

## PELVIC FLOOR MUSCLE TRAINING BEFORE TRANSURETHRAL RESECTION OF THE PROSTATE

### Hypothesis / aims of study

Transurethral resection of the prostate (TURP) is regarded the gold standard for surgical treatment of lower urinary tract symptoms (LUTS) due to benign prostatic obstruction (BPO). Symptoms may often still be bothersome on discharge from hospital, and symptom improvement may take weeks and months. Pelvic floor muscle training (PFMT) may improve LUTS in women and in men with post-prostatectomy incontinence. In a randomized trial from 2001, a beneficial effect of early pelvic floor rehabilitation after TURP was reported [1]. The aim of the present study was to evaluate the effect of preoperative PFMT in men scheduled for TURP.

### Study design, materials and methods

**Design:** In a prospective, single-blinded, parallel group design, subjects were randomised either to a treatment group or a control group. The subjects received written and verbal information and signed an informed consent form. The Ethical Committee in Copenhagen County approved the study. **Materials:** Fifty-nine men were included. Nine men dropped out before intervention, and 49 were eligible (26 in treatment group and 23 in control group). The inclusion criteria were fit and ambulatory men with uncomplicated BPO, who were scheduled for TURP. Exclusion criteria were prostate cancer, previous lower urinary tract surgery and neurological disease. **Methods:** The preoperative PFMT included a one-hour individual lesson, 3 one-hour group lessons and a home training programme. Subjects in both groups received verbal instruction to PFMT postoperatively before discharge from hospital. The pelvic floor muscle function was assessed by digital rectal examination before and 4 weeks after surgery by one physiotherapist, who was blinded to the randomisation code. Primary outcome parameter was the total score on the Danish Prostatic Symptom Score (DAN-PSS-1) questionnaire. Secondary outcome measures were symptom score and bother score respectively on DAN-PSS-1; frequency and volumes on 3-days diary; registration on diary of incontinence episodes and use of protection, leakage on 24 hours pad test and 4 pelvic floor muscle quantisation tests: function, strength, static and dynamic endurance. **Statistics:** Medium, quartile and range were used. The null-hypothesis was tested by Mann-Whitney U test between groups and by Wilcoxon test within groups. The level for statistical significance was  $p < 0.05$ .

### Results

Baseline characteristics were alike in the treatment group and control group. Attendance to PFMT sessions was 100% for 24 and 75% for 2 of the 26 subjects. All men had good pelvic floor muscle function, but without optimal function on post-test. Muscle strength was high from start and more than half the subjects in both groups scored maximum on post-test. Static endurance of pelvic floor muscle improved within the treatment group (median increase 86 %,  $p=0.004$ ), but not in the control group (median increase 12.5 %,  $p=0.172$ ). In dynamic endurance of pelvic floor muscle a difference in favour of training developed between the groups ( $p=0.049$ ). Many men outranged the test scales. At follow-up on 2 and 4 weeks and 3 months no lower urinary tract parameter showed any difference between the groups (Table I).

### Interpretation of results

The study emphasizes the need for standardized quantisation tests of pelvic floor muscle in men, studies on observer variation and further research on PFMT in men with LUTS and incontinence.

### Concluding message

Prophylactic Pelvic Floor Muscle Training produced a significant effect in pelvic floor muscle endurance after TURP, but clinical relevant storage or voiding improvement did not occur. Pelvic floor muscle assessment tests need to be sex specific.

Parameter		Treatment	Control
DAN-PSS-1 total score	Before	28 (10-61)	26 (3-64)
	After 2 weeks	16 (3-61)	13.5 (0-51)
	After 4 weeks	11.5 (0-52)	6 (0-37)
	After 3 months	3 (0-24)	4.5 (0-51)
Voiding volume on diary ml	Before	165 (50-350)	140 (50-350)
	After 2 weeks	165.5 (40-250)	127.5 (50-350)
	After 4 weeks	150 (30-250)	150 (50-350)
	After 3 months	200 (50-300)	155 (50-360)
Frequency number per 24 h	Before	12 (5-21)	11.7 (4.7-21)
	After 2 weeks	11.2 (7.5-28.3)	13.2 (5.7-20.7)
	After 4 weeks	10.3 (4.6-26.3)	11.3 (6.7-20.3)
	After 3 months	10.0 (6.0-17.3)	10.7 (4.3-19.0)
Urine output per 24 h ml	Before	1827 (1023-3187)	1650 (418-3180)
	After 2 weeks	1985 (1050-3415)	1887 (583-355)
	After 4 weeks	1694 (923-3003)	1903 (617-3803)
	After 3 months	1875 (775-3386)	18 (367-1821)

Reference

1. Porru D, Campus G, Garia A, et al., 2001. Impact of early pelvic floor rehabilitation after transurethral resection of the prostate. Neurourol Urodyn 20:53-9.

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**CLINICAL TRIAL REGISTRATION: The ethical committee in Copenhagen County (Reg. number KA 01100)**

**HUMAN SUBJECTS: This study was approved by the ethical committee in Copenhagen County and followed the Declaration of Helsinki Informed consent was obtained from the patients.**