

Pelvic Physical Therapy Distance Journal Club

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Physical and rehabilitation therapy for overactive bladder in women: a systematic review and meta-analysis. Bai J, Tian Y, Wang Y, et al. Int J Clin Pract. 2023; Jan 4:6758454.

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Introduction: Overactive bladder (OAB) is defined by the International Incontinence Society (ICS) as urgency, with or without urge incontinence, usually with frequency and nocturia. Reported incidence among females varies (U.S. & Europe 16% > China 6%), with an overall trend that increases with age. There are many treatment options available for treatment of OAB ranging from drug therapy to peripheral tibial nerve stimulation, yet physical and rehabilitation therapies provide more options for female patients with OAB. However, there is a lack of comparative research for effective rehabilitation therapy techniques for treatment of OAB.

Aim/Primary Aim: To compare effects of different physical and rehabilitation therapies on women with overactive bladder (OAB)

Study Design/Study Format: Systematic review, meta-analysis

Methods: Databases systematically searched included Embase, Scopus and PubMed; search terms included “overactive bladder,” “overactive detrusor,” “bladder training,” “pelvic floor muscle training,” “biofeedback,” “pelvic floor muscle exercise,” “PTNS,” “TTNS,” or “sacral neuromodulation.”

Inclusion criteria:

- RCTs of physical and rehabilitation therapy in women with OAB and women > 18 years old.

Exclusion criteria:

- Studies of drug therapy or studies without drug washout
- Studies with OAB surgery
- Infectious factors (ie. UTIs, obvious pathological changes, neurological diseases)

Note: methods include analyzing frequency, NOT urgency (as urgency is the main symptom of OAB according to the ICS definition)

Results: 12 RCTs involving 637 patients were included; twelve physical and rehabilitation therapies for OAB were included. Patient interventions are provided in the table below.

Intervention:	Abbreviation:	Number of Patients:
Percutaneous Tibial Nerve Stimulation	PTNS	112
Pelvic Floor Muscle Training	PFMT	20
Transcutaneous Tibial Nerve Stimulation	TTNS	87
PFMT + TTNS	PFMT + TTNS	19
PFMT + Electrical Stimulation	PFMT + ES	30
Bladder Training	BT	101
BT + Biofeedback	BT + BF	16
BT + ES	BT + ES	46
BT + BF + ES	BT + BF + ES	16
Acupuncture	Acupuncture	16
Sacral Nerve Stimulation	SNS	58
BT + Magnetic Stimulation	BT + MStim	35

Probability ranking results show advantages vs. disadvantages of the different interventions ranked in the following order (best to worst):

Daytime Micturition Frequency	Nocturia Frequency
<ul style="list-style-type: none"> ● BT+ES ● BT+BF+ES ● PTNS ● PFMT+TTNS ● PFMT+ES ● PFMT ● SNS ● TTNS ● Placebo ● Acupuncture ● BT+BF ● BT ● BT+MStim 	<ul style="list-style-type: none"> ● BT+BF+ES ● PTNS ● PFMT+ES ● BT+ES ● BT+BF ● SNS ● BT+MStim ● PFMT+TTNS ● TTNS ● PFMT ● Placebo ● Acupuncture ● BT

Discussion:

- Transvaginal electrodes for ES were utilized with a duration was 3 days/week with a single treatment time of 20 minutes for 8 weeks
- PTNS had no statistically significant difference in effectiveness in improving daytime micturition frequency when compared to TTNS; PTNS was better than TTNS in improving nocturia frequency, possibly because fine needle aspiration enables electrical stimulation to act directly on the nerve and the effect is more precise

- There was no significant difference in comparing amongst PTNS, BT+ES, and BT+BF+ES interventions for effectiveness
- Any of these three interventions (BT+ES, BT+BF+ES, PTNS) amongst the included studies typically ranged from 8-12 weeks

Strengths:

- RCT only considered in inclusion criteria

Limitations:

- Analyzed frequency, not urgency
- Number of studies and patients included was small
- Lack of a standardized OAB evaluation
- No conclusive evidence of effective control of OAB in the long-term
- Patient discrepancy between total patients included in metaanalysis (n=637) & patients assigned to specific interventions (n=556)

Clinical Application: A strong case is made for the combination of treatments for OAB especially BT+ES and BT+BF+ES (which may be the most easily adoptable in the physical therapy setting).

List discussion questions:

1. How can BF+ES be used together simultaneously?
2. Have you found differences in results for TTNS vs PTNS?
3. Has anyone found any specific ES parameters that seem most effective?