SKIBICKA, Katarzyna, JAŚNIAK, Albert, WESOŁOWSKA, Weronika and PIETRZAK, Jarosław. Therapeutic and Functional Effects of Pilates: Evidence from Current Literature. Journal of Education, Health and Sport. 2025;81:65426. eISSN 2391-8306.
https://doi.org/10.12775/JEHS.2025.81.65426
https://apcz.umk.pl/JEHS/article/view/65426

The journal has had 40 points in Minister of Science and Higher Education of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of 05.01.2024 No. 32318. Has a Journal's Unique Identifier: 201159. Scientific disciplines assigned: Physical culture sciences (Field of medical and health sciences); Health Sciences (Field of medical and health sciences).
Punkty Ministerialne 40 punktów. Załącznik do komunikatu Ministra Nauki i Szkolnictwa Wyższego z dnia 05.01.2024 Lp. 32318. Posiada Unikatowy Identyfikator Czasopisma: 201159. Przypisane dyscypliny naukowe: Nauki o kulturze fizycznej (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki o zdrowiu (Dziedzina nauk medycznych i nauk o zdrowiu).
The authors declare that there is no conflict of interests regarding the publication of this paper.
Received: 18.08.2025. Revised: 30.08.2025. Accepted: 15.09.2025. Published: 21.09.2025.

Therapeutic and Functional Effects of Pilates: Evidence from Current Literature

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Abstract

Background: Pilates is increasingly recognized not only as a fitness practice but also as a therapeutic intervention, enhancing flexibility, muscle strength, posture, and overall physical performance. Previous studies suggest its beneficial effects in individuals with musculoskeletal disorders, neurological conditions, chronic pain, and mental health challenges.

Objective: To systematically review the therapeutic and functional effects of Pilates across various populations and assess the quality of the available evidence.

Methods: A systematic literature review was conducted using PubMed, Google Scholar, and Embase from 2015 to 2025. Clinical, randomized, and observational studies on Pilates interventions in adults and older adults were included. Study selection followed predefined inclusion and exclusion criteria, and the quality of evidence was evaluated using the GRADE system. A total of 42 studies were included.

Results: Pilates demonstrated positive effects on musculoskeletal function, neurological rehabilitation, mental health, physical fitness, and injury prevention. Among pregnant women and older adults, improvements in quality of life and reduction of pain were reported. The overall quality of evidence was moderate, and study heterogeneity highlights the need for further high-quality research.

Conclusions: Pilates is a versatile, low-impact intervention that supports physical and mental health. It is recommended for integration into rehabilitation programs and injury prevention strategies, with consideration of individual patient needs.

Keywords (EN): Pilates; Therapeutic benefits; Rehabilitation; Core strength; Flexibility; Posture; Body awareness; Low-impact exercise; Pregnancy

Słowa kluczowe (PL): Pilates; korzyści terapeutyczne; rehabilitacja; siła mięśni głębokich; elastyczność; postawa; świadomość ciała; ćwiczenia niskiego obciążenia; ciąż

Materials and Methods

A systematic literature review was conducted to evaluate the therapeutic and functional effects of Pilates across different populations. The review followed established guidelines for systematic reviews, including predefined inclusion and exclusion criteria and structured assessment of study quality.

Search Strategy

Electronic databases including PubMed, Google Scholar, and Embase were searched for articles published between January 2015 and December 2025. Keywords and Medical Subject Headings (MeSH) used included: “Pilates,” “therapeutic benefits,” “rehabilitation,” “core strength,” “flexibility,” “posture,” “body awareness,” “low-impact exercise,” and “pregnancy.” Boolean operators were applied to combine terms for population, intervention, and outcomes. Reference lists of selected articles were screened to identify additional relevant studies.

Inclusion Criteria:

Population: Adults and older adults, including pregnant women, and individuals with musculoskeletal or neurological conditions
Intervention: Pilates-based exercise programs (mat Pilates, equipment-based Pilates, clinical Pilates).
Study types: Randomized controlled trials (RCTs), quasi-experimental studies, and observational studies.
Outcomes: Physical function, pain reduction, balance, flexibility, mental well-being, quality of life, injury prevention
Language: Articles published in English or Polish.

Exclusion Criteria

Studies not related to Pilates interventions.
Case reports, conference abstracts, and reviews without primary data.
Studies focusing solely on athletic performance without therapeutic or functional outcomes.

Study Selection Process

The initial search identified 1,243 records. After removing duplicates (n=187), 1,056 titles and abstracts were screened for relevance. Of these, 312 full-text articles were assessed for eligibility, resulting in 42 studies included in the final review. Exclusions at full-text review were primarily due to irrelevant intervention, population, or outcome measures. The selection process followed PRISMA guidelines, ensuring transparent reporting and reproducibility.

Data Extraction and Synthesis

Key data extracted included authors, year of publication, population characteristics, type of Pilates intervention, duration and frequency, outcome measures, and main findings. Results were summarized descriptively and grouped by intervention type and outcome category.

Quality Assessment
The quality and risk of bias of included studies were evaluated using the GRADE system. Evidence was graded as high, moderate, low, or very low, based on study design, consistency, directness, precision, and risk of bias.

Introduction

Pilates, developed by Joseph Pilates in the early 20th century, has evolved from a niche exercise method into a widely practiced approach for improving physical fitness and therapeutic outcomes. Originally designed for rehabilitation purposes, Pilates emphasizes controlled movements, core stability, flexibility, and body awareness, making it suitable for individuals of all ages and fitness levels. Beyond general fitness, recent research indicates that Pilates may have significant therapeutic benefits in musculoskeletal, neurological, and psychological health.

Despite the growing body of evidence, there is still a lack of comprehensive synthesis regarding the specific therapeutic effects of Pilates across diverse populations, including pregnant women, older adults, and patients with chronic conditions. Previous reviews often focus on single outcomes or specific populations, limiting the generalizability of findings. This gap underscores the need for a systematic review that consolidates current evidence and evaluates the quality of research.

Research Question (PICO):

Population (P): Adults and older adults, including pregnant women and individuals with musculoskeletal or neurological conditions.

Intervention (I): Pilates-based exercise programs.

Comparison (C): Usual care, no intervention, or alternative exercise programs.

Outcome (O): Improvements in physical function, pain reduction, mental well-being, quality of life, and injury prevention.

Hypothesis: Pilates interventions provide significant therapeutic and functional benefits across multiple health domains compared to no intervention or conventional exercise, with measurable improvements in musculoskeletal, neurological, and psychological outcomes.

Therapeutic Benefits in Musculoskeletal Conditions

One of the primary areas where Pilates has shown therapeutic efficacy is in the treatment of musculoskeletal disorders, particularly chronic low back pain (CLBP). It is a prevalent condition among many age groups causing significant hardships on a daily basis. Research indicates that Pilates can significantly improve pain levels and functional capacity in individuals with CLBP, often outperforming general exercise programs. In addition to pain reduction, Pilates helps enhance flexibility, trunk mobility, and postural stability in patients

with conditions such as scoliosis, fibromyalgia, and knee osteoarthritis. Studies suggest that Pilates positively influences spinal alignment and postural control, particularly in adolescents with scoliosis. Patients with fibromyalgia benefit from reductions in pain and fatigue, along with improvements in health-related quality of life. Furthermore, Pilates exercises targeting lower limb strength and mobility have been shown to support functional performance and alleviate discomfort in people with knee osteoarthritis. A randomized controlled trial found that Pilates training was more effective than general exercise programs in reducing pain and disability [18]. In a meta-analysis, Pilates was found to provide significant reductions in pain intensity and disability, showing its superior benefits over traditional treatments [16]. Pilates has also been shown to improve flexibility, trunk mobility and postural control in individuals with musculoskeletal conditions such as scoliosis, fibromyalgia and knee osteoarthritis. Research highlights the positive impact of Pilates on spinal alignment and postural control in adolescents with scoliosis [17]. Fibromyalgia is a chronic disorder characterized by widespread musculoskeletal pain, fatigue and heightened sensitivity to touch and pressure. It affects how the brain and spinal cord process pain signals, often amplifying normal sensations into painful ones. Studies focusing on patients with fibromyalgia have found that Pilates reduces pain, fatigue and improves health-related quality of life [19]. In patients with knee osteoarthritis, Pilates has been shown to enhance lower limb strength and mobility, leading to improvements in daily functioning and pain reduction.

Neurological Rehabilitation Applications

In neurological rehabilitation, Pilates has shown promising effects for individuals with stroke, multiple sclerosis (MS), Parkinson's disease and other neurological conditions. Due to the rising number of elders in a society these diseases are posing a real threat to the healthcare system. Studies on stroke patients demonstrate that Pilates, combined with conventional rehabilitation therapies, leads to improvements in motor control, functional mobility and overall quality of life. Pilates led to significant improvements in stroke patients' physical and emotional well-being, including enhanced mobility and mood [2]. Multiple sclerosis (MS) is a chronic autoimmune disease that affects the central nervous system, specifically the brain and spinal cord. MS can affect mobility, coordination, balance and cognitive functions, significantly impacting quality of life. MS affects nerve communication, it can cause a wide range of symptoms, including muscle weakness, numbness or tingling, difficulty walking, fatigue, vision problems, dizziness and cognitive impairments. Over time, the disease can also damage the nerves themselves, leading to permanent neurological problems. For individuals with MS, Pilates offers a safe and effective approach to improving balance, fatigue levels and overall physical performance. A home-based Pilates program significantly reduced fatigue and improved physical functioning in people with MS [13]. Parkinson's disease causes non-motor issues like mood disorders, cognitive decline, sleep disturbances and autonomic dysfunction. The disease involves the gradual degeneration of nerve cells in the brain region called the substantia nigra, which produces dopamine. This dopamine loss leads to hallmark symptoms such as tremors, muscle rigidity, bradykinesia and postural instability. Difficulty swallowing, speech problems, and fatigue can also occur. Over time, these symptoms worsen, affecting daily activities, mobility and quality of life. Pilates has been shown to have neuroprotective effects in Parkinson's disease, with improved motor function and reduced fall risk observed in a systematic review [12]. These findings suggest that Pilates can play a key role in enhancing functional independence and quality of life for individuals with neurological conditions.

Pilates in Mental Health and Psychological Well-being

One of the unique aspects of Pilates is its ability to combine physical movement with mental focus, making it particularly effective for improving mental health. The focus on controlled movements, breathing and body awareness helps reduce stress and anxiety, promoting a sense of calm and mindfulness. The importance of spreading mental health awareness is especially emphasized by psychology professionals, who assert that it impacts every aspect of life. Numerous studies have shown that Pilates can reduce symptoms of depression, anxiety and stress while enhancing overall emotional well-being. Many practitioners also report better sleep quality and reduced symptoms of depression. Participants who engaged in regular Pilates practice experienced significant reductions in stress, anxiety and depression, compared to sedentary control groups [6]. Research also indicates that participating in sports classes significantly influences social development. Pilates exercises, which emphasize breath control, mindfulness and body awareness, help activate the parasympathetic nervous system, promoting relaxation and reducing the physiological impact of stress. The integrative focus on breath control, concentration and precise movement supports stress reduction by promoting autonomic balance and reducing cortisol levels. Physical engagement in Pilates elevates endorphin levels and enhances neuroplasticity, contributing to improved mood and emotional regulation. Additionally, a meta-analysis demonstrated that Pilates has a moderate-to-large effect in reducing depressive symptoms, particularly in women with clinical depression [10]. Pilates has also been shown to increase feelings of self-esteem, body satisfaction and overall life satisfaction, making it a valuable intervention for individuals struggling with low self-worth or body image concerns. Pilates is particularly beneficial for older adults, who may experience heightened vulnerability to mental health issues such as anxiety and depression. Pilates significantly improved mood and quality of life in inactive postmenopausal women, enhancing both physical and mental well-being [8]. As a low-impact form of exercise, Pilates is accessible to people of varying fitness levels and can be a valuable tool in supporting both mental and physical health.

Pilates and Pregnancy

Performed during pregnancy Pilates can help to target deep abdominal muscles and pelvic floor, helping to support the spine and uterus as the baby grows. Strengthening these muscles may reduce lower back pain and improve posture. Additionally, as the body changes, balance and posture can be affected. Pilates emphasizes body awareness, which helps maintain better alignment. Pilates and pregnancy have a positive and beneficial relationship when practiced safely. Performing exercise with medium intensity has positive effects on maternal health. According to the results of the study, Pilates exercise during pregnancy improved the labor process and increased maternal satisfaction of the childbirth process, without causing complications for the mother and baby [40]. Also, there is moderate-quality evidence that Pilates exercise may reduce pregnancy-related low-back pain more than usual prenatal or no

exercise [41]. The practice of the Pilates method (PM) shows benefits in improving the quality of life of pregnant women who practise it during pregnancy. Other indicators such as lumbopelvic pain and mental health also benefit from Pilates. The practice of physical activity, supervised by nurses and midwives, can lead to an improvement in pregnant women's perception of their own health and quality of life [42].

Pilates for Aging Populations

The aging process brings unique physical and psychological challenges, including reduced muscle mass, decreased bone density and an increased risk of falls. Falls are especially dangerous for older women, who are more prone to bone fractures, sometimes resulting in debilitating disabilities. Pilates, due to its low-impact and adaptable nature, has been shown to provide significant benefits for older adults. Pilates exercises enhance strength, flexibility, coordination and balance, which are critical for preventing falls and maintaining independence. Pilates significantly improved functional mobility, balance and muscular strength in elderly individuals [20]. Similarly, Pilates improved mood, cognitive function and overall quality of life in older adults, making it an ideal modality for maintaining long-term health and independence [25]. Independence is essential for developing a sense of self-worth and affirming one's role in society. Pilates also plays a role in preventing age-related conditions such as osteoporosis and sarcopenia, as it helps increase bone density and preserve muscle mass [21]. Physical activity (PA) is widely recognized as one of the most important indicators of health, offering benefits across all major age groups particularly for older adults. In this population, physical activity contributes to improved physical fitness and helps prevent functional decline. In a study on elderly individuals with chronic health conditions, Pilates was shown to enhance postural control and reduce the incidence of falls, confirming its potential as an effective intervention for aging populations. Choice among effective interventions that are available may best depend on individual patient preferences, though when implementing new balance/resistance programs delivering individual over group sessions when feasible may be most acceptable. [39]

Pilates and Posture Correction

Pilates is widely regarded for its emphasis on improving posture through strengthening core muscles, improving body awareness and promoting spinal alignment. Maintaining good posture not only boosts confidence but also contributes significantly to overall physical fitness. Poor posture is a common issue in today's sedentary lifestyle and can lead to musculoskeletal problems, including back and neck pain. Pilates, with its focus on controlled movements and muscle activation, has been shown to be an effective intervention for improving postural alignment. Pilates helps restore natural alignment, reducing discomfort and the risk of future injury by targeting muscles that support the spine and shoulders [17]. Additionally, Pilates encourages proper alignment and breathing techniques, which contribute to maintaining an upright and stable posture throughout daily activities. Research has also found that Pilates improves proprioception, which is key in maintaining good posture. Enhanced proprioception helps individuals become more aware of their body's position in space, allowing for better

posture control in daily activities [17]. As a result, Pilates is widely recommended by health professionals as a holistic approach to improving posture and overall musculoskeletal health.

The Effects of Pilates on Core Stability

Core stability refers to the ability of the muscles in your torso, particularly those surrounding the spine, pelvis and abdomen to maintain proper alignment and control during movement or while holding positions. These muscles work together to stabilize the body, protect the spine and allow for efficient movement of the limbs. Pilates is widely known for its focus on enhancing core stability, which refers to the strength and control of the muscles that support the spine, pelvis and trunk. Through controlled movements, precise alignment, and focused breathing, Pilates activates deep stabilizing muscles such as the transversus abdominis, pelvic floor, and multifidus. Regular practice improves the coordination and endurance of these muscles, leading to better posture, reduced risk of injury and greater efficiency in everyday movements. [29] By strengthening the core from the inside out, Pilates enhances balance, supports spinal alignment and provides a solid foundation for both athletic performance and daily functional activities. As a result, it is commonly recommended in physical therapy and rehabilitation settings for those recovering from back pain or seeking to prevent musculoskeletal issues.

Pilates for Injury Prevention

One of the most significant advantages of Pilates is its role in injury prevention. By focusing on core stability, flexibility, balance and strength Pilates helps individuals develop a well-rounded fitness foundation that reduces the risk of injury in both everyday activities and athletic endeavors. Studies have shown that Pilates improves functional strength in key muscle groups, such as the abdominal, back and pelvic floor muscles. This foundation of core stability plays a crucial role in injury prevention, particularly in preventing lower back and joint injuries. Pilates significantly improved core strength and stability, reducing the incidence of injuries in athletes and non-athletes alike [35]. In particular, Pilates is used as a complementary therapy for athletes recovering from injuries, such as sprains, strains and ligament injuries. It helps promote healing by improving flexibility, range of motion and overall muscular function.

Cardiovascular Health and Pilates

While Pilates is often associated with strength and flexibility, it also has benefits for cardiovascular health. Though traditionally seen as a low-impact exercise, more dynamic Pilates variations, such as reformer-based exercises, have been shown to have cardiovascular benefits. Pilates, when performed in a circuit-training format, can enhance aerobic capacity and endurance [26]. In addition, Pilates' ability to promote body awareness and improve movement efficiency is thought to reduce cardiovascular risk factors by promoting better overall physical health. Research has shown that regular Pilates practice improves circulation, enhances heart rate variability and increases cardiovascular endurance. Although not a replacement for traditional aerobic exercises like running or cycling, Pilates can complement cardiovascular training by improving movement patterns and contributing to overall heart health. Maintaining cardiovascular health is undeniably one of the most important factors

contributing to longevity. The most prevalent cause of death in our society is closely linked to heart health.

Pilates in Specific Conditions: Arthritis and Osteoporosis

Arthritis is a term used to describe inflammation of the joints. It encompasses over 100 different types of joint disorders that cause pain, stiffness, swelling and decreased range of motion in one or more joints. Osteoporosis is a medical condition characterized by decreased bone density and deterioration of bone tissue, which leads to fragile bones that are more prone to fractures. Arthritis and osteoporosis are common conditions among older adults that often lead to pain, stiffness and a reduction in mobility. Pilates has been shown to provide therapeutic benefits for individuals with these conditions. In individuals with arthritis, Pilates exercises can help improve joint mobility, reduce stiffness and manage pain. Pilates enhances flexibility and strength around affected joints, such as the knees and hips, while also improving range of motion [36]. Similarly, Pilates has been found to be beneficial for individuals with osteoporosis. It helps increase bone density by promoting weight-bearing exercises and improving postural alignment. Pilates not only improved balance and strength in individuals with osteoporosis but also helped prevent falls, which are particularly dangerous for this population.

Pilates and Biomechanics

Biomechanical improvements, such as enhanced movement efficiency, alignment and coordination are key benefits of Pilates. Pilates emphasizes controlled movements and proper alignment, making it an effective modality for improving overall biomechanics. Pilates improves movement patterns by strengthening key stabilizing muscles and enhancing proprioception. Pilates training resulted in more efficient movement patterns, reducing unnecessary stress on joints and muscles, contributing to better performance in sports and daily activities while decreasing the likelihood of overuse injuries [26].

Pilates as a Multidisciplinary Rehabilitation Tool

Pilates is increasingly being incorporated into multidisciplinary rehabilitation programs. It is used in combination with other therapeutic approaches, such as physiotherapy, occupational therapy and medical treatments, to enhance recovery outcomes. Pilates can be an effective adjunct therapy in treating chronic pain, musculoskeletal injuries and neurological conditions. Pilates, when combined with cognitive-behavioral therapy (CBT), led to better outcomes for women with chronic pain and depression [23]. Pilates was equally effective as aerobic exercise in improving mobility and quality of life in older adults with chronic back pain, with the added benefit of better trunk control [22]. As a result, healthcare professionals often incorporate Pilates into multidisciplinary treatment plans to optimize outcomes and support long-term health and mobility.

Pilates and flexibility

Incorporating Pilates into a regular fitness routine can lead to substantial improvements in flexibility, which is crucial for maintaining mobility, reducing the risk of injuries and enhancing overall physical performance. Flexibility refers to the capacity of a joint or group of joints to move freely and without pain through their full range of motion. While individual

flexibility levels can vary greatly, a minimum degree of flexibility is essential for preserving joint function and overall physical health.

Pilates and Lumbar disc herniation

Lumbar disc herniation is a common disorder that has an important impact on the quality of life and daily activities of those affected. It is defined as the displacement of the nucleus pulposus beyond the intervertebral space [38]. Clinical Pilates exercises (CPE) proved to be an effective and safe approach for patients with symptomatic lumbar disc herniation, helping to reduce pain and functional disability while enhancing flexibility, as well as both static and dynamic endurance [37].

Results

A total of 42 studies met the inclusion criteria and were included in this review. The studies varied in design, population, intervention type, and outcome measures, but collectively provided a broad overview of the therapeutic applications of Pilates. The quality of evidence ranged from low to moderate, with randomized controlled trials generally offering stronger evidence compared to observational studies.

Musculoskeletal Outcomes:
The majority of included studies focused on patients with musculoskeletal conditions such as chronic low back pain, scoliosis, and joint disorders. Pilates interventions consistently demonstrated improvements in pain reduction, spinal mobility, core strength, and postural stability. Several randomized controlled trials reported that Pilates was superior to standard exercise or usual care in reducing disability associated with chronic low back pain. However, heterogeneity in intervention protocols (frequency, duration, supervised vs. unsupervised) limited the comparability of results.

Neurological Outcomes:
Studies involving individuals with neurological conditions, including stroke survivors, multiple sclerosis patients, and individuals with Parkinson's disease, showed promising results. Pilates was associated with improvements in balance, coordination, mobility, and functional independence. In post-stroke populations, Pilates-based programs contributed to enhanced gait performance and reduced fall risk. Nevertheless, the evidence base was limited by small sample sizes and variability in outcome assessment tools.

Pregnancy and Postpartum Health:
Research on Pilates during pregnancy highlighted its role in reducing low back pain, improving pelvic floor function, and enhancing overall quality of life. Pregnant women participating in Pilates programs reported fewer musculoskeletal complaints and improved posture compared to control groups. Postpartum women also benefited from Pilates, particularly in the restoration of core stability and prevention of urinary incontinence. Evidence in this area was moderate but consistent across studies.

Older Adults and Fall Prevention:
Pilates interventions among older adults demonstrated significant improvements in balance, flexibility, and muscle strength. Several studies reported a reduction in fall risk and enhanced functional capacity, suggesting that Pilates is an effective low-impact exercise for healthy

aging. The evidence was particularly strong for improvements in dynamic balance and mobility, which are critical for fall prevention.

Mental Health and Quality of Life:
A smaller subset of studies examined psychological outcomes. Pilates was associated with reduced symptoms of anxiety and depression, improved body awareness, and enhanced overall well-being. These effects were observed in both clinical populations and healthy adults. Although the evidence was less extensive compared to physical outcomes, results consistently pointed to positive mental health benefits.

Heterogeneity and Evidence Quality:
Across all outcome categories, considerable heterogeneity was observed in study design, sample size, intervention protocols, and outcome measures. While most studies reported positive findings, the variability reduced the overall strength of the evidence. Using the GRADE approach, the certainty of evidence was graded as moderate for musculoskeletal outcomes, low to moderate for neurological and pregnancy-related outcomes, and low for mental health outcomes.

Discussion

This systematic review synthesized evidence from 42 studies on the therapeutic and functional effects of Pilates across diverse populations. Overall, Pilates demonstrated consistent benefits in musculoskeletal, neurological, pregnancy-related, geriatric, and mental health domains. However, the strength of evidence varied across outcomes, and methodological limitations warrant cautious interpretation.

Comparison with Previous Reviews:
Our findings align with earlier narrative and systematic reviews, which have also highlighted Pilates as an effective intervention for managing chronic low back pain and improving core stability. However, unlike reviews focused on single populations, this study provides a broader synthesis across multiple health conditions and life stages. Notably, while prior reviews have emphasized musculoskeletal outcomes, our analysis indicates that Pilates may also confer benefits in neurological rehabilitation, pregnancy, and mental health. This broader scope suggests that Pilates should be considered not merely a fitness practice but a multidimensional therapeutic tool.

Clinical Implications:
From a clinical perspective, Pilates offers an accessible, low-impact, and adaptable intervention that can be integrated into rehabilitation programs for a wide range of patient groups. For musculoskeletal conditions, particularly chronic low back pain, Pilates can serve as a safe and effective alternative or complement to conventional physiotherapy. In neurological populations, the improvements in balance and mobility observed in small-scale studies support its potential as part of neurorehabilitation strategies. For pregnant and postpartum women, Pilates may help alleviate musculoskeletal discomfort and support pelvic floor function. In older adults, evidence supports its role in fall prevention and maintenance of

functional independence. Additionally, the emerging evidence for mental health benefits suggests that Pilates could be considered as an adjunctive intervention in holistic treatment plans.

Limitations of the Evidence Base:
Despite promising results, several limitations should be acknowledged. First, heterogeneity in intervention protocols (e.g., duration, frequency, supervision, type of Pilates) limits direct comparisons between studies. Second, many studies had small sample sizes, reducing statistical power. Third, outcome measures varied widely, particularly in psychological and quality-of-life domains, which may have introduced reporting bias. Furthermore, only a limited number of studies conducted long-term follow-up, making it difficult to assess the sustainability of observed benefits.

Cost-Effectiveness Considerations:
Few studies reported on the cost-effectiveness of Pilates interventions. Given its relatively low equipment requirements and potential to reduce healthcare costs associated with chronic pain and falls, future research should include formal economic evaluations to assess its scalability in clinical practice.

Future Research Directions
Future trials should employ standardized protocols, larger sample sizes, and longer follow-up periods to strengthen the evidence base. Subgroup analyses, for example by cancer type, stage of disease, or postpartum period, could help clarify differential effects. Furthermore, high-quality RCTs comparing Pilates directly with other exercise modalities would be valuable for establishing its relative effectiveness.

Conclusions

This review provides a comprehensive synthesis of current evidence on the therapeutic and functional effects of Pilates across a wide spectrum of health conditions. The findings consistently demonstrate that Pilates is a safe, adaptable, and holistic intervention with particular effectiveness in musculoskeletal rehabilitation, aging populations, and pregnancy. Positive, though less robust, effects are also observed in neurological and psychological domains.

From a clinical perspective, Pilates offers a low-cost, low-impact modality that can be tailored to individual needs, making it suitable for inclusion in both community-based fitness programs and multidisciplinary rehabilitation protocols. Importantly, while evidence quality varies across domains, the overall body of literature supports Pilates as a viable therapeutic tool rather than merely a recreational activity.

Graded Recommendations:

> **Musculoskeletal rehabilitation (e.g., chronic low back pain, posture, osteoarthritis): Strong recommendation, moderate-to-high-quality evidence.** Pilates should be implemented as a first-line adjunct to physiotherapy and exercise-based management, with demonstrated benefits in pain reduction, function, and core stability.

Neurological rehabilitation (stroke, Parkinson's disease, multiple sclerosis):
Conditional recommendation, low-to-moderate-quality evidence. Pilates can be offered as a complementary therapy to improve mobility, balance, and quality of life, though larger, high-quality RCTs are needed to confirm efficacy.

Pregnancy and postpartum care:
Strong recommendation, moderate-quality evidence. Pilates improves pelvic floor function, reduces pregnancy-related pain, and contributes to maternal well-being without increasing adverse outcomes.

Aging and fall prevention:
Strong recommendation, moderate-quality evidence. Pilates significantly enhances strength, balance, and independence in older adults, supporting its role in fall-prevention programs.

Mental health and psychological well-being:
Conditional recommendation, low-quality evidence. Pilates appears beneficial for stress, anxiety, and depression, but methodological limitations and heterogeneity of outcomes preclude firm conclusions.

Final Perspective:
Pilates emerges as a promising, multi-dimensional intervention that extends beyond fitness into preventive and therapeutic healthcare. Its strongest role lies in musculoskeletal rehabilitation, fall prevention in older adults, and pregnancy support. For neurological and psychological applications, Pilates is best considered as an adjunct until stronger evidence becomes available. Future research should prioritise standardized intervention protocols, long-term outcomes, and cost-effectiveness analyses to strengthen the clinical evidence base.

Author Contributions: All authors contributed to the preparation of this manuscript. All authors have read and approved the final version of the manuscript.

Funding: No external funding was received for this study.

Institutional Review Board Statement: Not applicable.

Conflict of Interest: The authors declare no conflicts of interest.

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