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Differences in Physical Fitness Level Students studying Volleyball and Football Industrial Engineering Study Program UPN "Veteran" Yogyakarta

Sumintarsih, Tri Saptono, Hanafi Mustofa
Universitas Pembangunan Nasional "Veteran" Yogyakarta, Indonesia
Email: sumintarsih@upnyk.ac.id, tri.saptono@upnyk.ac.id, Hanafi.mustofa@upnyk.ac.id
Correspondence: sumintarsih@upnyk.ac.id *

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Physical Fitness; Volleyball; Football

ABSTRACT
The objectives of this study are The effect of volleyball on the physical fitness level of UPN "Veteran" Yogyakarta Industrial Engineering study program students, the influence of soccer on the physical fitness level of students of the Industrial Engineering study program UPN "Veteran" Yogyakarta, the difference in the influence of volleyball and soccer on the level of physical fitness of students of the industrial engineering study program UPN "Veteran" Yogyakarta. This research uses an experimental method. The subjects of this study consisted of students of the UPN "Veteran" Yogyakarta industrial engineering study program who took Sports II courses in volleyball and football. The sampling technique is a targeted random sample, with a sample of 25 participants in each group. This research data analysis method uses a t-test. The normality test (Kolmogurov-Smirnov, α = 0.05) and the variance homogeneity test (Levene test, α = 0.05) were used to test the data analysis requirements. The results of the research are as follows: Football has an influence on improving the physical fitness of industrial engineering students at UPN "Veteran" Yogyakarta, with an average pre-test result of 34,748 post-test results of 37,864 students, with an average increase in the number of students of 3,121 cases showing that physical fitness increases through football. 2) Volleyball has an effect on the physical fitness of industrial engineering students UPN "Veteran". Yogyakarta It can be seen from the average score, pre-test results of 27,160, and post-test results of 29,120, the average increased by 1.96. This means that physical strength increases through volleyball. 3) There is a significant difference in influence between volleyball and football, significance at a significance level of 5% of 0.036 and a T-count of -2.152

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1. Introduction

UPN Veteran Yogyakarta is one of the universities that includes sports courses and personality development courses in its lectures. Sports at UPN "Veteran" Yogyakarta include gymnastics, volleyball, basket ball, basketball, and football. Through these different sports, students naturally acquire different levels of physical fitness, therefore, I want to know the difference between sports

and improving physical fitness. Find out which sports are most effective for improving physical fitness.

The purpose of the sports course is for students to know and create simple sports training programs and practice programmed sports regularly outside of lectures. At the lecture meeting, the speaker repeatedly conveyed the importance of exercise for the human body and the benefits of exercise. In sports, the goal is for all students to have good physical fitness (Sumintarsih, 2012).

The purpose of this study is to find out: 1) The effect of volleyball on physical fitness. 2) The sport of football affects physical fitness. 3) Volleyball and soccer have different effects on physical fitness.

The Nature of Physical Fitness

Understanding Physical Wellness: In common, what is implied by physical wellness is physical wellness (physical wellness), specifically the capacity of an individual to do everyday work productively without intemperate weariness so that he can still appreciate his free time(Gustian & Firdaus, 2020).

There are different ways that an individual must get physical wellness, including controlling eat less, specifically by choosing nourishments that contain numerous supplements and, after that, getting sufficient rest. If someone needs rest, it encompasses an exceptionally expansive impact on his mental and physical appearance. Scheduled sports exercises, such as standard workouts, will increase the effectiveness of body capacities. All of it is done with the point of progressing physical fitness(Prakoso & Hartoto, 2015).

Physical wellness, seen from a physiological viewpoint, could be a utilitarian capacity to move forward the quality of life(Fox & Kirby, 1987). Within the setting, wellness implies add up to wellness, whereas physical wellness is one portion of add up to wellness. Concurring to work out physiologists, physical wellness may be a person's capacity to do work with negligible exertion (Mangi & Jokl, 1987, p. 11). Physical wellness also implies the capacity to be able to alter to a debilitating workout and recoup rapidly from that weariness.

According to Djoko Pekik Irianto (1987, p. 2), In common, what is implied by wellness is physical wellness, specifically the capacity of an individual to do day-by-day work proficiently without over-the-top weakness so that he can still appreciate his free time (Arfianto & Sugiyanto, 2020; Csikszentmihalhi, 2020; Sembiring, 2019). Fitness is classified into groups:

a. Static Fitness: the state of a person who is free from disease and disability or called healthy.
b. Dynamic Fitness: the ability of a person to work efficiently that does not require special skills, such as walking, running, jumping, or lifting.
c. Motor fitness: the ability of a person to work efficiently with specific skills. A runner is required to have the right running technique to win the race; a soccer player is required to run fast while dribbling, a volleyball player must be able to jump while twisting his body to smash, and others.

Improve Physical Fitness Through Volleyball

According to Muhammad Muhyi Faruq (2009, p. 21), several fitness components are often found and needed in volleyball games: agility, Balance, Strength, Coordination, Cardiovascular endurance, Flexibility, and Speed.

Physical Fitness Test

According to Sukadiyanto and Dangsina Muluk (2011, p. 85), Multistage tests were first one of the devices utilized for the competitor seed following program in Australia. Based on the study's findings, this test has high legitimacy for measuring a person's capacity to breathe oxygen to the maximum in a certain time.

2. Materials and Methods

Type or Design of Research

This study is an experimental study that uses two treatment groups group I in volleyball and Group II in football. According to Arikunto, p. (2006, p. 3) ”Experiments are always done with the intention of seeing the consequences of a treatment”.

Population and Research Sample

The population of this study was all students of the UPN "Veteran" Yogyakarta Industrial Engineering Study Program who took the Sports II course. The sample used was students of the Industrial Engineering study program who took the UPN "Veteran" Yogyakarta II sports course for students who participated in volleyball and football sports. There are two ways of determining samples, namely random and non-random. Randomly taken sample means that the sample is obtained through a certain procedure where every member of the population has the same opportunity to become a sample (Siswandari, 2009, p. 6).

Validity of Data Analysis Instruments and Techniques

The validity of the *multistage fitness test* has *a validity of* 0.71 and *reliability* of 0.521. Data analysis techniques in research with analytical prerequisite tests consisting of normality tests and homogeneity tests and difference tests. The steps of each data analysis are as follows:

a. Uji normalitas dilakukan menggunakan uji *Kolmogrov Sumirnov.*
b. Uji homogenitas mengunakan uji *lilifort* dengan uji F.
c. Analisis data dalam penelitian ini dilakukan dengan uji perbedaan dengan Uji T.

3. Result and Discussion

Analysis Requirements Testing

1. Normality Test

The normality test was performed using the Kolmogorov-Sumirnov test at a significant level of $\alpha = 0.05$ with $(p > \alpha)$ = Usual. The results of the data normality test conducted in each group are as follows:

Table 1 Normality Test

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Volleyball Pretest	25	27.160	3.9862	23.0	38.0
Volleyball Posttest	25	29.120	4.1162	24.0	40.0
Football Pretest	25	34.748	7.1746	23.6	46.5
Football Posttest	25	37.864	7.3854	25.6	49.6

One-Sample Kolmogorov-Smirnov Test

		Volley ball Pretest	Volley ball Posttest	Football Pretest	Football Posttest
N		25	25	25	25
Normal Parameters[a]	Mean	27.160	29.120	34.748	37.864
	Std. Deviation	3.9862	4.1162	7.1746	7.3854
Most Extreme Differences	Absolute	.196	.232	.129	.149
	Positive	.196	.232	.120	.144
	Negative	-.148	-.118	-.129	-.149
Kolmogorov-Smirnov Z		.980	1.158	.647	.747
Asymp. Sig. (2-tailed)		.292	.137	.797	.633

a. Test distribution is Normal.

2. homogeneity Test

The homogeneity test is intended to test for variance similarity between group 1 and group 2. The homogeneity test uses Levene's Test with F test, if the signification value ($p > 0.05$) means Homogeneous and if the signification value ($p < 0.05$) means not homogeneous. The results of the data homogeneity test between group 1 and group 2 are as follows:

Group 1 Volleyball

Table 2 Group 1 Volleyball homogeneity test

Oneway

Descriptives

VAR00001

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Volleyball Pretest	25	27.160	3.9862	.7972	25.515	28.805	23.0	38.0
Volleyball Posttest	25	29.120	4.1162	.8232	27.421	30.819	24.0	40.0
Total	50	28.140	4.1306	.5842	26.966	29.314	23.0	40.0

Test of Homogeneity of Variances

VAR00001

Levene Statistic	df1	df2	Sig.
.134	1	48	.716

ANOVA

VAR00001

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	48.020	1	48.020	2.925	.094
Within Groups	788.000	48	16.417		
Total	836.020	49			

Group 2 Volleyball

Table 3 Volleyball Group 2 homogeneity test

Oneway

Descriptives

VAR00003

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Football Pretest	25	34.748	7.1746	1.4349	31.786	37.710	23.6	46.5
Football Posttest	25	37.864	7.3854	1.4771	34.815	40.913	25.6	49.6
Total	50	36.306	7.3760	1.0431	34.210	38.402	23.6	49.6

Test of Homogeneity of Variances

VAR00003

Levene Statistic	df1	df2	Sig.
.290	1	48	.593

ANOVA

VAR00003

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	121.368	1	121.368	2.290	.137
Within Groups	2544.460	48	53.010		
Total	2665.828	49			

3. Hypothesis testing

Data analysis in this study was carried out with a difference test. Test T using SPSS 16 program. At the level of significance of 5% can be determined the decision-making criterion to reject Ho if the Signification T < 0.05 or Tcalculate is greater than Ttable. There are several hypotheses that must be tested. The order of testing is adjusted to the sequence of hypotheses formulated in chapter II. The results of data analysis required for hypothesis testing are as follows:

Table 4 Hypothesis testing

Group Statistics

	VAR00007	N	Mean	Std. Deviation	Std. Error Mean
VAR00006	Volleyball	25	1.996	1.5910	.3182
	Football	25	3.116	2.0597	.4119

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
VAR00006	Equal variances assumed	1.426	.238	-2.152	48	.036	-1.1200	.5205	-2.1666	-.0734
	Equal variances not assumed			-2.152	45.121	.037	-1.1200	.5205	-2.1683	-.0717

a. Hypothesis Testing 1

There is an influence of the volleyball branch on improving physical fitness, From the calculation results obtained a pretest mean of 27,160 and a posttest mean of 29,120, thus stating that there is an influence of the football branch on improving physical fitness. This means that there is an increase in physical fitness with volleyball.

b. Hypothesis Testing 2

There is an influence of the soccer branch on improving physical fitness, From the calculation results obtained a pretest mean of 34,748 and a posttest mean of 37,869 thus stating that there is an influence of the volleyball branch on increasing physical fitness. This means that there is an increase in physical fitness with the sport of soccer.

c. Hypothesis Testing 3

Test the significance of the hypothesis that reads Ha: there are differences in the influence of volleyball and soccer on improving physical fitness, and Ho: there are differences in the influence of volleyball and soccer on improving physical fitness. From the calculation results obtained a significance of 0.036 and t_{count} -2.152 thus accepted the hypothesis that states there is a difference in the effect of volleyball and soccer methods on improving physical fitness. This means that there is a difference in the influence of Volleyball and Football on improving physical fitness.

Discussion of Research Results

1. The influence of volleyball on improving physical fitness.

Based on testing the first hypothesis, it turns out that there is an increase in physical fitness with volleyball (Ramirez-Campillo et al., 2021). To achieve a good level of physical fitness, then in the implementation of training an athlete must repeat movements with as much frequency as

possible. The more often or more repeating the movements learned, the more effective and efficient movement automation will occur. Setting practice turns in practice is one of the important factors to improve mastery of skill movements. Therefore, a trainer must be careful and precise in implementing an exercise program. Volleyball is a form of exercise to improve physical fitness.

2. The influence of football on improving physical fitness.

   Based on testing the second hypothesis, it turns out that there is an increase in physical fitness with the branch of football. Football is a form of exercise that uses games to improve physical fitness. Football is a form of game training for the other time to improve physical fitness. The soccer branch at game time on the sidelines of the experiments carried out there is a fun game so that someone will not feel heavy doing activities even though it is not interspersed with breaks when doing the game (Mustofa et al., 2019).

   Football training programs can make lecturers or coaches to specialize more in physical condition training programs through soccer games.

3. The difference in the influence of volleyball and football on improving physical fitness.

   Based on testing the third hypothesis, it turns out that there is a significant difference in influence between volleyball and soccer on improving physical fitness. Football showed a better average score, with a significant difference in average scores. Volleyball and soccer are a means to improve physical fitness (Trajković et al., 2020).

   The use of good sports must refer to the physical condition of the students who will perform. This physical condition became the basis for the development of achievements in the branch he was involved in related to the branch of sports. In this study, students who used volleyball and soccer had the same tendency in terms of physical condition. Every sport has shortcomings or weaknesses. These shortcomings and weaknesses should be adjusted to the physical condition of students. Students who have the opposite condition with a lack of sports can use the branch and will have good results.

4. Conclusion

Based on the results of research in the discussion that has been described, conclusions can be drawn that: There is an influence of volleyball on improving physical fitness. Increased physical fitness increased significantly by using volleyball sports training. There is an influence of the branch of football on improving physical fitness. Physical fitness increases significantly by using soccer sports training. There is a significant difference in the effect of volleyball and soccer on improving physical fitness. Sports training Soccer shows better value compared to volleyball sports training.

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