

The Effectiveness Tera Aerobic And Nutrition Management Towards The Heart Fitness Of Prospective Haji Conventions

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Abstract: Physical fitness or cardiovascular fitness (VO2Max) is a determining factor for the health status of the pilgrims. Cardiovascular fitness can be improved in several ways, including exercise and nutrition management. This study aims to determine the effectiveness of exercise and nutritional management on the heart and lung fitness of the pilgrims. Quasi-experimental method using pretest-posttest non-equivalent control group design and using the t-test on 34 prospective pilgrims showed. This study used the Rockpot Instrument. **Result:** There was a significant effect between exercise and nutritional management on cardiovascular fitness. (P-Value: 0.05 and 0.00, α : 0.05). **Conclusion:** The variable that has the most influence on cardiovascular fitness is exercise modified with nutritional management. Gymnastics exercises and counseling on nutrition using video lessons are very effective in improving heart-lung fitness for aspiring pilgrims.

Keywords: Tera Gymnastics, Nutritional Management, Cardiovascular Fitness.

1. Introduction

Physical fitness or cardiovascular fitness (VO2Max) is one of the determining factors for the health status of the pilgrims. Heart-lung fitness (VO2Max) is a person's body's ability to do daily work for a relatively long period of time without causing excessive fatigue.

Heart-lung fitness level (VO2 Max) is influenced by two factors, namely controllable and uncontrollable factors. Uncontrollable factors are something that is already present in a person's body and cannot change, such as age, gender, and family / genetic history. Controllable factors are factors that are influenced by the environment and can be changed according to a person's lifestyle, such as obesity (BMI), physical activity, exercise habits, nutritional status, LDL levels, hemoglobin levels, smoking, and resting habits [1]

Physical activity can increase the ability of muscles to generate energy aerobically and change metabolism from carbohydrates to fat [2]. The danger of death is higher in respondents with low physical activity. ($p = 0.0001$). Other research by [3] states that physical exercise has significant benefits in increasing cardiovascular endurance (VO2Max).

Tera exercise according to several studies is very beneficial for the elderly. Research by [4] explains that tera exercise is beneficial for the heart fitness of the elderly. This research is supported by [5] explaining that tera exercise can stimulate the heart to pump blood to meet oxygen needs so that the heart works relaxed, the pulse is normal and blood pressure becomes stable.

Obesity for pilgrims is one of the factors inhibiting heart-lung fitness for pilgrims. This data is supported by research by [6] which explains that there is a relationship between BMI and cardiovascular fitness in 2019 pilgrims in bone bolango district ($P, 0.004$).

According to the Indonesian Nursing Intervention Standards (SIKI PPNI, 2018) explains that therapy to identify and manage balanced nutritional intake can be done with nutritional management. The nutrition management procedure begins with observation, therapeutic action, education, and collaboration with a nutritionist if necessary. This opinion is following [7] explained that improving lifestyle-based patient management, including nutrition, can reduce the risk of cardiovascular disease.

A preliminary study conducted by researchers showed that 63% of the Bone Bolango pilgrims had a higher BMI and did not do physical exercise. Interviews conducted with some of their pilgrims said that because they were busy at work, they did not have time to do physical exercise, it was difficult to regulate and change their diet because it had become a habit. The researcher interviewed the Hajj health workers that every year more than 50% of the haj pilgrims in Bone Bolango Regency were categorized as obese. The results of the measurement of fitness (V02Max) for the Hajj pilgrims in Bone Bolango Regency 2018 are in a good category, amounting to 5 people, 47 people in enough category, 22 people in the poor category, and very less 19 people.

2. Materials and methods

This study used a quasi-experimental design with a pretest-posttest non-equivalent control group design. The instrument used in this study used the Rockpot method which is useful for measuring the heart and lung fitness of the pilgrims before and after being given the exercise and nutrition management intervention using the control group.

3. Results and discussion

The results of data collection on 34 respondents found that the largest age was 23 Respondents (67.6%) age category 45- 59 years, Typesex 22 women (64.7%) and 12 men (35.3%). The education of most respondents was S1 with 16 respondents. Respondents with Positive smoking behavior is 9 people (26.5%) and negative 25 respondents (73.5%). Respondents with excessive BMI category are 29 people and obesity is 5 people.

Table 1. Basic Characteristics of respondents

Basic Characteristics of respondents		n (%)
Age	45- 59	23 (67.6)
	46-55	11 (32.4)
Gender	Male	12 (33.4)
	Female	22 (64.7)
education	SD	5 (14.7)
	Junior High	2 (26.4)
	High school	9 (47.1)
	S1	16 (30.0)
smoke	S2	2 (5.9)
	Positive	9 (26.5)
BMI	Negative	25 (73.5)
	Excess	29 (85.3)
	Obes I	5 (14.7)

Table 2. Results of the analysis of average knowledge and attitudes with the T-Test.

Variable	Mean	SD	SE	P Value	
Vo2Max (Tera exercise)					
Measurement I	1.71	0.686	0.166	0.094	4

Measurement II	7	2.4	0.5	0.1		
Difference	65	0.7	0.9	0.2		
Vo2Max (Calisthenics and Nutrition Management)						
Measurement I	9	1.5	0.6	0.1	0.0	
Measurement II	5	2.6	0.6	0.1		
Difference	59	1.0	0.6	0.1		

Source: PrimaryData, 2019

The results of the t-test analysis of paired samples test showed that the average Vo2Max in the tera exercise group in the first and second measurements was 0.765 with a standard deviation of 0.970 and the statistical test results obtained were 0.005 ($\alpha = 0.05$). The mean difference in the control group was 0.765, SD was 0.970 and SE was 0.235.

In the intervention group combination of exercise and nutrition management, the first and second measurements were 1.059 with a standard deviation of 0.659 and the results of statistical tests were 0.001 ($\alpha = 0.05$). The mean difference in the intervention group was 1.059, SD was 0.6590 and SE was 0.160. So it can be concluded that there is a significant difference between Vo2Max in the exercise group and the combination group of exercise and nutrition management. Vo2max the exercise intervention group and nutritional management were better than the exercise therapy group.

Tera gymnastics is an aerobic sport that has elements of breathwork [8]. Senam Tera Indonesia is a physical and mental exercise, combining the movement of body parts with breathing techniques and rhythm through concentration of thought which is carried out regularly, harmoniously, and continuously. This exercise has the basis of breathing exercises combined with martial arts, which in Indonesia is combined with stretching and joint movements so that exercise is known as a health exercise.

Tera exercise and nutritional management have a significant effect on the heart and lung fitness of the 2019 Hajj pilgrims, the bone bolango health office work area is influenced by several factors, including the age factor of the respondent. The results showed that most of the respondents were in the elderly middle age category (middle-aged 45-59 years old). So that the respondents are still fit enough to participate in tera exercises which have an impact on improving one's fitness. [9] Any additional Age will cause a decrease in the functional capacity of the whole body, $\pm 0.8 - 1\%$ per year so that it harms body fitness.

Another factor that contributes to improved fitness is cholesterol levels. Of the 34 respondents who had high cholesterol values, only 3 respondents (8.8%). Although all respondents have excessive BMI, cholesterol levels are classified as normal. So that the fitness of the prospective pilgrims can be well controlled. This is following research by [10] who found that there was no relationship between central obesity and cholesterol levels, this relationship was significant $p = 0.006$ ($p < 0.005$). Increased levels of cholesterol in the blood are at risk of causing obesity. Obesity will put too heavy a burden on the heart by increasing Low-Density Lipoprotein (LDL) and decreasing High-Density Lipoprotein (HDL). A burden that is too heavy will interfere with heart function, and can even cause heart failure. This can be interpreted as a decrease in cardiorespiratory fitness [11].

The low smoking behavior of the respondents greatly contributes to the effectiveness of exercise therapy and nutritional management. Of the total number of respondents as many as 34 people, 25 respondents do not have a smoking habit and do not have families who smoke at home (73.5%). The research results are in line with research on students of the 2015 UNESA National Health Center which shows that smoking affects heart-lung fitness with a contribution of 20.25%. This relationship is statistically significant with the nature of the relationship that is

inversely proportional, the more cigarettes a student of National Health Center UNESA consumes, the less heart-lung fitness level (VO2Max) [12]. [13] The smoking habit gave a negative contribution of 29.1% to the heart and lung fitness level of the XI grade students of SMA Negeri 1 Pacet. With the strength of the strong relationship and the direction of the negative relationship, it means that by increasing smoking habits, the level of fitness will decrease.

Smoking habits affect cardiovascular endurance. Cigarette smoke contains 4% carbon monoxide (CO) [14]. The binding power or affinity of CO to hemoglobin is 245 times greater than that of oxygen, which means that CO binds to hemoglobin faster than oxygen. Hemoglobin functions to transport oxygen throughout the body, with the presence of CO in hemoglobin will inhibit the process of transporting and spreading oxygen to all body tissues and cells. In people who smoke 10-12 cigarettes a day, their hemoglobin will contain 4.9% CO, so that the oxygen level they circulate will also be reduced by 5%. This is what causes a decrease in a person's heart-lung fitness.

The nicotine content in cigarettes causes defects on the surface of blood vessels, this causes LDL to stick to the walls of blood vessels and make a plaque so that the artery walls are less flexible and narrow, narrowed blood vessels cause less oxygen transport. This mechanism reduces the fitness level of a person's heart and lungs due to damage to oxygen metabolism in the blood. Nicotine stimulates adrenaline production which causes the heart to beat faster and increases blood pressure. The heart endurance of smokers is 7.2% less than nonsmokers. The higher the resting pulse rate means the heart will work harder to pump blood and distribute oxygen throughout the body so that a smoker's body will experience fatigue more quickly during physical activity [15].

The significant improvement in fitness in the exercise and nutrition management intervention group was because respondents were very obedient to the recommendations given during the provision of health education. The health education provided is carried out using the booklet and audio-visual methods. This audiovisual can be played anywhere and anytime. Respondents who do not have a gadget can read directly through the booklet/pocketbook. The provision of health education through audio-visual media to young women about vaginal discharge is significantly proven (P-Value, 0.000, $\alpha = 0.05$) [16].

4. Conclusion

Cardiovascular fitness in the intervention group (exercise and nutritional management) showed an influence with value $p = 0.000$ ($\alpha < 0.05$). Heart-Lung Fitness in the Control group (exercise tera) shows an influence with value $p = 0.005$ ($\alpha < 0.05$). There is a difference in cardiovascular fitness in the control and intervention groups with a mean difference of 1.059 and P-Value 0,000.

5. Suggestion

Nurses can apply calisthenics and nutritional management either directly or audio-visual, which can be done anywhere and monitored through congregational documentation reports via the internet network.

6. Thank-you note

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