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Pelvic Floor Muscle Training During Pregnancy and After Delivery

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Abstract: Objective: Female urinary incontinence is often considered a problem that occurs primarily during pregnancy and after childbirth. The aim of this article is to review the literature addressing pelvic floor muscle training in the prevention and treatment of urinary incontinence during pregnancy and after delivery.

Method: Only full publications of prospective controlled studies were included. Urinary incontinence was the primary outcome variable and pelvic floor muscle training was the main intervention.

Results: Four randomised controlled trials (RCTs) assessing the effect of pelvic floor muscle training during pregnancy were found. Ten articles were identified addressing the effect of pelvic floor muscle training postpartum; seven of these presented RCTs, two presented matched controlled studies and a controlled study. Three were follow-up studies. The interventions included pelvic floor muscle training, however, various training protocols were used. All studies, except for two, reported statistically and clinically significant effects of the interventions, with a significant reduction in symptoms or frequency of urinary incontinence after the intervention period. No adverse effects of the interventions were reported.

Conclusions: This review suggests that women should be encouraged to perform pelvic floor muscle training during pregnancy and postpartum to prevent and/or treat urinary incontinence.

Keywords: Pelvic floor muscle training, physiotherapy, urinary incontinence, treatment, pregnancy, postpartum.

INTRODUCTION

As early as in 1948, the American gynaecologist Arthur Kegel emphasised the value of pelvic floor muscle exercise in restoring function after childbirth. He claimed that genital relaxation after delivery was due to nerve injury, over stretching of muscles and tearing of fascias and that the method of restoring the condition was "tightening" of the pelvic floor muscles [1]. Kegel [1] reported that Hippocrates tried "oil injections, hot douches and salves" to restore the pelvic floor muscles after birth and that Saranus attempted support with the hand to exercise the pelvic floor muscles. In addition, information was given concerning observations of unusually firm perinea in South African tribes due to the practice of the midwives who made women contract the pelvic floor muscles around their distended fingers after birth [1]. As a consequence of Kegel's [2] studies, women in most industrialised countries have been encouraged to exercise the pelvic floor muscles during pregnancy and after delivery to strengthen the pelvic floor and to prevent and treat urinary incontinence. Although some 50 years have passed since this practice was introduced, the effects of such exercises have until recently been only sparsely documented [3].

The pelvic floor muscles play an important role in maintaining adequate pelvic support, for example to the position and function of the bladder, uterus and rectum, and to enable urinary continence [4-9]. Perineal injury at delivery is a major etiological factor in the development of urinary incontinence [9]. Thus, female urinary incontinence is a symptom that often occurs after childbirth. Prevalence estimates of any stress urinary incontinence during pregnancy and after childbirth vary between 6% [10] and 67 % [11], and 2-3 months after delivery between 3% [12] and 38 % [13]. The variation may be explained by different populations investigated (nulliparous, parous), the use of different definitions of incontinence (self-report, urodynamically proven, according to new or old definitions from International Continence Society), and that the registration of incontinence took place at different stages of pregnancy or postpartum.

Urinary incontinence is a chronic health complaint, which severely reduces quality of life [14,15]. Many sufferers report effects on their social, domestic, physical, occupational and leisure activities [14,16,17]. Stress urinary incontinence (the complaint of involuntary leakage on effort or exertion, or on sneezing or coughing [18]) may lead to withdrawal from regular physical and fitness activities [17,19]. Such withdrawal from physical activity may be a threat to a woman's general health and well-being because regular moderate physical activity is important in preventing obesity, osteoporosis, high blood pressure, coronary heart disease, depression, and anxiety [20].

There has been considerable debate as to whether the development of urinary incontinence is due to pregnancy itself or to the act of childbirth [21], and the evidence is contradictory [22-24]. Several studies suggest that elective caesarean birth seems to reduce the risk of injury to the pelvic floor and postpartum urinary incontinence [23]. Other studies have reported conflicting results by showing that

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elective caesarean sections are not completely protective [21,25,26]. In addition, we have to keep in mind that confounding factors may exist. Anatomical structures (the size of the mother's pelvis, muscles, connective tissue) may be a reason for offering some women caesarean sections. The same anatomical characteristics may also protect against urinary incontinence after delivery. No method of obstetric perineal management has yet been demonstrated to reduce the risk for incontinence [27]. Therefore, there is still a need for strategies to treat and rehabilitate pelvic floor damage related to pregnancy and delivery also to prevent urinary incontinence later in life. The pelvic floor muscles may be one target for intervention.

The aim of this article is to review the literature addressing the effect of pelvic floor muscle training in the prevention and treatment of urinary incontinence during pregnancy and post partum.

METHODS

A research of the following computerised databases from 1985 to 2006 was undertaken: Medline, CINAHL, EMBASE, and The Cochrane Library Database. The search strategy recommended by the International Continence Society was applied. A manual search was undertaken of identified manuscripts reporting on research studies mentioned in the references of this literature. Only controlled trials published as articles with sufficient data to allow statistical analyses were included, but abstracts were excluded. A study was included if the trial reported the results of physical therapy (pelvic floor muscle training with or without the use of additional biofeedback and /or electrical stimulation). We found four studies addressing pelvic floor muscle training during pregnancy and 10 studies addressing pelvic floor muscle training after delivery that meet the inclusion criteria (Table **1** and Table **2**).

The methodological quality varies, and it is important to notice that interventions used in the studies also vary.

RESULTS

Four randomised clinical trials (RCTs) assessing the effect of pelvic floor muscle training during pregnancy were found [28-31] (Table **1**). Ten controlled studies were identified addressing the effect of pelvic floor muscle training postpartum [32-41] (Table **2**).

During Pregnancy

Three studies included primigravid women [28, 29,30], the fourth study pregnant parous women [31], all recruited at 20-22 weeks of pregnancy. One study was purely a prevention study, including only women at risk of developing urinary incontinence (with increased bladder neck mobility) and no previous urinary incontinence [29]. Two studies included women who had not been selected on the basis of incontinence or risk factors [28,30], and the last study included only pregnant women with existing urinary incontinence [31]. In all studies the interventions comprised pelvic floor muscle training, with some differences in the home training programme and the frequency of the follow-up by health professionals. The training protocol in the studies by Reilly *et al.* [29] and Mørkved *et al.* [30] addressed close follow-up (monthly and weekly) by a physiotherapist, while Woldringh *et al.* [31] used a protocol consisting of only three follow-up sessions during pregnancy. Clinically significant effects of the interventions, showing a significant reduction in symptoms or episodes of urinary incontinence after intervention, were documented in three studies [28-30]. No adverse effects of the interventions were reported.

However, only short-term effects (effective immediately after cessation of the training protocol) have been documented. Sampselle *et al.* [28] found that the effect of the intervention was not present at one year follow-up study, and Woldringh *et al.* [31] found no difference in urinary incontinence between the intervention and control group during pregnancy and at the follow-up at six and 12 months postpartum.

After Delivery

The studies included both primi- and multiparous women recruited from one day to three months after delivery. Seven studies were RCTs [32-38], two matched controlled [39,40] and one controlled study [41]. Three studies were follow-up studies [35,37,40] (Table **2**).

All studies, except for one [32], reported clinically significant effects of the interventions, with a significant reduction in symptoms or frequency of urinary incontinence after the intervention period. No adverse effects of the interventions were reported. The interventions included pelvic floor muscle training, however, following different training protocols. Most studies compared pelvic floor muscle training with current standard care, allowing self-managed pelvic floor muscle training but not introducing a control intervention. Only Dumoulin *et al.* [38] introduced an intervention in the control group (massage), and compared the control intervention with two interventions involving different combined pelvic floor muscle rehabilitation interventions. The training protocols in the studies by Mørkved & Bø [39,40], Meyer *et al.* [41], and Dumoulin *et al.* [38] addressed close follow-up (weekly and monthly) by a physiotherapist.

Mørkved & Bø [40] found that the effect of pelvic floor muscle training was still present one year after cessation of the training programme, while Chiarelli *et al.* [37] and Glazener *et al.* [35] found no difference in urinary incontinence between groups at one and six year follow-up, respectively. However, Chiarelli *et al.* [37] reported that continued adherence to pelvic floor muscle training at 12 months was predictive of urinary incontinence at that time, with less urinary incontinence among women training the pelvic floor muscles.

IMPLEMENTATION

The results of this review suggest that pregnant and postpartum women should be encouraged to perform pelvic floor muscle exercises to prevent and treat urinary incontinence. The most effective interventions consist of an

Table 1. Studies Assessing the Effect of Pelvic Floor Muscle Exercises During Pregnancy to Prevent/Treat Urinary Incontinence

Author	Design	Subjects	Training Protocol	Drop out / Adherence	Results [Numbers and percentage (%)]
Sampselle *et al*. 1998 [28]	2 arm RCT 1. Control (n=38): Routine care 2. Intervention (n=34): A tailored PFMT program.	N=72 primigravid women recruited at 20 weeks of pregnancy. Groups comparable at baseline. Single centre, USA.	1. Control: Routine care 2. A tailored PFMT program beginning with muscle identification progressing to strengthening. 30 contractions per day at max or near max intensity from 20 weeks of pregnancy. Correct voluntary PFM contraction checked.	26/72 (36%) withdrawals - Unsupervised PFMT reported by 20% of control group. - Adverse events not stated. Self reported adherence. Partial ITT analysis	Change in mean UI symptom score: Control Intervention p 35 wk' pregnancy : 0.20 -0.02 0.07 6 wk' post partum: 0.25 -0.06 0.03 6 mo post partum: 0.15 -0.11 0.05 12 mo post partum: 0.06 0.00 0.74 PFM strength: Ns difference
Reilly *et al.* 2002 [29]	2 arm RCT 1. Control (n=129): Routine care 2. Intervention (n=139): 20 weeks of intensive PFMT	N=268 primigravid women with increased bladder neck mobility recruited at 20 weeks of pregnancy. Single centre, England.	1. Control: Routine antenatal care (verbal advice). 2. Intervention: Individual PFMT with physiotherapist at monthly intervals from 20 weeks until delivery, with additional home exercises 3 sets of 8 contractions (each held for 6 seconds) repeated twice daily. Instructed to contract the PFM when coughing or sneezing.	Data reported for 230/268 women, 38 withdrawals or losses to follow up. - 51% of the women in the control group did unsupervised PFMT. - Adverse events not stated. ITT analysis	Self reported UI at 3 months post partum: 1. Control: 36/110 (32.7%) 2. Intervention: 23/120 (19.2%) RR (95% CI): 0.59 (0.37-0.92) p=0.023 Quality of life: Higher score in the exercise group p=0.004 Pad test: Ns difference Bladder neck mobility: Ns difference PFM strength: Ns difference
Mørkved *et al.* 2003 [30]	2 arm RCT 1. Control (n=144): Customary information from general practitioner / midwife. 2. Intervention (n=145): 12 weeks of intensive PFMT	N=289 primigravid women recruited at 20 weeks of pregnancy. Some women had existing UI. Three outpatient physiotherapy clinics in Norway	1. Control: Customary information from general practitioner / midwife. Not discouraged from PFMT. Correct PFM contraction checked at enrolment. 2. Intervention: 12 weeks of intensive PFMT (in a group) led by physio-therapist, with additional home exercises 8-10 max contractions (each held for six seconds) repeated twice daily, between 20 and 36 weeks of pregnancy. Correct PFM contraction checked at enrolment.	10 withdrawals (6 PFMT and 4 controls). - Adverse events not stated ITT analysis	Self reported UI at 36 weeks pregnancy: 1. Control: 74/153 (48%) 2. Intervention: 48/148 (32%) RR (95% CI): 0.67 (0.50-0.89) p=0.007 UI at 3 months post partum: 1. Control: 49/153 (32%) 2. Intervention: 29/148 (19.6%) RR (95% CI): 0.61 (0.40-0.90) p=0.018 PFM strength: Sign difference in favour of the intervention group
Woldringh *et al*. 2006 [31]	2 arm RCT 1. Control (n=152): Routine care. 2. Intervention (n=112): Four sessions of individual instructions in PFMT	N= 316 women with UI at 22 weeks of pregnancy. Multi center, The Netherlands	1. Control: Routine care. Nearly 2/3 received some instruction on PFMT. 2. Intervention: Three sessions of individual therapy during week 23-30 of pregnancy and one 6 weeks after delivery, combined with written information.	60 in the intervention and 76 in the control group participated during the whole study period. - Adverse events not stated - Adherence not reported ITT analysis	Self reported UI: Intervention Control p 35 wk' pregnancy: 93% 88% 0.33 8 wk' postpartum: 68% 62% 0.44 6 mo postpartum: 60% 56% 0.63 12 mo postpartum: 63% 58% 0.61 1 year post partum: Negative correlation between training intensity and severity of UI

Table 2. Studies Assessing the Effect of Pelvic Floor Muscle Exercises Postpartum to Prevent/Treat Urinary Incontinence

Author	Design	Subjects	Training Protocol	Drop out / Adherence	Results [Numbers and percentage (%)]
Sleep & Grant 1987 [32]	2 arm RCT 1. Control (n=900): Current standard care 2. Intervention (n=900): Current standard care + individual sessions PFMT	N=1800 postpartum women recruited within 24 hours of vaginal delivery. Single centre, England.	1. Controls: Current standard antenatal and postnatal care. Recommended to do PFM contractions as often as remembered and mid stream urine stop. 4 wk health diary. 2. Intervention: As above plus one individual session daily while in hospital with midwifery co-ordinator. 4 wk health diary including section recommending a specific PFMT task each week.	Withdrawals at 3 months: 84/900 in control and 107/900 in intervention group. - At 3 months postpartum 58% on the exercise group and 42% in the control group reported that they were doing PFMT. - Adverse events not stated. Not ITT analysis	Self reported UI 3 months post partum: 1. Control: 175/793 (22%) 2. Intervention: 180/816 (22%) RR (95% CI): 1(0.83, 1.20)
Mørkved & Bø 1997 [39]	Prospective matched controlled 1. Control (n=99): Customary written postpartum instructions from the hospital. 2. Intervention (n=99): Eight weeks of intensive pelvic floor muscle training	N=198 postpartum women. The criteria for matching: age (± 2 years), parity (1, 2, 3, 4 ≥ deliveries) and type of delivery. Single centre, Norway	Control: Customary written postpartum instructions from the hospital. Not discouraged from performing PFMT on their own. Correct PFM contraction checked at enrolment. Intervention: Eight weeks of intensive PFMT (in a group) led by physiotherapist with additional home exercises between 8 and 16 weeks postpartum. Correct PFM contraction checked.	Seven withdrawals in the intervention group. - 100% in the training group and 65% in the control group reported that they were doing PFMT between 8 and 16 weeks after delivery. - Adverse events not stated	Self reported UI at 16 weeks post partum: 1. Control: 28/99 (28.3%) 2. Intervention: 14/99 (14.1%) p=0.015 Standardised pad test: 1. Control: 13/99 (13.1%) 2. Intervention: 3/99 (3.0%) p=0.009 PFM strength: Sign difference in favour of the intervention group
Mørkved & Bø 2000 One-year follow up [40]	1. Control (n=81) 2. Intervention (n=81)	N=180 women one year postpartum. All women, who had participated in a matched controlled trial were contacted per telephone one year after delivery. Single centre, Norway.		All longitudinal changes were conducted using a constant sample, including the 81 matched pairs that attended all tests (162/180). - 53% in the training group and 24% in the control group reported that they were doing PFMT between 16th week and one year postpartum. - Adverse events not stated.	Self reported UI at 12 months post partum: 1. Control: 31/81 (38%) 2. Intervention: 14/81 (17%) p=0.003 Standardised pad test: 1. Control: 14/81 (13%) 2. Intervention: 5/81 (3%) p<0.03 PFM strength: Sign difference in favour of the intervention group

(Table 2) Contd….

Author	Design	Subjects	Training protocol	Drop out / Adherence	Results [Numbers and percentage (%)]
Wilson & Herbison 1998 [33]	2 arm RCT 1. Control (n=117): Standard postnatal PFM exercises 2. Intervention (n=113): 12 weeks of intensive PFMT	N=230 women with UI three months postpartum	1. Control: Standard postnatal PFM exercises 2. Intervention: Instructions by physiotherapist (80-100 fast/slow contractions daily) 3,4,6 and 9 months postpartum. Use of perineo-meter to teach awareness of pelvic floor contraction. Three groups: a. 39 women performed only PFMT b. 36 women only trained with vaginal cones 15 minutes per day c. 38 women used both a and b	Women responding on 1 year outcome assessment: 1. Control: 91/117 2. Intervention: 54/113	Self reported UI at 12 months post partum: 1. Control: 69/91 (76%) 2. Intervention: 27/54 (50%) p=0.003 Pad test: Ns difference Perineometry: Ns difference
Glazener *et al*. 2001 [34] Glazener *et al.* 2005 [35]	2 arm RCT 1. Control (n=376): No visit 2. Intervention (n=371): Advice + visits 3 Centres: Aberdeen, Birmingham, Dunedin 6 year follow up 1. Control: n=253 2. Intervention:n= 263	N=747 women with UI three months postnatally Mean age at entry 29.6 (SD 5.0) N=516 Mean age at entry 30.0 (SD 4.7)	1. Control: No visit 2. Intervention: Assessment of UI, with advice on PFMT (80-100 fast/slow contractions daily) followed up 5, 7, and 9 months after delivery supplemented by bladder training if appropriate at 7 and 9 months	Lost to follow up at 12 months: 1. Control: 35% 2. Intervention: 25% ITT analysis Lost to follow up: 30% Performing any PFMT: 1. Control: 50% 2. Intervention: 50%	Self-reported UI at 12 months post partum: Any UI: 1. Control: 169/245 (69%) 2. Intervention: 167/279 (59.9%) p=0.037 Severe UI: 1. Control: 78/245 (31.8%) 2. Intervention: 55/279 (19.7%) p=0.002 Severe UI at 6 years follow up: 1. Control: 99/253 (39%) 2. Intervention: 100/263 (38%) p=0.867
Meyer *et al*. 2001 [41]	Allocated to 2 groups 1. Control (n=56): no education 2. Intervention (n=51): 12 sessions PFMT over 6 weeks with physiotherapist	N=107 primiparous women 2 months after delivery: 9/56 controls and 16/51 in the intervention group had self reported SUI. Single centre, Switzerland.	1. Control (n=56): No pelvic floor re-education offered from 2 - 10 months postpartum. 2. Intervention (n=51): 12 sessions over 6 weeks with physiotherapist. PFMT followed by 20 minutes of biofeedback and 15 minutes of electrostimulation.	No withdrawals or loses to follow up. Adherence not reported - Adverse events not stated	Self reported SUI 10 months post partum: 1. Control: 8/56 (32%) 2. Intervention: 6/51 (12%) RR (95% CI): 0.82 (0.31, 2.21) Subjects cured: 1. Contro1: 1/51 (2%) p=1.0 2. Intervention: 10/56 (19%) p=0.02 PFM strength: Ns difference Bladder neck position and mobility: Ns difference Urodynamic parameters: Ns differences

(Table 2) Contd….

Author	Design	Subjects	Training protocol	Drop out / Adherence	Results [Numbers and percentage (%)]
Chiarelli & Cockburn 2002 [36]	2 arm RCT 1. Control (n=350): Usual care. 2. Intervention (n= 370): Continence promotion	N=720 postnatal women following forceps or ventouse delivery, or delivered a baby > or = 4000g. Age 15– 44 Multicentre (3), Australia.	1. Control : Usual care. 2. Intervention: Continence promotion: One contact with physiotherapist on postnatal ward and another at 8 weeks postpartum (correct PFM contraction checked at second visit). Intervention included individually tailored PFMT, use of transversus abdominus contraction, the 'Knack', techniques to minimise perineal descent, postpartum wound management. Written and verbal information.	Drop out 6% in each group Adherence to PFM training: 1. Control: 57.6% 2. Intervention:83.9% - Adverse events not stated IT T analysis	Self reported UI 3 months post partum: 1. Control: 126/328 (38.4%) 2. Intervention: 108/348 (31.0%) (95% CI 0.22% - 14.6%) p=0.044 OR of incontinence for the women in the intervention group compared with Control group was: 0.65 (0.46-0.91), p=0.01
Chiarelli *et al.* 2005 [37]	3. Control (n=294): Usual care 4. Intervention (n= 275): Continence promotion			Drop outs: 30% ITT analysis	Self reported UI 12 months post partum: Ns difference between groups. Practice of PFMT at 12 months promotes continence at this time.
Dumoulin *et al.* 2004 [38]	3 arm RCT 1. Control (n=20) 2. PFM rehabilitation (n=21) 3. PFM rehabilitation + training of deep abdominal muscles (n=23)	N=64 parous women under 45 years, still presenting symptoms of SUI at least once per week 3 months or more after their last delivery. Recruited during annual gynecologic visit at an obstetric clinic, Canada	1. Control: 8 weekly sessions of massage 2. PFM rehabilitation: Weekly sessions supervised by physiotherapist for 8 weeks: 15-minutes electrical stimulation + 25 minutes PFMT with biofeedback + home training 5 days per week. 3. PFM rehabilitation as group 2 + 30 minutes of deep abdominal muscle training	Drop out rate 6% High adherence - Adverse events not stated ITT analysis	Objective cure (less than 2 g urine on pad test) after the intervention: 1. Control: 0/19 2. PFM rehabilitation: 14/20 3. PFM rehabilitation + training of deep abdominal muscles: 17/23 Sign difference in favour of the intervention groups (p=0.001) Ns difference between the two intervention groups Incontinence Impact Questionnaire: Sign difference in favour of the intervention groups PFM strength: Ns difference

ITT = intention to treat analysis, mo=month, Ns=non significant, OR=odds ratio, PC = power calculation, PFM = pelvic floor muscles, PFMT = pelvic floor muscle training, RCT=randomised controlled trial, RR=relative risk, SD=standard deviation, SUI= stress urinary incontinence, UI=urinary incontinence, wk'= week

intensive protocol for strength training of the pelvic floor muscles, including frequent home training sessions and close follow-up by a skilled physiotherapist.

However, when it comes to implementing the findings, birth attendants often address the possible negative effect that pelvic floor muscle training during pregnancy may have on labour. There is a myth that pelvic floor muscle training during pregnancy may cause prolonged labour. In theory, strong and voluminous pelvic floor muscles could obstruct labour. An opposite theoretical assumption is that training of the pelvic floor muscles could improve both muscle strength and muscle awareness and produce strong, flexible and well-controlled muscles that will facilitate labour.

In the study by Salvesen & Mørkved [42] effects of pelvic floor muscle training during pregnancy on labour were assessed. The main outcome measures were duration of

the second stage of labour ("active pushing" time) and rate of prolonged second stage of labour (active pushing for longer than 60 minutes). The median length of the second stage of labour was 40 minutes in the intervention group and 45 minutes in the control group, but the difference was not statistically significant. However, a statistically significantly lower rate of women in the intervention group had prolonged duration of the second stage of labour. Analysis of Numbers needed to treat showed that pelvic floor muscle training during pregnancy prevented prolonged second-stage of labour in about one in eight women. In addition, fewer episiotomies were found in the intervention group.

EXAMPLE OF A PROGRAMME FOR PELVIC FLOOR MUSCLE TRAINING DURING PREGNANCY AND AFTER DELIVERY

In the following, the pelvic floor muscle training programme used in our studies will be presented as an example of an effective protocol to treat and prevent urinary incontinence [30,39,40,42].

The training groups followed an especially designed weekly exercise course that included both pelvic floor muscle and general exercises. The groups were led by a skilled physiotherapist, and each session lasted 45-60 minutes. The pelvic floor muscle training was performed in lying, sitting, kneeling, and standing positions with legs apart to emphasise specific strength training of the pelvic floor muscles and relaxation of other muscles. Between each session of pelvic floor muscle training, general exercises were performed to music. The physiotherapist encouraged the women to perform near maximal pelvic floor muscle contractions, and to hold the contraction for 6-8 seconds. At the end of each contraction, the women were asked to add 3-4 fast contractions. The resting period was about 6 seconds. In addition, the women performed 8-12 equally intensive pelvic floor muscle contractions twice per day at home. The physiotherapists focused strongly on motivation. The pelvic floor muscle training protocol has previously been published by Bø *et al.* [43] following recommendations for general training to increase strength of skeletal muscles [44]. The training groups included 5-15 women, and the training period in the postpartum training groups was 8 weeks and in pregnant women 12 weeks. Adherence to the training protocol was verified by the participants' training diary and from reports from the physiotherapists who were responsible for the group training.

CONCLUSION

According to the results of the presented review pelvic floor muscle training during pregnancy and after delivery is effective in reducing urinary incontinence during pregnancy and in the immediate postpartum period. However, the longer term effect is questionable. No adverse effect of the pelvic floor muscle training has been reported. It appears that the interventions including intensive and frequent strength training of the pelvic floor muscles and close follow-up by a skilled physiotherapist have the best effect. However, methodological differences and differences in adherence to the training protocols make it difficult to compare studies and to conclude which training regimen is the most effective.

Based on the current knowledge we should advice women to conduct pelvic floor muscle exercises systematically, both during pregnancy and after childbirth. The training has no negative side effects and is inexpensive – and the exercises help women to take care of their own health by themselves.

A significant public health issue would be to build strategies for encouraging women to talk about postpartum morbidity, and to search for effective prevention and treatment strategies. It is essential that – as far as possible – future services for women during pregnancy and after childbirth are organised according to results from controlled clinical trials.

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