

## Review article

# Impact of Pelvic Muscle Exercises on Productive Women's Health: A Systematic Review

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## Abstract

Pelvic muscle exercises (PMEs), often referred to as Kegel exercises, are a non-invasive intervention aimed at strengthening the pelvic floor muscles, which play a crucial role in various aspects of women's reproductive and sexual health. This systematic review evaluates the impact of PMEs on the health of productive women, specifically focusing on the prevention and treatment of urinary incontinence, improvement of sexual function, and overall quality of life. A comprehensive literature search identified 20 studies that met the inclusion criteria. The review suggests that PMEs are effective in improving pelvic floor muscle strength, reducing the incidence and severity of urinary incontinence, enhancing sexual satisfaction, and improving quality of life in productive women. However, further research is needed to standardize PME protocols and assess their long-term benefits.

## INTRODUCTION

Pelvic muscle exercises (PMEs), commonly known as Kegel exercises, were introduced by Dr. Arnold Kegel in the 1940s as a method for women to strengthen their pelvic floor muscles (PFMs). These muscles support the uterus, bladder, small intestine, and rectum. PMEs are particularly beneficial for women during and after pregnancy, as well as during other stages of reproductive life, where the pelvic floor muscles may weaken due to factors such as childbirth, aging, or hormonal changes (Delancey, 2016).

Urinary incontinence (UI) is a common condition affecting up to 50% of women at

some point in their lives, with stress urinary incontinence (SUI) being the most prevalent type (Nygaard et al., 2010). PMEs have been widely recommended as a first-line treatment for UI, with studies demonstrating their effectiveness in reducing symptoms and improving quality of life (Dumoulin et al., 2018).

In addition to UI, pelvic floor dysfunction can also impact sexual function and overall quality of life (QoL). The strength and coordination of the PFMs are crucial for sexual health, as these muscles play a role in sexual arousal, orgasm, and satisfaction (Hay-Smith et al., 2014). PMEs have been

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shown to improve sexual function by increasing pelvic muscle strength and enhancing blood flow to the genital area (Bø et al., 2017).

This systematic review aims to assess the impact of PME on the health of productive women, focusing on their effectiveness in managing urinary incontinence, enhancing sexual function, and improving overall quality of life.

## METHODS

### Literature Search Strategy

A systematic search was conducted using the databases PubMed, Cochrane Library, and Scopus to identify studies published between 2000 and 2023. The search terms included "pelvic muscle exercises," "Kegel exercises," "urinary incontinence," "sexual function," "quality of life," and "productive women." Boolean operators (AND, OR) were employed to refine the search. Only peer-reviewed articles published in English were considered.

### Inclusion and Exclusion Criteria

Inclusion criteria for this review were: (1) studies that investigated the effects of PMEs on urinary incontinence, sexual function, or

quality of life in productive women; (2) studies with a randomized controlled trial (RCT) design, cohort studies, or observational studies; and (3) studies that provided quantitative data on outcomes. Exclusion criteria included studies that focused solely on non-productive women, studies with a non-human focus, and review articles without original data.

### Data Extraction and Synthesis

Data extraction was conducted independently by two reviewers using a standardized data extraction form. Extracted data included study design, sample size, participant characteristics, intervention details, outcome measures, and key findings. Discrepancies were resolved through discussion and consensus. A narrative synthesis of the findings was performed, with the results presented in summary tables.

## RESULTS

### Study Selection

The initial search yielded 345 articles. After removing duplicates and screening titles and abstracts, 45 full-text articles were reviewed. Of these, 20 studies met the inclusion criteria.

Table 1  
The synthesis of findings

Study	Design	Sample Size	Intervention	Outcome Measures	Key Findings
Ferreira et al. (2021)	RCT	150	Structured PME program	UI severity, PFM strength	Significant reduction in UI severity, improved PFM strength in intervention group. <sup>7</sup>
Bø et al. (2020)	Cohort study	200	Home-based PME	Sexual function, QoL	Improved sexual satisfaction, QoL in participants adhering to PME regimen <sup>8</sup>
Dumoulin et al. (2018)	Meta-analysis	30 RCTs	PME vs. control	UI symptoms, QoL	PME significantly reduced UI symptoms and improved QoL across studies <sup>9</sup>
Nygaard et al. (2017)	RCT	250	Supervised PME sessions	UI incidence, PFM coordination	Lower UI incidence, better PFM coordination in PME group. <sup>10</sup>
Hay-Smith et al. (2014)	Systematic review	15 studies	Various PME protocols	Sexual function, PFM strength	Consistent improvements in sexual function and PFM strength across studies <sup>11</sup>

## Synthesis of Findings

This systematic review identified 20 studies that evaluated the impact of PME on the health of productive women. The key findings are summarized in Table 1.

### 1. Urinary Incontinence

The majority of studies found that PMEs were effective in reducing the severity and incidence of urinary incontinence among productive women. Ferreira et al. (2021) reported significant improvements in PFM strength and a reduction in UI symptoms following a structured PME program.<sup>7</sup> Similarly, Dumoulin et al. (2018) found that PMEs significantly reduced UI symptoms and improved QoL across multiple studies.<sup>9</sup>

### 2. Sexual Function

Several studies highlighted the positive effects of PMEs on sexual function. Bø et al. (2020) found that women who adhered to a home-based PME regimen reported higher sexual satisfaction and overall QoL.<sup>8</sup> Hay-Smith et al. (2014) also noted consistent improvements in sexual function and PFM strength across the studies included in their systematic review.<sup>11</sup>

### 3. Quality of Life

PMEs were found to enhance the overall quality of life for productive women by improving both physical and emotional well-being. Nygaard et al. (2017) demonstrated that women who participated in supervised PME sessions experienced lower incidences of UI and better PFM coordination, leading to improved QoL.<sup>10</sup>

## DISCUSSION

### Impact of PMEs on Urinary Incontinence

The findings of this systematic review suggest that PMEs are highly effective in managing urinary incontinence among productive women. PMEs strengthen the pelvic floor muscles, which support the bladder and urethra, reducing the likelihood of urine leakage during physical activities such as coughing, sneezing, or exercising (Ferreira et al., 2021). The studies reviewed consistently demonstrated that PMEs significantly reduce the severity and frequency of UI symptoms, leading to improved QoL for women (Dumoulin et al., 2018).

### Enhancement of Sexual Function

PMEs have also been shown to positively impact sexual function by strengthening the pelvic floor muscles, which play a crucial role in sexual arousal, orgasm, and satisfaction (Bø et al., 2020). The increased muscle tone and blood flow to the genital area resulting from PMEs can enhance sexual pleasure and reduce sexual dysfunction, particularly in women experiencing postpartum or menopausal changes (Hay-Smith et al., 2014).

### Improvement in Quality of Life

The overall quality of life for productive women is significantly improved through regular practice of PMEs. Strengthened pelvic floor muscles lead to reduced UI symptoms and enhanced sexual function, both of which contribute to better physical health, emotional well-being, and self-confidence (Nygaard et al., 2017). The studies reviewed indicate that PMEs are a cost-effective, non-invasive intervention that can significantly improve the health and well-being of productive women (Ferreira et al., 2021).

## Limitations and Future Research

While the evidence supporting the benefits of PME is strong, this review also highlights some limitations. The heterogeneity in PME protocols across studies makes it difficult to standardize recommendations for clinical practice. Additionally, most studies had short follow-up periods, limiting the assessment of long-term outcomes. Future research should focus on long-term, large-scale trials to establish the most effective PME protocols and assess their sustainability over time (Bø et al., 2020).

## CONCLUSION

This systematic review provides robust evidence that pelvic muscle exercises are an effective intervention for improving urinary incontinence, sexual function, and overall quality of life in productive women. The implementation of structured PME programs in both clinical and home settings should be considered an essential component of women's health management, particularly for those at risk of pelvic floor dysfunction.

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