it can be said that the four independent variables namely vital capacity of lungs, nutritional status, physical activity and exercise motivation have significant direct positive influence of physical fitness on on the athlete package National Sports Committee Indonesia Depok city.*

**Keywords:** *vital capacity of the lungs, nutritional status, physical activity, exercise motivation and physical fitness*

Life in the era of modernization is full of challenges, including the threat to the quality of life associated with human health. People in developed countries have felt the sequence of lifestyles that are more silent, less mobile and excess calories as a result of automation and excess calories. Sooner or later now began to feel the Indonesian people have started living a silent lifestyle, especially among the upper and middle layer. The result is the increase of hypokinetic (less movement) disease, the direct result is the low ability and high rate of illness which of course also affects one's physical fitness.

The impact of modernization is all-around using technology, limiting people from physical activity in the form of games and sports, so that the level of physical fitness, not in accordance with the load of daily activities, including the body load that causes lazy to move. Through regular physical activity it will obtain adequate movement and function of the body organs for the development of better physical and joint capabilities.

One of the right containers to overcome the impact that will occur on the series of problems in the future is through exercise. Sports activities are unrelenting activities, it can even be said that exercise is already a part of the activities of human life. Exercise is already a necessity of human life. By exercising especially sports related to health will be able to maintain and improve the degree of human life. Without exercise there will be a decline in health and increase the likelihood of developing non-infectious diseases.

Healthy humans are a necessary resource in development therefore sports should be increasingly promoted and enhanced as a way of physical and spiritual development for every member of society ". Then supported also by government suggestions with the National Sports Panji movement is: "To promote sports and to exercise the community". So with the sport is expected degree of health and physical fitness will increase.

Therefore, high physical fitness is required by all good school-age children, colleges and the general public. By having a high physical fitness, students will be able to perform daily activities with a longer time compared with students who have low physical fitness. Physical fitness is essentially a body condition that reflects a person's ability to perform daily work without experiencing excessive fatigue and still be able to perform other activities. Physical fitness has an important meaning for humans, among others can improve the function of body organs, emotional social, sportsmanship, and the spirit of competition.

Even in some research states that: physical fitness has a positive relationship with academic achievement, because with good organ function it will have an impact on blood circulation and oxygen lencer, so that the supply to other organs smoothly. So with the smooth function of the body organs work will increase the ability for someone both direction cognitive and psychomotor. In addition, the level of physical fitness not only to maintain a healthy body, but also to heal or restore an unhealthy body.

It is a common hope in the learning process that every learner should have good physical fitness. In the learning process there are several components that are interconnected, the components in question are lecturers, students, learning objectives, teaching materials, learning models, situations, and evaluation of learning, and environment. These components interact with each other and lead to a goal that changes the behavior of learners that includes the realm of intellectual, emotional and spiritual intelligence and increased physical fitness of students.

Thus, the higher the vital capacity of the lungs, the nutritional status, the physical activity and the exercise motivation of a person, the better the person's physical fitness level and the lower the vital capacity of the lungs, the nutritional status, the physical activity, the lower the level the person's physical fitness.

Based on the above problems, this study is directed to the vital capacity of the lungs, nutritional status, physical activity and exercise motivation, the four types of variables have different test implementation procedures expected to improve physical fitness. Thus want to know the influence through deeper study by conducting research with the title "The influence of vital capacity of the lungs, nutritional status, physical activity and exercise motivation of physical fitness at athletes Package National Sports Committee Indonesia Depok City".

The formulation of research problems that can be raised are as follows: (1) Is the vital capacity of the lungs directly affect the physical fitness of athletes Package National Sports Committee Indonesia Depok ?, (2) Does the nutritional status directly affect physical fitness at athletes Package National Sports Committee Indonesia Depok City, (3) Does physical activity directly affect physical fitness in athletes Depok National Sports Committee Indonesia Package ?, (4) Does exercise motivation directly affect physical fitness at athletes Package National Sports Committee Indonesia Depok ?, (5) Is the vital capacity of the lungs directly affect the motivation to exercise at athletes Package National Sports Committee Indonesia Depok City ?, (6) Does the status of nutrition directly affect the motivation of exercise at athletes Package National Sports Committee Indonesia Depok City ?, (7) Does physical activity directly affect the motivation of exercise at athletes Package National Sports Committee Indonesia Depok ?, (8) ) Whether the vital capacity of the lungs through simultaneous exercise motivation directly affects the fitness of the jasmani at the athletes Package National Sports Committee Indonesia Depok City ?, (9) Is the status of nutrition through exercise motivation simultaneously direct influence on physical fitness at athletes Package National Sports

Committee Indonesia Depok City ?, and (10) Is physical activity through exercise motivation simultaneously direct influence on physical fitness on athletes Package National Sports Committee Indonesia Depok City?

### **1. Physical fitness**

Physical fitness is known by foreign term "physical fitness." Physical means body or body while fitness means fresh. So what is meant by physical fitness (physical fitness) is a healthy body and fresh. Understanding physical fitness is seen as a concept that has a wide scope. Therefore, experts define in accordance with the point of view of expertise. For example, in terms of medicine more emphasis on the ability of the heart and lungs. From the field of sports more focused on the success of physical activities without causing significant fatigue.

Physical fitness is one of the indicators in determining the dynamic healthy degree of a person who becomes the basic physical ability to be able to carry out the tasks that must be carried out. With a healthy and fit physique, one can perform daily activities optimally. A person's fitness will have an effect on one's performance and will also provide positive support for work or study productivity.

### **2. Vital Lung Capacity**

The lung experts are a body tool consisting mostly of alveoli bubbles. In the lungs an exchange of oxygen intermediates is drawn from the air into the blood and carbon dioxide is removed from the blood by osmosis. The lungs have the ability to accommodate the air inside which is called lung capacity.

Basically humans cannot live without enough oxygen, because every human needs oxygen to breathe. Breathing or respiration is a whole series of events that begin with the suction of the outside air and end up with oxygen in the cell, including the release of carbon dioxide (CO<sub>2</sub>) into the outer air.

### **3. Nutritional status**

Whether a person's nutritional deficiency is highly dependent on the quality and quantity of food eaten, in this case nutrition is very influential in physical health. If a person has poor nutritional status then his physical health will also be bad as well as his physical fitness. From some opinions above the authors concluded about nutritional status, nutritional status is the expression of the state of balance in the form of a certain value or can be said that the nutritional status is an indicator of good or poor supply of food every day. A good nutritional status is needed to maintain a healthy level of fitness and fitness, to help growth for human growth and to support sporting performances.

According to Djoko Pekik Irianto (2012: 11) the nutritional status is " the expression of the state of balance in the form of certain variables or can be said that the nutritional status is a good indicator of poor supply of food everyday.

### **4. Physical activity**

Physical activity is an activity associated with the human body movement that serves to improve the functional ability of organs and to maintain physical freshness. Thus a person who performs a physical activity with the type of exercise as well as the intensity that has qualified, as well as the length of exercise with sufficient frequency each week, will be able to obtain and maintain physical fitness.

The success to achieve fitness determined by the quality of the exercise includes: the purpose of the exercise, the selection of the exercise model, the means of exercise and the dose of exercise, the concept of FIT (Frequency, Intensity and Time). Frequency is the severity of exercise quality, 75% - 85% of maximal heart rate, calculated by 220-age (in years). Time is the required duration of each

exercise, practice time is 20-60 minutes. The quality that shows the severity of exercise is called intensity, the magnitude of intensity depends on the type and purpose of aerobic exercises using the benchmark increase in heart rate, in general the intensity of fitness training is 60% -90% maximal heart rate and specifically the intensity of the exercise depends on the purpose of the exercise . Volume of practice Processed based on total time of exercise that is the number of exercises in a week measured by minutes. Classified into 2 is good ( $> 360$  minutes) and less good ( $<360$  minutes).

## 5. Motivate exercise

Motivation (motivation) comes from the Latin, is movere, which means "move" (to move). motivation represents the psychological processes, which lead to the emergence, the direction, and the persistence of voluntary activities directed toward a particular goal. Managers need to understand the psychological processes, if they wish to nurture their athletes to succeed, in the pursuit of organizational goals. Motivation to display a certain behavior, based on the desire to achieve or satisfy a need. Motivation to do something can come from the self, known as intrinsic motivation, and can also come from the environment, or called extrinsic motivation.

## METHOD

The method used in this study is using survey method by looking at causality between variables. Technique of data analysis by using path analysis (path analysis). This pathway analysis technique can be used to test the direct and indirect effect on vital capacity factor of lungs, nutritional status, physical activity and exercise motivation to physical fitness at athletes Package National Sports Committee Indonesia Depok City.

The constellation of research can be seen in the picture below:

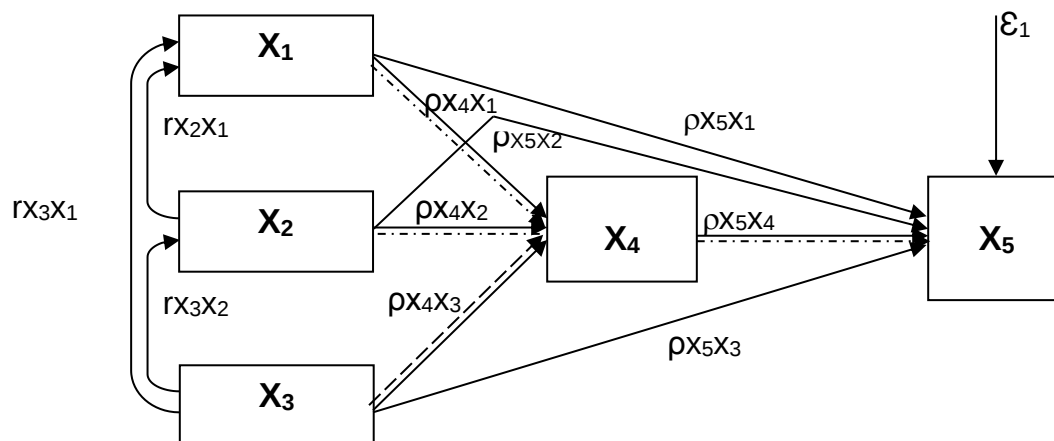


Figure 1. Model of Research Constellation

The analytical technique used in this study is the data analysis technique used in this study are as follows: 1) Descriptive statistics, ie statistics aimed at providing data description of each research variable, 2) Test requirements analysis are: (1) test normality , and (2) homogeneity test. The explanations of the two tests are as follows: First, the normality test to test the assumption of population normality, by the Lilliefors test. Second, testing the homogeneity of variance with Bartlett test, Wisnijati Basuki Abdullah (2013: 40). After the analytical requirements are met followed by testing the research hypothesis. Technique of analysis with regression and correlation analysis technique. Testing the first hypothesis, second hypothesis, and the third hypothesis is done by simple regression analysis and multiple regression techniques. The fourth hypothesis test was tested by multiple regression and correlation analysis techniques.

## RESEARCH RESULT

Discussion of research results proposed as follows: 1) vital capacity of the lungs (X1) have a direct positive effect on physical fitness at athletes Package National Sports Committee Indonesia Depok City (X5), this is evidenced by the obtained value  $t$  count = 5,999 and  $t$ -table (0,05: 58) = 1,671 at a significant level of 0.000 smaller than  $\alpha = 0.05$ , thus  $t$  count is greater than  $t$ -table,  $H_0$  is rejected, and  $H_1$  is accepted. 2) the nutritional status (X2) has a direct positive effect on physical fitness at the athletes of Depok City National Sports Committee Indonesia Package (X5), this is proved by  $t$ -count value = 7,541 and  $t$ -table (0,05: 58) = 1,671 at significant  $t$ af 0.000 less than  $\alpha = 0.05$ , thus  $t$ -count is larger than  $t$ -table,  $H_0$  is rejected, and  $H_1$  is accepted. 3) physical activity (X3) has a direct positive effect on physical fitness in athletes Package National Sports Committee Indonesia Depok City (X5), this is proved by obtained  $t$ -count = 6,851 and  $t$ -table (0,05: 58) = 1,671 at significant level 0,000,  $t$ -count is greater than  $t$ -table, means  $H_0$  is rejected, and  $H_1$ . 4) exercise motivation (X4) have a direct positive effect on physical fitness at athletes Package National Sports Committee Indonesia Depok City (X5), this is proved by obtained  $t$ -count = 8,596 and  $t$ -table (0,05: 58) = 1,671 at significant level 0,000, thus  $t$ -count is greater than  $t$ -table,  $H_0$  is rejected, and  $H_1$  is accepted. 5) the vital capacity of the lungs (X1) has a direct positive effect on the exercise motivation of the athletes Package National Sports Committee Indonesia Depok City (X4), this is evidenced by obtained  $t$ -count = 4,966 and  $t$ -table (0,05: 58) = 1,671 with significant level 0.000 more small from  $\alpha = 0.05$ , thus  $t$ -count is larger than  $t$ -table,  $H_0$  is rejected, and  $H_1$  is accepted. 6) Nutritional status (X2) has a direct positive effect on the motivation of athletes exercise National Sports Committee Indonesia Package Depok City (X4), this is proved by obtained  $t$ -count = 4,966 and  $t$ -table (0,05: 58) = 1,671 with significant level 0,000 smaller than  $\alpha = 0.05$ , thus  $t$ -count is larger than  $t$ -table,  $H_0$  is rejected, and  $H_1$  is accepted. 7) Physical activity (X3) has a direct positive effect on exercise motivation of athletes Package National Sports Committee Indonesia Depok City (X4), this is proved by obtained  $t$ -count = 6,918 and  $t$ -table (0,05: 58) = 1,671 with significant level 0.000 less than  $\alpha = 0.05$ , thus  $t$ -count is larger than  $t$ -table,  $H_0$  is rejected, and  $H_1$  is accepted. 8) the vital capacity of the lungs (X1) and the motivation of exercise (X4) have a direct positive effect on physical fitness in athletes Package National Sports Committee Indonesia Depok City (X5), this is proved by  $t$ -count value for vital capacity of lung of 3,086 and motivation to exercise equal to 6,002 with  $t$ -table value (0,05: 58) = 1,671 with significant level 0,003 and 0.000 smaller than  $\alpha = 0,05$ , so  $t$ -count is bigger than  $t$ -table, mean  $H_0$  is rejected, and  $H_1$  accepted. 9) Nutritional status (X2) and exercise motivation (X4) have a direct positive effect on physical fitness at athletes Package NATIONAL Sports Committee Indonesia Depok City (X5), this is proved by obtained  $t$ -count value for nutritional status of 3,382 and exercise motivation 4,616 with  $t$ -table value 0,05: 58) = 1.671 with a significant level of 0.001 and 0.000 smaller than  $\alpha = 0.05$ , thus  $t$  count is greater than  $t$ -table, meaning  $H_0$  is rejected, and  $H_1$  is accepted. 10) physical activity (X3) and exercise motivation (X4) have a direct positive effect on physical fitness at athletes Package National Sports Committee Indonesia Depok City (X5), this is proved by obtained  $t$ -count value for physical activity 2,796 and sport motivation 4,917 with  $t$ -table value 0,05: 58) = 1.671 with a significant level of 0.007 and 0.000 smaller than  $\alpha = 0.05$ , thus  $t$  count is greater than  $t$ -table, means  $H_0$  is rejected, and  $H_1$  is accepted.

## DISCUSSION

The discussion of the results of the research presented as follows: 1) vital lung capacity (X1) has a positive direct effect on physical fitness in athletes of the KONI Package in Depok City (X5), this is evidenced by the value of  $t$ count = 5.999 and  $t$ table (0.05: 58) = 1.671 at a significant level of 0,000 smaller than  $\alpha = 0.05$ , thus  $t$ count is greater than  $t$  table, meaning  $H_0$  is rejected, and  $H_1$  is accepted. 2) nutritional status (X2) has a positive direct effect on physical fitness in the athletes of the KONI Package in Depok City (X5), this is evidenced by the value of  $t$ count = 7.541 and  $t$ table (0.05:

58) = 1.671 on the significant 0.000 taf smaller than  $\alpha = 0.05$ , thus tcount is greater than t table, meaning H0 is rejected, and H1 is accepted. 3) physical activity (X3) has a positive direct effect on physical fitness in the athletes of the KONI Package Depok City (X5), this is evidenced by the value of tcount = 6.851 and t table (0.05: 58) = 1.671 at a significant level of 0,000, thus t count is greater than t table, meaning H0 is rejected, and H1. 4) exercise motivation (X4) has a positive direct effect on physical fitness in athletes in the KONI Package Depok City (X5), this is evidenced by the value of tcount = 8.596 and t table (0.05: 58) = 1.671 at a significant level of 0,000, thus t count is greater than t table, meaning H0 is rejected, and H1 is accepted. 5) vital lung capacity (X1) has a positive direct effect on the motivation of exercising the athletes of the KONI Package in Depok City (X4), this is evidenced by the value of tcount = 4.966 and ttable (0.05: 58) = 1.671 with a significant level of 0.000 small of  $\alpha = 0.05$ , thus tcount is greater than ttable, meaning H0 is rejected, and H1 is accepted. 6) nutritional status (X2) has a positive direct effect on the motivation of exercising the athletes of the KONI Package in Depok City (X4), this is evidenced by the value of tcount = 4.966 and ttable (0.05: 58) = 1.671 with a significant level of 0,000 smaller than  $\alpha = 0.05$ , thus tcount is greater than t table, meaning H0 is rejected, and H1 is accepted. 7) physical activity (X3) has a positive direct effect on the motivation of exercising the athletes of the KONI Package in Depok City (X4), this is evidenced by the value of tcount = 6.918 and ttable (0.05: 58) = 1.671 with a significant level of 0,000 smaller than  $\alpha = 0.05$ , thus tcount is greater than t table, meaning H0 is rejected, and H1 is accepted. 8) vital lung capacity (X1) and exercise motivation (X4) have a positive direct effect on physical fitness in athletes of the KONI Package in Depok City (X5), this is evidenced by the value of tcount for lung vital capacity of 3.086 and exercise motivation amounting to 6,002 with ttable value (0,05: 58) = 1,671 with a significant level of 0.003 and 0,000 smaller than  $\alpha = 0.05$ , thus tcount is greater than t table, meaning H0 is rejected, and H1 is accepted. 9) nutritional status (X2) and exercise motivation (X4) have a positive direct effect on physical fitness in athletes in the KONI Package Depok City (X5), this is evidenced by the tcount for nutritional status of 3.382 and exercise motivation of 4.616 with ttable values ( 0.05: 58) = 1.671 with a significant level of 0.001 and 0,000 smaller than  $\alpha = 0.05$ , thus tcount is greater than t table, meaning H0 is rejected, and H1 is accepted. 10) physical activity (X3) and exercise motivation (X4) have a positive direct effect on physical fitness in athletes in the KONI Package Depok City (X5), this is evidenced by the value of tcount for physical activity of 2.796 and exercise motivation of 4.917 with ttable values ( 0.05: 58) = 1.671 with a significant level of 0.007 and 0,000 smaller than  $\alpha = 0.05$ , thus tcount is greater than t table, meaning H0 is rejected, and H1 is accepted.

As stated in the conclusion of this study that there is a positive direct effect of vital lung capacity, nutritional status, physical activity and exercise motivation on physical fitness in athletes of the KONI Package in Depok City. With the discovery of this positive effect, it means that the four types of research variables have different effects on physical fitness in the athletes of the Depok City KONI Package when it is associated with the findings of the research results.

This direct positive influence also provides direction for an implication that in applying vital lung capacity, nutritional status, physical activity and exercise motivation to improve physical fitness in athletes of the KONI Package in Depok City, whether it is done together or per variabel need to consider individual characteristics or characteristics of subjects based on factors of vital lung capacity, nutritional status, paddle size and motivation to exercise that is to improve physical fitness in athletes in the KONI Package in Depok City. Suitability between vital lung capacity, nutritional status, physical activity and exercise motivation given with the four variables empirically has shown a relationship in an effort to improve physical fitness in athletes in the Depok City KONI Package. To improve the quality of physical fitness in the KONI Package Depok athletes, efforts are needed to improve the quality of vital lung capacity, nutritional status, physical activity and motivation to exercise can be done with an integrated and programmed exercise program. This means that the

quality of vital lung capacity, nutritional status, physical activity and exercise motivation should be improved in quality, so that it can positively influence the increase in physical fitness in athletes in the KONI Package in Depok City.

## CONCLUSION

From the results of hypothesis testing and discussion of research results, can be drawn the following conclusions: (1) Vital capacity of the lungs directly affect physical fitness at athletes Package National Sports Committee Indonesia Depok City, (2) Nutritional status directly affect the physical fitness at athletes National Sports Committee Indonesia Package City Depok, (3) Physical activity directly affect physical fitness at athletes Package National Sports Committee Indonesia Depok City, (4) Motivation of sports directly affect physical fitness at athletes Package National Sports Committee Indonesia Depok City, (5) Vital capacity of the lungs directly affect the motivation of exercise athletes Package National Sports Committee Indonesia Depok City, (6) Nutrition status directly influence on exercise motivation at athletes Package National Sports Committee Indonesia Depok City, (7) Physical activity directly affect the motivation of exercise at athletes Package National Sports Committee Indonesia Depok City, (8) Vital capacity of the lungs through motivation exercise directly affect the physical fitness at athletes Package National Sports Committee Indonesia Depok City, (9 ) Nutrition status through exercise motivation directly influence on physical fitness at athletes Package National Sports Committee Indonesia Depok City, and (10) Physical activity through exercise motivation direct influence on physical fitness at athletes Package National Sports Committee Indonesia Depok.

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