

PELVIC FLOOR MUSCLE TRAINING FOR WOMEN WITH SYMPTOMS OF STRESS URINARY INCONTINENCE: A RANDOMISED TRIAL COMPARING STRENGTHENING AND MOTOR RELEARNING APPROACHES

Aims of Study

The purpose of this trial was to investigate the effect of two approaches to pelvic floor muscle training in stress incontinent women.

Systematic review of randomised trials suggests pelvic floor muscle training is an effective treatment for stress urinary incontinence in women, and that some programmes have greater benefit than others [1]. It is common practice for women to receive instruction in strength training combined with advice to voluntarily contract the pelvic floor muscles to prevent leakage with increases in intra-abdominal pressure, e.g. cough. The use of a voluntary contraction prior to an increase intra-abdominal pressure has been called 'The Knack' and this training is based on motor relearning principles. Miller et al [2] reported The Knack was more effective than no treatment, but to date no randomised trial has compared the strengthening and motor relearning approaches.

Methods

One hundred and twenty eight community dwelling women with symptoms of stress urinary incontinence, with ≥ 2 leakage episodes a week, were recruited from a urogynaecology clinic or advertisement. Women were allowed concurrent frequency/urgency symptoms but were not eligible if they had uncontrolled metabolic disorders, neurological or psychiatric disease, symptoms of voiding dysfunction, urinary tract infection, or pelvic organ prolapse below the hymenal ring. Women were excluded if they were using concomitant therapies for incontinence, not fluent in written and spoken English, or unable to perform a correct voluntary pelvic floor muscle contraction after instruction. Randomisation to intervention group, by opening sequentially numbered sealed opaque envelopes, took place after clinical history taking, physical examination, baseline measures, and an explanation of the normal anatomy, physiology and function of the bladder and pelvic floor muscles. Women then received instruction based on motor relearning principles alone [2] or a combination of strengthening [4] and motor relearning. Women trained at home for 20 weeks, with four physiotherapy clinic visits and three phone calls to progress the programme and maintain motivation. A blinded outcome assessor took pre and post treatment measures. Primary outcomes of interest were self-reported symptoms (six point Likert scale), leakage episodes in 24 hours, and a cough test. Other measures included 24 hour pad test and condition specific quality of life (King's Health Questionnaire). Power calculations were based on previous studies [2, 3] with urine loss on the cough test as the primary outcome.

Results

Five women withdrew from the study, two from the combination group and three from the motor relearning group. Two women became pregnant, and three dropped out for personal reasons. The two groups were comparable at baseline apart from pelvic floor muscle strength on palpation (Table 1). The post treatment measures are presented in Table 2.

Table 1: Baseline measures

	Combination (n=64)	Motor relearning (n=64)
Age, years (mean±sd)	48.7 ±13.2	48.9 ± 13.1
BMI, kg/m ² (mean±sd)	28.4 ± 6.2	28.1 ± 4.4
Parity (mean±sd)	2.7 ± 1.2	2.6 ± 1.3
SUI, years (mean±sd)	8.7 ± 9.4	9.1 ± 9.1
Leakage episodes 24 hours (mean±sd)	1.8 ± 2.2 (n=62)	1.7 ± 1.9 (n=63)
Cough test, ml (mean±sd)	3.4 ± 4.8 (n=56)	4.3 ± 5.8 (n=59)
Previous incontinence surgery	6	4
Previous gynae surgery	21	20

Faecal incontinence	7	5
Post menopausal	22	23
PFM grade 1 or 2	28	30
PFM grade 3	25	15
PFM grade 4 or 5	6	18

Table 2: Post treatment measures

	Combination (n=61)	Motor relearning (n=62)
Self reported "cure"	1	4
Self report "much better"	24	25
Self report "somewhat better"	27	19
Self report "no change"	8	14
Self report "somewhat worse"	1	0
Leakage episodes 24 hours (mean±sd)	0.5 ± 0.6 (n=47)	0.7 ± 1.1 (n=50)
Cough test, ml (mean±sd)	3.1 ± 7.6 (n=36)	1.8 ± 4.0 (n=39)

There were no statistically significant differences between the two groups post treatment for self reported change in leakage symptoms ($p=0.685$), leakage episodes in 24 hours ($p=0.162$), or amount of leakage on cough test ($p=0.315$). Adjusting for the baseline number of leakage episodes and leakage on cough test did not change the findings.

The mean difference (95% CI) in change in the number of leakage episodes in 24 hours and amount of leakage on cough test was -0.3 ($-0.6, 0.1$) and 1.3 ml ($-1.4, 4.1$) respectively.

Conclusions

There were no statistically significant differences in the primary measures of outcome between the strength training/motor relearning or motor relearning programme groups. The confidence intervals for the difference in leakage episodes and cough test do not rule out clinically important differences. Despite an attempt to design a study of adequate power a larger trial is needed to address the question of important differences between these two approaches to pelvic floor muscle training. If these findings were replicated in a larger study this would have important implications for clinical practice.

References

1. Hay-Smith EJC *et al.* In: The Cochrane Library, Issue 4, 2002. Update Software: Oxford.
2. Miller JM *et al.* JAGS 1998; 46, 870-874.
3. Bø K *et al.* BMJ 1999; 318, 487-493.
4. Bø K *et al.* Neurourol Urodyn 1990; 9, 489-502.