

THE CORRELATION BETWEEN PELVIC FLOOR MUSCLE ASSESSMENT FINDINGS AND URINARY INCONTINENCE

Hypothesis / aims of study

Pelvic floor physical therapy (PFPT) is a mainstay for the conservative management of patients with pelvic floor disorders, including urinary incontinence (UI). Little is known about the correlation between pelvic floor muscle assessment findings and UI. Our objective was to compare pelvic floor muscle exam findings in patients with stress urinary incontinence (SUI), urge urinary incontinence (UUI) and mixed urinary incontinence (MUI) using standardized PFPT measurements. We hypothesize that in a group of patients diagnosed with different types of UI, there exist differences amongst the PFPT myofascial assessment findings. These differences are clinically relevant as they may help guide both urogynecologists and physical therapists in the management of these patients.

Study design, materials and methods

This is a retrospective cohort study of women referred to PFPT for symptoms of SUI, UUI and MUI between January 2009 and January 2011. We reviewed records from a private PFPT center, with 10 physical therapists with specialized pelvic floor dysfunction training. For each initial PFPT myofascial evaluation, we recorded assessment of manual muscle test (MMT), pelvic floor muscle (PFM) tone, voluntary PFM contraction, PFM lengthening and PFM relaxation. A standardized scale was used for each myofascial evaluation: MMT (modified Oxford scale = 0-5); PFM tone (scale = decreased, normal, unilateral and bilateral increase); voluntary PFM contraction (scale = absent, weak, moderate, strong); PFM lengthening (scale = unable, poor, fair, able); PFM relaxation (scale = absent, delayed, delayed-partial, delayed-complete, complete). Statistical analysis was performed with a Kruskal Wallis Test and logistic regression to compare PFPT myofascial assessment between the three UI categories.

Results

Out of 297 women referred for PFPT for pelvic floor dysfunction, 218 women met the inclusion criteria: 130 with MUI, 34 with UUI and 54 with SUI. Table 1 shows demographic data and median myofascial exam findings. The median and distribution of PFM tone, contraction, lengthening and relaxation were similarly diminished across the three categories of UI. MMT was found to be globally decreased in all groups of UI, but statistically different amongst the three groups ($p \leq 0.005$) with the most diminished strength in the UUI group.

Table 1: PFPT exam findings in subjects with UI [Median (range)]

Category	Age (mean)	Vaginal Parity	MMT	PFM tone	PFM contraction	PFM length	PFM relax
SUI (n=54)	50.9 (20-84)	1 (0-3)	2 (0-3)	3 (0-3)	1 (0-2)	1 (0-3)	2 (1-4)
UUI (n=34)	52.8 (20-85)	1 (0-3)	1.5 (1-3)	3 (0-3)	1 (0-2)	1.5 (0-3)	1 (0-4)
MUI (n=130)	51.3 (21-80)	2 (0-4)	2 (0-4)	3 (0-3)	1 (0-2)	2 (0-3)	2 (0-4)
p-value*	0.8	0.1	<0.005	0.2	0.3	0.9	0.5

*Kruskal Wallis test

Interpretation of results

All patients presenting for PFPT had pelvic floor muscle dysfunction, as evidenced by globally diminished PFM strength and tone and diminished range of motion, including decreased ability to lengthen and relax. Manual muscle test of PFM strength was significantly further diminished in UUI patients.

Concluding message

This may imply that UUI is multi-factorial with diminished PFM strength when compared with other types of UI. UUI patients may benefit from targeted PFPT.

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Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes

<i>Specify Name of Ethics Committee</i>	Partners Human Research Committee
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	No