

THE EFFECT OF AEROBIC EXERCISE LOW IMPACT AGAINST FUNCTIONAL MOVEMENT IN THE ELDERLY AT POSYANDU LANSIA NGUNDI RAHARJO BOYOLALI

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ABSTRACT

THE EFFECT OF AEROBIC EXERCISE LOW IMPACT AGAINST FUNCTIONAL MOVEMENT IN THE ELDERLY AT POSYANDU LANSIA NGUNDI RAHARJO BOYOLALI

Background: Aerobic Low Impact is a geriatric exercise that takes place without planning and only uses balance exercises that concentrate on certain large muscle groups with light to moderate movement intensity. Benefits This exercise in the elderly will increase the strength of the respiratory muscle pump and muscle strength, which will maintain the skeletal structure of the body. Decreased musculoskeletal function is a common problem that occurs in the elderly, one of which is characterized by decreased joint flexibility. Decreased joint firmness in the elderly reaches 40-50%. Strong muscles and good flexibility are protective for the elderly. Purpose: To find out whether there is an effect of Low Impact Aerobic Exercise on Functional Movement in the elderly. Methods: this type of research is a quantitative research, quasy-experimental (Quasy Experimental) with One Group PreTest PostTest Design with a sample size of 23.

The research instruments used questionnaires, interviews and functional movement measurements using FMS (Functional Movement Screening). The Low Impact Aerobic Exercise Intervention was carried out 2 times a week for 2 weeks with a duration of 25-30 minutes of exercise. Result: the results of the study obtained a significance value of FMS of 0.157 ($p < 0.05$). then H_0 is accepted H_a is rejected so that it can be interpreted that there is no effect of Aerobic Low Impact Gymnastics on Functional Movement in the elderly. Conclusion: There is no effect of Low Impact Aerobic Exercise on Functional Movement in the elderly.)

Keywords: Aerobic Low Impact , Functional Movement, elderly

ABSTRAK

PENGARUH SENAM AEROBIC EXERCISE LOW IMPACT TERHADAP FUNCTIONAL MOVEMENT PADA LANSIA DI POSYANDU LANSIA NGUNDI RAHARJO BOYOLALI

Latar belakang: Senam Aerobic Low Impact merupakan senam geriatrik berlangsung tanpa melompat dan hanya menggunakan latihan keseimbangan yang berkonsentrasi pada kelompok otot besar tertentu dengan intensitas gerakan ringan hingga sedang. Manfaat Latihan ini pada lansia akan meningkatkan kekuatan pompa otot pernapasan dan kekuatan otot, yang akan menjaga struktur rangka tubuhnya. Penurunan fungsi muskuloskeletal adalah masalah umum yang terjadi pada lansia salah satunya ditandai dengan penurunan fleksibilitas sendi. Penurunan fleksibilitas sendi pada lansia mencapai 40-50%. Otot-otot yang kuat dan fleksibilitas yang baik merupakan pelindung bagi lanjut usia. Tujuan: Untuk mengetahui adakah pengaruh dari Senam Aerobic Low Impact terhadap Functional Movement pada lansia. Metode: jenis penelitian ini adalah penelitian kuantitatif, eksperimen semu (Quasy Experimental) dengan One Group PreTest PostTest Design dengan jumlah sampel 23. Instrumen penelitian menggunakan kuesione, wawancara dan pengukuran functional movement dengan menggunakan FMS (Functional Movement Screening). Intervensi senam Aerobic Low Impact dilakukan 2 kali seminggu selama 2 minggu dengan durasi senam 25-30 menit. Hasil: hasil penelitian didapatkan nilai signifikansi FMS sebesar 0.157 ($p < 0.05$). maka H_0 diterima H_a ditolak sehingga dapat disimpulkan bahwa tidak ada pengaruh Senam Aerobic Low Impact terhadap Functional Movement pada lansia. Kesimpulan: Tidak ada pengaruh senam Aerobic Low Impact terhadap Functional Movement pada lansia

Kata kunci: Senam Aerobic Low Impact, Functional Movement, lansia

INTRODUCTION

Indonesia's population is in the ageing population, which is marked by the percentage of the elderly population in 2020 which reached more than 10%. Even from the results of the population projection, by 2045, the elderly of Indonesia are expected to reach almost one-fifth of the entire Indonesian population (BPS, 2021). According to the Central Bureau of Elderly Statistics in Boyolali Regency, in 2022, the prevalence of the elderly aged 55-59 years is 60,807, the age of 60-64 is 51,654, while the age of 65-69 years is 39,978, the age of 70-74 years is 28,547, the age of 75 years and over is 32,558 (BPS, 2022).

Aging is an ongoing process that results in anatomical, physiological, and biochemical changes in the body, which impact the functioning and capacity of the body as a whole. These changes include a decrease in physical health, which is usually characterized by unclear hearing, decreased vision system, and reduced muscle strength, resulting in slow movements, in the body, for someone who is considered elderly (Saladin et al., 2022). Penurunan fungsi muskuloskeletal adalah masalah umum yang terjadi pada lansia salah satunya ditandai dengan penurunan fleksibilitas sendi. Penurunan fleksibilitas sendi pada lansia mencapai 40-50%. Decreased musculoskeletal function is a common problem that occurs in the elderly, one of which is characterized by a decrease in joint flexibility. Decreased joint flexibility in the elderly reaches 40-50%. Strong muscles and good flexibility are protective for the elderly to be able to walk well and have good body balance. In order for the elderly to have high muscle strength and great joint flexibility, the ideal body composition needs to be maintained (Prijo et al, 2018). To maintain physical fitness and prevent the detrimental effects of

activity restrictions, it is very important to increase physical activity in the elderly. The elderly can do elderly gymnastics, stretching, aerobic exercises, and other activities (Hijriana, 2022).

Low-impact Aerobic Exercise, such as Aerobic exercise, is very useful for maintaining and improving the strength of the heart, lungs, blood circulation, muscles, and joints in the elderly (Damayanti and S., 2022). Low Impact Aerobic exercise is geriatric gymnastics that takes place without jumping and only uses balance exercises that concentrate on certain large muscle groups with light to moderate movement intensity (Miasa et al., 2020). Based on the description above, the number of elderly has increased from year to year and the aging process cannot be avoided by all humans so that there is a decrease in Functional Movement so that many daily activities become disrupted. So the author is interested in conducting a study entitled "The Effect of Low Impact Aerobic Exercise on Functional Movement in the Elderly at the Ngudi Raharjo Boyolali Elderly Posyandu."

METHOD

Participant characteristics and research design

This type of research is quantitative research, pseudo-experiment (Quasy Experimental) which aims to determine the Effect of Low Impact Aerobic Exercise with Functional Movement in the Elderly. This study used a Quasi-Experimental research plan with One Group PreTest PostTest Design which means that researchers only use one experimental group without using a control group and sampling is not done randomly or randomly. The effectiveness of the treatment is assessed by comparing the Post Test value with the Pre Test.

Sampling procedures

The sample used in this study amounted to 23 people from the Ngudi Raharjo Boyolali Elderly Posyandu who met the inclusion and exclusion criteria. The sampling technique in this study used Purposive Sampling. Purposive Sampling used is a non-probability sampling technique with several criteria as follows:

- a. Inclusion Criteria
 - 1) Gender: female
 - 2) Seniors aged 50-67 years
 - 3) Still productive
 - 4) Have complaints on the limbs
- b. Exclusion Criteria
 - 1) Pathological abnormalities of the limbs
 - 2) There is an open wound
 - 3) Obesity
 - 4) Osteoarthritis
- c. Dropout Criteria (DO)
 - 1) Respondents with more than 2 absences

Research Instruments

Measuring instruments or instruments in this study for dependent variables using FMS (*Functional Movement Screening*).

Measures and covariates

Data collection in this study is by interviews and observations on respondents. The data collection methods are:

- a. The researcher conducts an initial survey and the biodata is obtained simultaneously with filling in the willingness to be the object of the researcher or respondent.
- b. Preparation of respondent recruitment, selecting respondents who meet the sample criteria.

- c. Comparing the elderly before being given Low Impact Aerobic Exercise Exercise and after being given Low Impact Aerobic Exercise Exercise.

Data analysis

Data Analysis Data Processing in this study uses SPSS program software. Data analysis carried out in the form of:

- a. Normality Test

Data The data normality test aims to find out whether the collected data is normally distributed or not. The data normality test used in this study was the Shapiro Wilk test because the sample was <50 people. This data normality test is said to be normal if the significant value is >0.05, if the significant value is <0.05 then the data can be said to be abnormal..

- b. Influence test

The influence test used in this study is the Willcoxon test because the data is abnormally distributed, which affects if the interpretation value is $p < 0.05$, if $p > 0.05$ it has no effect.

RESULTS AND DISCUSSION

Table 1

Age of Respondents

Age	(n)	(%)
50-60	7	30.4
61-67	16	69.6
Total	23	100.0
Mean	61.2	
Upper limit	50	
Lower limit	67	

Based on table 1 it shows that most of the research respondents were aged 50-60 years with a total of 7 subjects (30.4%) and the rest were aged 61-67 years with a total of 16 subjects (69.6%). Based on the observations of researchers aged 61-67 most often complain about limitations in movement as a result of work activities, it is better at that age to reduce strenuous work activities, this is due to the aging process where all organs of the body experience a decline in function including musculoskeletal function.

This is in line with Prianthara's research (2021) which explains that elderly people aged 60-64 years have a higher risk of suffering from diseases caused by physiological changes that will affect the body's organs. Therefore age is a factor that can affect physical activity.

Table 2

Gender Respondents

Gender	(n)	(%)
Female	23	100.0
Total	23	100.0

Based on table 2 with a total of 23 subjects, it shows that all of the research respondents were female. This is caused by the work they do is too heavy when compared to men, the strength and structure of the body is different.

It was also stated in the study of Yusuf et al, (2020) Women are more at risk of experiencing a decrease in muscle flexibility because as people age they will experience a loss of bone mass in men

by 20-30% and in women by 40-50% this causes Elderly women are more at risk of experiencing limited movement and difficulty in carrying out their activities.

Table 3
Measurement of Functional Movement before Treatment

	N	(%)
15-16	16	69.6
17-18	7	30.4
Total	23	100.0
Mean	16.09	
Upper limit	18	
Upper limit	15	

Based on table 3, it is known that the Functional Movement values were measured using the FMS (Functional Movement Screening) measuring tool before being given the Aerobic Exercise Low Impact treatment, the FMS values were 15-16 with a total of 16 respondents (69.6%) and FMS values were 17-18 with a total of 7 respondents. (30.4%).

Measurement of Functional Movement After Treatment

For the results of the FMS measurement after being given the Aerobic Exercise Low Impact treatment for 2 times a week in 2 weeks, the FMS value was obtained with a total score of 15 totaling 7 respondents (30.4%), for an FMS value with a total of 16 totaling 9 (39.1%), for the FMS value with a total of 17 totaling 3 respondents (13.0%), and for the FMS value with a total of 18 totaling 4 respondents (17.4%).

Table 4
Uji Normalitas

<i>Shapiro-Wilk</i>			
	Statistic	df	Sig.
Skors FMS Pre	0.844	23	0.002
Skors FMS Post	0.838	23	0.002

For the results of the FMS measurement after being given the Aerobic Exercise Low Impact treatment for 2 times a week in 2 weeks, the FMS value was obtained with a total score of 15 totaling 7 respondents (30.4%), for an FMS value with a a total of 16 totaling 9 (39.1%), for the FMS value with a total of 17 totaling 3 respondents (13.0%), and for the FMS value with a total of 18 totaling 4 respondents (17.4%).

Table 5
Uji Pengaruh

Wilcoxon	Mean Rank	Z	Sig.(P)
FMS	1.50	1.414	0.157

Based on table 5 the FMS significance value is 0.157 ($p > 0.05$) so it can be concluded that there is no effect of Aerobic Low Impact Gymnastics on Functional Movement in the elderly.

LIMITATION OF THE STUDY

The research was carried out in accordance with scientific procedures, but there were still some limitations, namely:

1. This research is limited to the variables studied, namely the effect of Low Impact Aerobic Gymnastics which affects the occurrence of Functional Movement in the elderly.
2. Researchers could not control daily activities before and after being given treatment so that the physical condition of the subject before and after treatment was not properly monitored.

CONCLUSIONS AND SUGGESTIONS

Conclusion

The research that the researchers examined had different results from previous research, because there were several differences in the implementation of the research, namely, the number of training programs used by these researchers was different from the number of exercises the researchers carried out. Also, the dose taken by the researcher is also different from the study. The dose that the researchers used was 2 times a week for 2 weeks. Low impact aerobic exercise with a dose of 2 times a week for 2 weeks can gradually increase the production of ATP which is produced by the body's metabolic system, movements in gymnastics will launch the body's metabolic system so that fitness in the body increases. The target of increasing Functional Movement will occur if flexibility in tissues such as joints, muscles and ligaments, this can occur if low impact aerobic exercise is carried out 3 times a week for 8 weeks, slowly, it will increase flexibility in tissues, so that it will reach the target of increasing Functional Movement. The expected movement (Sonhaji, 2023).

Suggestion

1. For Educational Institutions
Can be used as an additional reference and information for students and lecturers regarding the provision of Low Impact Aerobic Gymnastics for Functional Movement in the elderly.
2. For the Community
Can provide information about Aerobic Low Impact Gymnastics on Functional Movement in the elderly.
3. For Further Researchers
Can be used as a guideline and additional information in further research.

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