The role of pelvic floor muscle training in urinary incontinence

R.M. Freeman

INTRODUCTION

Since Kegel first reported good outcomes for pelvic floor muscle training (PFMT) in women with urinary incontinence, this therapy has become used for women with stress and mixed incontinence. PFMT is recommended as first line treatment by various groups and the NICE guidance on tension-free vaginal tape (TVT; www.nice.org.uk) suggests that this should only be used when conservative measures such as PFMT have been unsuccessful.

Success rates of 56%–75% have been quoted but the quality of many studies is poor with only a few well-conducted randomised controlled trials. These have been assessed in a Cochrane review that shows that PFMT is better than no treatment or placebo treatments in stress incontinence, but the role in women with overactive bladder and urge incontinence is less clear.

At present there is a lack of data to assess the long-term effectiveness of PFMT and it is claimed that many women do not wish to undergo several months of PFMT when minimally invasive surgical alternatives produce good medium-term results. However, in a recent study of preferences for treatment of stress incontinence, 65% of women attending three tertiary referral clinics chose pelvic muscle training rather than surgery (after being given information on all treatment options). This is consistent with the findings of an earlier study suggesting that most women would prefer to avoid surgery.

It is essential therefore that PFMT is performed properly and that good results are achieved for these patients.

AIMS OF PFMT

- Produce a strong, fast, well-timed contraction, which will clamp the urethra.
- Approximate the urethra to the back of the pubic bone.
- Prevent descent of the bladder neck and urethra with coughing, sneezing, etc.
- Enhance the pressure rise in the urethra, which, following a cough, occurs approximately 250 ms before that in the bladder.

These aims can be achieved by regular voluntary contraction and relaxation of the pelvic floor muscles. However, the exact methods used often vary and so for uniformity an expert group has recommended that PFMT should be performed in the following manner:

Three sets of eight to 12 slow velocity maximal voluntary PFM contractions sustained for six to eight seconds each. These should be performed three to four times per week and continued for at least 15–20 weeks. To improve strength and/or timing of the pelvic floor contraction will take a minimum of four to eight weeks.

HOW IS PFMT PERFORMED IN PRACTICE?

PFMT is designed to increase muscle strength and hypertrophy and so improve urethral compression and support, but can take several months to achieve. ‘Skill training’, where women are taught to contract the pelvic floor just prior to a cough or physical exertion, works almost immediately. This can reduce the volume of leakage but not necessarily the frequency of incontinence episodes.

To assist satisfactory muscle/strength training, information leaflets and verbal instruction have been tried, but both appear less successful than intensive training under supervision. Ideally treatment should be on a ‘one to one’ basis but when this is impractical group treatment has been employed with success.

Often patients find it difficult to practice PFMT on a regular basis for lifestyle and family reasons and so ‘reminders’ are often required, e.g. during hand washing or listening to an audio tape of pelvic floor instruction. Another suggestion has been that PFMT done during coitus might produce a stronger pelvic floor. These authors found that women who claimed they contracted the pelvic floor during coitus showed the most pelvic floor muscle activity compared with other groups who practised PFMT more ‘conventionally’.

IS PFMT PERFORMED CORRECTLY?

It has been questioned if women know how to contract the pelvic floor and whether they can be taught to do so. In one study, 30% of women were unable to contract the pelvic floor at the first consultation, although the majority could be taught successfully. In another, when instructed to
do a pelvic floor contraction 25% of the women performed a valsalva manoeuvre instead.\textsuperscript{12}

There is a need for more data on whether women can locate the pelvic floor and whether they can perform a contraction. If not, advising women to do PFMT (either verbally or by written information) might be inappropriate. In an ongoing study of asymptomatic women, most claim to know about PFMT but rarely comply, and 40\% have an Oxford score (see below) of less than 2.\textsuperscript{20}

**ADJUNCTS TO PFMT**

For those patients unable to contract the pelvic floor adjuncts are often required. Vaginal cones have been tried with some success and in a Cochrane review were found to be better than no active treatment,\textsuperscript{21} but there is insufficient evidence that they are any more effective than PFMT alone.\textsuperscript{5,21}

Biofeedback training has been suggested for those who are unable to contract the pelvic floor. In a systematic review of five randomised controlled trials a trend for improvement with biofeedback against PFMT was noted.\textsuperscript{22} However, in the Cochrane review PFMT alone was found to be more effective.

Likewise, for electrical stimulation therapy the evidence is inconclusive and a recent study has failed to show increased benefit of electrical stimulation over PFMT.\textsuperscript{23} However, for overactive bladder, a randomised controlled trial of PFMT, biofeedback and electrical stimulation has shown best results with electrical stimulation.\textsuperscript{24}

Further studies are required but while the available evidence suggests that adjuncts are probably no better than PFMT alone, they might be suitable for individual patients (see below).

Use of the abdominal muscles to aid pelvic floor contraction has been suggested despite the traditional view that these should not be employed during PFMT.\textsuperscript{25} However, while instruction to contract the pelvic floor muscle is more effective in lifting the pelvic floor than an abdominal contraction,\textsuperscript{26} clinical studies have suggested that using the abdominals can be of value therapeutically.\textsuperscript{25}

It can be argued that if contraction of the pelvic floor can be achieved by whatever method, then that should be encouraged.

**METHODS OF ASSESSMENT**

It is important both clinically and in research to assess muscle contraction and strength before, during and after PFMT. This can be achieved by palpation and perineometry.

The Oxford Score/PERFECT Scheme has been recommended for palpation.\textsuperscript{27} This acronym stands for: Power (P), Endurance (E), the number of repetitions (R), number of fast contractions (F) and every contraction timed (ECT). This scheme can enable individual treatment programmes to be produced.

Perineometry gives a more objective assessment of pelvic floor strength by measuring pressure and is useful for research; this can either be done by using a commercial perineometer or by intravaginal balloons connected to an external pressure transducer. However, validation of the measuring devices is not yet complete.

**PATIENT SELECTION**

PFMT is not effective for all and so patient selection is important. In those with no pelvic floor contraction it has been suggested that training will be unsuccessful.\textsuperscript{5} Electrical stimulation and biofeedback might be appropriate for this group of patients to help them identify and contract the muscle: PFMT can then be started. If unsuccessful, other treatments ought to be started, e.g. surgery or drug therapy.\textsuperscript{28}

Earlier recourse to these treatments might be indicated in those patients with stress incontinence and a large concomitant prolapse as it is doubtful whether PFMT will be effective in these cases.

After unsuccessful PFMT in primary care patients are often referred for further treatment by a hospital physiotherapist or continence advisor in secondary care. Is this likely to be more successful?

In a study from the Leicester MRC study (Assassa, personal communication) a randomised controlled trial was performed in women who had failed primary care intervention. The patients were randomised to one of three groups: the first group being treated by a trained nurse (five sessions of exercises for 3 months along with advice support, motivation and diary), a second group the same as the first but including vaginal cones, and a third group that were sent to a physiotherapist for supervised training along with perineometry and biofeedback.

No differences were seen between the groups in terms of incontinence or overactive bladder symptoms with a success rate of approximately 20\% in each group. It was concluded that if primary care (standard intervention) is unsuccessful then further intensive physiotherapy is unlikely to be effective. However, peer-review of these data is required. In practice the type of PFMT provided in primary care needs to be identified before any recommendations can be made.

**INDICATIONS**

Pelvic floor muscle training has been recommended as the first line treatment for stress incontinence.\textsuperscript{3,4} This might be appropriate for patients with mild to moderate leakage, in those where surgery is not appropriate or for women who wish future pregnancies.

The main factor associated with success seems to be compliance and motivation rather than age and severity of incontinence.\textsuperscript{29} However, only 15\%–20\% of women will
comply with the exercises but in those who do, better outcomes are achieved. Other factors associated with compliance include the patient’s perception of her ability to contract the pelvic floor, severity of incontinence (unlike Wilson et al.,) and lifestyle factors, e.g. time to do the contractions, work and family commitments, etc. Lack of knowledge, inadequate supervision and teaching and how often these should be performed are the reasons quoted for noncompliance. In addition, despite having been taught how to perform pelvic floor exercises particularly in pregnancy, few practice them after delivery.

It is essential therefore to improve motivation by education, a good therapist–patient relationship possibly using group session or audio tapes. It has been shown that a trained nurse in primary care can do this successfully and with the more detailed knowledge of the patient this might be the appropriate individual to not only identify the symptom (e.g. when taking a cervical smear), but also commence therapy.

However, if patients are unable to comply and lack motivation, it is questionable whether time and resources should be spent training these patients; surgery or drug therapy might be more appropriate.

PREVENTION

Is pelvic floor muscles training for incontinence ‘too little too late’? Prevention is preferable to treating established incontinence. Anecdotally, young girls in some cultures are taught PFMT; this might become part of health education in other countries. In the meantime identifying risk groups and employing supervised PFMT is required, e.g. in pregnancy.

High-risk groups include those with prepregnancy and antenatal stress incontinence, both of which are associated with long-term incontinence. Those with antenatal bladder neck mobility, persistent postnatal incontinence, those following forceps delivery, those with a family history of incontinence, and those with prepregnancy obesity all appear to be at higher risk of postpartum stress incontinence and so PFMT might be preventative. For example, antenatal PFMT in primigravidae with antenatal bladder neck mobility has shown a reduction in the incidence of postnatal stress incontinence. Similarly antenatal and postnatal PFMT can be preventative and the effect seems to be maintained 1 and 3 years after delivery.

RECOMMENDATIONS

PFMT should be the first line of treatment for the majority of women with stress urinary incontinence. However, in those who have little pelvic muscle activity or are unable to comply then it is questionable whether this form of treatment will be successful. In addition those with severe stress incontinence and prolapse are unlikely to benefit from intensive PFMT. For those with mixed incontinence and overactive bladder the evidence is unclear.

For the majority, PFMT can produce good results but should be performed under supervision; verbal instruction is probably insufficient. In view of chronic shortages of (pelvic floor) physiotherapists and continence advisors there might be a case for training primary care nurses and midwives in the techniques of PFMT.

References


