

Long term effects of pre- and post partum pelvic floor muscle treatment in primigravid with stress urinary incontinence: a short systematic review

Abstract

The literature regarding the long term effects of pelvic floor muscle training (PFMT) for primigravid women with urinary incontinence is inconsistent. Some authors do not separate between antenatal or post partum interventions, define long term differently and there seem to be little attention towards dose-response issues in the training protocols. So, we decided to perform a systematic review to evaluate the evidence that pre- and postpartum women should be advised to do PFMT to treat UI, both short and long term and to find out the optimal training dosage. Meta-analyses, systematic reviews, quasi experimental and randomised controlled trials (RCTs) were used and handsearching of relevant manuscripts published between 1990 and 2015 was undertaken including assessment of methodological quality. Outcome measures were number of urinary incontinence episodes, UI symptoms, and/or condition specific QoL and/or condition specific QoL. Overall, there is evidence that PFMT, that is begun to treat pre- and postpartum urinary incontinence, is effective up to one year after delivery (Level of Evidence: 1). Long(er)-term effects are not (yet) clear, highlighting the need for more evidence in this area. An 'intensive' PFMT programme (in terms of supervision and exercise content) is likely to increase the treatment effect.

Keywords: PFMT, QoL, Urinary incontinence, Postpartum, Non-surgical, Non-pharmacological

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Introduction

Consensus statements have concluded that there is Level 1, Grade A evidence that Pelvic Floor Muscle Treatment (PFMT) is significantly more effective than no treatment for stress urinary incontinence (SUI) and mixed incontinence.¹⁻³ Reviews on PFMT in long term treatment of urinary incontinence (UI) report inconsistent results and there seems to be some doubt about the effect.^{1,4} This may be due to use of different inclusion criteria of studies and different criteria to classify studies as long term treatment interventions. Some authors do not separate between antenatal or post partum interventions,⁵ define long term differently⁵ and there seem to be little attention towards dose-response issues in the training protocols.⁵

Objectives

- i. Is there evidence that pregnant women should be advised to do PFMT to treat UI, both short and long term?
- ii. Is there evidence that post partum women should be advised to do PFMT to treat UI, both short and long term?
- iii. What is the most optimal training dosage for effective antenatal or post partum PFMT in the treatment of UI?

Methods used in the included papers

Search strategy, databases and validity assessment

We used meta-analyses, systematic reviews and quasi experimental and randomised controlled trials (RCTs) written in English, Dutch, German and French reporting on antenatal or post partum women with UI, having patient oriented outcome measures: improvement or cure of symptoms or signs (clinical outcomes), quality of life measurements, specific or generic and costs. Both abstracts and

full publications were included. The reviews and RCTs drew on computerized search strategies on PubMed and the Cochrane Library using the Cochrane Database of Systematic Reviews (CDSR), the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, Current Controlled Trials (CCT), CINAHL, PEDro databases, NHS Centre for Reviews and Dissemination (CRD), NHS Health Technology Assessment Database, the Health Economic Evaluation Database and handsearching of journals and conference proceedings.

A manual search was undertaken of identified manuscripts reporting on studies mentioned in the references of this literature or listed in abstract books from the World Confederation of Physical Therapy (1993-2015) and International Continence Society and International Urogynecology Association (1990-2015) meetings. Two independent reviewers, using the 'risk of bias tool' from the Cochrane handbook executed the validity assessment of RCTs. For systematic reviews, in order to assess quality of evidence they used the GRADE system. The reviews used keywords/search terms in different combinations in the search: pregnancy, pelvic floor muscle, exercise, training, incontinence, antenatal, pre-partum, postnatal, after delivery, post-partum, childbirth, effect, risks, physical treatment. The date of the last search was 27 December 2015.

Methodological quality

All reviews scored methodological quality of the included studies according to well-accepted rating scales or the risk of bias tool, developed for the Cochrane Collaboration, assessing the following factors for internal validity: random allocation, concealed allocation, baseline comparability, blinded assessor, blinded subjects, blinded therapists, description of interventions and controls, adequate follow up (=85%), ITT analysis, between group comparison, report of point estimates and variability.¹ For more detailed information about the

methods used in the different reviews under study we would like to refer to the individual manuscripts in the reference list of this paper.

Population

Antenatal and post-partum women with UI, 18 years or older.

Interventions

Exercise programmes for UI treatment, non-surgical, non-pharmacological.

Comparison

No active treatment, or usual care, including another non-surgical/non-pharmacological therapy.

Outcome measures

Number of urinary incontinence episodes, UI symptoms, and/or condition specific QoL and/or condition specific QoL

Results and levels of evidence

For this overview of the literature we used Boyle et al.,¹ Moore et al.,² Mørkved S & Bø K⁵ and Wesnes & Lose.⁶ These authors systematically reviewed RCTs and quasi-RCTs on pelvic floor muscle training for treatment of UI in antenatal and post partum women.

Boyle et al.¹

Treatment of incontinence: Overall, there is evidence that PFMT, that is begun to treat antenatal or post-partum UI, is effective up to one year after delivery. Long-term follow up was undertaken only in three trials.⁷⁻⁹ None of these studies found a significant difference long-term in prevalence rates of incontinence between the PFMT and control groups. Six years after index delivery 50% of women in both the intervention and control groups were doing any PFMT. When questioned about performing daily PFMT, it is interesting to note that only 6% of the PFMT group were exercising daily compared to 12% of the control group. Long-term effects are not clear, highlighting the need for more evidence in this area.

Mixed prevention and treatment population: PFMT started in the early antenatal period is effective in reducing incontinence in late pregnancy. It is not clear if PFMT is effective when given to a mixed population of women in the post partum period.

Quality of PFMT regimens: The content of PFMT programs was often poorly described. Assessment of the interaction between quality and the effect of the intervention has been recommended.¹⁰ In addition to recommended exercise dose there is also the issue of treatment adherence; a potentially sufficient dose is only sufficient if the recommended program is adhered to.

Implications for research: There is a need for large, pragmatic, rigorous and explicitly reported trials with long-term follow up of treatment approaches to PFMT using intensive programs.¹ It is not clear if PFMT is effective when given to a mixed population of women in the post partum period. The choice of program should be set against the resource implications of intensive, supervised PFMT and the opportunity cost this represents.

Mørkved S & Bø K⁵

Based on studies with a relevant sample size, high adherence to a strength-training protocol and close follow-up, PFMT both during pregnancy and after delivery can treat UI. The most optimal dosage

for effective PFMT is still not known. However, a training protocol following general strength-training principles and at least an 8-week training period can be recommended.

Wesnes & Lose⁶

Mason et al.¹¹ did a RCT on antenatal PFMT in prevention of UI post-partum. The intervention group reported less UI compared to the control group both in week 36 of pregnancy and 3 months post-partum; however, results were not significantly different reflecting a fundamental problem in studies on PFMT; the outcome of PFMT is closely linked to a dose-response relationship of PFMT.¹² Intensive training with close follow-up is necessary to achieve beneficial effects.^{12,13} Based on level 1 evidence, PFMT should be recommended to women during pregnancy to prevent UI in pregnancy (Grade of Recommendation: A).

Moore et al.²

Post-partum women with UI who were randomised to PFMT taught and supervised by a health professional were less likely to be incontinent than controls (standard care or relaxation massage) six to 12 months following delivery (Level of Evidence: 1). Trials, using an intensively supervised strength training program demonstrated the greatest treatment effect [12]. It is unclear if the benefit of PFMT is maintained over time or with subsequent deliveries (Level of Evidence: 2).

Discussion

Currently, there are no clear guidelines for new mothers on prevention and, avoidance of longstanding UI. Pelvic Floor Muscle Training (PFMT) during pregnancy significantly reduces UI in late pregnancy and in the first months after childbirth and is the first line conservative treatment at any age. Persistent post partum UI is also treatable by such training, but in this situation it is frequently initiated too late. Moreover, as with any exercise programme, adherence, compliance and motivation to continue the programme are variable. To date, it is unknown whether the effects of PFMT persist long term and this is mostly felt to be a consequence of inadequate intensity of the PFMT training programme and patient adherence. Therefore, a multidisciplinary strategy to make women aware during and after their first pregnancy of the importance of PFMT as a normal part of healthy lifestyle and general wellbeing, may be necessary for lifelong (secondary) prevention of UI and chronic diseases. Self-management is a key strategy to improve health and wellbeing, as well as to prevent diseases. Therefore, to demonstrate the long-term effects of peripartum PFMT, this multidisciplinary strategy should incorporate primigravid women's self-management and the development of an adequate system incorporating:

- A tailored, intensive exercise regimen with emphasis on pelvic floor muscles and supervision by pelvic physiotherapists building on a structured and evidence-based programme;
- An innovative ICT software application (app) for giving reminders to take the exercise, tracking exercise completed, and providing rewards (designed to run on mobile devices).

Conclusion

- Is there evidence that pregnant urinary incontinent women should be advised to do PFMT to treat UI, both short and long term?

Overall, there is evidence that PFMT, that is begun to treat antenatal urinary incontinence, is effective up to one year after delivery (Level

of Evidence: 1). Long-term effects are not (yet) clear, highlighting the need for more evidence in this area.

- b. Is there evidence that post partum women should be advised to do PFMT to treat UI, both short and long term?

Overall, there is evidence that PFMT, that is begun to treat post partum urinary incontinence, is effective up to one year after delivery (Level of Evidence: 1). Long-term effects not clear, highlighting the need for more evidence in this area.

- c. What is the most optimal training dosage for effective antenatal PFMT in the treatment of UI?

Trials, using an intensively supervised strength training program demonstrated the greatest treatment effect (Level of Evidence: 1). An 'intensive' PFMT programme (in terms of supervision and exercise content) is likely to increase the treatment effect (Grade of Recommendation: B).

Recommendations

PFMT should be offered as first line conservative therapy to women with persistent UI symptoms three months after delivery (Grade of Recommendation: A); an 'intensive' PFMT programme (in terms of supervision and exercise content) is likely to increase the treatment effect (Grade of Recommendation: B). There is a need for at least one large, pragmatic, well-conducted and explicitly reported trial with long term follow-up of post partum PFMT that investigates the effect of (a strategy of) 'intensive' treatment followed by periodic refresher sessions and reminders.

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Conflicts of interest

None.

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