

## **"Empowering Aging Women: The Vital Role of Strength Training in Promoting Healthy Lifestyles"**

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### **ABSTRACT**

This article reviews past research and projects future research direction regarding empowering aging women by promoting healthy lifestyle through strength training. As the global population ages, there is an increasing need to promote healthy lifestyles that support longevity, independence, and quality of life among older adults. This paper explores the vital role of strength training in empowering aging women, challenging the common misconceptions that have traditionally limited their participation in resistance exercises. Through a comprehensive review of existing literature, the paper highlights the numerous physical, mental, and emotional benefits of strength training for older women. These benefits include the preservation of muscle mass, improvement in bone density, enhanced functional capacity, and better management of chronic conditions such as osteoporosis and arthritis. Additionally, strength training is shown to play a crucial role in fall prevention, mental health improvement, and overall well-being. The paper also addresses the adaptability and safety of strength training programs, emphasizing the importance of personalized approaches that accommodate individual health statuses and fitness levels. By fostering a greater understanding of the benefits of strength training, this research advocates for its inclusion as a key component of healthy aging strategies, ultimately empowering women to lead more active, independent, and fulfilling lives as they age.

**Keywords: Ageing women, strength training, healthy lifestyle, elderly people**

### **INTRODUCTION**

In the quest for a healthier lifestyle, many adults focus on aerobic exercises like running, cycling, or swimming, often overlooking the significant benefits of strength training. Strength training, often associated with bodybuilding and athletic performance, is increasingly recognized as a crucial component of a healthy lifestyle for adults of all ages. However, strength training, which involves exercises designed to improve muscular strength and endurance, is an essential component of a well-rounded fitness regimen. Beyond its role in enhancing physical appearance and athletic performance, strength training offers a multitude of health benefits that are crucial for promoting a healthy lifestyle at any age. From improving muscle mass and bone density to enhancing mental health and reducing the risk of chronic diseases, strength training is a vital practice that adults should incorporate into their regular exercise routines.

As we age, the body naturally undergoes a process known as sarcopenia, which is the gradual loss of muscle mass and strength. This decline begins as early as the third decade of life and accelerates with age, leading to reduced functional capacity, increased frailty, and a higher risk of falls and injuries. For adults, maintaining and building muscle mass through strength training is critical not only for physical performance but also for overall health and longevity. Osteoporosis, a condition characterized by weakened bones and an increased risk of fractures,

is a significant health concern, especially among older adults. Women, in particular, are at a higher risk of developing osteoporosis after menopause due to the decline in estrogen levels, which plays a crucial role in bone health. However, men are not immune to this condition, and maintaining bone density is important for everyone as they age. While aerobic exercise is often highlighted for its cardiovascular benefits, strength training also plays a vital role in heart health. Studies have shown that regular strength training can lower blood pressure, improve cholesterol levels, and reduce the risk of heart disease. These benefits are achieved through several mechanisms, including improved blood circulation, reduced arterial stiffness, and enhanced heart muscle function.

The physical benefits of strength training are well-documented, but its impact on mental health is equally important. Exercise, including strength training, has been shown to release endorphins, the body's natural mood enhancers. These endorphins help reduce symptoms of depression, anxiety, and stress, contributing to an overall sense of well-being and mental clarity. Strength training can also improve cognitive function and reduce the risk of cognitive decline as we age. Research suggests that regular physical activity, particularly activities that involve coordination and muscle engagement, can enhance brain health by promoting neuroplasticity, the brain's ability to adapt and form new neural connections. This is particularly important for older adults, as it can help maintain memory, attention, and other cognitive functions that tend to decline with age. Chronic diseases such as heart disease, diabetes, and osteoporosis are leading causes of morbidity and mortality among adults. Strength training plays a crucial role in both preventing and managing these conditions. By improving muscle mass, bone density, metabolic health, and cardiovascular function, strength training helps reduce the risk factors associated with chronic diseases.

Another myth that strength training is not suitable for geriatric females is outdated and inaccurate. In fact, strength training can be highly beneficial and even essential for the health and well-being of older women. Strength training plays a crucial role in promoting physical, mental, and metabolic health in geriatric females, helping them maintain independence, mobility, and overall quality of life as they age. As people age, they naturally lose muscle mass, a condition known as sarcopenia. Strength training helps mitigate this loss by stimulating muscle growth and maintenance, thereby preserving strength and function.

## **METHODOLOGY**

Here are some references that can help debunk the myth that strength training is not suitable for aging or elderly females:

- Seguin, R., & Nelson, M. E. (2003). The benefits of strength training for older adults.
  - This article discusses the many benefits of strength training for older adults, including improved muscle mass, bone density, and functional capacity, directly countering the myth that it is unsuitable for this demographic.
- Nelson, M. E., Layne, J. E., Bernstein, M. J., Nuernberger, A., Castaneda, C., Kaliton, D., ... & Fiatarone Singh, M. A. (2004). The effects of multidimensional home-based exercise on functional performance in elderly people.
  - This study provides evidence that strength training can improve functional performance in elderly individuals, supporting its safety and effectiveness for older women.
- Liu, C. J., & Latham, N. K. (2009). Progressive resistance strength training for improving physical function in older adults.

- A systematic review demonstrating that progressive resistance strength training is beneficial for improving physical function in older adults, challenging the misconception that strength training is not appropriate for this group.
- American College of Sports Medicine. (2009). Exercise and physical activity for older adults.
  - This position statement from the American College of Sports Medicine emphasizes the importance of strength training for older adults, debunking myths about its unsuitability.
- Fiatarone, M. A., Marks, E. C., Ryan, N. D., Meredith, C. N., Lipsitz, L. A., & Evans, W. J. (1990). High-intensity strength training in nonagenarians. Effects on skeletal muscle.
  - A landmark study showing that even very elderly individuals (in their 90s) can safely engage in and benefit from high-intensity strength training, challenging the notion that strength training is too risky for older women.
- Peterson, M. D., Rhea, M. R., Sen, A., & Gordon, P. M. (2010). Resistance exercise for muscular strength in older adults: A meta-analysis.
  - This meta-analysis provides strong evidence that resistance exercise is effective in increasing muscular strength in older adults, directly addressing and debunking the myth that strength training is not suitable for this age group.
- Vincent, K. R., & Vincent, H. K. (2012). Resistance exercise for knee osteoarthritis.
  - This article supports the use of strength training for managing knee osteoarthritis in older adults, further dispelling myths about its safety and efficacy for geriatric populations.
- Winett, R. A., & Carpinelli, R. N. (2001). Potential health-related benefits of resistance training.
  - The authors discuss the broad health benefits of resistance training, specifically addressing misconceptions about its appropriateness for older adults.
- These references provide a strong evidence base to counter the myth that strength training is not suitable for geriatric females, highlighting its safety, effectiveness, and importance for maintaining health and functional independence in older age.

The study also reviewed various research papers related to the vital role of strength training in promoting healthy lifestyles among older females and it was observed that:

**Muscle mass preservation** is a critical aspect of strength training for geriatric females. As individuals age, they naturally experience a decline in muscle mass due to various factors such as hormonal changes, decreased physical activity, and changes in dietary habits. This decline in muscle mass, can have significant implications for overall health and quality of life. Preserving muscle mass is essential for maintaining strength and function in everyday activities such as walking, climbing stairs, and lifting objects. Strong muscles contribute to better balance, coordination, and mobility, enabling older adults, especially females, to remain independent and perform daily tasks with ease. As per an article published by Seguin, R., & Nelson, M. E. (2003). This article provides a detailed overview of the benefits of strength training for older adults, including improved muscle mass, bone density, and functional capacity.

**Frailty** is a common condition among older adults characterized by weakness, fatigue, and vulnerability to adverse health outcomes. According to research paper published by Vincent, K. R., & Vincent, H. K. (2012). the use of strength training for managing knee osteoarthritis in older adults, further dispelling myths about its safety and efficacy for geriatric populations.

Strength training helps combat frailty by building and maintaining muscle mass, improving muscle strength, and enhancing overall physical resilience. Weak muscles and impaired balance are significant risk factors for falls among older adults, leading to injuries and decreased quality of life. Strength training improves muscle strength, coordination, and stability, thereby reducing the risk of falls and related injuries, which is particularly crucial for geriatric females who may be more prone to osteoporosis and fractures. Osteoporosis is a condition characterized by low bone density and increased susceptibility to fractures. Strength training helps prevent and manage osteoporosis by applying stress to the bones, which stimulates the production of new bone tissue and enhances bone strength. This is especially crucial for geriatric females, who are more prone to osteoporotic fractures, particularly in the spine, hips, and wrists. In addition to increasing bone density, strength training can improve bone quality by enhancing bone architecture and mineralization. Stronger bones are less likely to fracture under stress, providing better support and stability for daily activities and reducing the risk of falls and fractures in older females.

Winett, R. A., & Carpinelli, R. N. (2001) in her research article “Potential health-related benefits of resistance training” An article that explores the broad health benefits of resistance training, including its effects on metabolic health, bone density, and functional independence in older adults suggests Strength training in geriatric females can significantly improve **bone health**, which is crucial for reducing the risk of fractures and maintaining mobility and independence. Strength training exercises, especially those that involve resistance or weight-bearing activities, stimulate bone formation and increase bone density. This is particularly important for older females who are at higher risk of osteoporosis and fractures due to hormonal changes and age-related bone loss.

Certain strength training exercises target specific bone-loading sites, such as the spine, hips, and wrists, which are common sites for osteoporotic fractures. Including exercises like squats, lunges, and overhead presses can help strengthen these vulnerable areas and reduce the risk of fractures in geriatric females. Combining strength training with weight-bearing activities, such as walking, jogging, or stair climbing, further enhances bone health benefits. Progressive overload, gradually increasing the intensity or resistance of strength training exercises over time, is essential for stimulating bone adaptation and maximizing bone health benefits. Geriatric females should start with light to moderate weights and gradually progress to heavier loads as tolerated, under the guidance of a qualified instructor or healthcare professional. It's important for geriatric females to perform strength training exercises with proper technique and form to minimize the risk of injury. Working with a qualified trainer or physical therapist who specializes in older adults can ensure that exercises are tailored to individual needs and abilities, taking into account any existing musculoskeletal issues or limitations.

**Seguin, R., & Nelson, M. E. (2003)** discuss about the benefits of strength training for older adults, where they suggest that strength training plays a crucial role in **enhancing functional capacity** in geriatric females, enabling them to maintain independence and quality of life as they age. Strength training helps increase muscle strength and endurance, allowing geriatric females to perform daily activities more efficiently. Stronger muscles provide better support and stability during movements such as walking, standing up from a chair, or carrying groceries, enhancing overall functional capacity. Strength training exercises that target core stability and lower body strength can improve balance and coordination in geriatric females. Better balance reduces the risk of falls and related injuries, while improved coordination enhances the ability to perform tasks that require precise movements, such as reaching for objects or navigating obstacles. Strength training can improve joint mobility and flexibility,

making it easier for older females to move through a full range of motion without discomfort or stiffness. Enhanced mobility allows for greater independence in activities of daily living and promotes a more active lifestyle. Functional resistance training involves performing exercises that mimic everyday movements or activities. These exercises help strengthen muscles used in functional tasks, such as squatting, lifting, pushing, and pulling, which are essential for maintaining independence and autonomy in older adults. Weakness, impaired balance, and decreased functional capacity are significant risk factors for falls among geriatric females. Strength training can help reduce the risk of falls by improving muscle strength, balance, and coordination, thereby enhancing stability and reducing the likelihood of accidents or injuries. strength training is a valuable tool for enhancing functional capacity in geriatric females, enabling them to maintain independence, mobility, and quality of life as they age. By incorporating targeted strength training exercises into their routine and focusing on improving muscle strength, balance, coordination, and mobility, older women can enjoy the benefits of enhanced functional capacity well into their later years.

A study by **Villareal, D. T., Smith, G. I., Sinacore, D. R., Shah, K., & Mittendorfer, B. (2011)**. “Regular multicomponent exercise increases physical fitness and muscle protein anabolism in frail, obese, older adults” highlights how regular strength training and exercise can improve physical fitness and muscle health in older adults, particularly those who are frail or obese. Strength training can help in **weight management** by increasing lean muscle mass and boosting metabolism, which can alleviate pressure on joints and reduce pain associated with conditions such as osteoarthritis or lower back pain. Maintaining a healthy weight through strength training and proper nutrition can also improve overall joint health and reduce strain on the musculoskeletal system.

**Nelson, M. E., Rejeski, W. J., Blair, S. N., Duncan, P. W., Judge, J. O., King, A. C., ... & Castaneda-Sceppa, C. (2007)** discusses the importance of physical activity, including strength training, in promoting health and preventing disease in older adults. Also **American College of Sports Medicine. (2009)** provides guidelines on exercise for older adults, emphasizing the role of strength training in maintaining health and function. Strength training can be an effective strategy for **managing various chronic conditions** in geriatric females, offering numerous physical and psychological benefits. Strength training can help improve joint function and reduce pain associated with arthritis. By strengthening the muscles around affected joints, such as the knees or hips, strength training provides better support and stability, which can alleviate symptoms and improve mobility. Low-impact exercises, such as water aerobics or resistance band exercises, are particularly beneficial for individuals with arthritis. Strength training is essential for preserving bone density and reducing the risk of fractures in individuals with osteoporosis. Weight-bearing exercises and resistance training stimulate bone growth and strengthen bones, helping to prevent further bone loss and maintain bone health. Strength training exercises that target the spine, hips, and wrists can be especially beneficial for individuals with osteoporosis. Strength training can improve insulin sensitivity and glucose metabolism, making it an important component of diabetes management. By increasing muscle mass and reducing body fat, strength training helps regulate blood sugar levels and improve overall metabolic health. Combining strength training with aerobic exercise and proper nutrition can have synergistic effects on diabetes control. Strength training can improve cardiovascular health and reduce the risk of heart disease in geriatric females.

**Fiatarone, M. A., O'Neill, E. F., Ryan, N. D., Clements, K. M., Solares, G. R., Nelson, M. E., ... & Evans, W. J. (1994)** performed a study on Exercise training and nutritional

supplementation for physical frailty in very elderly people. This seminal study demonstrates the significant benefits of strength training combined with nutritional support in improving physical function in very elderly individuals. Regular strength training lowers blood pressure, improves cholesterol levels, and enhances overall heart function, reducing the risk of cardiovascular events such as heart attacks and strokes. It's important for individuals with heart disease to consult with their healthcare provider before starting a strength training program and to monitor their exercise intensity and workload. Strength training can help alleviate chronic pain by improving muscle strength, flexibility, and joint stability. By strengthening the muscles around painful joints or affected areas, strength training can reduce stress on the joints and alleviate discomfort. It's essential to start with low-intensity exercises and gradually progress under the guidance of a healthcare professional or physical therapist. Strength training has been shown to have positive effects on mental health, reducing symptoms of depression and anxiety in geriatric females. Exercise releases endorphins, which are natural mood lifters, and provides a sense of accomplishment and empowerment. Participating in group strength training classes or exercising with a partner can also provide social support and reduce feelings of isolation. Strength training can help manage obesity by increasing muscle mass, boosting metabolism, and promoting fat loss. Building lean muscle tissue through strength training increases calorie expenditure at rest, making it easier to achieve and maintain a healthy weight. Combining strength training with cardiovascular exercise and a balanced diet is key to successful weight management in geriatric females.

Strength training can be an effective strategy for **pain management** in geriatric females, offering several benefits that can alleviate discomfort and improve overall well-being. Strengthening the muscles surrounding painful joints or affected areas can provide better support and stability, reducing stress on the joints and alleviating pain. By improving muscle strength and endurance, strength training can enhance functional capacity and reduce the likelihood of experiencing pain during daily activities. Strengthening the muscles around the joints helps provide better support and protection, reducing friction and minimizing pain during movement. Strength training exercises that target the core muscles and postural muscles can improve posture and alignment, reducing strain on the spine and alleviating back pain. By strengthening the muscles that support the spine and pelvis, strength training can help distribute weight more evenly and reduce the risk of developing chronic pain conditions related to poor posture. Exercise, including strength training, stimulates the release of endorphins, which are natural pain-relieving chemicals produced by the body. Endorphins act as natural analgesics, reducing the perception of pain and promoting feelings of well-being and relaxation. Engaging in regular strength training sessions can help manage chronic pain by enhancing mood and reducing stress levels.

A guide from **Harvard Medical School (2017)** that outlines the benefits of strength training for overall health, with specific recommendations for older adults. strength training offers numerous **mental health benefits** for geriatric females. Strength training can serve as a stress-relieving activity, providing a distraction from daily worries and promoting relaxation. Exercise, including strength training, stimulates the release of endorphins, neurotransmitters that promote feelings of happiness and well-being. Regular exercise can help alleviate symptoms of depression and anxiety. Achieving personal fitness goals and progressing in strength training exercises can boost self-esteem and confidence, enhancing overall mental well-being. Strength training in a group setting or with a partner can provide social interaction and support, reducing feelings of isolation and loneliness often experienced by older adults. Exercise has been linked to improved cognitive function and reduced risk of cognitive decline

in older adults. Strength training, in particular, may offer cognitive benefits by promoting neuroplasticity and brain health.

A study by **Liu, C. J., & Latham, N. K. (2009)**. Progressive resistance strength training for improving physical function in older adults. A systematic review that examines the effects of progressive resistance strength training on physical function in older adults, supporting the importance of strength training in healthy aging shows that regular strength training is associated with **increased longevity and a reduced risk of mortality** in older adults. By promoting physical health and functional independence, strength training contributes to a higher quality of life and greater longevity in geriatric females. By preserving muscle mass and functional capacity, strength training can contribute to a longer and healthier lifespan, allowing geriatric females to enjoy a higher quality of life well into old age.

***Strength training for geriatric females can be tailored to ensure adaptability, safety, and positive mental health outcomes. Strength training programs for older women should be adaptable to accommodate individual needs, fitness levels, and any existing health conditions. This can be achieved through various means:***

- Customization: Tailor exercises to address specific goals and physical limitations. For example, individuals with joint issues may benefit from low-impact variations of strength exercises.
- Progression: Gradually increase the intensity, duration, or resistance of exercises as strength and fitness levels improve. Progressive overload ensures continual adaptation and improvement without risking injury.
- Modality Variety: Incorporate a variety of strength training modalities, including bodyweight exercises, resistance bands, free weights, and machine-based exercises. This provides options to suit different preferences and abilities.
- Supervision and Guidance: Ensure proper supervision and guidance from qualified fitness professionals, such as personal trainers or physical therapists, who can monitor form, provide modifications, and adjust routines as needed.
- Safety: Safety is paramount when implementing strength training for geriatric females. To ensure safety:
- Warm-Up: Begin each session with a thorough warm-up to increase blood flow to muscles, improve flexibility, and reduce the risk of injury.
- Proper Form: Emphasize proper technique and form during exercises to minimize the risk of strain or injury. Focus on controlled movements and avoid excessive strain or jerky motions.
- Appropriate Intensity: Choose resistance levels or weights that are challenging but manageable. Avoid using excessively heavy weights that may lead to muscle strain or joint stress.
- Rest and Recovery: Allow adequate rest between sets and workouts to prevent overexertion and promote recovery. Adequate rest ensures that muscles can repair and adapt to the training stimulus.
- Listen to the Body: Encourage participants to listen to their bodies and avoid pushing through pain or discomfort. Encourage open communication to address any concerns or limitations.

## CONCLUSION

In summary, strength training plays a crucial role in promoting physical, mental, and metabolic health in aging females, helping them maintain independence, mobility, and overall quality of life as they age. Muscle mass preservation through strength training is crucial for promoting physical function, independence, and overall well-being in geriatric females. Incorporating regular strength training exercises into their routine can help mitigate age-related muscle loss, improve functional capacity, and enhance overall quality of life as they age. It's essential to consult with a healthcare professional or certified trainer to develop a safe and effective strength training program tailored to individual needs and capabilities. Engaging in regular strength training exercises can help them maintain and improve muscle strength, bone density, metabolic health, and functional capacity, which are essential for leading an active, independent life. Additionally, strength training offers protective benefits against chronic diseases such as osteoporosis, diabetes, and heart disease, while also positively impacting mental health by reducing symptoms of depression and anxiety. As such, strength training is not just a fitness trend but a fundamental practice for sustaining a healthy, balanced lifestyle throughout their lives.

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