

# **Stress Urinary Incontinence and Rehabilitation Methods for Middle Aged Women**

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## **Introduction**

Urinary incontinence can occur for various reasons; however, Stress Urinary Incontinence (SUI) is specifically the involuntary leakage of urine during times of stress exertion such as running, sneezing, coughing or exercise. SUI is a common but abnormal condition affecting women of all ages and the social, psychological and economic impacts of SUI can be significant.<sup>1-4</sup> Treatment protocols for SUI typically focus on improving the function of a set of muscles known as the pelvic floor.<sup>1-4</sup> Given that pelvic floor muscles support the bladder, strengthening that function can assist in the relief of SUI symptoms. While the treatment options for SUI can vary widely, the awareness of these options is not as prevalent for women with this condition.<sup>1-4</sup> Thus, educating SUI patients on the efficacy of pelvic floor muscle therapy (PFMT) as a rehabilitation modality can be beneficial to their treatment as well as their overall well-being.

## **Focused Clinical Question**

Does the literature support the utilization of pelvic floor muscle therapy (PFMT) along with other nonsurgical rehabilitation interventions to improve stress urinary incontinence in middle-aged women? In order to address the focused clinical question, the following literature review criteria and processes were implemented.

## **Search Methodology**

- Databases: Pubmed, TRIP, Google Scholar
- Keywords: Pelvic floor, function, physical therapy, breathing, incontinence, SUI
- Inclusion: women ages 20-65, SUI symptomatic, exercises versus addition intervention or control, humans, stress urinary incontinence.
- Exclusion: 65+ age, men, children, pregnant women, other types of urinary incontinence, prolapse, systematic reviews
- 10 peer-reviewed studies found in total, four were used for this Critically Appraised Topic (CAT)
- Articles excluded addressed multiple types of incontinence, inappropriate ages of population, and improperly administered methods of interventions.

## **Results of Evidence Quality Assessment**

The strength of the information found was Level A with randomized trials being conducted across all of the articles. The literature generally supports rehabilitative treatments for SUI.

Many of these studies had a wide range of subjects randomly selected and assigned to groups, thus the number of participants in specific age ranges within each group was unknown. Sample sizes were reasonable, with one study pulling in 118 subjects. Some of the studies did not isolate each rehabilitation modality; however, those studies still addressed the effects of using different treatments options.<sup>1-4</sup>

## **Results of Search**

Based on the inclusion and exclusion search criteria, four studies were chosen as best evidence for this Critically Appraised Topic. All of the studies indicated that a female patient may improve her SUI symptoms and through a number of methods to accomplish symptom relief. The details from each study are outlined in the following table.

**Table 1: SUI Treatment Modality Search Results**

AMA Reference Citation	Patient Population Demographics	Intervention	Outcome Measures Used	Result Key Findings	Level of Evidence (Sacket)
<b>Orhan C, Akbayrak T, Özgül S et al. “Effects of vaginal tampon training added to pelvic floor muscle training in women with stress urinary incontinence: randomized controlled trial.” <i>Int Urogynecol J.</i> 2018; 1-11.</b>	48 Women, 35-60 years old, SUI or stress-predominate UI.	12 weeks of treatment 2 groups: PFMT vs PFMT and vaginal tampon training.	Outcome diaries, questionnaires, 24h frequency volume charts and a 24-hour pad test. Likert scale. Measured at 4, 8, and 12 weeks.	No statistically significant difference was found in self-reported improvement during the study. Statistically significant improvement in UI in PFMT group at weeks 8 and 12.	1B
<b>Huebner M, Riegel K, Hinninghofen H, Wallwiener D, Tunn R, Reisenauer C. “Pelvic floor muscle training for stress urinary incontinence: A randomized, controlled trial comparing different conservative therapies.” <i>Physiotherapy Research International.</i> 2010</b>	N=108 subjects Women age 49.8+- 12.9 years SUI Symptomatic	3 groups: Biofeedback Dynamic ES Biofeedback conventional ES EMG Biofeedback assisted PF muscle training	Quality of life measure with KHQ and VAS. Contractility by palpation via oxford scale and intra-vaginal EMG, Number of pads	After 12 weeks: Significant improvements across all groups with no significant differences between them all.	1B
<b>Castro R, Arruda R, Zanetti M, Santos P, Sartori M, Girão M. “Single-blind, randomized, controlled trial of pelvic floor muscle training, electrical stimulation, vaginal cones, and no active treatment in the management of stress urinary incontinence.” <i>Clinics.</i> 2008;63(4):465-472.</b>	N=118 subjects Women with SUI, random selection	3 groups: Pelvic floor exercises (n=31) Vaginal cones (n=27), ES (n=30), control (n=30)	Six months of treatment by the pad test, quality of life questionnaire (I-QOL), urodynamic test, voiding diary, and subjective response.	There was no significant difference between the different interventions, supports pelvic floor exercises as first option of treatment	1B
<b>Hung H, Hsiao S, Chih S, Lin H, Tsauo J. “An alternative intervention for urinary incontinence: Retraining diaphragmatic, deep abdominal and pelvic floor muscle coordinated function.” <i>Man Ther.</i> 2010;15(3):273-279.</b>	N=70 with SUI 18-65 age	2 groups: exercise training versus control group	4 months duration, Self-reported 4 point Likert scale, 20 min pad test, void diary, manometer measurements, Mann-Whitney U-test	Treatment group has significantly better outcomes of cured or improved symptoms	1B

Strengthening pelvic floor muscles through PFMT is the method most supported in the literature to improve symptoms of SUI. Further, by combining pelvic floor muscle therapy with other rehabilitation methods, women can experience greater symptom relief.

**Implications for Practice, Education, and Future Research:** There are many resources and treatment options available to women suffering from stress urinary incontinence; however, many patients are not aware of the varied treatment modalities. The studies included in this review reveal the benefits of a multi-faceted approach to SUI treatment and the positive impact of these approaches on symptom relief and overall quality of life.

Future studies should focus on which combinations of therapies are most effective within different populations. Additionally, future researchers might wish to determine the impact of compliance with treatment protocols on symptom relief. Finally, given that there is a major gap in research on the effects of SUI on athletic performance, confidence and treatment protocols, additional research on the impact of SUI within the athlete population may be warranted.

## References:

1. Castro R, Arruda R, Zanetti M, Santos P, Sartori M, Girão M. Single-blind, randomized, controlled trial of pelvic floor muscle training, electrical stimulation, vaginal cones, and no active treatment in the management of stress urinary incontinence. *Clinics*. 2008;63(4):465-472.
2. Huebner M, Riegel K, Hinninghofen H, Wallwiener D, Tunn R, Reisenauer C. Pelvic floor muscle training for stress urinary incontinence: A randomized, controlled trial comparing different conservative therapies. *Physiother Res Int*. 2010; 16(3): 133-140.
3. Hung H, Hsiao S, Chih S, Lin H, Tsao J. An alternative intervention for urinary incontinence: Retraining diaphragmatic, deep abdominal and pelvic floor muscle coordinated function. *Man Ther*. 2010;15(3):273-279.
4. Orhan C, Akbayrak T, Özgül S et al. Effects of vaginal tampon training added to pelvic floor muscle training in women with stress urinary incontinence: randomized controlled trial. *Int Urogynecol J*. 2018; 1-11.