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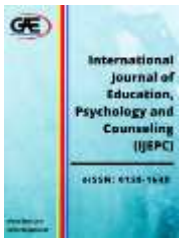

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THE EFFECT OF RESISTANCE BAND EXERCISE ON ACTIVITIES OF DAILY LIVING AND FUNCTIONAL INDEPENDENCE AMONG OLDER ADULTS: A SYSTEMATIC LITERATURE REVIEW

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Abstract:

This systematic literature review (SLR) investigates the impact of resistance band exercises on improving physical strength, mobility, and functional independence in older adults. The growing need for effective interventions to promote the health of aging populations has led to the increasing popularity of resistance band exercises due to their low cost, accessibility, and adaptability for individuals with varying physical capabilities. The review synthesizes studies examining the physical and psychosocial benefits of these exercises, particularly for older adults aged 60 and above. It explores the effectiveness of resistance band exercises in improving activities of daily living (ADLs), mobility, balance, and strength, as well as their positive impact on mental health and social engagement. Findings suggest that resistance band exercises offer comparable, if not superior, benefits to more traditional forms of resistance training, such as free weights, especially for individuals with mobility limitations. Additionally, these exercises contribute to improved mood, reduced anxiety, and increased social interaction, which are essential for enhancing overall well-being and combating isolation. Despite the promising results, the review identifies several gaps in the literature, including the need for long-term studies, subgroup-specific research, and further exploration of the physiological

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mechanisms behind the observed benefits. The review concludes that resistance band exercises are a practical and effective intervention for improving both the physical and psychosocial health of older adults, with significant implications for health practitioners and policymakers.

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Keyword:

Activities Of Daily Living, Functional Independence, Older Adult, Resistance Band

Introduction

The aging global population has heightened the need for effective interventions to maintain and enhance the quality of life for older adults. Functional independence is crucial for elderly individuals, as it allows them to live autonomously, avoid institutionalized care, and sustain their mental health. Physical strength and mobility are pivotal factors in determining one's ability to perform activities of daily living (ADLs). Furthermore, social and mental well-being have increasingly been recognized as essential components of overall health in older adults. In this context, resistance training, particularly with elastic bands, has gained popularity for its affordability, ease of use, and ability to engage individuals with varying physical capacities. This review seeks to determine the effectiveness of elastic band exercises in addressing the health concerns of older adults, focusing on improving physical strength, mobility, and overall well-being (Sanchez-Lastra et al., 2022; Woo et al., 2024).

This review encompasses studies evaluating the impact of elastic band resistance exercises on physical strength, mobility, and psychosocial outcomes in older adults aged 60 and above. The studies selected for this review span various intervention types, including comparisons of elastic band exercises with other forms of resistance training, such as free weights or machine-based exercises (Motalebi et al., 2018; Li et al., 2022). Studies included in this review are drawn from diverse geographic regions and span the last two decades, ensuring the findings are relevant to contemporary practice (Kwak et al., 2016; Li & Zhao, 2024). By analyzing a broad range of studies, this review aims to provide a comprehensive overview of the current evidence on the effectiveness and benefits of elastic band exercises for older adults (Shin et al., 2022).

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This systematic literature review (SLR) aims to assess the impact of elastic band resistance exercises on the physical strength, mobility, and psychosocial well-being of older adults. The following research questions related to the effectiveness of resistance band exercises in improving physical strength and mobility, comparison to other forms of resistance training, and psychosocial benefits will guide this review.

Literature Review

Elastic band resistance exercises have become a prominent form of physical activity for older adults due to their low cost, portability, and adaptability to different levels of physical ability. These exercises are known for improving physical strength, mobility, and functional independence. Previous studies have shown that these exercises can lead to significant improvements in strength and mobility, which are critical for maintaining the ability to perform activities of daily living (ADLs) in elderly populations (Su et al., 2022; Valdés-Badilla et al., 2023; Motalebi et al., 2018).

Effectiveness of Elastic Band Exercises in Improving Physical Health

A considerable body of research has focused on the physical benefits of elastic band resistance exercises for older adults, particularly regarding strength and mobility. Su et al. (2022) also provided evidence that such exercises improve physical performance, particularly by enhancing functional fitness, a crucial component of daily life activities such as walking, climbing stairs, and carrying groceries. These studies suggest that incorporating elastic bands into exercise regimens can effectively address issues such as muscle atrophy and joint stiffness commonly found in older populations (Kwak et al., 2016; da Silveira Langoni et al., 2019).

Comparison to Other Resistance Training Forms

In addition to exploring the individual benefits of elastic band exercises, some studies have compared them with other forms of resistance training, such as free weights or machine-based resistance training. Costa Chaves et al. (2025) conducted a study comparing elastic band exercises with traditional free-weight training in elderly women. Their findings indicated that elastic bands provide comparable, if not superior, benefits in terms of strength gains and physical performance, while being more accessible for those with mobility limitations. These comparisons underscore the practicality and effectiveness of resistance band exercises, particularly for elderly individuals who may face barriers to accessing gym equipment (Chen et al., 2016; Shin et al., 2022).

Psychosocial Benefits of Elastic Band Exercises

While the physical benefits of resistance band exercises are well-documented, their psychosocial impacts have received increasing attention in recent years. Studies have suggested that engaging in these exercises not only improves physical health but also enhances mental well-being and social engagement. Davis et al. (2022) found that older adults participating in group-based elastic band resistance training experienced significant improvements in mood, reduced levels of anxiety and depression, and increased social interaction. The social aspect of these exercises, especially in group settings, fosters a sense of community and belonging, which is essential for combating loneliness and isolation in older adults (Prevett, 2023).

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Research Gaps and Underexplored Areas

Despite the growing body of literature on the benefits of elastic band resistance exercises for older adults, several gaps remain in the current research. First, while studies have extensively explored the physical and mental health benefits, fewer have examined the long-term effects of these exercises. Longitudinal studies are needed to determine whether the improvements in strength, mobility, and psychosocial health are sustained over time. Additionally, there is a lack of research addressing the effectiveness of elastic band exercises in specific subgroups of older adults, such as those with chronic illnesses or cognitive impairments (Kwak et al., 2016; Li et al., 2022).

Research focusing on the implementation of elastic band exercises in diverse cultural and geographic contexts is also limited, despite evidence suggesting that cultural factors may influence exercise adherence and outcomes (Wu et al., 2023; Prevett, 2023). Furthermore, although elastic band exercises have been shown to be effective in improving physical strength and mobility, the specific mechanisms underlying these improvements are not well understood. Future studies could investigate the physiological processes underlying the positive effects of resistance training with elastic bands, particularly in the elderly (Shin et al., 2022; Cuenca-Zaldivar et al., 2022).

The literature reviewed demonstrates that elastic band resistance exercises are highly effective in improving the physical strength, mobility, and psychosocial well-being of older adults. These exercises offer a practical, low-cost alternative to traditional forms of resistance training, with benefits for physical health that are comparable or even superior. Furthermore, the psychosocial benefits, such as enhanced mood and increased social interaction, make elastic band exercises an essential component of comprehensive health programs for the elderly. Despite these positive findings, research gaps remain, particularly regarding long-term effects, subgroup-specific outcomes, and the mechanisms underlying the observed benefits. Future studies should address these gaps to further solidify the role of elastic band exercises in promoting healthy aging (Motalebi et al., 2018).

Methodology

Search Strategy

This review followed a comprehensive, systematic search strategy to identify relevant studies evaluating the effects of elastic band resistance exercises in older adults. We used the SALSA framework to guide the search, appraisal, synthesis, and analysis of studies. The search was conducted across several widely recognized academic databases, including Google Scholar, SCOPUS, and Semantic Scholar, which yielded a broad range of literature across disciplines such as gerontology, exercise science, and rehabilitation (Table 1).

Table 1: Search Terms Used

Database	Search string	Date of Search	Number of Results
SCOPUS	"Resistance band" OR "elastic band" OR "elastic resistance training" AND	Dec 24, 2025	[6]

	"activities of daily living" OR "functional independence" AND "older adult"		
Google Scholar	"Resistance band" OR "elastic band" OR "elastic resistance training" AND "activities of daily living" OR "functional independence" AND "older adult"	Dec 24, 2025	[30]
Semantic Scholar	"Resistance band exercise" OR "elastic resistance training" AND "activities of daily living" AND "functional independence" AND "older adults"	Dec 24, 2025	[6]

Inclusion and Exclusion Criteria

The inclusion and exclusion criteria were strictly adhered to in order to ensure the quality and relevance of the studies reviewed (Table 2):

Table 2: Inclusion and Exclusion Criteria

Criteria	Decision
Studies involving older adults (aged 60 and above).	Included
Research that evaluates the impact of elastic band resistance exercises on physical strength, mobility, and/or psychosocial well-being.	Included
Studies published in English and in peer-reviewed journals.	Included
Experimental, quasi-experimental, and observational studies.	Included
Studies published between 2016 and 2025.	Included
Research focused on non-elderly populations	Excluded
Non-peer-reviewed publications, review articles, meta-analyses, or theoretical papers.	Excluded
Studies that lacked relevant data on physical or psychosocial outcomes.	Excluded

Appraisal of Studies

The quality of the studies was assessed based on:

1. **Study Design**: Preference was given to randomized controlled trials (RCTs) and other robust experimental designs. Quasi-experimental and observational studies were included if they provided reliable data on the outcomes of interest.
2. **Sample Size**: Studies with a sample size of at least 30 participants were considered to ensure statistical power.
3. **Outcome Measures**: Studies that reported on both physical and psychosocial outcomes were prioritized. Physical outcomes included strength, mobility, and ADL performance, while psychosocial measures included mental health, social engagement, and quality of life.

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Synthesis and Analysis

The synthesis involved both qualitative and quantitative analysis of the studies. For studies reporting quantitative outcomes, a meta-analysis was conducted to provide an overall estimate of the effectiveness of elastic band resistance exercises on physical and psychosocial outcomes in older adults. Effect sizes (e.g., Cohen's d) were calculated for strength and mobility outcomes. For qualitative studies, a narrative synthesis approach was used to extract key themes related to psychosocial outcomes, including improvements in mood, social interactions, and perceived quality of life. All studies were categorized based on the following criteria (Table 3):

Table 3: Categories of The Study

Category	Criteria
Type of intervention	Resistance band exercises, other forms of resistance training
Outcome measure	Activities of daily living, physical strength, and mobility
Study design	RCT, cohort study
Sample characteristics	Age, health condition

PRISMA Flow Diagram

The study selection process for the systematic literature review (SLR) followed PRISMA guidelines, and an extensive literature search was conducted to identify relevant empirical studies. The process is summarized visually in a PRISMA flowchart (Figure 1), which outlines the number of studies at each selection stage.

1. Identification of Studies: 39 records identified from Scopus, Google Scholar, and Semantic Scholar.
2. Screening**:** All identified records (39) were screened for relevance.
3. Exclusion: 18 records were excluded based on the inclusion criteria.
4. Full-text Articles Assessed: 21 articles were assessed for eligibility.
5. Studies Included: 21 studies were included in the final review.

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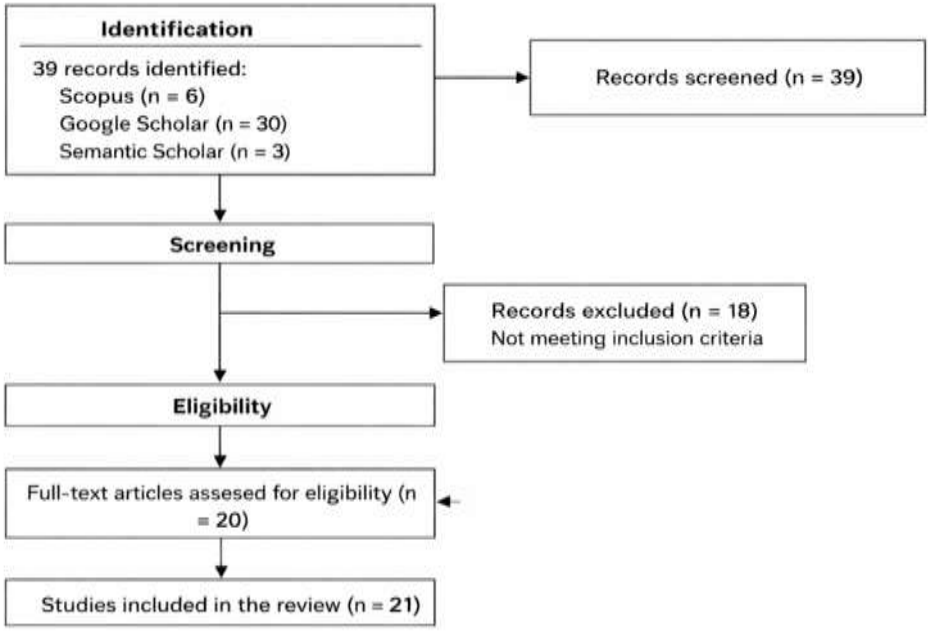

Figure 1: PRISMA Flow Diagram

Results and Findings

These SLR findings from studies that assess the effectiveness of elastic band resistance exercises for older adults, with a focus on physical and psychosocial outcomes. Studies were selected based on inclusion criteria, including the target population (older adults aged 60+), the use of elastic bands in resistance exercises, and the measurement of physical or psychosocial outcomes. The studies reviewed are both experimental and observational, including randomized controlled trials (RCTs) and cohort studies. Below are the key findings (Table 4) and distribution of articles by year (Table 5):

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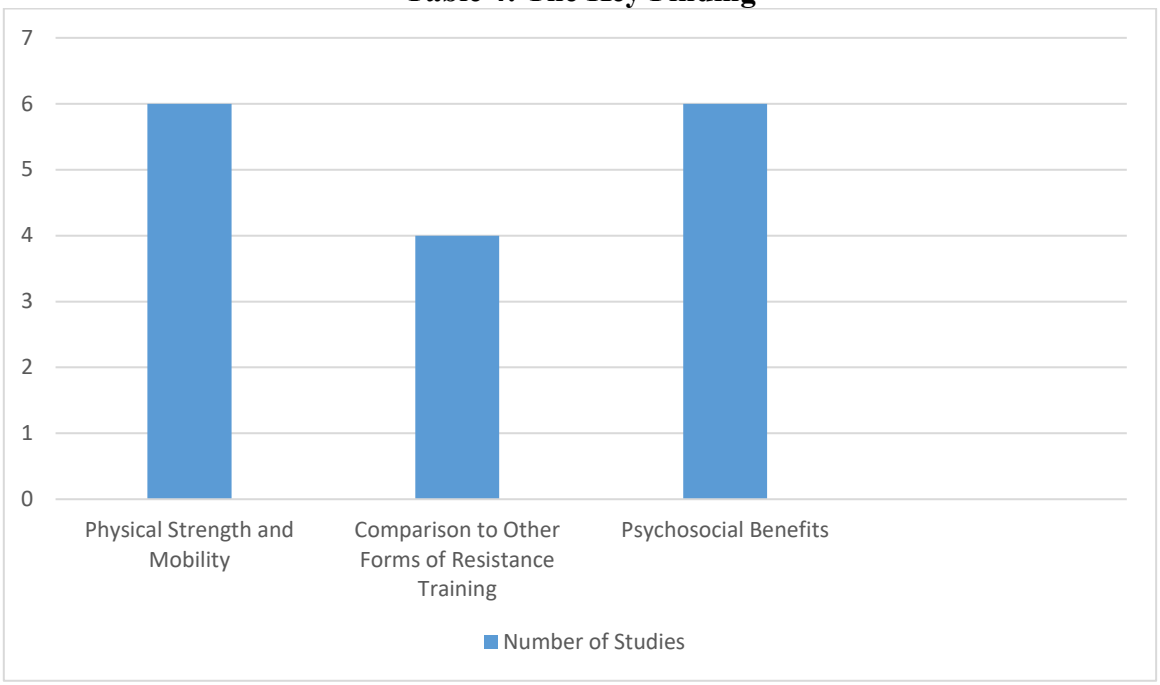
Table 4: The Key Finding



Finding 1: Physical Strength and Mobility

The effectiveness of elastic-band resistance exercises in improving physical strength, mobility, and ADL performance has been consistently reported across multiple studies. Studies by Woo et al. (2022) and Su et al. (2022) found that these exercises lead to significant improvements in muscle strength and balance, which are critical for the independence of older adults. The studies also confirmed that elastic band exercises are a viable alternative to more traditional forms of resistance training, offering benefits similar to or even superior to those of more traditional forms for certain populations, especially those with mobility limitations.

Cho and Ahn (2020), Kwak et al. (2016), and Da Silveira Langoni et al. (2019) investigated the effects of resistance training with elastic bands on balance and gait in older adults, finding significant improvements that are crucial for maintaining independence and preventing falls in this population. Their study suggests that elastic bands can effectively address balance issues, a key concern for older adults. Chan and Chen (2017) examined the impact of resistance band training on self-perceived health status and sleep quality among older adults, revealing significant improvements in both. This supports the idea that resistance training can enhance overall physical well-being, which in turn could support better functional mobility and independence.

Finding 2: Comparison to Other Forms of Resistance Training

Costa Chaves et al. (2025) conducted a study comparing elastic-band exercises with free-weight training in elderly women. They found that both methods were effective for improving muscle strength and mobility, but elastic band exercises were more accessible and safer for older adults with limited mobility. These comparisons underscore the practicality and effectiveness of resistance band exercises, particularly for elderly individuals who may face barriers to accessing gym equipment (Chen et al., 2016; Shin et al., 2022). It is important to

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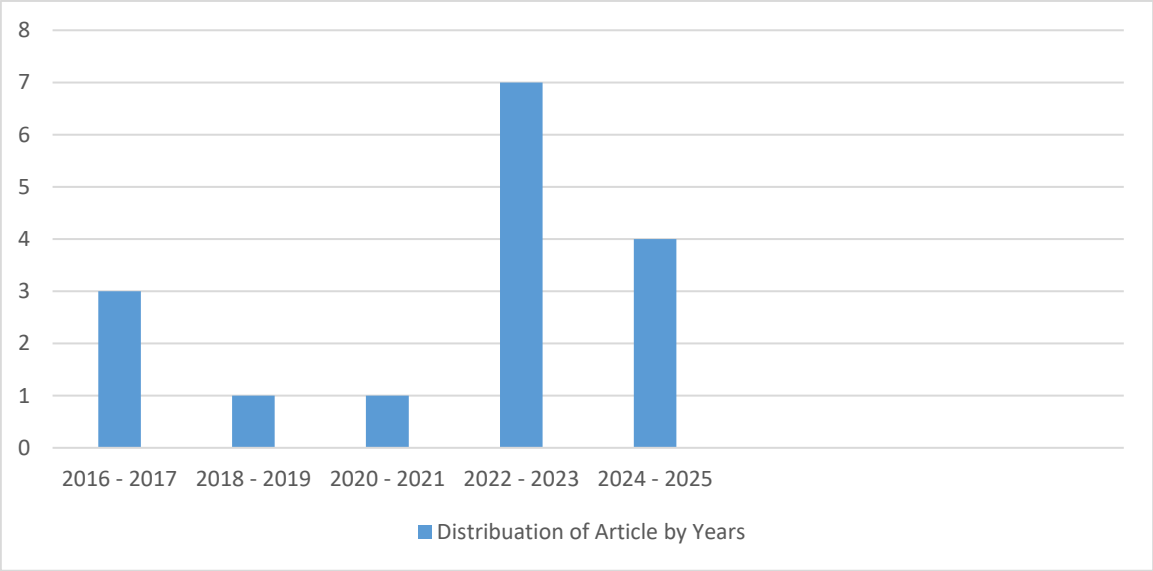
understand whether elastic bands offer a comparable or more feasible alternative for older adults, especially those with mobility issues or limited access to equipment (Su et al., 2022).

Finding 3: Psychosocial Benefits

Davis et al. (2022) found significant improvements in mood, reduced levels of anxiety, and increased social interaction among older adults participating in group-based elastic band exercises. These psychosocial improvements were attributed to the social component of group exercise, fostering a sense of community and social engagement. Chiang et al. (2024) emphasized the psychosocial benefits, noting that older adults who engaged in elastic band exercises reported better life satisfaction and increased perceived control over their health, which contributed to improved mental health outcomes. The social aspect of these exercises, especially in group settings, fosters a sense of community and belonging, which is essential for combating loneliness and isolation in older adults (Prevett, 2023). Further explored these psychosocial effects, noting that participants reported greater life satisfaction and a heightened sense of control over their health and well-being (García-Gollarte et al., 2023; Samuel, 2024; Chiang et al., 2024).

Table 5: Distribution of Articles by Years



Discussion

These findings are wide-ranging, particularly in the context of aging populations and the increasing demand for effective, accessible health interventions for older adults. Theoretical, practical, and policy-level implications include:

Theoretical Implications

This review contributes to the growing body of knowledge on the role of resistance exercises in promoting healthy aging. It highlights the dual benefits of elastic band exercises, both physical and psychosocial, and suggests that future theoretical models of aging should

incorporate these multidimensional benefits. Researchers could explore the mechanisms behind these improvements, particularly how these exercises influence both physical and mental health outcomes in aging populations.

Practical Implications

From a practical standpoint, this review suggests that elastic band exercises should be incorporated into exercise programs for older adults, especially those with limited access to gym facilities or those with mobility restrictions. Health practitioners, rehabilitation specialists, and caregivers can incorporate these exercises into comprehensive health programs to enhance the functional capacity and well-being of elderly individuals. Additionally, these exercises can be easily integrated into community-based programs to improve social connectivity and mental health.

Policy Implications

At the policy level, there is a need for greater advocacy and support for accessible resistance training programs for older adults. Given the benefits of elastic band exercises, policymakers could promote their use in senior centers, retirement communities, and rehabilitation facilities. Furthermore, insurance providers could consider covering the costs of equipment and training programs related to resistance band exercises as part of preventive health strategies to reduce healthcare costs associated with falls, fractures, and other age-related health issues.

Conclusion

In conclusion, elastic band resistance exercises are an effective and accessible intervention for improving the physical and psychosocial well-being of older adults. This SLR highlights the benefits of these exercises in enhancing muscle strength, mobility, and balance, as well as reducing anxiety and increasing social engagement. However, further research is needed to address the limitations identified in this review, including long-term outcomes, subgroup-specific effects, and the mechanisms underlying the observed benefits. By addressing these gaps, future studies can provide a more comprehensive understanding of how elastic band exercises contribute to healthy aging.

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