

THE EFFECT OF MIXED IMPACT AEROBIC GYMNAM ON THE IMPROVEMENT OF PHYSICAL FITNESS FOR HIGH SCHOOL STUDENTS PALEMBANG

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Abstract

This study aims to improve the physical fitness of students at SMAN 18 Palembang. This type of research is included in the experimental research category. The sample in this study were 30 female students at SMAN 18 Palembang. Data obtained through the Indonesian Physical Fitness Test (TKJI) in numerical units. While the data analysis used different test techniques (t-test). The results of data analysis show that Mixed Impact Aerobic exercise has a significant effect on improving the Physical Fitness of students at SMAN 18 Palembang where $t_{count} > t_{table} = 3.58 > 1.699$.

Key Words: Mixed Impact Aerobic Gymnastics, Physical Fitness

INTRODUCTION

Our daily activities require prime body conditions. Generally, the condition of today's society has understood the need for health and maintains it and wants to achieve physical fitness. Exercise is one of the right ways to get and maintain physical fitness to achieve this. So, it is necessary in exercising. Exercise in regular and measured sports from a person can be seen from the condition that he is always in a fresh state, let alone improve health and physical fitness, of course, his body appearance is very ideal. Achieving the ideal body as well as being healthy and fit is needed, which is called moving, one of which is doing aerobic exercise. Aerobic exercise is an aerobic exercise activity that is given in the form of gymnastic movements. Aerobic exercise is important because aerobic exercise can improve the work of the heart, lungs are effective, good blood circulation, so that the person concerned can work continuously without experiencing excessive fatigue (Sumosardjono, 1996), On the other hand, aerobic exercise can also reduce fat and maintain the freshness and fitness of the participants.

The existence of aerobic exercise is expected to improve the work of the heart and lungs, good blood circulation, and can reduce body fat which leads to weight loss. Aerobic exercise is widely practiced by various groups, from school age to old age. One type of exercise, namely mixed impact, is a type of aerobic exercise that is done by gymnastics lovers. The mixed impact aerobic exercise is very popular with the public. This is because the movements are dynamic and varied so that it is not easy to get boredom especially

accompanied by music that the participants enjoy. Currently, there are many schools that implement fitness for their students. The students said that members who took part in mixed impact aerobic exercise mostly wanted to get true fitness, and the rest wanted to get rid of feelings of boredom from daily activities, and even increase interest in learning.

Aerobic exercise comes from two words which have their respective meanings, namely gymnastics and aerobics. According to (Pitnawati, 2004) "Gymnastics is a sport with the aim of increasing joint strength and body beauty." In addition, (Jonni, 2003) explains "Gymnastics is an activity carried out to test the ability of the body to move in relation to the strength and difficulty level which is deliberately selected using oxygen by moving large muscles rhythmically, dynamically, long enough, and quite intensively" . According to (Anggitasari & Hartono, 2017) says that "gymnastics is a physical exercise that is selected, arranged and arranged systematically so that it is useful for improving and improving flexibility, attitude, health, and physical fitness. From some of the above definitions, it can be concluded that aerobic exercise is an exercise that is done to burn fat and improve physical fitness whose movements are accompanied by music. According to (Cristina & Vasilica, 2012) "Gymnastics is characterized by a very wide range of moves, elements and combinations, from the most" simple to some technically very complex and difficult ones ". In essence, gymnastics is a physical activity with the richest movement structure. Gymnastics is also considered a physical activity that is very suitable to be a means of physical education, because it is considered capable of contributing to the development of motor quality and physical quality of children simultaneously. Gymnastics skills are always built on basic locomotor, non-locomotor, and manipulative skills.

Mixed Impact Aerobic is an aerobic exercise movement that is performed in slow motion to fast motion (a combination of low impact and high impact types). According to Joni, 2003, this exercise is a combination of two types of exercise, namely low impact aerobic exercise and high impact aerobic exercise. If you lift your knees you have to really raise them, otherwise you can use jumping movements. According to (Sumosardjono, 1996), one of the advantages of doing mixed impact aerobic exercise is that it is not easy to cause boredom because of the varied movements. Aerobic exercise is carried out with the help of music such as dangdut, disco, funk, pop, rock & roll, rhythm and blues, jazz, latin / salsa, and folk songs. In doing aerobic exercise, music is useful for determining the length of exercise, the tempo of the exercise, adjusting the steps / movements, and providing encouragement / motivation for those who do.

Physical fitness is the condition of a person's body, which has an important role in daily activities or activities. Every individual needs to have an ideal level of physical fitness. It is adjusted to the demands of the tasks and activities in everyday life. "Physical fitness is the ability of a person's body to perform daily work tasks, without causing significant fatigue" (Nurhasan, 2011). Good physical fitness is the basic capital for someone to do physical activity or daily work efficiently for a relatively long time without significant fatigue so that they can still enjoy their spare time. Physical fitness can be obtained through proper, systematic, and moderate physical exercise. According to (Suharto, 1997) "physical fitness is

a measure of the potential of human work ability which plays a very important role in supporting physical performance (including work performance, sports performance, and learning achievement)". Based on this, increasing physical fitness in 18 Palembang students with mixed impact aerobic exercise is very appropriate to improve students' physical fitness.

METHOD

This study uses an experimental type, namely by providing treatment with mixed impact aerobic exercise. The samples studied were as follows:

Table 1. Sample Data

NO	Class	Sampel	Gender	Information
1	XI 1	10 Student	Women	Experiment Class
2	XI 2	10 Student	Women	Experiment Class
3	XI 3	10 Student	Women	Experiment Class
4	XI 4	10 Student	Women	Control Class
5	XI 5	10 Student	Women	Control Class
6	XI 6	10 Student	Women	Control Class
AMOUNT		60 Student		

Source. (SMAN 18 Palembang)

Data Collection Techniques and Tools

. Using the Indonesian Physical Fitness Test (TKJI) in a test kit in the field. This test has been agreed upon and designated as an instrument or test kit that applies throughout Indonesia because TKJI is prepared and adapted to the conditions of Indonesian children. In the implementation of this test, it is divided into four age groups, including children aged 6-9 years, 10-12 years, 13-15 years and 16-19 years. Each age group and sex is a series of tests, each of which consists of five test items that are carried out sequentially. The five test items for each age group based on sex can be described as follows according to the age group to be examined in this study:

Table 2. TKJI Test Items for Age Group 16-19 years

Test Items		16 s/d 19 Th	
		Pa	Pi
1	Sprint	60 m	60 m
2	Hanging Elbow Bend	-	✓
3	Hanging Lift Body	✓	-
4	Sit down	60	60
5	Jump Upright	✓	✓
5	Medium Distance Running	1200 m	1000 m

This test must be carried out sequentially, continuously and without interruption with respect to the speed at which the test item moves to the next test item within 3 minutes. It should be understood that the test items in TKJI are standardized and must not be reversed, with the following order of test implementation:

- First : Run the Sprint
- Second : Hang up the body for the male (pull up) Hang the bent elbow for the woman (hold chinl up)
- Third : Sit Up
- Fourth : Jump Upright (vertical jump)
- Fifth : Medium distance running

Data analysis technique

The data collected from the results of the initial tea and the final tests were statistically analyzed by following the calculation steps as follows:

1. Test for normality using Lilliefors. aims to determine whether the data obtained is normally distributed or not.
2. Homogeneity test of variance, to see whether the data is the same or different.
3. To see the difference between the two methods, the t-test with the formula is used:
- 4.

$$t = \frac{|\bar{X}_1 - \bar{X}_2|}{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{n}}{n(n-1)}}$$

Information :

\bar{X}_1 = Initial test mean

\bar{X}_2 = Final test mean

$\sum D$ = The difference between the scores of the first and second samples

D^2 = Different Cudrat

$\sum D^2$ = Sum of squares of difference

n = Number of samples (Sumber : Hasan, hal:126)

RESULTS AND DISCUSSION

Initial Physical Fitness Test Results before being given treatment with mixed impact aerobic exercise. It was found that those who had physical fitness with a score above the average were 6 people (20%) and a score in the average was only 13 people (43.33%). Meanwhile, the scores below the average were found 11 people (36.67%). Meanwhile, the final physical fitness test results are treated with mixed impact aerobic exercise. Based on data found in students who have physical fitness with scores above the average are 15 people (50%) and who have scores in the average as many as 12 people (40%). While students who have physical fitness for scores below the average are 3 people (10%)

Requirements Analysis

The results of the data normality test on all the variables that have been tested are normally distributed. Based on the observation criteria (L_o) is smaller or equal to L_{table} (L_t), it means that the data is normally distributed, on the contrary, if the observation (L_o) is greater than the L_{table} (L_t) it means that the data is not normally distributed, because each probability variable fulfills the criteria $Observation < L$. as described in the following table:

Table 3. Data normality

Data	N	Lo	Lt	Inf
Initial Test	30	0,093	0,161	Normal
Final Test	30	0,047	0,161	Normal

Furthermore, the homogeneity test is carried out to see whether the research data has the same variance (homogeneous) or not. The results of data analysis obtained data homogeneity as follows:

Table 4. Summary of Homogeneity Testing Results

F count	F result	Inforamation
0,98	3,32	Homogen

The results of the analysis above show that the value of Fcount is 0.98 while the F table uses degrees of freedom (n_1-1), (n_2-1) and with a significance level the probability on each variable is greater than 0.05, so we get F table = 3 , 32 thus means that the research data is homogeneous, this is because $0.98 < 3.32$. so that it can be continued for analysis of hypothesis testing.

Hypothesis test

The hypothesis tested in this study is the effect of aerobic exercise on improving physical fitness, the calculation results show that: Tabel 5. Data Hipotesis

Senam Mixed Impact Aerobic	Mean	t _{count}	α	t _{table}	Test results	Information
Initial Test	11,05	3,58	0,05	1,699	Significant	Ho was rejected

Final Test	17,93					Ha accepted
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Based on the t-test calculation above, we can see that the t-count value is 3.58 while the t-table value with 30 degrees of freedom (n-1) and ($\alpha = 0.05$) is 1.699. Because tcount (3.58) is greater than ttable (1.699), it can be concluded from this comparison that Mixed Impact aerobic exercise has an effect on improving physical fitness of students of SMAN 18 Palembang.

This research was conducted by conducting a preliminary study at SMAN 18 Palembang, based on the researcher's observations of the need to improve the physical fitness of students of SMA 18 Palembang. Increasing fitness can be done by exercising, namely Mixed Impact Aerobic Exercise, which is a combination of two types of low impact and high impact aerobic exercise (Joni, 2003). Mixed Impact Aerobic exercise is a sport that can be done individually or in groups. Mixed Impact Aerobic Gymnastics. Continuous movements when doing exercises need to be considered, namely continuity in the form of a continuous series of motion. This series of movements is obtained from the exercises that have been arranged in the form of a series that is ready to be displayed very well for body fitness and the formation of body parts. Good and appropriate movements in Mixed Impact Aerobic exercise will produce maximum results as expected. This research was conducted in 16 meetings, 30 students in the experimental class and 30 students in the control class. Based on hypothesis testing of the research results in accordance with the proposed hypothesis, it is clear that aerobic exercise has a significant effect on the improvement of physical fitness of students of SMAN 18 Palembang. This exercise is given to students as an application of the TKJI test according to the classification and age level.

CONCLUSION

Mixed Impact Aerobic exercise has effectively had a positive influence on the Improvement of Physical Fitness of Students of SMAN 18 Palembang. by testing the hypothesis, it is found that tcount is greater than ttable where tcount is 3.58 from ttable 1.699. So this exercise is quite appropriate to be used as a support to improve students' physical fitness in school.

REFERENCES

Anggitasari, B. Y., & Hartono, M. (2017). Journal of Physical Education , Sport , Health and Recreations. *Journal of Physical Education, Sport, Health and Recreation*, 6(14). <http://journal.unnes.ac.id/sju/index.php/peshr>

Cristina, M., & Vasilica, G. (2012). Optimization of ball rebound technique in rhythmic gymnastics by means of bi-dimensional analysis. *Procedia - Social and Behavioral Sciences*, 46, 3783–3787. <https://doi.org/10.1016/j.sbspro.2012.06.146>

- Iqbal, Hasan. (2004). *Analisis data penelitian dengan statistic*. Jakarta: PT. Bumi Aksara
- Jonni. 2003. *Senam Aerobik*. Fakultas Ilmu Keolahragaan: UNP.
- Nurhasan. (2011). *Tips Praktis Menjaga Kebugaran Jasmani*. Abil Pustaka.
- Pitnawati. 2004. *Senam Aerobik*. Fakultas Ilmu Keolahragaan: UNP.
- Suharto. (1997). *Potensi Pengembangan Prestasi Pelajar, Olahragawan dan Pegawai Dilihat Dari Segi Kesegaran Jasmani*. Kumpulan Makalah Kepala Pusat Kesegaran Jasmani dan Rekreasi.
- Sumosardjono, Sudoso.1996. *Bugar dan Sehat*. Jakarta: PT Gramedia Pustaka Utama.