



Antenatal and Postpartum Pelvic Floor Muscle Training in Prevention of UI Workshop 10 Monday 23 August 2010, 09:00 – 12:00

Time	Time	Topic	Speaker
9.00	9.05	Welcome, introduction	Kari Bø
9.05	9.30	Risk factors of birth injuries to the pelvic floor	Wael Agur
9.30	10.00	Evidence for PFMT during pregnancy and after childbirth	Siv Mørkved
10.00	10.30	Mini pelvic floor muscle training class	Kari Bø
10.30	11.00	Break	
11.00	11.20	Which women exercise the pelvic floor muscles during pregnancy and after childbirth?	Kari Bø
11.20	11.40	Adherence strategies in promotion of pelvic floor muscle training	Siv Mørkved
11.40	12.00	Challenges in development and implementation of clinical guidelines in clinical practice	Bary Berghmans

Aims of course/workshop

The aim of the workshop is to give evidence for the use of pelvic floor muscle training in prevention and treatment of urinary incontinence during pregnancy and after childbirth and to discuss possible strategies to improve adherence and implementation of pelvic floor muscle training for women.

Educational Objectives

- Risk factors of birth injuries to the pelvic floor
- Evidence for pelvic floor muscle training in prevention and treatment of urinary incontinence during pregnancy and after childbirth
- How many women are exercising during and after pregnancy?
- Adherence strategies
- The role of clinical guidelines and challenges in implementation
- Practical example of an evidence based group training session of effective pelvic floor muscle training

Pregnancy and childbirth are risk factors for development of pelvic floor dysfunction. Randomised controlled trials of pelvic floor muscle training have shown such training to be effective in prevention and treatment of urinary incontinence both during pregnancy and postpartum. However, research from different countries has also shown that few women do regular pelvic floor muscle training during pregnancy and after childbirth. Many women have probably not been properly informed about the benefits of exercise and how to perform effective pelvic floor muscle training. In addition, we suggest that the health services in this area have potentials for improvements.

ICS-IUGA 2010. WORKSHOP 10: ANTENATAL AND POSTPARTUM PELVIC FLOOR MUSCLE TRAINING IN PREVENTION OF UI

Chair: Kari Bø

CHILDBIRTH INJURIES AND THE PELVIC FLOOR

Wael Agur MD MRCOG

Consultant in Urogynaecology & Pelvic Floor Reconstruction

Crosshouse Hospital, Ayrshire, Scotland, UK

Some women suffer significant trauma to pelvic floor structures as a consequence of vaginal childbirth. Such trauma affects the levator ani muscle complex, the anal sphincter, pelvic fascial supports as well as the pudendal nerve¹. Symptoms usually present 2-3 decades following the first vaginal delivery². Approximately 40% of primiparous women experience urinary incontinence (UI) during pregnancy and 15% develop new symptoms after delivery³. It seems the more difficult a delivery (particularly if instrumental) the more likely there is damage to pelvic floor structures.

Women who are asymptomatic during pregnancy and delivered by Caesarean section, have the lowest risk of postnatal UI⁴. However, elective Caesarean section has not been shown to be completely protective against pelvic floor dysfunction suggesting an important role of the changes that occur during pregnancy as well as during childbirth. Antenatal stress incontinence is likely to be due to mechanical as well as hormonal effects of the pregnancy. Women with antenatal stress incontinence are likely to represent a high-risk group. On the other hand, postnatal urinary incontinence probably develops as a result of direct (urethral support) and/or indirect (pudendal nerve) childbirth-related damage to the pelvic structures.

Risk factors for damage resulting in UI have been defined and include delivery mode, a long second stage, epidural anaesthesia and macrosomia⁵. Ultrasound and MRI scanning have been used to demonstrate the postpartum levator defects associated with the development of pelvic floor dysfunction⁶.

Supervised antenatal and postnatal pelvic floor muscle training has been shown in several studies to be protective against UI particularly in high-risk groups; however, motivation and compliance issues need to be addressed to achieve better long-term results.

References

- 1- Snooks SJ, Badenoch DF, Tiptaft RC, Swash M. Perineal nerve damage in genuine stress urinary incontinence. *Br J Urol.* 1985 ;57:422-426
- 2- Dolan LM, Lee R, Hilton P. Prevalence and obstetric antecedents of pelvic floor dysfunction. *Neurourol Urodyn* 2006;26:508–9.

- 3- Glazener CM, Herbison GP, MacArthur C, Lancashire R, McGee MA, Grant AM, *et al.* New postnatal urinary incontinence: obstetric and other risk factors in primiparae. *BJOG* 2006;**113**:208–17.
- 4- Wilson P, Herbison R, Herbison G. Obstetric practice and the prevalence of urinary incontinence three months after delivery. *BJOG* 1996;**103**:154–61.
- 5- Rortveit G, Dalveit AK, Hannestad YS, Hunskaar S. Vaginal delivery parameters and urinary incontinence: the Norwegian EPINCONT study. *Am J Obstet Gynecol* 2003;**189**:1268–74.
- 6- Dietz H. P. Schierlitz L. Pelvic floor trauma in childbirth – Myth or reality? *Australian and New Zealand Journal of Obstetrics and Gynaecology* 2005; 45: 3–11

OVERVIEW OF EVIDENCE FOR PELVIC FLOOR MUSCLE TRAINING IN THE PREVENTION AND TREATMENT OF PRE- AND POSTNATAL URINARY INCONTINENCE

Siv Mørkved, professor, Msc, PhD, PT

St.Olavs Hospital, Trondheim University Hospital Department of Public Health and General Practice, Norwegian University of Science and Technology, Trondheim, Norway

Female urinary incontinence is often considered a problem primarily occurring during pregnancy and after childbirth. The aim of this presentation is to review the literature addressing pelvic floor muscle (PFM) training in the prevention and treatment of pre and postnatal urinary incontinence. All the controlled studies included in the presentation have been published as articles, and PFM training was the main intervention.

Five randomised controlled trials (RCT's) assessing the effect of PFM training during pregnancy were found. Eight studies were identified addressing the effect of PFM training postpartum; six RCT's, one matched controlled and one controlled study (three studies had additional follow-up).

According to the results of the presented review PFM training during pregnancy and postpartum 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 PFM training has been reported. It seems like the interventions including close follow up (monthly and weekly) by a physiotherapist have the best effect. However, methodological differences and differences in adherence to the training protocols make it difficult to compare between studies and to conclude which training regimen is the most effective.

In the following, the exercise course used in our studies will be presented as an example of an effective protocol to treat and prevent urinary incontinence.

In our studies the training groups followed a specially designed weekly exercise course that included both PFM and general exercises. The groups were lead by a skilled physiotherapist, and each session lasted 45-60 minutes. The PFM training was performed in lying, sitting, kneeling, and standing positions with legs apart to emphasise specific strength training of the PFM and relaxation of other muscles. Between each session of PFM training, general exercises were performed to music. The physiotherapist encouraged the women to perform near maximal PFM contractions, and to hold the contraction 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 2-3 sets of 10 equally intensive PFM contractions per day at home. The physiotherapists focused strongly on motivation. The PFM training protocol has previously been published by Bø et al. (1990) following recommendations for general training to increase strength of skeletal muscles. 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.

Conclusions/Implications: This review suggests that women should be encouraged to perform PFM training to prevent and/or treat urinary incontinence during pregnancy and postpartum. Health services for women during pregnancy and after delivery should be increased, and strategies to prevent and treat urinary incontinence need to be implemented.

References

Bø K, Hagen RH, Kvarstein B, Jørgensen J, Larsen S 1990 a Pelvic floor muscle exercise for the treatment of female stress urinary incontinence: III. Effects of two different degrees of pelvic floor muscle exercise. *Neurourology and Urodynamics* 9:489-502.

Hay-Smith J, Mørkved S, Fairbrother KA, Herbison GP. Pelvic floor muscle training for prevention and treatment of urinary and faecal incontinence in antenatal and postnatal women. *Cochrane Database Syst Rev.* 2008 Oct 8;(4):CD007471. Review.

ADHERENCE STRATEGIES IN PROMOTION OF PELVIC FLOOR MUSCLE TRAINING

Siv Mørkved, professor, Msc, PhD, PT

St.Olavs Hospital, Trondheim University Hospital Department of Public Health and General Practice, Norwegian University of Science and Technology, Trondheim, Norway

The efficacy of a training program is highly dependent of the adherence to the program. Poor adherence to pelvic floor exercise regimens can act as an additional barrier to health

professional intervention. In prevention and treatment of urinary incontinence one important part of the physiotherapist's role is to motivate the patient to follow the pelvic floor muscle (PFM) training protocol. Thus, when designing an intervention adherence strategies must be implemented.

Aims of the presentation:

- What is adherence?
- Why discuss adherence?
- Theoretical issues
- Adherence strategies
- How can adherence strategies be used to promote pelvic floor muscle training?
- Clinical recommendations

Adherence

- ..the extent to which patients follow the instructions they are given for prescribed treatments...

Main points emphasized by the presented theories

- Knowledge and beliefs about health
 - While advocating health education, all theories emphasize the role of individualization – personalizing the information so that it is seen by individuals as relevant and pertinent
- A patient's belief in their own ability to do what is asked.
 - Exploring the patient's feelings of competency in relation to the behaviour and encouraging repeated, well-supervised practice to improve self efficacy and self-esteem
- The importance of what is perceived as "normal" by a patient in relation to the influences and values of their social group.
 - The influence of the patient's social group as a role model, family and peer influences (significant others)
- Patients move forward and back along a continuum of change or readiness to change
- Awareness of the impact of socioeconomic and environmental factors on a patient's ability to adopt specific behaviours
- The importance of changing a patient's environment or perceptions of the environment when it impacts on their progress

Adherence strategies / Theories to provide insight in how to change behaviour:

- The trans-theoretical model (TTM)
- The self-regulation theory (SRT)
- The Social cognitive theory (SCT)

How can adherence strategies be used to promote pelvic floor muscle training?

A physiotherapy continence promotion program designed and implemented in Australia was developed with input from both women in postpartum and experts in continence management. The program has been shown to be effective both in encouraging pelvic floor muscle exercises and in promoting continence.

Another example of a PFM training program has been used in controlled studies aiming at prevention and treatment of urinary incontinence in pregnant and postpartum women in Norway. Adherence strategies were based on motivational theory, and three categories of personal motivational factors were addressed:

1. Goal-orientation
2. Self efficacy / Outcome expectations
3. Opinions and emotional experiences related to physical activities

In addition, several social factors relevant to improve adherence was addressed:

1. The therapists- patient interactions
2. Follow up by significant others
3. Group relations

The acceptability of a training program by the members of the target group (pregnant and postpartum women with time constraints) also depends on the simplicity and time needed to perform the exercises.

References

Alewijnse D, Mesters I, Metsemakers JFM, Borne van den B. Strategies to enhance adherence and reduce drop out in conservative treatment. In Bø K, Berghmans B, Mørkved S, Kampen van M (editors): Evidence based physical therapy for the pelvic floor –bridging science and clinical practice. Chap 7: 133-146, Elsevier 2007

Chiarelli P. Lifestyle interventions for pelvic floor dysfunction. In Bø K Berghmans B, Mørkved S, Kampen van M (editors): Evidence based physical therapy for the pelvic floor –bridging science and clinical practice. Chap 8: 147-159, Elsevier 2007

WHICH WOMEN EXERCISE THE PELVIC FLOOR MUSCLES DURING PREGNANCY AND AFTER CHILDBIRTH?

**Kari Bø, Professor, Msc, PhD, PT, Exercise scientist
Norwegian School of Sport Sciences, Department of Sports Medicine
Oslo, Norway**

A recent Cochrane review has concluded that women without prior urinary incontinence (UI) who received intensive antenatal pelvic floor muscle training (PFMT) were 56% less likely than those who received no PFMT to report UI in late pregnancy, and about 30% less likely to report UI by 6 months postpartum. Women with persistent UI 3 months after delivery who received PFMT were 20% less likely than those who did not receive PFMT to report UI 12 months after delivery and women receiving PFMT after delivery were also about half as likely to report fecal incontinence as those who received no

PFMT. Given this evidence it is important to find out how many women are doing the exercises and if not, what are the barriers to PFMT.

In general it is well known that only few of those having UI report their symptoms. In a nationwide survey in the US only 45% of those reporting symptoms had talked to the physician about the problem and in 85% of the cases it was the incontinent woman that had raised the issue. Only 20% of the participants reported to do PFMT currently. McLennan et al found that counseling and information about possible pelvic floor complications occurred significantly less frequently than education on general pregnancy topics in a sample of postpartum women. 46% had not received any information on PFMT. The number of women doing PFMT during pregnancy and postpartum varies in different studies and from country to country. The variation antenatally is between 16 and 69%. The variation is likely due to different health care systems with different health care professionals having the responsibility (or not!) to teach PFMT. Also the evidence for antenatal training is relatively new, and eg in Australia only 20% had been taught PFMT by a health professional during pregnancy. Mason et al found that the information in UK varied from a brief reminder, to exercise in a class with an instructor. As expected most studies find that PFMT are more frequent postpartum than antenatally. Mason et al found that 82% of a group of UK women were doing PFMT 6 weeks postpartum and in a Norwegian study 58% of women were exercising \geq once a week at 6 months postpartum. However, these studies may be flawed with low response rates and the true numbers may be lower. Not surprisingly those exercising both during pregnancy and after childbirth are more educated and more likely to participate in regular fitness activities as well.

In conclusion, it is a challenge first of all to health professionals that we have not been able to teach and inform women on the effect of PFMT and why women should start training during pregnancy to prevent and treat UI and fecal incontinence. Hence, to date the health care system does not seem to function evidence based in this area. We should therefore not assume that women are not motivated to conduct such exercises. In general pregnant women are motivated for lifestyle changes and this may be the optimal time to introduce PFMT. Today all pregnant women are recommended to do general aerobic and strength training to prevent excessive weight gain, diabetes, high blood pressure, pre-eclampsia and macrosomia. Hence, there is a need for general fitness classes both during pregnancy and postpartum for all pregnant women. Such general exercise classes could easily and should optimally include 3 sets of close to maximum PFM contractions and instruction in precontractions during increase in intra-abdominal pressure (“the Knack”). However, the effect of such exercise classes needs to be evaluated in randomized controlled trials.

Literature

Artal, R, O’Toole, M. Guidelines of the American College of Obstetricians and Gynecologists for exercise during pregnancy and the postpartum period. *Br J Sports Med.* 37:6-12, 2003.

Ashworth PD, Hagan MT. Some social consequences of noncompliance with pelvic floor exercises. *Physiother* 1993; 79: 465-471.

Bø K, Haakstad LA, Voldner N: Do pregnant women exercise their pelvic floor muscles? *Int Urogynecol J* 2006; 18: 733-736.

Bø K, Owe KM, Nystad W: Which women do pelvic floor muscle exercises six months postpartum. *Am J Obstet Gynecol* 2007; July, 197,1: 49-51.

Bø K, Fleten AC, Nystad W: Effect of antenatal pelvic floor muscle training on labour and birth. *Obstet Gynecol* 2009;113, 6:1279-1284.

Chiarelli P, Murphy B, Cockburn J. Women's knowledge, practises, and intentions regarding correct pelvic floor exercises. *Neurourol and Urodyn* 2003; 22: 246- 249.

Chiarelli P, Murphy B, Cockburn J. Promoting urinary incontinence in postpartum women: 12-month follow-up data from a randomised controlled trial. *Int Urogynecol J* 2004; 15:99-105.

Hay-Smith J, Mørkved S, Fairbrother KA, Herbison GP. Pelvic floor muscle training for prevention and treatment of urinary and faecal incontinence in antenatal and postnatal women. *Cochrane Database Syst Rev.* 2008 Oct 8;(4):CD007471. Review.

Hunskar S, Burgio K, Clark A, Lapitan MC, Nelson R, SillenU, Thom D. Epidemiology of urinary (UI) and faecal (FI) incontinence and pelvic organ prolapse (POP). In: Abrams P, Cardozo L, Khoury S, Wein A: *Incontinence. 3rd International Consultation on incontinence 2005.* Health Publication Ltd. Vol 1: Basics & evaluation. Chapter 5; 255-312.

Mason L, Glenn S, Walton I, Hughes C. The instruction in pelvic floor exercises provided to women during pregnancy or following delivery. *Midwifery* 2001; 1:55-64.

Mason L, Glenn S, Walton I, Huges C (2001) Do women practice pelvic floor exercises during pregnancy or following delivery? *Physiother* 2001; 87:662-670.

Mason L, Glenn S, Walton I, Huges C. The relationship between ante-natal pelvic floor muscle exercises and postpartum stress incontinence. *Physiother* 2001; 87,12: 651-661.

McLennon MT, Melick CF, Alten B, Young J, Hoehn MR. Patients' knowledge of potential pelvic floor changes associated with pregnancy and delivery. *Int Urogynecol J* 2005; 17: 22-26.

Wolfe LA, Davies GAL. Canadian guidelines for exercise in pregnancy. *Clin Obstet Gynecol*,46: 488-95, 2003

Berghmans LCM, Hendriks HJM, Bernards ATM, de Bie RA. The development of clinical practice guidelines in physiotherapy. In: Evidence-based physical therapy for the pelvic floor. Eds. Kari Bo, Bary Berghmans, Siv Morkved, Marijke Van Kampen. Churchill Livingstone Elsevier, London, UK, 2007