13 (2) (2024) 357 - 362
Journal of Physical Education, Sport, Health and Recreations
https://journal.unnes.ac.id/journals/peshr

Stepping Into Vitality: How Brisk Walking Elevates Fitness Among the Elderly in Medan City

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Article History

Received June 2024
Accepted June 2024
Published Vol.13 No.(2) 2024

Keywords:
Brisk; Walking; Exercise; Fitness

Abstract

The study conducted at the Guna Budi Bakti Foundation in Medan Labuhan focused on the impact of Brisk Walking Exercise on the fitness level of elderly individuals. With a sample size of 10 participants with an age range of 60 to 72 years. the research employed a pre-test and post-test experimental design over three weeks, with sessions held five times a week. Results indicated a significant improvement in fitness levels post-intervention, with participants transitioning from very poor to good fitness categories. Descriptive analyses and statistical tests confirmed the efficacy of the exercise program. The study underscores the importance of tailored exercise regimens in addressing age-related declines in fitness and promoting overall well-being among the elderly. Brisk walking, being accessible and adaptable, emerges as a practical aerobic activity for this demographic. The findings highlight the need for proactive measures to support healthy aging and emphasize the potential of structured exercise programs in enhancing the quality of life for elderly individuals. Continued efforts to promote physical activity among the elderly are crucial for sustaining their health and vitality in the aging process.

How to Cite

Khani, I. R., Simatupang, N., Harahap, N. S., & Ockta, Y. (2024). Stepping Into Vitality: How Brisk Walking Elevates Fitness Among the Elderly in Medan City. Journal of Physical Education, Sport, Health and Recreation, 13 (2), 357-362.

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p-ISSN 2460-724X
e-ISSN 2252-6773

INTRODUCTION

Health decline in the elderly generally comes from within the body (endogenous) while in adults it comes from outside (Marchetti et al. 2020). This is because in the elderly there has been a decline in the function of various body organs due to damage to cells due to the aging process, so that the production of hormones, enzymes and substances needed by the body is reduced (Guo et al. 2022; Hajam et al. 2022). Age increases or the aging process occurs, physical fitness will decrease (Shou, Chen, and Xiao 2020; Wang et al. 2022). What needs to be considered is how to respond so that the physical fitness of the elderly is maintained, therefore the health and well-being of the elderly need to be maintained.

Fitness is the ability of the circulation and respiration systems to adjust or adjust from strenuous exercise and to restore the effects of the exercise itself (Chinta et al. 2024). One effective treatment to help maintain physical fitness in the elderly requires exercise that refers to the health of the elderly . Healthy exercise is needed to maintain health and fitness every day, and also shows that physical activity helps improve the fitness of elderly people who experience decline (Ockta and Hardiansyah 2023).

Based on the 2012 Susenas, more than half of the elderly (52.12%) experienced a decrease in their fitness level in the last month, and there was no difference in the elderly who experienced a decrease in their fitness level based on gender (men 50.22%; women 53.74%). In general, the health status of the elderly population is still low, which can be seen by the increase in the percentage of the elderly population who experienced a decline in their fitness and health levels from 2005-2012. The morbidity rate for the elderly population in 2012 was 26.93%, meaning that for every 100 elderly people, 27 of them were sick. If we look at developments from 2005-2012, the health status of the elderly population has increased, marked by a decrease in morbidity rates in the elderly. Sports for the elderly must be based on the concept of health sports as stated that the concept of health sports for the elderly includes: Intensive movement, stress-free, short (40 minutes without stopping), mass, and easy and cheap (Neves et al. 2023; ŠTURSOVÁ et al. 2023).

Sports for elderly people must be given by considering several things, including light or moderate loads, relatively long time, aerobic nature, and not competitive (matches) (Cuthbert et al. 2021; Torres-Ronda et al. 2022). Furthermore, based on the observations of researchers at the Guna Budi Bakti Foundation, Medan Labuhan, it was found that the total number of elderly people was 72 people, consisting of 30 men and 42 women. Of the total number of elderly people at the Guna Budi Bakti Foundation Medan Labuhan, the age range was around 60-90 years. After the researchers conducted interviews with several elderly people at the Guna Budi Bakti Foundation in Medan Labuhan, they still felt that they were not fit and healthy, so in the end many of them complained about their health condition to the nurses at that location. Furthermore, the researchers also interviewed medical nurses at the Guna Budi Bakti Medan Labuhan Foundation. From the results of interviews with medical nurses, it was clear that there were several activities held by the foundation to keep them in good condition which would later be useful for maintaining their physical fitness, namely by doing gymnastics every 3 times a week but with this exercise activity there are still many elderly people who do not want to take part in this activity due to their lack of awareness of their own personal health plus the exercise they do is not optimal. So with the results of observations and interviews conducted by researchers, the researchers wanted to see the fitness level of the elderly by providing Brisk Walking Exercise to see the fitness of the elderly at the Guna Budi Bakti Foundation Medan Labuhan.

METHODS

The method used in this research is an experimental method, with a research design using a pre test-post test group design, carried out for 3 weeks with a frequency of 5 times a week. The population in this study is every subject who meets the criteria and characteristics. totaling 73 people with a total sample of 10 people. The sampling technique in this study was purposive sampling, namely based on criteria or characteristics. population that has been previously determined by the researcher, the sample criteria are, aged 60-75 years, male and female, do not smoke, active in carrying out daily activities, able to communicate well and not assisted with walking aids such as sticks, and wheel chair. This research design uses a pre-test and post-test design, where in this design one group of subjects is used, first by taking initial measurements, then providing treatment, then taking final measurements. In a research design that is appropriate to the problem, namely using a pre test and post test one group design.

Table 1. Pre test and post test research design

Pre Test	Treatment	Post Test
Six Minutes Walking Test	Brisk Walking Exercise	Six Minutes Walking Test

The measuring instrument in a study is called a research instrument. (Arikunto, 2017: 192) states that "Research instruments are tools or facilities used by researchers in collecting data. The instrument in this research uses a fitness test, namely using the six minute walking test.

RESULTS AND DISCUSSION

To understand the description of the conditions and variables in this research, descriptive analysis was carried out. Descriptive statistics in this research is basically a form of tabulation that presents accurate data so that it is easy to understand and interpret. Tabulation presents a summary, unification or arrangement of data in the form of a numerical table. Dahlan (2014) The descriptive statistical approach is to provide an overview of data seen from the range, mean, sum and standard deviation.

The results of the tests and measurements carried out are the findings of research carried out within a period of 3 weeks. Data collection was carried out at the Guna Budi Bakti Foundation, Medan Labuhan. The subjects in this study consisted of 10 elderly people, 6 men and 4 women. In this study, subjects were selected using a purposive sampling method, namely based on criteria or characteristics of the population that had been previously determined by the researcher. Next, the 10 elderly people selected as subjects will carry out an initial fitness measurement test using the 6 minute walking test method to determine the elderly's fitness level.

After the initial results of fitness measurements in the elderly were obtained, the research subjects were then given the Brisk Walking Exercise training program for 3 weeks with a frequency of 5 times a week, with a training intensity of 70% - 80%. After being given the Brisk Walking Exercise training program for 3 weeks, measurements were taken Finally, to see the fitness level of the elderly using the same method as the initial measurement, namely using the 6 minute walking test method. From the tests and measurements at the beginning and end of the research, data is obtained from the subjects, which will then be analyzed using the statistical tests below.

Table 2. Pre test results of 6 minute walking test

Code	Age	Pre-Test	Category
S1	62	270	D
S2	68	275	D
S3	61	260	D
S4	60	265	D
S5	60	370	C
S6	72	246	D
S7	71	255	D
S8	63	270	D
S9	62	260	D
S10	69	260	D
SUM		2731	
MEAN		262,5	
SD		33,2	

Of the 10 data, the smallest (minimum) value for the fitness level of the elderly at the Guna Budi Bakti Foundation is 246, and the largest value (maximum) is 370. The average (mean) fitness level of the elderly at Yayasan Guna Budi Bakti is 262.5 with a standard deviation of 33.2. Then if categorized, then 9 elderly people have a very poor fitness level (D) and 1 elderly person has a sufficient fitness level (C).

Table 3. Post test results of 6 minute walking test

Code	Age	Pre-Test	Category
S1	62	420	B
S2	68	460	B
S3	61	385	C
S4	60	375	C
S5	60	435	B
S6	72	320	C
S7	71	410	B
S8	63	420	B
S9	62	440	B
S10	69	460	B
SUM		4125	
AVERAGE		412,5	
MEAN		420	

While the number of data (N) after the experiment amounted to 10, of the 10 data, the smallest value (minimum) for the fitness level of the elderly at the Guna Budi Bakti Foundation was 320, and the largest value (maximum) was 460. The average fitness level (mean) of the elderly at Yayasan Guna Budi Bakti is 420 with a

standard deviation of 40.76. If categorized, 7 elderly people are in the Good category (B) and 3 elderly people are in the sufficient category (C). To more clearly compare between the 2 analyses, it is presented in the **Table 4** below:

Table 4. Comparison

	Age	Pre-Test	Post-Test
Valid	10	10	10
Missing	0	0	0
Mean		273.100	412.500
Std. Deviation		35.047	42.963
Minimum		246.000	320.000
Maximum		370.000	460.000

The results of the **Table 4** show the comparison between pre-test and post-test data on a sample. There were ten valid observations for both tests, meaning no data were missing or incomplete. On average, there was a significant increase from pre-test to post-test. The pre-test average was 273,100, while the post-test average was 412,500. This indicates that there is an improvement from the initial condition to the condition after the intervention or treatment given.

In addition, the standard deviation (std. deviation) reflecting the spread of data also increased from pre-test (35,047) to post-test (42,963), indicating greater variation in post-test results. Meanwhile, the minimum and maximum scores also showed an increase from pre-test to post-test. The minimum pre-test is 246,000 and the maximum is 370,000, while the minimum post-test is 320,000 and the maximum is 460,000. Overall, these results indicate that there was a significant improvement from the initial condition (pre-test) to the final condition (post-test) in the observed sample.

The results showed that the fitness level of the elderly before carrying out the brisk walking exercise training program was 30%, which means the fitness level of the elderly was classified as very bad, then after it was known that the fitness level of the elderly was classified as very bad, they were given a brisk walking exercise exercise program with an intensity of 70% – 80% within 3 weeks with a frequency of exercise 5 times a week, after that measurements were made again to see the fitness level of the elderly after Doing a brisk walking exercise program, then the fitness level of the elderly after doing a sprint training training program showed a significant increase of 70% from before carrying out the brisk walking exercise program. After obtaining the percentage of improvement in elderly fitness before and after carrying out the exercise program, hypothesis testing was carried out using the marginal homogeneity test. In brisk walking with an average speed of 4-6 km / h with an intensity of 70% – 80% can stimulate muscle contractions, increase heart rate capacity, break down glycogen and increase oxygen in tissues, besides that this exercise can also reduce plaque formation through increased fat use and increased glucose use (Ibáñez et al. 2024; New and Borer 2022). Brisk walking exercises work by reducing edge resistance, when muscles contract through physical activity there will be a 30-fold increase in blood flow when contractions are done rhythmically. Dilation of the precapillary sphincter and arterioles leads to a 10-100-fold increase in capillary opening. Dilatation of blood vessels will also result in a decrease in the distance between blood and active cells and the distance traveled for diffusion of O2 and metabolic substances is greatly reduced which can improve cell function due to adequate supply of blood, oxygen and nutrients in cells so that the function of body organs works optimally (Amin et al. 2023).

Physical activity carried out regularly has been proven to improve cardiovascular function and slow down functional loss of the body in the elderly as well as slowing the emergence of metabolic disorders in the aging process (Dunstan et al. 2021). In general, Brisk Walking Exercise is an aerobic physical activity that can reduce risk factors for central obesity such as fatty liver. Apart from maintaining fitness, exercise can also reduce weight and improve insulin sensitivity. This effect mainly occurs on insulin sensitivity in muscles. From research conducted for 3 weeks with a frequency of 5 times a week, it was found that there was an increase in fitness in the elderly at the Guna Budi Bakti Foundation. Of the 10 samples during the pre-test, 1 person had a fitness score in the moderate category, while 9 people had a fitness score in the very poor category. After being given brisk walking exercises to the elderly at the Guna Budi Bakti Foundation for 5 meetings a week for 3 weeks. There was an increase in the fitness value of the elderly at the Guna Budi Bakti Foundation in Medan Labuhan after being given brisk walking exercise to increase fitness as evidenced by several descriptive analysis test results, non-parametric tests using the Wilcoxon test and marginal homogeneity test. The descriptive analysis test is examining the distribution of data based on the results of the pre-test and post-test. Then calculate the pre-test and post-test results to prove the hypothesis testing calculated using a

non-parametric statistical test formula, thus there is a significant effect of brisk walking exercise on increasing fitness in the elderly at the Guna Budi Bakti Foundation, Medan Labuhan.

CONCLUSION

In conclusion, the study conducted at the Guna Budi Bakti Foundation in Medan Labuhan demonstrates the significant impact of Brisk Walking Exercise on improving the fitness level of elderly individuals. The research, utilizing a pre-test and post-test design, revealed a remarkable increase in fitness scores among the participants after a 3-week period of Brisk Walking Exercise, undertaken five times a week. The initial findings indicated that the majority of elderly individuals had very poor fitness levels, yet following the exercise intervention, a substantial improvement was observed, with the majority transitioning to the good fitness category. This underscores the effectiveness of regular aerobic activity, such as brisk walking, in enhancing cardiovascular function, reducing metabolic disorders, and fostering overall well-being among the elderly population.

Moreover, the study emphasizes the importance of tailored exercise programs geared towards maintaining and improving the health of elderly individuals. By incorporating activities like brisk walking, which are low-impact, accessible, and adaptable to various fitness levels, organizations and caregivers can play a pivotal role in promoting the physical well-being of the elderly. These findings underscore the necessity of proactive measures in addressing the health needs of aging populations, highlighting the potential of structured exercise programs in enhancing the quality of life and longevity among elderly individuals. As such, continued efforts to encourage and facilitate regular physical activity among the elderly are essential for promoting healthy aging and mitigating the adverse effects of age-related declines in fitness and health.

REFERENCES

Amin, Dwi Isniarti, Asep Sujana Wahyuri, Roma Irawan, Wilda Welis, Farida Gusni, Dally Rahman, Adri Budiwanto, and Yovhandra Ockta. 2023. "Dietary Adherence and Physical Activity : Unraveling the Threads Impacting Dietary Adherence and Physical Activity : Unraveling the Threads Impacting Blood Pressure in Hypertensive Patients." Jurnal Penelitian Pendidikan IPA 9(December):1363–71. doi: 10.29303/jppipa.v9iSpecialIssue.7388.

Chinta, Ira, Nurul Ihsan, Sri Gustri Handayani, and Yovhandra Ockta. 2024. "The Effect of Aerobic Exercise and Vinyasa Yoga on Body Fat Reduction among Women Gym Members at G Sports Center in Padang City Department Sport Education , Universitas Negeri Padang , Indonesia (Correspondence Author ' s Email , Nurulihsan465@gmail.Com ." Poltekita: Jurnal Ilmu Kesehatan 17(4):1232–38.

Cuthbert, Matthew, G. Gregory Haff, Shawn M. Arent, Nicholas Ripley, John J. McMahon, Martin Evans, and Paul Comfort. 2021. "Effects of Variations in Resistance Training Frequency on Strength Development in Well-Trained Populations and Implications for In-Season Athlete Training: A Systematic Review and Meta-Analysis." Sports Medicine 51(9):1967–82. doi: 10.1007/s40279-021-01460-7.

Dunstan, David W., Shilpa Dogra, Sophie E. Carter, and Neville Owen. 2021. "Sit Less and Move More for Cardiovascular Health: Emerging Insights and Opportunities." Nature Reviews Cardiology 18(9):637–48. doi: 10.1038/s41569-021-00547-y.

Guo, Jun, Xiuqing Huang, Lin Dou, Mingjing Yan, Tao Shen, Weiqing Tang, and Jian Li. 2022. "Aging and Aging-Related Diseases: From Molecular Mechanisms to Interventions and Treatments." Signal Transduction and Targeted Therapy 7(1). doi: 10.1038/s41392-022-01251-0.

Hajam, Younis Ahmad, Raksha Rani, Shahid Yousuf Ganie, Tariq Ahmad Sheikh, Darakhshan Javaid, Syed Sanober Qadri, Sreepoorna Pramodh, Ahmad Alsulimani, Mustfa F. Alkhanani, Steve Harakeh, Arif Hussain, Shafiul Haque, and Mohd Salim Reshi. 2022. "Oxidative Stress in Human Pathology and Aging: Molecular Mechanisms and Perspectives." Cells 11(3). doi: 10.3390/cells11030552.

Ibáñez, Sergio J., Carlos D. Gómez-Carmona, Sergio González-Espinosa, and David Mancha-Triguero. 2024. "Examining the Effects of Altitude on Workload Demands in Professional Basketball Players during the Preseason Phase." Sensors 24(10):1–15. doi: 10.3390/s24103245.

Marchetti, Bianca, Cataldo Tirolo, Francesca L'Episcopo, Salvatore Caniglia, Nunzio Testa, Jayden A. Smith, Stefano Pluchino, and Maria F. Serapide. 2020. "Parkinson's Disease, Aging and Adult Neurogenesis: Wnt/□-Catenin Signalling as the Key to Unlock the Mystery of Endogenous Brain Repair." Aging Cell 19(3):1–41. doi: 10.1111/acel.13101.

Neves, Rafael Santos, Marco Antônio Rabelo da Silva, Mônica A. C. de Rezende, Adriana Caldo-Silva, João Pinheiro, and Amândio M. C. Santos. 2023. "Salivary Markers Responses in the Post-Exercise and Recovery Period: A Systematic Review." Sports 11(7):1–13. doi: 10.3390/sports11070137.

New, Jacquelyn M. L., and Katarina T. Borer. 2022.

"Effects of Walking Speed on Total and Regional Body Fat in Healthy Postmenopausal Women." Nutrients 14(3):1–25. doi: 10.3390/nu14030627.

Ockta, Yovhandra, and Sefri Hardiansyah. 2023. "Tingkat Kebugaran Jasmani Siswa Kelas IX Sekolah Menengah Pertama Negeri 13 Padang Pada Saat Pandemi Covid – 19." 5(6):126–32.

Shou, Jian, Pei Jie Chen, and Wei Hua Xiao. 2020. "Mechanism of Increased Risk of Insulin Resistance in Aging Skeletal Muscle." Diabetology and Metabolic Syndrome 12(1):1–10. doi: 10.1186/s13098-020-0523-x.

ŠTURSOVÁ, Petra, Xenie BUDINSKÁ, Zuzana NOVÁKOVÁ, Petr DOBŠÁK, and Petr BABULA. 2023. "Sports Activities and Cardiovascular System Change." Physiological Research 72:S429–44. doi: 10.33549/physiolres.935238.

Torres-Ronda, Lorena, Emma Beanland, Sarah Whitehead, Alice Sweeting, and Jo Clubb. 2022. "Tracking Systems in Team Sports: A Narrative Review of Applications of the Data and Sport Specific Analysis." Sports Medicine - Open 8(1). doi: 10.1186/s40798-022-00408-z.

Wang, Kang, Huicong Liu, Qinchao Hu, Lingna Wang, Jiaqing Liu, Zikai Zheng, Weiqi Zhang, Jie Ren, Fangfang Zhu, and Guang Hui Liu. 2022. "Epigenetic Regulation of Aging: Implications for Interventions of Aging and Diseases." Signal Transduction and Targeted Therapy 7(1). doi: 10.1038/s41392-022-01211-8.