Pelvic floor muscle training to improve urinary incontinence after radical prostatectomy: a systematic review of effectiveness

MacDonald R, Fink H A, Huckabay C, Monga M, Wilt T J

CRD summary
The authors concluded that pelvic floor muscle training for treating urinary incontinence after radical prostatectomy resulted in an earlier return to continence compared to no pelvic floor muscle training. Evidence was limited and the benefits appeared to be short term. Limitations of the review reporting and methodology make the reliability of the authors’ conclusions questionable.

Authors’ objectives
To systematically review the evidence from randomised controlled trials (RCTs) regarding the effectiveness of pelvic floor muscle training for treating urinary incontinence after radical prostatectomy.

Searching
MEDLINE (1966 to July 2006), The Cochrane Library and the Cochrane Urinary Incontinence Review Group registry were searched. Search terms were not reported (the authors stated that they used an optimally sensitive Cochrane Collaboration search strategy; further details were not specified). Bibliographies of identified papers and reviews were handsearched. The search was restricted to trials published in English.

Study selection
RCTs that compared pelvic floor muscle training to usual care or an active control in men with urinary incontinence after radical prostatectomy (RP) or transurethral resection of the prostate (TURP) were eligible for inclusion if they reported clinical measures of continence.

In the included studies, all men had undergone radical prostatectomy or retropubic radical prostatectomy, mostly for localised prostate cancer (two studies were of men with advanced disease). The interventions assessed were pelvic floor muscle training with or without electrical stimulation, bio-feedback enhanced pelvic floor muscle training (BE-PFMT) or extracorporeal magnetic innervation (ExMI).

Control groups received one of the following: no pelvic floor muscle training; placebo electrical stimulation; no pelvic floor muscle training instruction; or verbal/written pelvic floor muscle training instruction. Methods used to measure continence in the included studies were subjective questionnaires, being pad-free, urine loss on pad tests and voiding diary data. The duration of follow-up ranged from three to 12 months.

The authors stated neither how the papers were selected for the review nor how many reviewers performed the selection.

Assessment of study quality
An assessment of the following aspects of the trials was made: allocation concealment (based on the scale developed by Schulz); blinding; use of intention-to-treat analysis; and the proportion of patients lost to follow-up or withdrawn. The authors did not state how many reviewers performed the validity assessment.

Data extraction
The authors stated neither how the data were extracted for the review nor how many reviewers performed the data extraction.

Methods of synthesis
Studies were grouped by comparison interventions. Where possible, pooled relative risk reductions and 95% confidence intervals (CI) were calculated for categorical outcomes using meta-analysis. Heterogeneity was assessed using $X^2$ and $I^2$ statistic. Where there was heterogeneity, DerSimonian and Laird random-effects models were used.
Otherwise, studies were combined in narrative synthesis.

**Results of the review**

The review included 11 trials (1,028 men). Four trials reported some study blinding. Allocation concealment was adequate in two trials. Intention-to-treat analysis was used in six trials. Approximately four per cent of men withdrew prior to the end of the trial. One trial had significantly different mean ages between the intervention and control groups, indicating that randomisation was not effective.

**Pelvic floor muscle training with no biofeedback versus no training:** Pelvic floor muscle training significantly reduced the time to recover continence (one trial): 19 per cent versus 8 per cent at one month (p=0.006); 74 per cent versus 30 per cent at three months (p=0.001); and 96 per cent versus 65 per cent at six months (p<0.001).

**Bio-feedback enhanced pelvic floor muscle training versus no training or usual care:** Bio-feedback enhanced pelvic floor muscle training was associated with higher rates of continence at one to two months, 57 per cent versus 37 per cent (relative benefit increase 1.54, 95% CI: 1.01 to 2.34; four trials), but this effect was not significant at three to four months after radical prostatectomy, 87 per cent versus 69 per cent (relative benefit increase 1.19 95% CI: 0.82 to 1.72; five trials).

**Bio-feedback enhanced pelvic floor muscle training versus written/verbal pelvic floor muscle training instruction (three trials):** No studies reported a significant difference between treatments for any outcome at any of the evaluated times.

**Pelvic floor muscle training compared with electrical stimulation with pelvic floor muscle training with a physiotherapist or verbal and written instruction:** One trial found no difference in leakage between the two groups.

**Electrical stimulation and extracorporeal magnetic innervation compared with pelvic floor muscle training:** One trial found significantly reduced leakage within the first two months, but no differences at three and six months.

**Authors’ conclusions**

Pelvic floor muscle training with or without bio-feedback enhancement compared to no pelvic floor muscle training hastened return to continence in men with urinary incontinence one to two months after radical prostatectomy.

**CRD commentary**

Although the research question was clearly stated, the inclusion criteria for the study selection were not appropriate to the review aims: men who had undergone transurethral resection of the prostate were eligible for inclusion, but the objective was to assess the effect of pelvic floor muscle training after radical prostatectomy.

The search strategy was not described in enough detail to assess whether it was comprehensive or not, but the restriction to papers published in English meant that language bias may have affected the results. No mention was made of any attempts to identify trials published in abstract form, or other unpublished and grey literature, which raised the possibility of publication bias.

The authors assessed the validity of the included studies using a range of key study design features, but they did not perform subgroup analyses on the higher quality studies. The authors did not report whether they made any efforts to minimise bias in the study selection or data extraction phases of the review. Meta-analysis was used appropriately, but statistical heterogeneity was not reported. Clinical heterogeneity in the interventions meant that much of the review took a narrative form.

The authors acknowledged that their conclusions were limited by the quality of the included studies, many of which were of uncertain quality. Any benefits of pelvic floor muscle training appeared to be short term. Given this, and limitations of the review reporting and methodology, the reliability of the authors’ conclusions is questionable.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.
Research: The authors stated that additional studies were needed to investigate whether extracorporeal magnetic innervation and electrical stimulation were effective. Further studies should evaluate therapies for men with chronic urinary incontinence refractory to conservative treatment strategies and whether pelvic floor muscle training before radical prostatectomy helped prevent urinary incontinence after radical prostatectomy.

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