Review Article

Journal of Iranian Medical Council, Volume 10, Issue no. 1
http://dx.doi.org/10.18502/jimc.v10i1.23252

Check for updates

The Role of Pelvic Floor Muscle Training in Preventing Pelvic Floor Dysfunction During and after Pregnancy: A Scoping Review

Kanika Wadhwa[1], Radhika Gupta[1], Anand Kumar Singh[1]*, Shalini Singh[1], Vishakha Dagar[1], Swati Gautam[2] and Chandan Kumar[3]

1. GD Goenka University, Sohna Rural, Haryana 122103, India
2. Mangalayatan University, Beswan, Uttar Pradesh 202146, India
3. Amity University, Noida, India

*** Corresponding author**
Anand Kumar Singh, PhD
GD Goenka University, Sohna Rural, Haryana 122103, India
Tel: +91 8607370746
Email:
anand01physio@gmail.com

Received: 12 Sept 2025
Accepted: 10 Dec 2025

Citation to this article
Wadhwa K, Gupta R, Singh AK, Singh Sh, Dagar V, Gautam S, *et al*. The Role of Pelvic Floor Muscle Training in Preventing Pelvic Floor Dysfunction During and after Pregnancy: A Scoping Review. *J Iran Med Counc*. 2027;10(1):40-9.

Abstract

Background: Pelvic Floor Dysfunction (PFD), including urinary incontinence, fecal incontinence, and pelvic organ prolapse, is common during pregnancy and after childbirth and often affects long-term health and quality of life. Pelvic Floor Muscle Training (PFMT) is widely recommended for prevention, but evidence on its effectiveness and implementation is mixed, particularly regarding long-term efficacy and adherence to home-based programs.

Methods: This scoping review followed PRISMA-ScR and JBI guidelines. PubMed, Scopus, CINAHL, Cochrane Library, and Web of Science were searched for studies published from January 1999 to March 2024. Randomized controlled trials, quasi-experimental studies, and interventional programs evaluating PFMT during pregnancy and up to 12 months postpartum were eligible. Outcomes were urinary incontinence, fecal incontinence, pelvic organ prolapse, pelvic floor function, and quality of life.

Results: Of 1,642 records, 15 studies met the inclusion criteria. Interventions lasted 8 weeks to 12 months and were supervised, home-based, or combined. Most studies showed that PFMT reduced postpartum urinary incontinence, improved pelvic floor strength, and enhanced quality of life. Additional benefits included better sexual function, fewer prolapse symptoms, and less pregnancy-related lumbopelvic pain. Supervised programs achieved higher adherence and better outcomes, although structured education and feedback also improved self-managed interventions.

Conclusion: Long-term data, such as the six-year follow-up by Glazener *et al*, indicate that PFMT benefits may diminish without sustained adherence. PFMT is a safe, cost-effective, evidence-based approach to preventing PFD during and after pregnancy. Integrating PFMT into maternal care and strengthening adherence strategies are essential to maximize benefits and reduce the burden of pelvic floor disorders.

Keywords: Pelvic floor, Pelvic floor disorders, Pelvic organ prolapse, Postpartum period, Quality of life, Self-management, Urinary incontinence

Copyright © 2027, Journal of Iranian Medical Council.
This work is licensed under a Creative Commons Attribution–NonCommercial 4.0 International License.

Introduction

Pelvic Floor Dysfunction (PFD) often involving urinary or fecal incontinence and pelvic organ prolapse, creates serious health concerns during pregnancy and postpartum. It can leave lasting effects on pelvic health and daily well-being (1,2). Research shows that as many as half of women experience some level of pelvic floor issues after giving birth (3,4).

Changes in the body during pregnancy, like higher pressure in the abdomen, hormone-triggered looseness in ligaments, and the stretching of pelvic floor muscles during vaginal delivery, play a key role in weakening the pelvic support system (5-7). In addition, low awareness of pelvic floor rehabilitation and limited postpartum follow-up exacerbate the burden of these conditions (8).

PFMT also known as Kegel exercises, is a common conservative treatment. Pelvic Floor Muscle Training (PFMT) has an influence on pelvic muscle strength, endurance, and coordination. This leads to better pelvic organ support and fewer incontinence symptoms (9,10). International guidelines endorse routine antenatal PFMT to prevent postpartum urinary incontinence (11).

Research from controlled studies and comprehensive analyses keeps showing how well PFMT works. A study in Norway proved that doing a lot of PFMT while pregnant cut down on pee leaks at 36 weeks and 3 months after giving birth (12). A different study found that women who took part in regular prenatal workouts, which included pelvic floor muscle training were less likely to experience bladder control issues three months after giving birth compared to those who did not (13). Similarly, a randomized controlled trial that included pelvic floor muscle training in a general exercise program found that over 95% of women in the intervention group reported no urinary leakage after giving birth. In contrast, 61% of the women in the control group experienced leakage (14).

Systematic reviews and meta-analyses back these findings. PFMT, either on its own or as part of a structured exercise program, lowers the chances of urinary incontinence and serious perineal tears (15,16). Group-based PFMT has shown significant reductions in incontinence during pregnancy and postpartum (17). However, long-term follow-up data suggest that while PFMT reduces short-term incontinence, its effects may lessen over time. Early urinary incontinence still predicts chronic symptoms (18).

Given the rising prevalence of PFD and the growing evidence, it is essential to synthesize available data. This review explores the role of PFMT in preventing dysfunction during and after pregnancy. It focuses on clinical effectiveness, implementation challenges, and public health strategies.

Materials and Methods

A scoping review was selected as the method to give a thorough overview of the literature on the role of PFMT (PFEs) in preventing PFD during and after pregnancy. Scoping reviews work well for broad, exploratory research questions, especially when the goal is to map existing evidence, identify key concepts, and find gaps instead of evaluating the study quality. Unlike systematic reviews, which focus on narrow clinical questions and strict quality checks, scoping reviews can include various study designs and allow for changes during the process.

Methodological and reporting framework

This scoping review followed the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) guidelines. These guidelines, published in 2018, outline 20 key items and two optional items to ensure clarity and thoroughness in scoping reviews (23). The review process also used updated JBI guidance from 2020. This guidance matches PRISMA-ScR and gives clear instructions on how to conduct, extract, analyze, and present scoping reviews (24).

Protocol and registration

This scoping review did not have a pre-registered protocol on PROSPERO, the Open Science Framework, or any other registry. Although a protocol was developed internally to guide the review process, it was not externally registered. This is acknowledged as a limitation of the review. Future scoping reviews would benefit from protocol registration to promote transparency and strengthen methodological rigor.

Search strategy

A systematic search was conducted across five

electronic databases: PubMed, Scopus, CINAHL, Cochrane Library, and Web of Science. The search covered the period from January 1999 to March 2024. Search terms included both MeSH headings and keywords such as "Pelvic floor muscle training (PFMT)", "urinary incontinence", "pregnancy", "postpartum", "pelvic floor dysfunction", and "perineal rehabilitation". These terms were combined using Boolean operators AND/OR to refine the results. To ensure a thorough search, the reference lists of key articles, including systematic reviews and clinical trials, were manually screened for additional relevant studies (25,26).

Study selection and screening process

Following scoping review standards, two reviewers independently screened titles and abstracts for relevance. They then assessed the full texts to determine eligibility. Any discrepancies were resolved through consensus or with the help of a third reviewer to ensure reliable selection and reduce bias (24). The study selection process is detailed in figure 1, adapted from PRISMA guidelines.

Inclusion and exclusion criteria

Inclusion criteria: Studies have extensively examined the preventive effects of PFMT on PFD

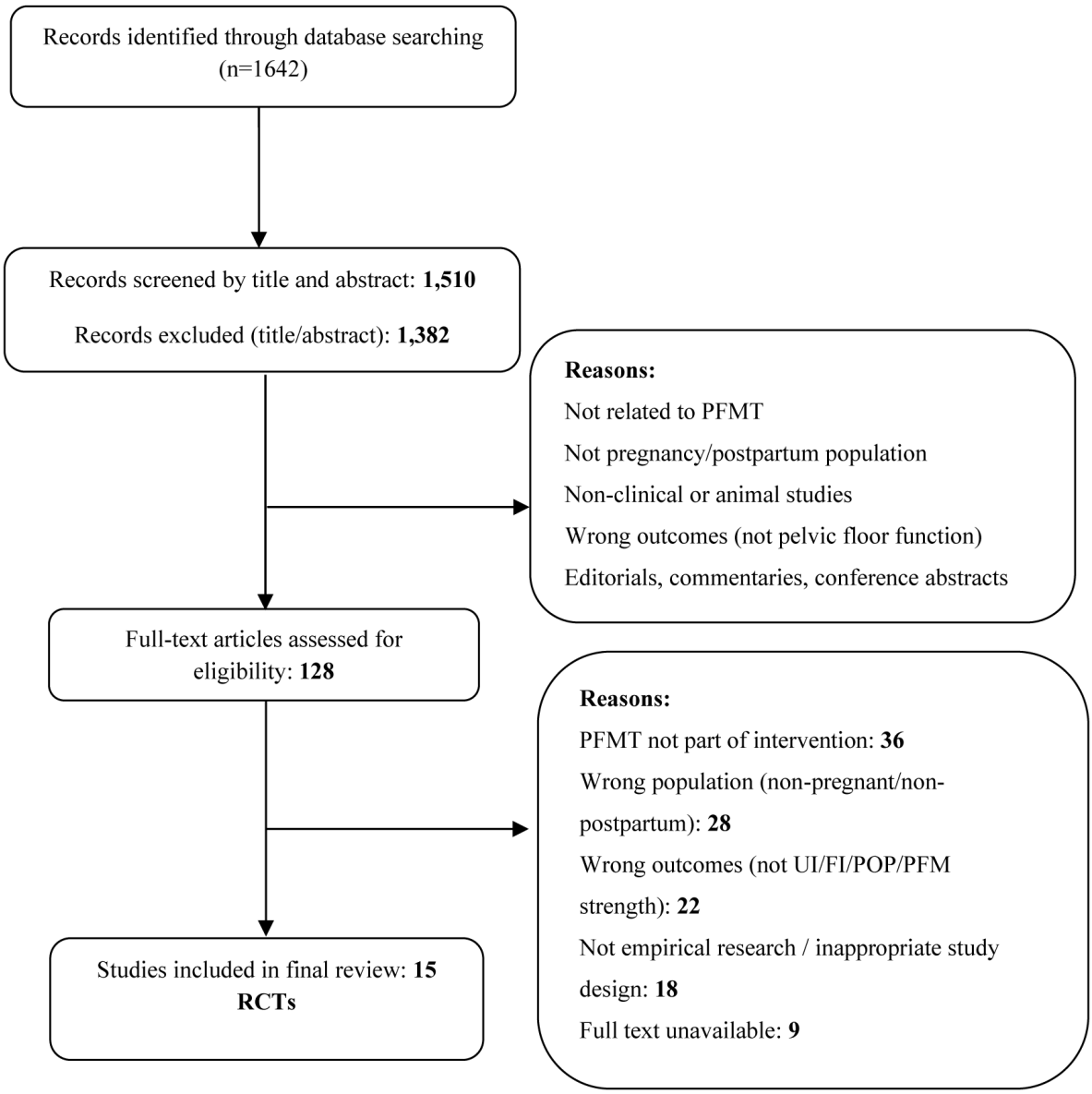


Figure 1. PRISMA flow diagram for selection of articles.

during pregnancy and up to 12 months postpartum. These investigations primarily focus on outcomes such as urinary incontinence, fecal incontinence, pelvic organ prolapse, and overall pelvic floor function. The evidence is drawn from a variety of study designs, including Randomized Controlled Trials (RCTs), quasi-experimental studies, cohort studies, and systematic reviews, which collectively provide both high-level and practical insights into the effectiveness of PFEs and PFMT. To ensure reliability and accessibility, only publications available in full text and published in English have been considered.

Exclusion criteria: Studies that involved non-pregnant or non-postpartum populations were excluded, as the focus remained specifically on pregnancy and the postpartum period. Research that examined only surgical or pharmacological interventions without incorporating PFMT was also not considered, given the objective of evaluating exercise-based preventive strategies. In addition, editorials, conference abstracts, narrative reviews, and other non-empirical publications lacking methodological rigor or original data were excluded to ensure the inclusion of high-quality, evidence-based studies (26).

Results

The database search yielded 1,642 records. After removing duplicates and screening titles and abstracts, 128 studies were identified for eligibility assessment. Following full-text review of 34 articles, 15 RCTs met the inclusion criteria and were included in the final synthesis (Figure 1). Studies were excluded if they involved non-eligible populations, non-PFMT interventions, or outcomes unrelated to the review question.

Included RCTs were published between 1999 and 2024 and enrolled between 47 and 747 participants. Most trials recruited pregnant or postpartum women, with or without urinary incontinence. Interventions comprised supervised PFMT, structured home-based programs, or combined physiotherapeutic approaches. Earlier RCTs demonstrated short-term benefits of PFMT. Bø *et al* (27) reported significant improvements in pelvic floor strength, reductions in urinary leakage, and enhanced physical and sexual function in PFMT groups compared with controls (27,28). Antenatal

Table 1. Summary of Included Randomized Controlled Trials

Author (Year)	Sample & population	Intervention	Control	Outcome measures	Key findings
Kari Bø (1999)	107 women with stress urinary incontinence	PFME, electrical stimulation, vaginal cones; supervised sessions	No intervention	Pad test, self-reported severity, PFM strength	PFME group showed greatest improvement in pelvic floor muscle strength and reduction in urine leakage (p=0.03). Electrical stimulation and vaginal cones were less effective
Kari Bø (2000)	59 women with stress incontinence	PFME (6 months), supervised progressive strengthening	No treatment	QoLS-N, B-FLUTS	Significant improvement in sexual functioning, daily activity levels, and LUTS (p<0.01)
Freeman (2002)	268 primigravidae (20 weeks gestation)	Supervised antenatal PFME with weekly sessions	Verbal advice only	ICS pad test, perineometry	Lower postpartum SUI in supervised group (19.2% *vs.* 32.7%; RR=0.59)
Chiarelli (2002)	676 postpartum women	Physiotherapist-led PFME education soon after delivery	Routine postpartum care	Self-reported UI	Early PFME reduced UI prevalence at 3 months (31% *vs.* 38%, p=0.044)
Glazener (2004)	747 postpartum women	PFME + bladder training	Usual care	UI & AI	Short-term improvement; no significant difference at 6-year follow-up due to adherence decline
Dinc (2009)	80 pregnant women	PFME program during pregnancy	No structured training	Pad test, PFM strength	Significant reduction in leakage episodes and increased PFM strength postpartum

Contd. table 1.

7 Hung (2010)	women with UI 70	Individually supervised PFME (4 months)	Home-based PFME	Pad test, voiding diary, QoL	Supervised PFME showed greater muscle strength and symptom relief (p<0.01)
8 Bernardes (2012)	women with 58 pelvic organ prolapse	PFME or hypopressive exercises	Lifestyle advice only	Levator ani CSA (ultra-(sound	Significant CSA increase in intervention groups (p<0.001)
9 Friden (2013)	primiparous 100 postpartum women	6 month PFME program	Basic PFME instruction	Perineometer, Oxford Scale	Greater MVC gain in intervention group (p<0.05)
10 Fritel (2015)	pregnant 282 women	Supervised PFME	Written advice	ICIQ-UI SF	No significant difference at 12 months postpartum
11 Ko (2015)	postpartum 300 women	PFME instructions and demonstration	Usual care	UDI-6, IIQ-7	PFME group had lower UI symptoms and better QoL (p<0.05)
12 Ghahremani (2017)	pregnant 78 women	Self-efficacy–based PFME education	Routine antenatal care	HPLP questionnaire	Significant improvement in health-promoting behaviors (p<0.001)
13 Ranjbar (2018)	pregnant 180 women	Exercise + posture training incorporating PFME	Routine care	VAS, Oswestry Index	Significant reduction in lumbopelvic pain and disability (p<0.05)
14 Luginbuehl (2021)	women with 96 SUI	Reflexive PFME + standard physiotherapy	Standard physiotherapy	ICIQ-UIsf, LUTSqol	Both groups improved similarly; reflexive PFME is a viable alternative
15 Skaug (2024)	women with 47 SUI	16 week home-based PFME with weekly tele-follow-up	No PFME	ICIQ-UI SF, manometry	Significant symptom improvement (p<0.001); 64% reported improvement *vs.* 8% in control

PFME: Pelvic Floor Muscle Exercise, PFMT: Pelvic Floor Muscle Training, SUI: Stress Urinary Incontinence, UI: Urinary Incontinence, QoL: Quality of Life, QoLS-N: Quality of Life Scale – Norwegian version, B-FLUTS: Bristol Female Lower Urinary Tract Symptoms Questionnaire, ICIQ: International Consultation on Incontinence Questionnaire, ICIQ-UI SF: ICIQ Urinary Incontinence Short Form, ICIQ-UIsf: ICIQ Urinary Incontinence Short Form (alternative abbreviation), ICIQ-LUTSqol: ICIQ Lower Urinary Tract Symptoms Quality of Life Module, UDI-6: Urogenital Distress Inventory – Short Form, IIQ-7: Incontinence Impact Questionnaire – Short Form, CSA: Cross-Sectional Area, VAS: Visual Analogue Scale, HPLP: Health-Promoting Lifestyle Profile, AI: Anal Incontinence, POP: Pelvic Organ Prolapse, PT: Physiotherapy, RR: Relative Risk.

RCTs by Freeman *et al* and Chiarelli and Cockburn reported reduced postpartum urinary incontinence following supervised or education-based PFMT (29,30).

Longer-term outcomes were heterogeneous. Glazener *et al* reported improved continence at one year postpartum but attenuation of benefit at six years, likely related to reduced long-term adherence (31). Later trials refined protocols and outcomes: Dinc *et al*, Hung *et al*, and Bernardes *et al* reported increased pelvic floor muscle strength, fewer leakage episodes, and increased levator ani cross-sectional area after PFMT (32-34).

Postpartum RCTs yielded mixed findings. Åhlund *et al* found improved pelvic floor endurance with home-based PFMT (35), whereas Fritel *et al* observed no significant difference between supervised PFMT and routine care at 12 months (36). Additional trials reported reductions in incontinence-related distress (37), improved self-efficacy and exercise behavior (38), and decreases in pregnancy-related lumbopelvic pain (39).

Recent trials evaluated alternative delivery formats. Luginbuehl *et al* found reflexive PFMT to be comparable with standard physiotherapy (40). Skaug *et al* reported significant symptomatic improvement in stress urinary incontinence with a 16-week home-based PFMT program supported by weekly follow-ups (41).

Risk-of-bias assessment indicated that 10 of the 15 RCTs had low risk of bias. Therapist blinding was generally not feasible given the nature of the

Table 2. Cochrane risk of bias table of included studies.

Sr. No. Author, year	Eligibility Criteria	Random Allocation	Concealed Allocation	Similar Baseline	Subject Blinding	Therapist Blinding	Assessors Blinding	Adequate follow-up	Intention to treat analysis	Between group comparison	Total score
Kari Bø, 1999	+	+	+	+	+	+	+	+	+	+	10
Kari Bo, 2000	+	+	-	+	-	-	-	+	+	+	6
R.M. Freeman, 2002	+	+	-	+	-	-	-	+	+	+	6
Pauline Chiarelli, 2002	+	+	+	+	+	+	-	+	+	+	9
Cathryn MA Glazener, 2004	+	+	-	+	-	-	-	+	+	+	6
Ayten Dinc, 2009	+	+	-	+	-	-	-	+	+	+	6
Hsiu-Chuan Hung, 2010	+	+	+	+	+	-	+	+	+	+	9
Bru- Teixeira Bernardes, 2012	+	+	-	+	-	-	-	+	+	+	6
Cecilia Friden, 2013	+	+	-	+	-	-	-	+	+	+	6
Xavier Fritel, 2015	+	+	+	+	+	+	+	+	+	+	10
Po-Chun Ko, 2015	+	+	+	+	-	-	-	+	+	+	7
Leila Ghahremani, 2017	+	+	-	-	-	-	-	+	+	+	5
Fahimeh Ranjbar, 2018	+	+	-	+	-	-	-	+	+	+	6
Helena Luginbuehl, 2021	+	+	+	+	+	+	+	+	+	+	10
Kristina Lindquist Skaug, 2024	+	+	+	+	+	-	+	+	+	+	9

Key

+ Low risk of bias

- High risk of bias

? Unclear risk of bias

interventions. Overall, methodological quality across trials ranged from moderate to high.

Discussion

This scoping review of 15 randomized controlled trials indicated that PFMT is an effective, safe, and cost-effective intervention for preventing and managing PFD in pregnant and postpartum women. Across varied populations and delivery formats, PFMT consistently improved pelvic floor muscle strength, reduced urinary incontinence, and enhanced quality of life.

A key finding is the added value of supervised and structured PFMT. Trials by Bø *et al*, Hung *et al*, and Freeman *et al* reported greater improvements with supervised, individualized instruction compared with unsupervised home programs (27,29,33). Supervision likely improves exercise technique, intensity, and adherence—factors that translate into better clinical outcomes. Notably, even brief physiotherapist-led

education in the early postpartum period reduced urinary incontinence rates (30), supporting the routine provision of PFMT instruction within maternal healthcare services.

These trial results are reinforced by large systematic reviews and meta-analyses. Comprehensive reviews (Dumoulin *et al*, Woodley *et al*) corroborated the efficacy of PFMT in reducing urinary incontinence and improving pelvic floor function compared with no treatment or minimal intervention (42,43). Such high-level evidence strengthens the case for integrating PFMT into standard antenatal and postnatal practice.

International clinical guidelines also support this approach. The National Institute for Health and Care Excellence (NICE) recommends supervised PFMT during pregnancy and the postpartum period as a first-line conservative measure (44). Similarly, the International Continence Society advocates for the inclusion of PFMT in routine perinatal care pathways (45). These guideline endorsements, together with trial and review data, make a compelling argument for wider implementation of PFMT programs.

Despite robust short-term benefits, long-term sustainability remains a challenge. The attenuation of effects observed in long-term follow-up studies (*e.g.*, Glazener *et al*) is primarily attributable to waning adherence (31). Therefore, strategies that support ongoing practice—such as telemonitoring, mobile health applications, community exercise groups, and behavior-change interventions grounded in self-efficacy theory—are necessary to preserve gains over time (38,41).

Emerging delivery models, including reflexive PFMT and digitally supported home programs, show promise for expanding access while maintaining effectiveness (40,41). These approaches may be particularly relevant in low-resource settings or where physiotherapy access is limited; however, large pragmatic trials are needed to confirm scalability and long-term impact.

Conclusion

Long-term follow-up data, such as the six-year study by Glazener *et al*, show that PFMT benefits may decrease over time without ongoing adherence.

This review demonstrated that PFMT is an effective, low-cost, and non-invasive way to prevent pelvic floor issues during pregnancy and after childbirth. Evidence supports its role in reducing urinary incontinence, enhancing pelvic floor strength, and improving quality of life. Supervised programs typically achieve better adherence and outcomes, while home-based approaches with proper guidance also have benefits. Nonetheless, there are still questions regarding long-term effectiveness, optimal training methods, and applicability in various populations, especially in low-resource settings. Raising awareness and improving adherence strategies are crucial for making PFMT a standard part of maternal care. This could help reduce the impact of pelvic floor issues and promote women's health throughout their lives.

Limitations

This review has some limitations. While it included randomized trials and interventional studies, many studies relied on self-reported outcomes, which could introduce bias. Most trials had short follow-up periods, which limits evidence on the long-term effectiveness of PFMT. Adherence to PFMT, particularly in home-based programs, was reported inconsistently. Blinding was also difficult, which raises the risk of bias. The generalizability of the findings is limited since most studies took place in high-income areas and focused on first-time mothers. Additionally, the best PFMT protocol is still unclear, showing the need for more research. No formal quality assessment was conducted, consistent with scoping review methodology, which aims to map available evidence rather than appraise study quality

Funding

No funding was received for the conduct of this study or the preparation of this manuscript.

Acknowledgement

The authors would like to thank all researchers whose work contributed to this review. No external assistance was utilized in the preparation of this manuscript.

Conflict of Interest

The authors declare that they have no conflicts of interest relevant to the content of this review.

References

1. Palmieri S, Bergh C, Blomberg M. Prevalence and severity of pelvic floor disorders in pregnant and postpartum women. Int J Gynecol Obstet 2022;159(3):918-26.

2. Milsom I, Gyhagen M. The prevalence of urinary incontinence. Climacteric 2019;22(3):217-22.

3. Nygaard I, Barber MD, Burgio KL, Kenton K, Meikle S, Schaffer J, et al. Prevalence of symptomatic pelvic floor disorders in US women. JAMA 2008;300(11):1311-6.

4. Harshinee N, Meena TS. Prevalence of pelvic floor dysfunction among postpartum women: a cross-sectional study. J Neonatal Surg 2025;14(15 Suppl):4479.

5. Bø K, Hilde G. Does it work in the long term?—A systematic review on pelvic floor muscle training for female stress urinary incontinence. Neurourol Urodyn. 2013;32(3):215-23.

6. Dietz HP, Simpson JM. Levator trauma is associated with pelvic organ prolapse. BJOG. 2008;115(8):979-84.

7. Smith FJ, Holman CD, Moorin RE, Tsokos N. Lifetime risk of undergoing surgery for pelvic organ prolapse. Obstet Gynecol 2010;116(5):1096-100.

8. Thom DH, Rortveit G. Prevalence of postpartum urinary incontinence: a systematic review. Acta Obstet Gynecol Scand 2010;89(12):1511-22.

9. Dumoulin C, Hay-Smith J, Habée-Séguin GM. Pelvic floor muscle training versus no treatment for urinary incontinence in women: a Cochrane review. Cochrane Database Syst Rev 2018;10:CD005654.

10. Abrams P, Andersson KE, Birder L, Brubaker L, Cardozo L, Chapple C, et al. Recommendations of the International Continence Society. Neurourol Urodyn 2010;29(1):213-40.

11. National Institute for Health and Care Excellence (NICE). Urinary incontinence and pelvic organ prolapse in women: management. NICE guideline [NG123]. London: NICE; 2019.

12. Mørkved S, Bø K. Effect of pelvic floor muscle training during pregnancy and after childbirth on prevention and treatment of urinary incontinence: a randomized controlled trial. BMJ 2000;322(7302):1-5.

13. Stafne SN, Salvesen KÅ, Romundstad PR, Torjusen IH, Mørkved S. Regular antenatal exercise, including pelvic floor muscle training, reduces postpartum urinary incontinence. Acta Obstet Gynecol Scand 2012;91(7):751-8.

14. Áhlund S, Nordgren B, Wilander EL, Wiklund I. Is home-based pelvic floor muscle training effective in treatment of urinary incontinence after birth? Int Urogynecol J 2013;24(3):421-8.

15. Woodley SJ, Boyle R, Cody JD, Mørkved S, Hay-Smith EJ. Pelvic floor muscle training for preventing and treating urinary and fecal incontinence in antenatal and postnatal women. Cochrane Database Syst Rev 2020;5:CD007471.

16. Zhang X, Zhou Y, Wang Y, Luo W. Pelvic floor muscle training during pregnancy: a systematic review and meta-analysis. Acta Obstet Gynecol Scand 2024;103(1):45-55.

17. Yang X, Zhang A, Sayer L, Bassett S, Woodward S. Effectiveness of group-based pelvic floor muscle training in preventing and treating urinary incontinence in antenatal and postnatal women: systematic review. Int Urogynecol J 2021;32(12):3081-91.

18. Bø K, Hilde G, Stær-Jensen J, Siafarikas F, Engh ME. Antenatal pelvic floor muscle training and urinary incontinence: a 7-year follow-up randomized controlled trial. Neurourol Urodyn 2022;41(1):207-15.

19. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): checklist and explanation. Ann Intern Med 2018;169(7):467-73.

20. Peters MDJ, Marnie C, Tricco AC, Pollock D, Munn Z, Alexander L, et al. Updated methodological guidance for the conduct of scoping reviews. JBI Evid Synth 2020;18(10):2119-26.

21. Munn Z, Peters MDJ, Stern C, Tufanaru C, McArthur A, Aromataris E. Methodological guidance for systematic

reviews versus scoping reviews. BMC Med Res Methodol 2018;18(1):143.

22. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. Int J Soc Res Methodol 2005;8(1):19-32.

23. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. Ann Intern Med 2018 Oct 2;169(7):467-73.

24. Peters MDJ, Marnie C, Tricco AC, Pollock D, Munn Z, Alexander L, et al. Updated JBI guidance for scoping reviews. JBI Evid Synth 2020;18(10):2119-26.

25. Tricco AC, Lillie E, Zarin W, et al. Conduct and reporting of scoping reviews. BMC Med Res Methodol 2016;16:15.

26. Munn Z, Peters MDJ, Stern C, Tufanaru C, McArthur A, Aromataris E. Choosing between systematic and scoping review approaches. BMC Med Res Methodol 2018;18(1):143.

27. Bø K, Talseth T, Holme I. Single-blind randomized controlled trial of pelvic floor exercises, electrical stimulation, vaginal cones, and no treatment in management of genuine stress incontinence in women. BMJ 1999;318(7182):487-93.

28. Bø K, Talseth T, Vinsnes A. Randomized controlled trial on the effect of pelvic floor muscle training on quality of life and sexual problems in genuine stress incontinent women. Acta Obstet Gynecol Scand 2000;79(7):598-603.

29. Reilly ET, Freeman RM, Waterfield MR, Waterfield AE, Steggles P, Pedlar F. Prevention of postpartum stress incontinence in primigravidae with increased bladder neck mobility: a randomized controlled trial of antenatal pelvic floor exercises. BJOG 2002;109(1):68-76.

30. Chiarelli P, Cockburn J. Promoting urinary continence in women after delivery: randomized controlled trial. BMJ 2002;324(7348):1241-6.

31. Glazener CM, Herbison GP, MacArthur C, Grant A, Wilson PD. Randomised controlled trial of conservative management of postnatal urinary and faecal incontinence: six-year follow-up. BMJ 2004;328(7435):1081.

32. Dinc A, Beji N, Yalcin O. Effect of pelvic floor muscle exercises in the treatment of urinary incontinence during pregnancy and the postpartum period. Int Urogynecol J 2009;20(10):1223-31.

33. Hung HC, Hsiao SM, Chih SY, Lin HH, Tsauo JY. An alternative intervention for urinary incontinence: retraining diaphragmatic, deep abdominal, and pelvic floor muscle coordinated function. Man Ther 2010;15(3):273-9.

34. Bernardes BT, Resende AP, Stüpp L, Oliveira E, Castro RA, Jármy di Bella ZI, et al. Efficacy of pelvic floor muscle training and hypopressive exercises for treating pelvic organ prolapse in women: randomized controlled trial. Sao Paulo Med J 2012;130(1):5-9.

35. Åhlund S, Nordgren B, Wilander EL, Wiklund I. Is home-based pelvic floor muscle training effective in treatment of urinary incontinence after birth? Acta Obstet Gynecol Scand 2013;92(8):909-15.

36. Fritel X, De Tayrac R, Bader G, Savary D, Gueye A, Deffieux X, et al. Preventing urinary incontinence with supervised prenatal pelvic floor exercises: a randomized controlled trial. Obstet Gynecol 2015;126(2):370-7.

37. Chin HY, Chen MC, Liu YH, Wang KH. Postpartum urinary incontinence: a comparison of vaginal delivery, elective, and emergent cesarean section. Int Urogynecol J 2015;26(12):1733-41.

38. Ghahremani L, Alipoor M, Amoee S, Keshavarzi S. Health-promoting behaviors and self-efficacy of physical activity during pregnancy: an interventional study. Int J Women's Health Reprod Sci 2017;5:181-6.

39. Mirmolaei ST, Nakhostin Ansari N, Mahmoudi M, Ranjbar F. Efficacy of a physical training program on pregnancy-related lumbopelvic pain. Int J Women Health Reprod Sci 2018;6(2):161-6.

40. Luginbuehl H, Lehmann C, Koenig I, Kuhn A, Buergin R, Radlinger L. Involuntary reflexive pelvic floor muscle training in addition to standard training versus standard training alone for women with stress urinary incontinence: randomized controlled trial. Int Urogynecol J 2022;33(3):531-40.

41. Skaug KL, Engh ME, Bø K. Pelvic floor muscle training in female functional fitness exercisers: an assessor-blinded randomized controlled trial. Br J Sports Med 2024;58(9):486-93.

42. Dumoulin C, Hay-Smith J, Habée-Séguin GM. Pelvic floor muscle training versus no treatment for urinary incontinence in women: a Cochrane review. Cochrane Database Syst Rev 2018;10:CD005654.

43. Woodley SJ, Boyle R, Cody JD, Mørkved S, Hay-Smith EJC. Pelvic floor muscle training for preventing and treating urinary and fecal incontinence in antenatal and postnatal women. Cochrane Database Syst Rev 2020;5:CD007471.

44. National Institute for Health and Care Excellence (NICE). Urinary incontinence and pelvic organ prolapse in women: management. NICE Guideline [NG123]. London: NICE; 2019.

45. Abrams P, Andersson KE, Birder L, Brubaker L, Cardozo L, Chapple C, et al. Recommendations of the International Continence Society. Neurourol Urodyn 2010;29(1):213-40.

46. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA-ScR: checklist and explanation. Ann Intern Med 2018;169(7):467-73.

47. Peters MDJ, Marnie C, Tricco AC, Pollock D, Munn Z, Alexander L, et al. Updated methodological guidance for the conduct of scoping reviews. JBI Evid Synth 2020;18(10):2119-26.

48. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. Int J Soc Res Methodol 2005;8(1):19-32.