COMPETITOR:
JURNAL PENDIDIKAN KEPELATIHAN OLAHRAGA
e-ISSN: 2657-0734 & p-ISSN: 2085-5389 || Volume 17, Number 2, 2025 ||P.2073-2079

The Level of Flexibility of the Elderly in the Healthy Heart Gymnastics Community at the Sidoarjo Youth, Sports and Tourism Office

Ach Abid Muzakki[1A-E*], Fatkur Rohman K[2B-D], Ananda Perwira Bakti[3B-D], Noortje Anita Kumaat[4B-D]

[1,2,3,4] Universitas Negeri Surabaya, East Java, Indonesia

achmuzakki.21122@mhs.unesa.ac.id[1], faatkurrohman@unesa.ac.id[2], anandabakti@unesa.ac.id[3], noortjeanita@unesa.ac.id[4]

ABSTRACT

Elderly people experience a decrease in their body's flexibility due to a lack of activities such as gymnastics, which can lead to decreased flexibility. The purpose of this study was to determine the level of flexibility of the elderly in the healthy heart gymnastics community at the Sidoarjo Youth, Sports, and Tourism Office. The sample in this study was 25 elderly people using total sampling. This study used a quantitative descriptive method. Using a chair sit and reach test to measure the flexibility of the elderly. The results showed that 25 elderly people were aged 60-79 years on average, and the results of the chair sit and reach test showed an average of 6.49 ± 4.22. This study concluded that most of the elderly's abilities were elderly, with a total of 19 elderly people having a normal level of flexibility and 6 elderly people having less flexibility.

ARTICLE HISTORY

Received: 2025/06/23
Accepted: 2025/06/28
Published: 2025/06/30

KEYWORDS

Flexibility;
Seniors;
Exercise;
Chair Sit and Reach Test.

AUTHORS' CONTRIBUTION

A. Conception and design of the study;
B. Acquisition of data;
C. Analysis and interpretation of data;
D. Manuscript preparation;
E. Obtaining funding

Cites this Article : Muzakki, Abid Ach; K., Fatkur Rohman; Bakti, Ananda Perwira; Kumaat, Noortje Anita. (2025). The Level of Flexibility of the Elderly in the Healthy Heart Gymnastics Community at the Sidoarjo Youth, Sports and Tourism Office. **Competitor: Jurnal Pendidikan Kepelatihan Olahraga**. 17 (2), p.2073-2079

INTRODUCTION

Elderly individuals are individuals aged 60 and over. At this stage, they experience various physiological and psychological declines. Common physiological changes include disorders of the musculoskeletal, sensory, and neurological systems. Meanwhile, psychological aspects also experience significant changes, such as decreased cognitive function, kinetic ability, and slowed reaction time (Prabowo & Ranti, 2022). Specifically, in the musculoskeletal system, older adults typically exhibit changes in posture, decreased muscle strength and endurance, limited joint movement, and reduced flexibility, all of which impact mobility and quality of life. (Ranti et al., 2021).

The most obvious decline in muscle function in older adults is weakened muscle strength, which results in reduced muscle flexibility. This condition, in turn, affects the

This work is licensed under a Creative Commons Attribution 4.0 International License
Copyright © 2018 by **Author** || Published by **Pendidikan Kepelatihan Olahraga FIK UNM**

ability to maintain postural balance or overall body stability. Muscle flexibility itself is the ability of muscles to stretch maximally, allowing the body to move through an optimal range of motion (ROM) without causing pain or discomfort (Utama, 2018). According to Triansyah & Haetami (2022), when muscles shorten, internal muscle structures such as myofibrils (consisting of actin and myosin), sarcomeres, and fascia lose their extensibility and flexibility. This occurs due to increased overlap of actin and myosin filaments, a reduction in the number of sarcomeres, the formation of abnormal cross-links, and the appearance of band junctions in muscle fibres, which cause the muscles to become shorter and stiffer.

Flexibility plays a crucial role in all age groups, but with age, this ability tends to decline significantly. Decreased flexibility in older individuals occurs due to increased joint stiffness and decreased muscle elasticity, which are natural effects of the ageing process. This condition limits the range of joint motion, making daily activities more difficult. Furthermore, decreased flexibility also contributes to balance disorders, which increase the risk of falls and injury in the elderly (Suparwati et al., 2017). With age, the body's ability to maintain flexibility declines significantly, triggering various physiological changes. Flexibility itself refers to the capacity of muscles, joints, and surrounding ligaments to move freely, comfortably, and actively within their maximum available range of motion. This decline occurs because the elasticity of muscle fibres decreases due to the increase in connective tissue within them, as explained by (Prabowo & Ranti, 2022). The impact of this reduced flexibility is most noticeable in daily activities such as walking, bending, or reaching for objects, which become more difficult and limited. Especially in the joints of the extremities, decreased flexibility can cause significant mobility limitations in older adults, thus affecting their quality of life and independence in carrying out daily activities.

Flexibility can be defined as the body's ability to perform optimal movements within a joint's range of motion without restriction (Prima et al., 2020). Flexibility can help increase joint range of motion, improve postural balance, and aid locomotion. This can significantly reduce the risk of falls, a common concern in this age group. As people age, they often experience a decline in flexibility. This reduction can lead to postural imbalances and movement limitations, making daily activities more challenging. Several factors contribute to decreased flexibility in older adults, including tight muscles, low strain tolerance, and changes in the neuromuscular system. These changes exacerbate a sedentary lifestyle, which is common in older adults. (Greca S, 2022).

Decreased flexibility in older individuals can be evaluated through the use of a measurement instrument known as the Chair Sit and Reach Test. This test can be used to prevent joint mobility limitations in the elderly. The Chair Sit and Reach Test, also known as the Sit and Reach Test, is part of the physical fitness test for the elderly, where this test is used to assess muscle flexibility in the elderly. The Sit and Reach Test is specifically used to detect and measure a person's flexibility using both hands. This is important for evaluating physical fitness and flexibility levels, which can be important for various sports and physical activities (Zhou, Zengxu, (2016). Sit-And-Reach Tester, 2016). Based on the problems described, the researcher is interested in researching the level of flexibility of the elderly in the healthy heart gymnastics community at the Sidoarjo Youth, Sports and Tourism Service.

Ach Abid Muzakki[1A-E], **Fatkur Rohman K**[2B-D], **Ananda Perwira Bakti**[3B-D], **Noortje Anita Kumaat**[4B-D]
achmuzakki.21122@mhs.unesa.ac.id[1],

METHODS

This research employs a quantitative descriptive method. Quantitative descriptive statistical analysis involves the use of statistical techniques to describe, summarize, and analyze quantitative data. Quantitative data refers to data that can be measured or calculated using numerical values, such as age, weight, and so on. Quantitative descriptive research is a type of research that can describe, investigate, and explain an event using data (numbers). Therefore, using a descriptive approach, the aim is to describe or illustrate the level of flexibility of the elderly in the Healthy Heart Gymnastics Community at the Sidoarjo Youth, Sports, and Tourism Office.

In this study, the population included all subjects involved. In the context of this study, the population studied consisted of elderly people aged 60 and over who participated in routine gymnastics activities organized by the Sidoarjo Youth, Sports, and Tourism Office. The total population involved in this study was 25 people.

The following study aimed to measure lower body flexibility, including the trunk and hip joints, using the chair sit and reach test. This was done to determine the level of flexibility in the elderly.

RESULTS AND DISCUSSION

Results

The data obtained by researchers in the following study are the results of a chair sit and reach test to determine the level of flexibility in elderly people aged 60 and over at the Sidoarjo Youth, Sports, and Tourism Office.

This study aimed to determine the flexibility of elderly people at the Sidoarjo Regency Youth, Sports, and Tourism Office, specifically the flexibility of the elderly. The results of the tests and measurements, including the calculation of the average, standard deviation, and frequency distribution, are discussed, and the calculations are explained below.

Data Description Frequency Number of Elderly Age

The results of the research on the frequency data of the number of elderly people at the Sidorjo Youth, Sports and Tourism Service are shown in the following table:

Table 1.

Data Description: Frequency of Number of Elderly Persons

Interval Lansia	Frekuensi	Presentase
60-63 (Lansia Muda)	15	60%
63-67 (Lansia Muda)	3	12%
68-72 (Lansia Muda)	6	24%
73-76 (Lansia Madya)	0	0%
76-79 (Lansia Madya)	1	4%
Total	25	100%
Gender	**Frequency**	**Percentage**
Perempuan	25	100%
Total	25	100%

Based on the results in table 1, it shows that the average age of the majority of elderly people in the Sidoarjo Regency Youth, Sports and Tourism Office is 60-63 years

Ach Abid Muzakki[1A-E], **Fatkur Rohman K**[2B-D], **Ananda Perwira Bakti**[3B-D], **Noortje Anita Kumaat**[4B-D]
achmuzakki.21122@mhs.unesa.ac.id[1],

old on average with a frequency of 15 respondents (60%), elderly people are 64-67 years old on average with a frequency of 3 respondents (12%), elderly people are 68-72 years old on average with a frequency of 6 respondents (24%), elderly people are 73-76 years old on average with a frequency of 0 respondents (0%), and elderly people are 76-79 years old on average with a frequency of 1 respondent (4%).

Chair Sit and Reach Test Category Data

The results of the Chair Sit and Reach Test research on the elderly at the Sidoarjo Youth, Sports and Tourism Service can be seen in the following table:

Table 2.
Chair Sit and Reach Test Results

Name	Age	Test Result (CM)	Category
NK	62	8.5 CM	Normal
LI	62	8.0 CM	Normal
ST	60	10.0 CM	Normal
EN	60	9.0 CM	Normal
AI	69	5.5 CM	Normal
SR	70	-1.5 CM	Kurang
AN	72	-1.0 CM	Kurang
NE	79	-0.5 CM	Kurang
AK	63	9.0 CM	Normal
SO	63	8.5 CM	Normal
AT	62	9.5 CM	Normal
KA	70	-1.4 CM	Kurang
ZU	71	-1.2 CM	Kurang
SD	63	8.0 CM	Normal
SI	61	10.0 CM	Normal
YA	67	8.0 CM	Normal
RO	60	9.5 CM	Normal
MU	63	7.5 CM	Normal
RI	65	6.5 CM	Normal
HA	63	7.0 CM	Normal
SU	72	-1.3 CM	Kurang
ER	60	9.0 CM	Normal
SW	67	7.0 CM	Normal
DY	63	8.5 CM	Normal
CA	60	10.0 CM	Normal

The results of the analysis showed that out of 25 elderly respondents, 19 elderly had a normal level of flexibility and 6 elderly had a low level of flexibility.

Descriptive Statistical Data Based on Age and Chair Sit and Reach Test Results

The results of the study on age and chair sit and reach test results at the Youth, Sports, and Tourism Office are shown in the following table:

Table 3.
Results of the Age and Chair Sit and Reach Test Results

	N	Minumum	Maximum	Mean	Std Deviation
Age	25	60	79	65.08	4.98
Body Mass (Kg)	25	52	69	62.04	4.95
Test Results (CM)	25	-0.5	10.0	6.49	4.22

The results obtained showed that the majority of elderly people in the Sidoarjo Regency Youth, Sports and Tourism Office, totalling 25 people, were on average 60-79 years old, and the results of the chair sit and reach test showed an average of 6.49 ± 4.22.

Ach Abid Muzakki[1A-E], **Fatkur Rohman K**[2B-D], **Ananda Perwira Bakti**[3B-D], **Noortje Anita Kumaat**[4B-D]
achmuzakki.21122@mhs.unesa.ac.id[1],

Discussion

This study found that the majority of 25 elderly respondents at the Sidoarjo Regency Youth, Sports, and Tourism Office had an average age of 60-79 years. This indicates that the sample truly represents the elderly group entering the advanced age category, where this age group typically begins to experience various physical and functional changes due to the natural aging process.

The age range of 60-79 years is also quite broad, encompassing individuals who are just entering young adulthood (60-69 years) and older adults (70-79 years). This is important to consider because physical ability and flexibility can vary significantly within this age range. Elderly individuals in their 70s typically experience a more pronounced decline than those in their early 60s. Therefore, average age alone is insufficient to describe the homogeneity of physical condition within this group (Marlita, 2018).

Body flexibility naturally declines with age due to changes in muscle structure, decreased connective tissue elasticity, and decreased physical activity (Devlin, 2022). Research by McAuley et al. 1989, 2013) shows that older adults who regularly engage in flexibility training programs have a lower risk of injury and a better quality of life than those who are physically inactive.

Flexibility, measured by chair sit and reach, is crucial for maintaining mobility and preventing falls in older adults. The average scores obtained indicate that, despite relatively stable mobility, there is potential for a significant decline in ability for some groups (Prima et al., 2020).

Because these results suggest the need for further interventions, such as exercise programs focused on improving or maintaining flexibility in the elderly, we should consider a structured and regular exercise program to maintain the quality of life of the elderly. Good flexibility is associated with greater independence in daily activities and reduced musculoskeletal pain. An appropriate exercise program for the elderly is stretching at least three times per week for 20-30 minutes each session, focusing on the hamstrings, lower back, and other major muscle groups. Static and dynamic stretching techniques can be combined (Devlin, 2022).

The results of the chair sit and reach test, which measures the flexibility of the hamstrings and lower back muscles, showed an average score of 6.49 with a standard deviation of ±4.22. This score can be generally analyzed, with an average of 6.49 indicating that the elderly tested were generally able to reach a distance of approximately 6.5 cm in the test. In the context of the elderly, this score is considered good, considering that decreased flexibility is very common. The standard deviation is quite large (4.22), and the variation in values is quite wide, which suggests the average must be cautious. There are indications that some individuals may have excellent flexibility, while others are very limited. This indicates the heterogeneity of the physical condition of the elderly.

CONCLUSION

Based on research results, elderly people who regularly participate in healthy heart exercises show relatively good levels of flexibility and increased functional abilities,

especially in muscles that play a role in daily activities such as the hamstrings and lower back. Healthy heart exercises, which combine aerobic exercise with strengthening and stretching movements, are effective in maintaining and improving flexibility and muscle strength in elderly people (Efendi & Sulistyarto, 2024). This condition is consistent with the results of chair sit and reach measurements, which showed an average flexibility of around 6.49 cm, indicating flexibility capabilities that support mobility for elderly people in the community. Individual variations still exist, so that exercise groups can provide good motivation and organization to overcome heterogeneity in physical abilities and maintain consistent participation of elderly people in the exercises (Fitria et al., 2019). Therefore, healthy heart exercises in the elderly community at the Sidoarjo Youth, Sports, and Tourism Office play a significant role as an easy, safe, and affordable exercise program to improve flexibility, physical fitness, and overall quality of life for elderly people. Further recommendations include routine implementation, professional mentoring, and adjustment of the training program to suit each individual's abilities for optimal results (Efendi & Sulistyarto, 2024).

REFERENCES

Devlin, R. K. (2022). American College of Sports Medicine. *Exercise and Physical Activity: From Health Benefits to Fitness Crazes*, 11–12. https://doi.org/10.1249/00005768-198401000-00001

Efendi, I., & Sulistyarto, S. (2024). Motivasi Lansia Dalam Mengikuti Senam Lansia Di Desa Kali Tengah Kecamatan Tanggulangin Kabupaten Sidoarjo Jawa Timur. *Jurnal Kesehatan Olahraga*, *12*, 31–42.

Fitria, N., Lydyana, L., Iskandar, S., Lubis, L., & Purba, A. (2019). Senam Jantung Sehat Seri-I 3 kali seminggu Meningkatkan Kebugaran Jasmani Lansia. *Jurnal Pendidikan Keperawatan Indonesia*, *5*(1), 51–66. https://doi.org/10.17509/jpki.v5i1.15741

Greca S, et al (2022). (2022). *Greca S , Rapali M , Ciaprini G , Et Al . (2022). Acute and Chronic Effects of Supervised Flexibility*. 1–2.

Marlita. (2018). *Marlita et al ., 2018*. 322404.

McAuley et al, 1989.pdf. (2013). 7027930.

Prabowo, E., & Ranti, R. A. (2022). GAMBARAN FLEKSIBILITAS PADA LANJUT USIA (LANSIA) DI PANTI SOSIAL TRESNA WERDHA (PSTW) BUDI MULIA 3 JAKARTA PADA SAAT PANDEMIC COVID-19 Overview of Flexibility in The Elderly at Panti Sosial Tresna Werdha (PSTW) Budi Mulia 3 Jakarta During The Covid-19 Pan. *Jurnal Kesehatan Al-Irsyad*, *15*(2), 143.

Prima, A., Kridasuwarso, B., & Setiakarnawijaya, Y. (2020). Latihan fleksibilitas statis bagi persendian ekstremitas inferior lansia. *Jurnal SPORTIF : Jurnal Penelitian Pembelajaran*, *6*(1), 1–14. https://doi.org/10.29407/js_unpgri.v6i1.13555

Ranti, R. A., Upe, A. A., Muhammadiyah, U., Hamka, P., Muhammadiyah, U., & Hamka, P. (2021). Analisis Hubungan Keseimbangan, Kekuatan Otot, Fleksibilitas Dan Faktor Lain Terhadap Risiko Jatuh Pada Lansia Di PSTW Budi Mulia 4 Jakarta. *Journal of*

Baja Health Science, *1*(1), 84–95. https://ejournal.lppm-unbaja.ac.id/index.php/adkes/article/view/1176/686

Suparwati, K. T. A., Muliarta, I. M., & Irfan, M. (2017). Senam Tai Chi Lebih Efektif Meningkatkan Fleksibilitas dan Keseimbangan Daripada Senam Bugar Lansia Di Kota Denpasar. *Sport and Fitness Journal*, *5*(1), 82–93.

Triansyah, A., & Haetami, M. (2022). The Effect of Heading Games on the Accuracy of Soccer Headings in Club Gastra, Kayong Utara. *Riyadhoh : Jurnal Pendidikan Olahraga*, *1*, 61–67.

Utama, T. (2018). *Monteiro , E . R ., Vigotsky , A . D ., da Silva Novaes , J ., & Š karabot , J . (2018). Acute effects of different anterior thigh self-massage on hip range of motion in trained men. International Journal of*. *13*, 1–2.

Zhou, Zengxu. (2016). Sit - And - Reach Tester. (2016). 3–4.