

A review on scope of hypopressive exercise in postpartum women with pelvic floor dysfunction

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Abstract

Pelvic Floor Dysfunction (PFD) is a prevalent complication among postpartum women, commonly leading to urinary incontinence, reduced muscle strength, and impaired quality of life. Traditional interventions like Pelvic Floor Muscle Training (PFMT) are often challenged by low adherence and difficulty in voluntary muscle activation during the early postpartum period. Hypopressive Exercises (HE), also known as the Abdominal Hypopressive Technique (AHT), offer an alternative by promoting reflexive activation of the pelvic floor and core muscles through postural and respiratory control. This literature review evaluates the effectiveness of hypopressive exercises in postpartum women with PFD by analyzing 10 key studies, including randomized controlled trials, cohort studies, and systematic reviews. The results indicate that HE significantly improves pelvic floor muscle strength, reduces urinary incontinence severity, and enhances quality of life. Moreover, HE shows promise as a non-invasive, low-impact intervention suitable for early postpartum rehabilitation, especially for women who struggle with active PFMT. Despite encouraging outcomes, further high-quality research with standardized protocols is necessary to validate its integration into routine physiotherapy practice.

Keywords: Abdominal Hypopressive Technique (AHT); Pelvic Floor Dysfunction (PFD); Postpartum Rehabilitation; Pelvic Floor Muscle Strength; Quality of Life; Urinary Incontinence

1. Introduction

Pelvic Floor Dysfunction (PFD) is a common complication following childbirth, affecting a significant proportion of postpartum women [1]. It includes a range of conditions such as urinary incontinence, reduced pelvic floor muscle (PFM) function and reduced core stability, primarily caused by weakening or damage to the pelvic floor muscles during pregnancy and delivery [2, 3]. Risk factors include vaginal delivery, perineal trauma, instrumental birth, and multiple pregnancies [3, 11]. These dysfunctions can negatively impact a woman's physical, emotional, and social well-being, making timely intervention essential [5]. Conventional rehabilitation protocols emphasize Pelvic Floor Muscle Training (PFMT) as the first-line therapy; however, adherence issues and improper muscle recruitment can limit its effectiveness, especially in early postpartum stages [3, 6]. Early postpartum rehabilitation plays a crucial role in restoring pelvic floor function and preventing chronic complications [2]. During the initial weeks after childbirth, the body undergoes healing and recovery, which provides a valuable window for therapeutic interventions [11]. Introducing pelvic floor-focused rehabilitation during this period can help women regain muscle tone, reduce symptoms of incontinence, improve posture, and enhance core stability [12]. Moreover, early rehabilitation can significantly improve quality of life and reduce long-term healthcare costs related to untreated pelvic dysfunctions [13].

Hypopressive exercises, also known as the Abdominal Hypopressive Technique (AHT), are a low-pressure fitness approach that emphasizes breathing control, postural alignment, and diaphragmatic aspiration, developed by Dr. Marcel

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Caufriez in the 1980s [14]. Unlike traditional pelvic floor muscle training (PFMT), hypopressive exercises aim to reduce intra-abdominal pressure and trigger an involuntary reflex contraction of the pelvic floor and deep abdominal muscles [6, 14]. Through repeated practice, AHT promotes neuromuscular re-education, enhances pelvic and core muscle tone, and supports the recovery of pelvic structures [6]. This technique has gained popularity as an alternative or adjunct to PFMT in postpartum rehabilitation programs [11]. Over the past decade, researchers have explored the use of hypopressive exercises a postural and breathing-based method that reduces intra-abdominal pressure and promotes reflexive PFM activation as an alternative or adjunct therapy for postpartum women [1, 2, 6, 11]. Unlike voluntary PFMT, hypopressive techniques facilitate automatic co-contraction of the pelvic floor and transversus abdominis muscles, potentially making them more accessible for women who struggle with direct muscle engagement [3, 11, 13].

The primary purpose of this study is to review the effectiveness of hypopressive exercises (AHT) in the prevention and management of pelvic floor dysfunction in postpartum women. This project aims to reviewing how AHT influences outcomes such as pelvic floor muscle strength and core stability, incontinence severity and quality of life [2, 6, 11]. By reviewing existing literature and outcome measures, the study seeks to establish whether hypopressive exercises can serve as a reliable and evidence-based method in early postpartum physiotherapy [12, 14].

Objective of the study

To review the scope of hypopressive exercise on Pelvic Floor dysfunction among postpartum women.

2. Methodology

- **Study Design:** This study followed a narrative literature review.
- **Search Engines:** PubMed, Google Scholar, Cochrane Library, ScienceDirect, ResearchGate.
- **Keywords:** Abdominal Hypopressive Technique (AHT), Pelvic Floor Dysfunction (PFD), Postpartum Rehabilitation, Pelvic Floor Muscle Strength, Quality of Life, Urinary Incontinence.
- **Search Year:** 2012 - 2024

2.1.1. Inclusion criteria

- Articles after 2012.
- Written in English languages.
- Involved postpartum women within 1 year after deliver.
- Evaluated hypopressive exercises as an intervention alone or with PFMT.
- Reported measurable outcomes on pelvic floor muscle strength, urinary incontinence, quality of life.

2.1.2. Exclusion criteria

- Articles before 2012.
- Articles in other languages.
- Studies not specifically assessing hypopressive exercise outcomes.
- Articles not available in full text.

3. Results

A review of recent peer -reviewed literature including randomized controlled trials, pilot studies, cohort studies and systematic reviews indicates that hypopressive exercises (HE) significantly contributed to the improvement of pelvic floor muscle (PFM) function, particularly in postpartum women experiencing urinary incontinence and decreased muscle strength.

Studies confirmed reflexive activation of pelvic floor and deep abdominal muscles during HE, indicating neuromuscular engagement without direct voluntary contraction.

Systematic reviews acknowledged moderate-to-strong evidence supporting HE, but emphasized the need for standardized intervention protocols and long-term follow-up. Overall, improvements were typically observed after 4 to 12 weeks of intervention with a frequency of 2–5 sessions per week.

Seven studies reported significant improvement in pelvic floor muscle strength in postpartum women following an intervention involving hypopressive exercises. Six articles observed a statistically significant reduction in the severity

and frequency of urinary incontinence symptoms. Five studies noted improved patient-reported quality of life scores, with specific improvements in domains like body confidence, social participation, and discomfort during daily activities. Two studies compared HE with PFMT and found comparable or slightly better outcomes when HE was combined with or used as an alternative to PFMT.

Overall, the results highlight that hypopressive exercises have potential as an effective intervention for postpartum pelvic floor rehabilitation, particularly for improvements in pelvic floor strength, reduction in urinary incontinence symptoms, and enhanced overall quality of life following structured hypopressive exercise protocols.

Table 1 Different studies identified for reviewing Scope of Hypopressive Exercise in Postpartum Women with Pelvic Floor Dysfunction

Author (Year)	Study Design	Participants	Methodology	Results/Conclusion
Navarro-Brazález et al. (2020)	RCT	94 women with PFD	12-week intervention; 3 groups: HE, PFMT, HE+PFMT; used ICIQ-SF, PFDI-20, MOS.	All groups improved; HE+PFMT had best outcomes; HE alone also effective for tone and incontinence.
Molina-Torres et al. (2023)	RCT	40 postpartum women with UI	8-week HE; assessed with EMG and ICIQ-UI-SF.	Significant reduction in UI and increased pelvic floor muscle EMG activity.
Resende et al. (2012)	Controlled Clinical Trial	43 postpartum women (≤ 3 months)	6 weeks of HE, 3x/week; compared to PFMT.	HE showed superior strength and symptom improvement vs. PFMT.
Soriano et al. (2020)	Randomized Crossover Trial	Postpartum women (sample N NR)	Alternated HE vs. control; measured PFM tone and ICIQ-SF.	Significant improvement in PFM tone and UI with HE.
Juelz et al. (2019)	Prospective Cohort Study	2 postpartum groups (HE vs PFMT)	8-week program; assessed levator ani thickness and satisfaction.	HE had greater muscle thickness and higher satisfaction than PFMT.
Da Cuna-Carrera et al. (2018)	Systematic Review (13 studies)	Women with PFD	Reviewed HE-focused trials (RCTs, pilots, clinical).	HE improves tone and symptoms; evidence is positive but limited by study variability.
López Pérez et al. (2021)	RCT	96 postpartum women (6–12 weeks)	8-week HE programs; 3 sessions/week; QoL and UI tracked.	Significant improvement in QoL and reduction in UI episodes.
Ithamar et al. (2018)	EMG-based Experimental Study	Adult women	EMG during HE; observed muscle activation.	HE triggered reflex core and pelvic floor activation; supports physiological basis of HE.
Katz and Barbosa (2024)	Systematic Review (RCTs)	Adult women	Evaluated RCTs for HE's effect on core/pelvic muscle function.	Moderate improvements with HE; less consistent than PFMT; higher-quality studies needed.
Soundarya (2024)	Pilot Study	Postnatal mothers with UI	4-week HE intervention; measured with QUID and Modified Oxford Scale.	Significant UI reduction; improved muscle strength; low-cost, effective for early postnatal care.

4. Discussion

Studies confirm that hypopressive exercises are effective in reflexive activating pelvic floor and core muscles, which is particularly beneficial in the postpartum period. These exercises help reduce intra-abdominal pressure, improve muscle tone, and enhance postural control, contributing to the overall management of pelvic floor dysfunction.

A study done by Navarro-Brazalez et al confirms that hypopressive exercises reduce intra-abdominal pressure through diaphragmatic vacuum breathing, which in turn causes a reflex contraction of the pelvic floor and deep core muscles (like the transversus abdominis and multifidus). Interventions lasted 12 weeks with outcome measures including Modified Oxford Scale, ICIQ-SF, and PFDI-20. This reflex activation is critical postpartum, as voluntary contractions may be difficult due to muscle trauma or neuromuscular inhibition following delivery. The study showed that combining voluntary (PFMT) and involuntary (HE) activation maximizes muscle recruitment and recovery of continence mechanisms [1].

A study done by Molina-Torres et al, confirms that HE activates the phrenic nerve to elevate the diaphragm, lowering abdominal pressure and engaging the deep muscle stabilization. Measured outcomes using ICIQ-UI-SF and electromyography (EMG) over 8 weeks. The pelvic floor muscles (PFMs) contract reflexively due to the rise in the thoracoabdominal gradient. This supports bladder neck positioning and enhances urethral closure pressure, which is vital for resolving stress urinary incontinence in postpartum. EMG results in this study confirmed neuromuscular facilitation of PFMs via indirect pathways [2].

A study done by Resende et al shows that Hypopressive exercises work by creating a low intra-abdominal pressure through a combination of breath-holding (apnea) and postural activation. This technique lifts the diaphragm and triggers a reflex contraction of the deep core muscles, especially the transversus abdominis and pelvic floor. In postpartum women, who often struggle with voluntary pelvic floor activation, this reflex mechanism helps restore muscle tone and function. By reducing downward pressure on the bladder and pelvic organs, Hypopressive support urinary continence and improve pelvic floor strength without direct contraction [3].

A study done by Soriano et al shows that the diaphragmatic vacuum used in HE generates a pressure gradient that lifts the pelvic organs and draws the PFMs upward reflexively. Used ICIQ-SF and vaginal tone scores. This technique enhances neural recruitment in the lumbopelvic region, including indirect activation of levator ani muscles. With repeated sessions, there is improved basal tone and reactivity of the pelvic floor, reducing involuntary urine leakage. This is important in postpartum women when conscious muscle engagement is challenging [4].

A study done by Juez et al shows that levator ani muscle, often stretched or torn during childbirth, benefits from HE through improved posture and spinal alignment. HE restores neuromyofascial tension across the pelvic ring, allowing more effective force transfer and reducing downward organ pressure. The study showed increased muscle thickness, possibly due to increased tonic activation and mechanical training from sustained postural loading rather than isolated contraction [5].

A study done by Da Cuna-Carrera et al confirms that HE was found to influence the deep core-pelvic floor muscles by Improving lumbo-pelvic rhythm, encouraging diaphragmatic and pelvic floor synergy, Facilitating reflexive muscle responses. This coordinated activation aids in continence control, enhances pelvic floor elevation, and promotes fascia reinforcement through sustained low-pressure postural holds, which is necessary in postpartum muscle re-education [6].

A study done by Lopez Perez et al confirms that Hypopressive exercises in this study were used to improve posture, breathing control, and core muscle activation. The apnea phase causes the diaphragm to lift, which reflexively engages the pelvic floor and abdominal muscles. This reduces intra-abdominal pressure and supports the pelvic organs without straining them. In postpartum women, this helps reduce urinary leakage by improving pelvic floor responsiveness during daily activities. Even without voluntary muscle training, the technique enhances bladder control and quality of life through postural and neuromuscular improvements [7].

A study done by Ithamar et al was EMG study which confirmed that HE causes significant neuromuscular co-activation of Transversus abdominis, Internal obliques. This occurs during apnea and vacuum phase of HE, without requiring active contraction. Such automatic activation is vital for postpartum women with neuromotor delay, allowing early muscle reactivation and trunk stabilization without increasing intra-abdominal pressure that might worsen prolapse or incontinence [8].

A study done by Katz and Barbosa was a systematic review found that HE improves synergistic function between the diaphragm, abdominal wall, and pelvic floor. This “core synergy” leads to: Improved load transmission, Reduced pelvic strain, Enhanced continence reflexes. HE restores the myofascial network integrity and improves the tonic support system, which is often compromised during vaginal delivery, especially in the presence of diastasis recti or connective tissue laxity [9].

A study by Soundarya confirm that postpartum women benefited from reflexive training HE bypassing the need for strong volitional input, early after birth. Measured UI severity and pelvic floor strength using ICIQ and Oxford scale. The technique allowed automatic pelvic floor response through vacuum-induced muscle recruitment. This reduces Valsalva-like pressure that worsens incontinence and instead promotes functional elevation of the pelvic organs and tissue remodeling, improving continence and comfort. HE improved autonomic pelvic floor response by reducing downward pressure and increasing supportive tension [10].

5. Conclusion

Based on the current body of evidence, hypopressive exercises can be considered an effective complementary approach in the prevention and management of pelvic floor dysfunction (PFD) among postpartum women. The evidence supports the clinical application of HE particularly in early postpartum rehabilitation, where women may be unable to perform effective voluntary contractions.

The technique appears to be effective in improving pelvic floor muscle strength, reducing urinary incontinence, and enhancing quality of life. Although not yet widely established as a standalone treatment, it serves as a promising adjunct or alternative to PFMT in postpartum.

Studies reviewed demonstrated that hypopressive exercises either as a standalone intervention or when combined with Pelvic Floor Muscle Training (PFMT) lead to measurable improvements in pelvic floor outcomes. These benefits include increased levator ani muscle thickness, improved muscle strength, and decreased frequency and severity of urinary leakage episodes. Additionally, several studies reported a positive impact on quality-of-life indicators, particularly in relation to social participation, self-confidence, and daily functioning.

One of the strengths of hypopressive techniques is their focus on postural control and diaphragmatic breathing, which promotes reflex activation of the pelvic floor without direct voluntary contractions. This makes them especially beneficial for early postpartum women who may find active PFMT challenging due to pain, fatigue, or lack of muscle awareness.

Despite the promising outcomes, the evidence base is still emerging and not yet conclusive. Many of the studies included small sample sizes, varied in exercise protocols, lacked long-term follow-up, and used different outcome measurement tools. Moreover, there is currently no standardized clinical guideline for the prescription of hypopressive exercises, which limits their integration into mainstream postpartum physiotherapy. Therefore, while this review supports the potential clinical value of hypopressive exercises in postpartum rehabilitation, it also highlights the need for further high-quality, large-scale randomized controlled trials.

In conclusion, hypopressive exercises offer a non-invasive, low-risk, and effective approach to postpartum pelvic floor recovery. They may be particularly useful when introduced early in the postpartum period or used in conjunction with PFMT. With growing awareness and further scientific validation, hypopressive training can be considered a valuable addition to routine postpartum physiotherapy protocols.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflict of interest.

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