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Pelvic Floor Muscle Training for Urinary Incontinence in Elderly and PCOD Women: A Narrative Review

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Abstract

Urinary incontinence (UI) is a prevalent and often underreported condition in women, significantly impairing physical, emotional, and social quality of life. The incidence is particularly high among elderly women and those with Polycystic Ovarian Disease (PCOD), where hormonal imbalances, metabolic dysfunction, and pelvic floor muscle weakening contribute to symptom severity. Pelvic floor muscle training (PFMT) is an established conservative treatment that strengthens musculature, improves bladder control, and reduces the need for surgical or pharmacological intervention. This review aims to examine the efficacy of PFMT in these specific populations, comparing it with other conservative and invasive therapies.

A comprehensive literature review was conducted using databases such as PubMed, Cochrane Library, PEDro, and CINAHL, including publications from 2000 to 2025. Results indicate that PFMT significantly improves continence in elderly women, reducing leakage frequency, improving muscle strength, and enhancing quality of life. Although direct research in PCOD populations is limited, physiological similarities suggest PFMT may provide similar benefits. Despite evidence supporting PFMT, there is a lack of standardized protocols and underrepresentation of PCOD patients in clinical trials.

This review highlights the need for future research to define optimized, population-specific PFMT interventions and to establish long-term outcomes. Proactive screening and tailored therapy could prevent progression of UI and reduce associated complications in both elderly and PCOD women.

Keywords: Urinary Incontinence, Pelvic Floor Training, Elderly Women, PCOD, Conservative Therapy

Methodology

This narrative review was based on a literature search from January 2000 to March 2025 using PubMed, Cochrane Library, PEDro, and CINAHL. The search was conducted using keywords including “urinary incontinence,” “pelvic floor muscle training,” “elderly women,” “PCOD,” “stress incontinence,” and “conservative therapy.” Inclusion criteria consisted of randomized controlled trials (RCTs), meta-analyses, and systematic reviews involving women aged ≥60 years or those with PCOD, where PFMT was the primary intervention.

Only English-language peer-reviewed studies were selected. Studies focusing solely on pharmacological or surgical interventions were excluded. Outcomes of interest included frequency of UI episodes, quality of life improvements, pelvic muscle strength, and long-term adherence. Data extraction was performed independently, and findings were synthesized thematically under defined subsections.

1. Introduction

Urinary incontinence (UI) remains one of the most prevalent yet neglected public health issues affecting women. With advancing age and hormonal disorders such as Polycystic Ovarian Disease (PCOD), the integrity of pelvic floor musculature and urethral sphincter control diminishes, increasing susceptibility to involuntary urine leakage. Epidemiological studies estimate that 25–50% of elderly women experience UI symptoms, whereas stress incontinence has also been identified in 17% of PCOD patients due to metabolic and anatomical factors.

Despite the physiological impact, UI often remains unreported due to social stigma and misconceptions that it is an inevitable part of aging. This not only delays treatment but also exacerbates complications such as social isolation, depression, and skin infections.

Pelvic floor muscle training (PFMT) is widely endorsed as a first-line conservative treatment for stress and mixed UI. It strengthens the pelvic floor musculature, enhancing urethral support and bladder control. However, literature focusing specifically on elderly and PCOD women is limited.

Objective: The objective of this review is to critically examine the existing evidence on PFMT effectiveness in elderly and PCOD women with UI, compare it with other treatment approaches, and identify research gaps to inform future clinical directions.

2. Literature Review

2.1 Epidemiology and Risk Factors

Urinary incontinence (UI) affects approximately 25–45% of adult women globally, with prevalence rates reaching 54% among elderly women in institutional settings [1, 2]. Age-related changes in pelvic floor structures, diminished estrogen levels, comorbidities such as diabetes and obesity, and reduced physical activity contribute significantly to UI among older women [3, 4]. In women with Polycystic Ovarian Disease (PCOD), hormonal imbalances particularly elevated androgens and insulin resistance—may lead to increased intra-abdominal pressure and weak pelvic floor musculature, thereby predisposing them to stress UI [5, 6]. Obesity, a common feature in PCOD, is independently linked with greater pelvic floor strain and has a dose-dependent relationship with incontinence risk [7].

A community-based study by Milsom *et al*. highlighted that women with a body mass index (BMI) >30 had three times the risk of developing UI compared to those with BMI <25 [8]. Among PCOD women, the lack of regular ovulation and persistent low-grade inflammation may further impact connective tissue integrity. Additionally, both elderly and PCOD women are less likely to seek treatment due to stigma or misperceptions of UI as a normal condition, delaying timely intervention [9, 10].

2.2 Types of Urinary Incontinence

The three main forms of UI affecting women are stress, urge, and mixed urinary incontinence. Stress incontinence occurs due to urethral hypermobility or intrinsic sphincter deficiency and is characterized by leakage during activities that increase intra-abdominal pressure, such as coughing or sneezing. Urge incontinence, linked to detrusor overactivity, manifests as a sudden need to void, often followed by involuntary leakage. Mixed incontinence combines both types and is commonly seen in elderly women due to multifactorial pelvic floor weakening and neurological decline [11, 12].

In contrast, stress UI is more frequently observed in younger and middle-aged women, including those with PCOD. A study by Danforth *et al*. reported that 51% of incontinent women between ages 25–45 presented with stress UI, whereas urge and mixed UI increased with age [13]. In PCOD women, increased androgen levels and abdominal obesity can exacerbate intra-abdominal pressure and weaken pelvic floor function, intensifying stress UI symptoms [14]. Understanding UI subtypes is vital for tailoring effective PFMT regimens. For instance, stress UI responds well to PFMT, whereas urge UI may require adjunct behavioral or pharmacologic management [15, 16].

2.3 PFMT Mechanism and Clinical Application

Pelvic floor muscle training (PFMT) involves repeated voluntary contractions of the pelvic floor muscles to enhance urethral support and bladder control. This conservative intervention is primarily effective in stress and mixed UI, particularly in women with weak or uncoordinated pelvic musculature [17]. PFMT aims to increase the strength, endurance, and coordination of these muscles, thereby improving urethral closure pressure and detrusor inhibition [18].

Supervised PFMT especially when combined with biofeedback, vaginal cones, or electrical stimulation has shown greater efficacy than unsupervised routines [19]. In a study by Woodley SJ *et al*., supervised PFMT led to a 70% reduction in leakage frequency, compared to 28% in unsupervised participants [20]. Adherence and correct technique are critical; hence, structured training programs over 8–12 weeks yield superior outcomes [21].

For elderly women, PFMT is particularly beneficial due to its non-invasive nature and minimal side effects. Though specific studies on PCOD populations are limited, similarities in muscle function impairment suggest comparable benefits, especially when paired with weight management strategies [22].

2.4 Comparison with Other Treatment Options

While PFMT is widely regarded as the first-line therapy for stress and mixed UI, other options include behavioral therapy, medications, devices, and surgery. Pharmacological agents such as antimuscarinics and serotonin-norepinephrine reuptake inhibitors (e.g., duloxetine) are useful in urge UI but often produce side effects like dry mouth and constipation, limiting adherence [23].

Surgical interventions such as mid-urethral slings offer higher cure rates (80–90%) for stress UI but carry risks of mesh complications, infection, and reoperation [24]. In elderly women, surgical options are further complicated by anesthesia risks and comorbidities.

Compared to these, PFMT provides a safer, cost-effective solution with fewer complications. Dumoulin *et al*. found that 70% of women achieved continence or significant improvement with PFMT alone [25]. Electrical stimulation and biofeedback are effective adjuncts, especially for those unable to voluntarily contract their muscles.

PCOD women often benefit from combining PFMT with lifestyle changes such as weight loss, which has been shown to independently reduce UI symptoms by up to 47% [26].

2.5 Quality of Life and Psychosocial Benefits

UI not only causes physical inconvenience but also has profound effects on psychosocial wellbeing. Elderly women often experience shame, social withdrawal, and depression, while PCOD women may face body image issues compounded by leakage symptoms [27, 28]. PFMT has been linked with improved self-efficacy, sexual health, and overall quality of life.

In a randomized trial by Herderschee *et al*., participants undergoing PFMT reported significantly better scores on the Incontinence Quality of Life Questionnaire (I-QOL) compared to controls [29]. This improvement extended to emotional and social domains, indicating holistic benefit.

Elderly women practicing PFMT regained confidence in performing daily activities, while younger women reported increased sexual satisfaction and reduced anxiety [30].

Such improvements can also enhance adherence, as motivated participants tend to remain consistent with training. Incorporating group PFMT sessions or telehealth models may further reduce isolation and increase accessibility. For PCOD women, pairing PFMT with counseling and metabolic support could amplify both continence and mental health outcomes [31].

2.6 Gap in Literature and Need for Study

Despite robust data on PFMT's general effectiveness, major gaps exist in population-specific outcomes for elderly and PCOD women. Most RCTs exclude these groups due to comorbidities (in elderly) or age bias (in PCOD), resulting in generalized treatment protocols that may lack precision [15, 33].

There is also a lack of consensus on training parameters including optimal frequency, duration, and progression—leading to inconsistent results. Additionally, few studies evaluate long-term adherence and recurrence rates beyond 12 months. This is critical for elderly women with declining muscle mass or PCOD patients struggling with obesity and metabolic dysfunction.

Furthermore, there is minimal integration of psychosocial metrics or digital health tools in PFMT studies. Understanding motivational barriers, stigma, and technology use could improve compliance. Future trials should be longitudinal**,** diverse, and holistic, incorporating physical, emotional, and lifestyle factors to better serve these at-risk populations.

3. Findings

The majority of studies reviewed consistently support the efficacy of PFMT in reducing UI symptoms, especially among elderly women with stress or mixed incontinence. In trials where PFMT was implemented over 8–12 weeks, participants experienced a 63–77% reduction in weekly incontinence episodes. Adherence played a crucial role, woman who completed more than 75% of supervised sessions reported better outcomes in both symptom relief and quality of life scores.

In elderly women, PFMT improved urethral closure pressure, pelvic muscle tone, and continence duration. Objective measures such as pad weight tests and muscle strength grading corroborated subjective improvements in daily life.

For PCOD women, while specific studies are lacking, clinical parallels such as obesity-related pelvic floor strain and elevated intra-abdominal pressure suggest a favorable response to PFMT. Pilot studies suggest comparable improvements in continence and muscle function, though larger trials are needed.

Compared to medications and surgery, PFMT remains the most cost-effective and least invasive method, with few adverse effects. Biofeedback-enhanced PFMT and group-based interventions showed better adherence and motivation, especially in older adults.

4. Conclusion

Pelvic floor muscle training is a well-supported, evidence-based treatment for urinary incontinence in elderly and PCOD women. It offers a non-invasive, cost-effective, and sustainable solution that improves physical function and psychosocial well-being. Despite strong short-term outcomes, future research should focus on standardizing PFMT protocols, exploring long-term adherence, and including underrepresented populations such as PCOD women.

Given the high prevalence and impact of UI, proactive screening and early intervention using PFMT could significantly reduce disease burden and enhance quality of life. Health professionals must be trained to identify and manage UI in these groups with tailored approaches. Bridging the current literature gap through robust, targeted clinical trials is crucial to optimizing outcomes for elderly and PCOD women suffering from urinary incontinence.

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