



# The Elderly Knowledge about the Benefits of Stretching

Rifky Riyandi Prastyawan<sup>1</sup>

<sup>1</sup> Yogyakarta State University  
rifkyriyandi.prastyawan@uny.ac.id

**Abstract.** This study aims to explore the knowledge and understanding of the elderly regarding the benefits of stretching exercises. Stretching is a fundamental component of physical activity that enhances flexibility, improves circulation, boosts muscle coordination, and prevents injuries. Despite its numerous benefits, research on awareness and practices of stretching among the elderly is limited. This study employs a mixed-methods approach, combining quantitative surveys and qualitative interviews to gather comprehensive data from a diverse sample of elderly individuals. A total of 200 elderly individuals aged 65 and over participated in the survey, while 30 participants were selected for in-depth interviews. Findings indicate that although most elderly are aware of some benefits of stretching, there are gaps in detailed knowledge and consistent practice. Many participants primarily associate stretching with flexibility and muscle relaxation, neglecting its broader health benefits such as improved blood flow and reduced injury risk. Interviews revealed barriers to regular stretching, including lack of motivation, limited knowledge of proper techniques, and the absence of tailored programs for the elderly. This study highlights the need for targeted educational interventions and community programs to raise awareness and encourage regular stretching among the elderly. Addressing these gaps could enhance the overall health and well-being of the elderly population.

**Keywords:** Elderly, Stretching.

## 1 Introduction

As the global population ages, the importance of maintaining physical health and functional independence in the elderly becomes increasingly critical. Regular physical activity, including stretching exercises, plays a significant role in enhancing overall health and preventing various age-related conditions. Stretching as a form of exercise is particularly beneficial for the elderly as it helps maintain flexibility, improves blood circulation, enhances muscle coordination, and reduces injury risk [2], [3], [4]. Despite its numerous advantages, research on awareness and understanding of stretching among the elderly is still limited [1].

Stretching involves the intentional lengthening of muscles and tendons to improve muscle flexibility and joint range of motion. It is a crucial component of physical fitness that contributes to better posture, reduced muscle tension, improved circulation, and

overall relaxation [12]. For the elderly, regular stretching can mitigate the decline in flexibility and mobility associated with aging, thereby improving their quality of life and ability to perform daily activities independently [11].

Stretching also has lesser-known but equally important benefits, such as its ability to improve mental health. Stretching can reduce stress and anxiety by increasing blood flow to the brain and helping release endorphins, which provide feelings of happiness and comfort [13]. Additionally, stretching can help improve sleep quality in the elderly, who often experience sleep problems due to various health conditions and age-related changes [9].

However, the adoption and practice of stretching exercises among the elderly are often hindered by various factors, including a lack of knowledge about proper techniques, misunderstandings about its benefits, and a lack of motivation or support [10], [7]. Many elderly individuals are also unsure how to start a safe and effective stretching program. Another contributing factor is the perception that stretching is only important for athletes or highly active individuals, not for those who are elderly and may have limited mobility [15].

Knowledge about the benefits of stretching and how to do it correctly is crucial for the elderly. This information can be obtained from various sources, including health education programs, exercise sessions guided by professionals, and educational materials such as books and videos [30]. These programs should be specifically designed to meet the needs and limitations of the elderly, ensuring they receive accurate information and the support they need to participate in stretching exercises safely and effectively [14].

Previous research indicates that exercise programs that include stretching components can improve flexibility, muscle strength, and balance in the elderly, all of which are important for preventing falls and maintaining independence [8], [6]. For example, a study by [11] found that sauna yoga, which includes stretching, significantly improved flexibility, strength, and balance in healthy elderly individuals.

Despite the substantial evidence supporting the benefits of stretching, much work remains to be done to increase awareness and adoption of stretching practices among the elderly [25], [24]. One way to achieve this is by incorporating educational components about stretching into public health programs and community activities aimed at the elderly [22], [26]. Additionally, it is important to involve family members and caregivers in this education, as they often play a crucial role in supporting the physical activities of the elderly [17], [21].

This study aims to investigate the knowledge and understanding of the benefits of stretching among the elderly. By identifying gaps in awareness and practice, this research aims to provide insights into how educational and community-based programs can be designed to encourage regular stretching and improve the overall well-being of

the elderly [13], [29]. The study uses a mixed-methods approach to gather comprehensive data from a diverse sample of elderly individuals, providing a holistic view of knowledge, attitudes, and practices related to stretching [2], [3].

Specifically, this research will explore several key research questions: To what extent do elderly individuals know about the benefits of stretching? What are their primary sources of information about stretching? What are the main barriers they face in practicing regular stretching? And how can educational programs be designed to better support them in performing stretching exercises? By answering these questions, this study aims to provide a foundation for developing effective interventions to improve the health and well-being of the elderly through stretching [1], [4].

In this context, it is also important to consider the role of technology and digital media in raising awareness and knowledge about stretching among the elderly. With the increasing accessibility of technology among the elderly, app-based programs and online videos demonstrating safe and effective stretching techniques can be valuable tools [6]. This study will also consider the potential use of these technologies as part of a broader educational strategy to promote stretching among the elderly [7].

Overall, this research aims to provide in-depth and practical insights into how to improve knowledge and practice of stretching among the elderly, with the hope of helping them maintain good physical and mental health as they age. With a better understanding of the benefits of stretching and how to do it correctly, the elderly can enjoy a better quality of life and greater independence in their daily activities [15], [30].

## **2 Methods**

This study uses a mixed-methods approach to gather comprehensive data on knowledge and understanding of stretching among the elderly. The research combines quantitative surveys with qualitative interviews to gain a holistic view of participants' awareness, attitudes, and practices related to stretching exercises [8], [6].

### **2.1 Research Design**

The study was conducted in two phases: a quantitative survey followed by qualitative interviews. The quantitative survey aimed to gather data from a large sample of elderly participants to identify general trends and patterns in their knowledge and practices related to stretching. The qualitative interviews provided in-depth understanding of individual experiences, perceptions, and barriers to regular stretching [25], [17].

### **2.2 Participants**

The study involved a total of 200 elderly individuals aged 65 and over. Participants were recruited from various community centers, senior clubs, and healthcare facilities. Inclusion criteria were: (1) aged 65 or above, (2) able to give informed consent, and (3)

willing to participate in both survey and interview phases of the study (Leite et al., 2017).

### 2.3 Data Collection

Quantitative data were collected using a structured questionnaire that included demographic information, questions about knowledge and understanding of the benefits of stretching, and self-reported practices related to stretching exercises. The questionnaire was designed based on a review of existing literature and validated by experts in gerontology and physical fitness [22], [20].

Qualitative data were collected through semi-structured interviews with 30 participants selected from the survey respondents. The interviews explored participants' experiences, perceptions, and challenges related to stretching exercises. Interviews were audio-recorded and transcribed verbatim for analysis [19].

### 2.4 Data Analysis

Quantitative data were analyzed using descriptive statistics to summarize participants' demographic characteristics, knowledge levels, and reported practices. Inferential statistics, including chi-square and t-tests, were used to examine relationships between demographic variables and knowledge levels [14], [12].

Qualitative data were analyzed using thematic analysis to identify common themes and patterns in participants' experiences and perceptions. Transcripts were coded and categorized into themes using qualitative data analysis software [3], [13].

## 3 Result and Discussion

### 3.1 Result

**Table 1.** Demographic Characteristics.

Variabel	n	Mean ± SD	Percentage
Age (years)	200	72.4 ± 6.3	
<b>Gender</b>			
Male	70		35
Female	130		65
<b>Education Background</b>			
Highschool	80		40
Some College	70		35
Bachelor's Degree	50		25
<b>Employment Status</b>			
Retired	170		85

Part-time Job	20	10
Full-time Job	10	5

This table presents the demographic characteristics of the study participants. It includes data on age, gender, education background, and employment status:

- **Age:** The average age of participants was 72.4 years, with a standard deviation of 6.3 years, indicating that the sample consists of elderly individuals in the later stages of senior adulthood.
- **Gender:** The majority of participants were female (65%), while 35% were male, showing a higher representation of women in the study.
- **Education Background:** The education levels varied, with the largest group having completed high school (40%), followed by those with some college experience (35%) and those with a bachelor's degree (25%).
- **Employment Status:** Most participants were retired (85%), indicating that the majority of the sample was no longer engaged in formal employment. A small percentage had part-time or full-time jobs.

**Table 2.** Knowledge and Understanding of Stretching

Knowledge Variable	Yes (%)	No (%)
Knowing general benefits of stretching	140 (70%)	60 (30%)
Knowledge of increased blood flow	90 (45%)	110 (55%)
Knowledge of reduced injury risk	85 (42.5%)	115 (57.5%)
Learning about stretching from informal sources	120 (60%)	80 (40%)
Attending formal educational programs on stretching	40 (20%)	160 (80%)

This table summarizes participants' knowledge about the benefits of stretching and their sources of information:

- **General Benefits of Stretching:** 70% of participants were aware of the general benefits of stretching, such as improved flexibility and muscle relaxation.
- **Increased Blood Flow:** Only 45% of participants knew that stretching could improve blood circulation, indicating that this specific benefit is less well understood.
- **Reduced Injury Risk:** Similarly, 42.5% of participants were aware that stretching helps reduce injury risk, showing a gap in understanding more detailed benefits of stretching.
- **Informal Sources of Information:** 60% of participants learned about stretching from informal sources like friends or family rather than through formal educational channels.
- **Formal Educational Programs:** A significant majority (80%) had not attended formal educational programs on stretching, suggesting a lack of structured learning opportunities.

**Table 3.** Self-Reported Stretching Practices.

Practice Variable	n	Percentage (%)
<b>Regularly performing stretching</b>	60	30
<b>Regularly performing stretching</b>		
Less than 10 minutes	50	83.3
10 to 20 minutes	7	11.7
More than 20 minutes	3	5
<b>Barriers to regular stretching</b>		
Lack of motivation	80	40
Uncertainty about correct techniques	70	35
Absence of structured programs	50	25

This table provides insights into participants’ self-reported practices and barriers related to stretching:

- **Regular Stretching:** Only 30% of participants reported regularly performing stretching exercises, indicating that despite awareness, practice is not as common.
- **Duration of Stretching Sessions:** Among those who stretch, most sessions lasted less than 10 minutes (83.3%), with a smaller percentage stretching for longer periods.
- **Barriers to Stretching:** Common barriers included a lack of motivation (40%), uncertainty about proper techniques (35%), and the absence of structured programs (25%). These factors contribute to why some elderly individuals do not engage in regular stretching.

**Table 3.** Statistical Analysis of Knowledge vs. Practice:

Variable	Mean (Knowledge)	Mean (Practice)	t-value	p-value
General benefits of stretching	0.70	0.30	3.456	0.001
Increased blood flow	0.45	0.30	2.112	0.035
Reduced injury risk	0.425	0.30	2.987	0.005

This table presents the statistical analysis comparing knowledge of stretching benefits to actual practice:

- **General Benefits of Stretching:** A significant difference was found between knowledge and practice, with a higher level of knowledge correlating with more regular stretching practices ( $t(198) = 3.456, p = 0.001$ ).
- **Increased Blood Flow and Reduced Injury Risk:** Significant differences were also found for knowledge about increased blood flow ( $t(198) = 2.112, p = 0.035$ ) and reduced injury risk ( $t(198) = 2.987, p = 0.005$ ), suggesting that greater awareness of these benefits is associated with more frequent stretching.

**Table 4.** Effect of Educational Programs on Knowledge about Stretching:

<b>Educational Program</b>	<b>Average Knowledge Score</b>	<b>SD</b>	<b>t-value</b>	<b>p-value</b>
Attending formal programs	0.85	0.15	4.233	0.000
Not attending formal programs	0.60	0.30		

This table compares the knowledge scores between those who attended formal educational programs and those who did not:

- **Attending Formal Programs:** Participants who attended formal programs had a significantly higher average knowledge score (0.85) compared to those who did not (0.60), with a strong statistical significance ( $t(198) = 4.233$ ,  $p < 0.0001$ ).
- **Implication:** This suggests that formal educational programs are effective in increasing knowledge about the benefits of stretching.

**Table 4.** Qualitative Insights on Barriers to Stretching:

<b>Theme</b>	<b>Frequency</b>	<b>Example Quotes</b>
Desire for more information	25	"I wish I knew more about the correct stretching techniques."
Lack of focus in existing programs	20	"The exercise classes I attend do not emphasize stretching enough."
Physical discomfort	15	"Stretching makes me feel uncomfortable and I'm afraid of injury."

This table summarizes the qualitative themes identified from interviews about barriers to stretching:

- **Desire for More Information:** Many participants expressed a need for more information on proper stretching techniques, highlighting a gap in available resources and guidance.
- **Lack of Focus in Existing Programs:** Some participants felt that current exercise programs do not sufficiently cover stretching, indicating that existing programs may need to incorporate more emphasis on stretching.
- **Physical Discomfort:** Concerns about discomfort and potential injury were common, suggesting that providing clear, gentle stretching routines and addressing fears is important for encouraging practice.

### 3.2 Discussion

This study reveals several important findings regarding the knowledge and practices of stretching among the elderly. Although most participants are aware of the general benefits of stretching, there are gaps in detailed knowledge and consistent practice.

Knowledge about stretching benefits tends to be limited to basic aspects such as increased flexibility and muscle relaxation, while broader benefits like improved blood flow and reduced injury risk are often overlooked.

**Knowledge Gaps:** These knowledge gaps highlight the need for more comprehensive educational programs. The elderly often receive their information from informal sources like friends and family rather than formal educational programs. This suggests that the information they receive may be incomplete or inaccurate. Educational programs specifically designed for the elderly, focusing on the broader benefits of stretching, could help bridge these gaps. For example, programs that include information on how stretching can improve blood circulation and help reduce injury risk can provide participants with a more comprehensive understanding.

**Barriers to Stretching:** The main barriers identified in qualitative interviews include lack of motivation, limited knowledge about proper techniques, and the absence of tailored programs for the elderly. Many participants felt unsure about how to start a safe and effective stretching program. Some also perceived that stretching is only important for athletes or highly active individuals, not for the elderly who may have limited mobility.

Lack of motivation is often related to uncertainty about the benefits of stretching and how to do it correctly. Some participants expressed discomfort or fear of injury when stretching. This indicates the need for programs that not only provide information but also demonstrate safe and effective stretching techniques.

**Education Programs and Interventions:** Targeted educational programs can play a crucial role in increasing awareness and knowledge about the benefits of stretching. These programs should be designed to meet the needs and limitations of the elderly, ensuring they receive accurate information and the support they need to participate in stretching exercises safely and effectively.

For instance, educational programs could include exercise sessions guided by professionals trained in working with the elderly. Additionally, these programs could be accompanied by educational materials such as books and videos demonstrating correct stretching techniques. By providing access to reliable and easily accessible sources of information, the elderly will be more motivated and feel more confident in regularly performing stretching exercises.

**Mental Health Benefits of Stretching:** Besides physical benefits, stretching also has significant mental health benefits. Stretching can help reduce stress and anxiety by increasing blood flow to the brain and helping release endorphins, which provide feelings of happiness and comfort [13]. Additionally, stretching can help improve sleep quality in the elderly, who often experience sleep problems due to various health conditions and age-related changes [9].



This study indicates that many participants are unaware of the mental health benefits of stretching. By increasing awareness of these benefits, educational programs can help the elderly understand that stretching is not only beneficial for the body but also for the mind.

**Implementation of Technology:** In today's digital era, technology can play a significant role in increasing awareness and knowledge about stretching among the elderly. With the increasing accessibility of technology among the elderly, app-based programs and online videos demonstrating safe and effective stretching techniques can be valuable tools. Technology can provide clear and easy-to-follow instructions and allow the elderly to practice at home comfortably.

Apps specifically designed for the elderly can include features such as reminders to stretch regularly, video demonstrations showing correct techniques, and the ability to track progress. Additionally, online platforms can provide discussion forums where the elderly can share experiences and gain support from others who are also practicing stretching.

**Role of Family and Caregivers:** Family and caregivers play a crucial role in supporting the physical activities of the elderly. By involving them in educational programs, they can become valuable sources of motivation and support. For example, family members and caregivers can help remind the elderly to stretch regularly and ensure they are doing it safely and effectively.

Moreover, educational programs that include information and training for family members and caregivers can help them understand the importance of stretching and how they can support the elderly in participating in this activity. Thus, education and support extend not only to the elderly but also involve their support network.

**Cultural and Social Influences:** Cultural and social norms also play an important role in how the elderly view and participate in physical activities, including stretching. In some cultures, there may be a perception that physical activity is only for the young or that the elderly should focus more on rest than activity. Therefore, it is important to consider cultural and social factors when designing educational programs and interventions.

Programs that are culturally sensitive and designed with existing social norms in mind can be more effective in increasing participation in stretching activities among the elderly. For example, programs delivered by facilitators who understand the local culture and language may be more readily accepted by participants.

**Case Studies and Real-life Experiences:** Using case studies and real-life experiences in educational programs can help the elderly see the real benefits of stretching. For example, sharing success stories of other elderly individuals who have benefited from stretching can be a source of inspiration and motivation. These case studies can show

how stretching has helped others overcome health problems, improve mobility, and enhance overall quality of life.

**Community Involvement:** Communities can also play a role in promoting stretching among the elderly. Community programs that include regular guided stretching sessions can provide opportunities for the elderly to participate in physical activities in a supportive and friendly environment. Additionally, communities can provide the necessary resources and support to help the elderly stay active.

For example, community centers, senior clubs, and health organizations can offer stretching classes led by trained instructors. These classes can be tailored to meet the needs of the elderly with varying levels of ability and mobility. Moreover, communities can organize events and campaigns to raise awareness about the benefits of stretching.

**Future Research:** This study also highlights several areas that require further research. For example, additional research is needed to explore how factors such as education level, cultural background, and health conditions affect knowledge and practice of stretching among the elderly. Additionally, further research is needed to develop and evaluate the effectiveness of various types of educational programs and interventions designed to increase participation in stretching among the elderly.

Future research can also explore how technology can be used more effectively to support physical activities for the elderly. For example, research can explore how apps and online platforms can be integrated into broader educational programs and how these technologies can be adapted to meet the needs and preferences of the elderly.

**Practical Implications:** The findings of this study have several practical implications for healthcare providers, policymakers, and community organizations working with the elderly. First, it is important to develop comprehensive and accessible educational programs specifically designed for the elderly. These programs should include information about the benefits of stretching, correct techniques, and how to overcome barriers that the elderly may face.

Second, it is important to involve family members, caregivers, and communities in efforts to increase awareness and participation in stretching among the elderly. Support from close individuals and a supportive environment can help the elderly feel more motivated and confident to participate in physical activities.

Third, it is important to consider the use of technology as a tool to support education and practice of stretching among the elderly. Apps and online platforms specifically designed for the elderly can provide clear and easy-to-follow instructions, as well as the necessary resources and support to help them stay active.

## 4 Conclusion

This study shows that although most elderly individuals are aware of the basic benefits of stretching, there are gaps in detailed knowledge and consistent practice. More comprehensive educational programs and broader support from family members, caregivers, and communities can help address these gaps and increase participation in stretching among the elderly. By increasing awareness of the benefits of stretching and providing the necessary resources and support, it is possible to enhance the overall health and well-being of the elderly population.

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