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BestPractice

Evidence Based Practice Information Sheets for Health Professionals

The Effectiveness of a Pelvic Floor Muscle Exercise Program on Urinary Incontinence Following Childbirth

Information Source

This Best Practice Information Sheet has been derived from a systematic review conducted by the Western Australian Centre for Evidence Based Nursing and Midwifery. Full details of the studies included in the systematic review are available in the report The Effectiveness of a Pelvic Floor Muscle Exercise Program on Urinary Incontinence Following Childbirth.[1] This systematic review report is available on-line via Blackwell Synergy www.blackwell-synergy.com and to members of the Institute via the web site: **www.joannabriggs.edu.au**

Background

Urinary incontinence is the involuntary leakage of urine to a degree of severity that it is a social or hygienic problem, impacting on the quality of a woman's physical, social, emotional, and sexual life. Up to 57% of women in the age bracket 35-74 years experience urinary incontinence.

Pregnancy and childbirth are major risk factors for women developing urinary incontinence. Research into the prevalence of urinary incontinence in women following childbirth has indicated percentages ranging from 6% to 43%. For some women urinary incontinence after childbirth is temporary, but others suffer longer-term urinary incontinence problems. One study found over 60% of women who experienced stress urinary incontinence during pregnancy reported the problem still existed fifteen years later.

A number of risk factors have been flagged for urinary incontinence following childbirth, including urinary incontinence during the antenatal period; obesity; significant perineal trauma resulting for example from prolonged second stage of labour, instrumental delivery, perineal tear; size of baby and the number of previous pregnancies. However there is inconclusive evidence from research attempting to confirm these factors, particularly in relation to parity and the size of a baby. Where researchers do agree is that women should be provided with advice about how to prevent and treat urinary incontinence during the antenatal and postnatal

This Information Sheet Covers the Following:

- Antenatal and postnatal pelvic floor muscle exercises (PFME)
- Timing and types of PFME programs
- Implications for practice
- Recommendations

Grades of Recommendation

These Grades of Recommendation have been based upon the JBI developed Grades of Effectiveness:

Grade A: Effectiveness established to a degree that merits application

Grade B: Effectiveness established to a degree that suggests application

Grade C: Effectiveness established to a degree that warrants consideration of applying the findings

Grade D: Effectiveness established to a limited degree

Grade E: Effectiveness not established

period, including performing pelvic floor muscle training.

Pelvic floor muscle exercises (PFME) were first described as a possible treatment for urinary incontinence by Kegel in 1948. The aim of PFME is to strengthen the peri-vaginal and peri-anal musculature in order to increase a woman's control of urine leakage. A number of studies have shown that PFME are effective for women of all ages experiencing urinary incontinence. However, there is no single PFME program that has been adopted as a standard and over time some components of early PFME programs have been discredited because of other health risks. For example, exercises that involve stopping urine flow are no longer advised because they may cause urinary tract infections.

Increasingly, the type of PFME instruction delivered to women is also regarded as important. Recent studies show that verbal instruction alone is not adequate for many women to successfully perform PFME while individualised training and support including biofeedback, memory aids and exercise diaries can improve the correct performance and the frequency with which PFME are undertaken.

Objectives

The most recent research indicates that PFME, when compared with usual care, are effective in preventing or treating urinary incontinence in women of all ages, but this is the first systematic review that aimed to determine whether this is true for women in the period following childbirth. The two types of urinary incontinence addressed by the review were stress and mixed (stress + urge) incontinence. Also, because it has been recognised that the structure of a PFME program and the methods used to deliver a PFME program are associated with carrying out PFME, the review aimed to identify the most effective types of PFME instruction for women in the antenatal and postnatal period.

Studies Included

Six randomised controlled trials (RCTs) were included in the review to study whether PFME are effective in preventing or treating urinary incontinence in postpartum women. The objectives of these studies focused on treatment and/or prevention of urinary incontinence in relation to PFME programs following childbirth. Studies that included women with postpartum overflow urinary incontinence were excluded from the review.

Two of the previously included RCTs, along with an additional RCT, and two non-RCTs were included in the review to examine the effectiveness of a PFME program on frequency of exercising.

In most studies included in the review the researchers included women of all parities and all delivery types (except elective caesareans) in their samples. However, a few studies specifically researched women thought to be more at risk of developing urinary incontinence. These researchers studied the effectiveness of PFME for women with pre-existing urinary incontinence in the early postnatal period and women who delivered large babies and/or had assisted deliveries.

The PFME programs described in the studies differ in the number of times women were instructed in PFME, whether the instruction occurred in groups or one-to-one, the number of PFME women were asked to perform, the type of PFME to perform (that is, short or longer contractions), and other components of a PFME program such as exercise diaries, feedback, and information booklets.

Most of the studies compared a PFME program with usual (or customary) care e.g. pamphlets and/or a pre-discharge visit. The studies used follow-up interviews or questionnaires to assess changes in the frequency and severity of urinary incontinence. Women receiving usual care were not discouraged from performing PFME, but the precise nature of usual care varied across research settings.

In cases where RCTs were available, statistical analyses were conducted to determine if results of these studies could be combined. Studies were pooled in two meta-analyses (separating antenatal from postnatal PFME programs) for the effectiveness of PFME on reducing or resolving urinary incontinence. Two RCTs were pooled in a meta-analysis for the effectiveness of a PFME program on the frequency of exercising, with the other studies discussed in a narrative summary.

The Effectiveness of a Pelvic Floor Muscle Exercise Program on Urinary Incontinence

The six RCTs included in this aspect of the review were equally divided, with three studies delivering antenatal PFME programs and three delivering postnatal PFME programs. The programs were compared by looking at time of the first PFME instruction session, the number of times PFME instruction occurred, and how many PFME per day the program prescribed.

Antenatal PFME program versus usual care

The two larger RCTs each reported significant benefits for the women receiving an antenatal PFME program. The third RCT reported less urinary incontinence for women in the PFME program than those receiving usual care, but the results were not statistically significant. Women in the studies were first instructed in PFME at 20 weeks gestation. The number of occasions that women were instructed in PFME varied (one, five, and 12 times) and the PFME program for each study involved performing between 20-50 exercises per day. Two studies collected data at three months postpartum and the other at six months postpartum. When the three studies were combined in a meta-analysis the results showed that an antenatal PFME program was effective for treating and/or preventing urinary incontinence (p=.001).

Postnatal PFME program versus usual care

All three RCTs found a postnatal PFME program had a significant effect on urinary incontinence. Women were first instructed in PFME at 48 hours, three, and five months postpartum on two, four, and three occasions respectively. In two of the studies women were asked to perform between 80-100 PFME per day. The third study did not provide information about PFME per day. Data were collected at three months postpartum in one study and at 12 months postpartum in the other two. The results of the meta-analysis indicated that a postnatal PFME program significantly reduces or resolves urinary incontinence ($p < .05$).

Postnatal PFME program versus usual care for women with pre-existing urinary incontinence

Two of the RCTs investigating the effectiveness of a postnatal PFME program had sampled women with pre-existing urinary incontinence. These studies were pooled in a separate meta-analysis to identify if a PFME program was effective for these women as a separate group. The PFME programs were first introduced to women at three and five months postpartum and instruction occurred on four and three occasions. Both programs involved women performing between 80 and 100 PFME per day. Based on the data collected in the studies, when combined in a meta-analysis, a postnatal PFME program for women with pre-existing urinary incontinence is effective (p=.005). However, a large number of women were lost to follow-up in both studies and therefore these results should be treated with some caution.

The Effectiveness of a Pelvic Floor Muscle Exercise Program on the Frequency of Exercising

Five studies (RCTs and non-RCTs) all delivering a PFME program in the postnatal period were included to determine whether a PFME program was effective in encouraging exercising frequency. The focus of this part of the review was on the different components of a PFME program that might affect the frequency with which women performed PFME. Of particular interest was the number of instruction sessions, if the sessions were individually delivered or to women in groups, whether women had received feedback about the effectiveness of their pelvic muscle contractions, provision of information materials and the use of aids to encourage adherence to a PFME program. All studies reported significant findings for performing pelvic floor muscle exercises for the women receiving a PFME program when compared with women receiving usual care. These findings make it difficult to identify the individual components of a PFME program that might be the most effective in improving exercising frequency.

Multiple instruction sessions, home training program (including feedback) versus usual postnatal care

Two RCTs were pooled in a meta-analysis to determine if individual instruction sessions (taking place on three and four occasions) and a training program to follow at home were more effective than usual care in relation to women performing PFME. One of the studies noted that feedback was provided to women about the effectiveness of their pelvic muscle contractions. Women in the studies were asked if they had performed PFME in the month before data were collected (at 12 months postpartum). Results of the meta-analysis ($p<.0001$) were statistically significant indicating a PFME program delivered individually together with a home training program is effective in improving exercising frequency.

The same two RCTs asked how many PFME women were performing each day. Each study showed women receiving the PFME program were performing a significantly higher number of PFME daily than women receiving usual care and one of the studies found a significantly higher number of women receiving the PFME program, compared with women in the usual care group, were performing PFME daily ($p<.005$).

Two instruction sessions, home training program, information booklet, and aids to encourage adherence versus usual postnatal care

One RCT included extensive take-home materials as aids to encourage adherence to a PFME program, as well as delivering instruction sessions individually on two occasions (at 48 hours and some weeks postpartum). When women were asked, at three months postpartum, how frequently they performed PFME each week a significantly higher number of women in the PFME program group (83.9%) performed PFME twice or more per week than women in the usual care group (57.5%).

Multiple individual instruction sessions, instrument feedback, home training program, weekly group program and training diary versus usual postnatal care

A non-RCT that investigated the effectiveness of a PFME program on exercising frequency at 16 weeks postpartum, conducted a follow-up study 12 months later. With the exception of a training diary, no take-home materials to improve adherence to the PFME program were included. However, women were provided with feedback about the effectiveness of their pelvic muscle contractions and received eight individual instruction sessions as well as group instruction weekly. At 16 weeks postpartum, 100% of the women in the PFME program were performing PFME at least three times a week compared with 66% of the women receiving the usual postnatal care ($p=.005$). In the 12 month follow-up study, with fewer women participating in the study, 53% of the women who had received the PFME program were performing PFME three times or more a week, compared with 30% of the women who had received the usual postnatal care ($p=.002$).

One individual instruction session with instrument feedback, home training program, tape-recorded instructions, weekly contact and exercising diaries

One study randomised women into three groups each provided with a slightly different PFME program. This study did not include a group receiving usual care only and therefore no conclusions about the effectiveness of a PFME program can be drawn. But the components of the PFME program are similar to those discussed above and the findings indicated it was highly successful in motivating women to perform PFME. There was over 96% adherence by women in the study to perform PFME as prescribed by the program.

Implications for Practice

The results of the review provide evidence that pelvic floor muscle exercises are effective in reducing or resolving urinary incontinence after childbirth. For some women PFME will resolve short-term urinary incontinence and for others PFME may reduce the likelihood of urinary incontinence later in life. While it is particularly important that women experiencing urinary incontinence during pregnancy and in the postpartum period are encouraged to participate in a PFME program, all women should be advised to perform PFME in the antenatal and postnatal period.

A PFME program improves the frequency with which women perform PFME, which in turn reduces the likelihood of urinary incontinence. Although the review did not identify the specific number of occasions a PFME program needs to be provided to have a significant effect on urinary incontinence, at least two instruction sessions are suggested by the findings.

Although the review findings were inconclusive in relation to the components of a PFME program, such as feedback and the number of exercises recommended, that are associated with increased exercising by women, it can be concluded that a PFME program of any kind will improve the frequency of performing PFME.

Women only offered written instruction reported difficulty in performing PFME correctly. An important advantage for women participating in a PFME program in the antenatal and postnatal period is that they have an opportunity for contact with health professionals. This contact may be useful for a range of health reasons, but importantly it is this personal contact that can ensure women are performing PFME correctly. Health professionals should be mindful of women returning home soon after childbirth as they may be missing out on the type of advice and encouragement that will actually lead to performing PFME and performing them correctly.

All women returning home after childbirth will benefit from advice and encouragement to perform PFME. However, this is a demanding period for mothers and the design of PFME programs should be realistic for easy incorporation into the women's daily life.

Recommendations

Based on the findings of the systematic review the following recommendations are made:

- Ensure women are performing PFME exercises correctly **(Grade A)**
- Encourage women to undertake both antenatal and postnatal PFME **(Grade A)**
- Pay particular attention to women with antenatal and postnatal urinary incontinence in providing advice and PFME instruction **(Grade A)**
- Include PFME as a specific program in all antenatal and postnatal care, incorporating at least two individual instruction sessions into the program **(Grade A)**
- PFME programs should be multi-faceted with a number of components, rather than supplying printed information only **(Grade A)**
- Provide postpartum contact, particularly for women discharged early, either by telephone, electronic communication or home visits **(Grade C)**
- Design home PFME programs that are realistic given the demands on a mother and that can be incorporated into her daily routine **(Grade C)**

References

1. Haddow G, Watts R, Robertson J. 2005. The effectiveness of a pelvic floor muscle exercise program on urinary incontinence following childbirth: a systematic review. International Journal of Evidence Based Healthcare. **3**(5): 103–146.

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