



## Evidence-based Physical Therapies for Treating Incontinence and Pelvic Organ Prolapse in Women

W39, 16 October 2012 14:00 - 17:00

Start	End	Topic	Speakers
14:00	14:05	Introduction	<ul style="list-style-type: none"> <li>• Mélanie Morin</li> </ul>
14:05	14:30	Determining the optimal PT treatment regimen using the evidence	<ul style="list-style-type: none"> <li>• Chantale Dumoulin</li> </ul>
14:30	14:35	Questions	All
14:35	14:55	Prevention and treatment of pre and postnatal urinary incontinence	<ul style="list-style-type: none"> <li>• Mélanie Morin</li> </ul>
14:55	15:00	Questions	All
15:00	15:25	Physical therapy for urinary incontinence in the elderly	<ul style="list-style-type: none"> <li>• Jacqueline de Jong</li> </ul>
15:25	15:30	Questions	All
15:30	16:00	Break	
16:00	16:25	Evidence for PT in the prevention and treatment of pelvic organ prolapse	<ul style="list-style-type: none"> <li>• Helena Frawley</li> </ul>
16:25	16:30	Questions	All
16:30	17:00	Discussion	All

### Aims of course/workshop

The aims of this workshop are:

1. To present an overview of the evidence of physical therapy (PT) for urinary incontinence (UI) and to provide key information on the effectiveness of different treatment regimens.
2. To present the evidence for pelvic floor PT in the prevention and treatment of pre and postnatal UI.
3. To present the evidence for PT in the treatment of UI in the elderly women and to discuss emerging therapies such as postural and motor control strategies.
4. To present the evidence for PT in the prevention and treatment of pelvic organ prolapse (POP).

### Educational Objectives

This previously successful ICS core workshop provides the opportunity for participants to update their research and clinical skills in the conservative management of UI. Various treatment modalities PT (PFM exercises, biofeedback, electrical stimulation and cones) have been used in the treatment of UI for many years; however, with the ever-expanding literature on PT, clinicians now face many challenges when trying to identify effective interventions. Up to date evidence for PT in prevention and treatment of UI in pre and postnatal women will be presented. In addition to the evidence for traditional PT for UI in the elderly, new alternative treatment strategies will also be discussed. Moreover, findings from recent research which suggests that PT has a valid and evidence-based role in the prevention and treatment of POP will be presented. These state-of-the-art lectures will be presented by specialists involved in evaluating PT effectiveness, with sufficient opportunities for audience participation and group discussion.

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**Evidence-based Physical Therapies for Treating Incontinence and Pelvic Organ Prolapse in Women**

**Topic:** Determining the optimal Physiotherapy treatment regimen for urinary incontinence using the evidence.

**Presenter:** Chantale Dumoulin, PhD, PT. Associate Professor  
School of rehabilitation, Faculty of medicine,  
University of Montreal  
Researcher and laboratory director, Research Center  
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Pelvic floor rehabilitation intervention is the first-line treatment for urinary incontinence in women, based on meta-analysis of numerous randomized control trials (RCTs) and is recommended in many published national and international guidelines. Pelvic floor rehabilitation use graded muscle training, either alone or in combination with biofeedback, electrical stimulation and vaginal cones to rehabilitate and strengthen the pelvic floor muscle. Well-timed voluntary pelvic floor muscle contraction is also taught to prevent leakage during coughing or other intra-abdominal pressure increase. It is a real challenge for clinicians to determine the optimal regimen or modality combination. This presentation provides key information based on research to better adapt treatment regimen to women suffering from UI in order to enhance treatment efficacy.

**This presentation will cover the following topics:**

- An overview of the recent scientific literature on the effectiveness of pelvic floor rehabilitation interventions for different type of UI (stress, mixed and urge UI)
- The effect of pelvic floor rehabilitation interventions alone or in combination to biofeedback, electrical stimulation, cones will be presented.
- The effect of different types of pelvic floor training (group/individual, strengthening/motor relearning/function, etc.).
- Factors that might affect the outcome of PFMT in the treatment of UI.

**This presentation will draw upon these references:**

1. K. Moore, C. Dumoulin, C. Bradley, K. Burgio, T. Chamber, S.Hagen, K. Hunter, M. Imamura, R. Thakar, K. WILLIAMS. *Adult conservative management in Incontinence, 5th Edition*. P. Abrams, L. Cardozo, A. Wein. (Eds.). 5<sup>th</sup> International Consultation on Incontinence. 2012, (in press).

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2. C. Dumoulin, J. Hay Smith. *Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women*. Cochrane Database Syst Rev. 2010 Jan 20;(1): CD005654.
3. EJ. Hay-Smith, R. Herderschee, C. Dumoulin, GP Herbison. *Comparisons of approaches to pelvic floor muscle training for urinary incontinence in women*. Cochrane Database Sys Rev. 2011 Dec 7;12: CD009508.
4. C. Dumoulin, C. Glazener, D. Jenkinson. *Determining the Optimal Pelvic Floor Muscle Training Regimen for Women with Stress Urinary Incontinence: ICI-RS 2010*. (2011) Neurourology and Urodynamics. 2011; 30(5):746-753.
5. Imamura M, Abrams P, Bain c et al. *Systematic review and economic modelling of the effectiveness and cost-effectiveness of non- surgical treatments for women with stress urinary incontinence*. Health Technology Assessment, 2010 Aug;14(40):1-188, iii-iv.

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**Topic: Prevention and treatment of prenatal and postpartum urinary incontinence**

**Presenter:** Mélanie Morin, PT, PhD

Assistant Professor  
School of Rehabilitation  
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**Aims of this topic:**

1. To overview the prevalence and pathophysiology of pre and post-natal UI.
2. To discuss the effectiveness of the prevention and treatment of pre and post natal UI.
3. To discuss the factors that may predict the effectiveness of treatment.
4. To present the evidence for antenatal massage or stretching for preventing perineal trauma.

**Overview of the pathophysiology of pre- and post-natal urinary incontinence**

It is increasingly recognized that trauma to the pelvic floor muscles (PFM) can occur during childbirth, manifesting as a muscle injury, a rupture of the connective tissue, a nerve injury, or all three (Koelbl et al., 2009). Perineal trauma during vaginal birth occurs in 30% to 77% of women (Albers, Garcia, Renfrew, McCandlish, & Elbourne, 1999; Mayerhofer et al., 2002; McCandlish et al., 1998). The rates of trauma are especially high among primiparous women (Albers, et al., 1999). Some consequences of these traumas are short and medium term perineal pain and dyspareunia (Albers, et al., 1999; Barrett et al., 2000). It should be underlined that pregnancy in itself is also reported to play an important role in pelvic floor muscle (PFM) injury and weakening (Koelbl, et al., 2009). If permanent, these injuries have a high potential to jeopardize urinary continence. It has been reported that women who are incontinent during pregnancy, even if they become continent after delivery, are more likely to develop incontinence later (Milsom et al., 2009). Moreover, it has been reported that, even if there may be a natural recovery after delivery, in women with SUI three months postpartum, there is a very high risk (92%) that UI will remain permanent (Viktrup, 2002).

**Is physiotherapy during pregnancy effective for preventing urinary incontinence?**

A systematic review of the effectiveness of pelvic floor muscle training (PFMT) in the prevention and treatment of prenatal and postpartum urinary incontinence has been

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conducted (Hay-Smith, Morkved, Fairbrother, & Herbison, 2008). The 16 trials showed that, following PFMT, women were 56% and 50% less likely to report urinary incontinence than controls in late pregnancy and early postpartum, respectively (Hay-Smith, et al., 2008). Women seemed to benefit more from intensive and supervised PFMT (Hay-Smith, et al., 2008). Anecdotally, some researchers and clinicians were afraid that antenatal PFMT could be associated with adverse delivery outcomes such as prolonged second-stage labor, assisted or caesarean delivery, episiotomy and perineal tears. However, the study by Salvesen et al. (2004) put an end to that presumption. They showed a reduction in the episiotomy rates and length of the second stage of labor in women in the PFMT group. Current research has focused mainly on primiparous women and more studies will be required to confirm this preventive effect in multiparous women and in the long term (Hay-Smith, et al., 2008).

Is physiotherapy effective for treating UI?

Consistent with the findings of the Cochrane review of PFMT for treatment of urinary incontinence in women (Dumoulin & Hay-Smith, 2010), it appears that PFMT is an effective treatment for urinary incontinence in postnatal women (Hay-Smith, et al., 2008). It has been shown that, compared to controls, women at 3 months postpartum are 20% less likely to have SUI after treatment (Hay-Smith, et al., 2008). Dumoulin et al. (2004) have reported a cure rate of 74% after only 8 weeks of treatment. These treatments were multimodal, including biofeedback, electrical stimulation as well as strength and coordination training (knack), which may have contributed to higher effectiveness.

Predictive factors increasing or interfering with the effectiveness of physiotherapy

Few studies have assessed the factors predicting the success of PFM exercises in women postnatally. Glazener et al. (2001) found that neither the type (SUI or mixed UI) nor the severity of the UI at baseline predicted the outcome immediately after an intervention. Furthermore, in a 6-year follow-up study by the same authors, Glazener et al. (2005) determined that the outcome could not be predicted by UI type, severity, or whether or not women reported a subsequent delivery. Dumoulin et al. (2011) investigated whether pre-treatment PFM parameters can predict the success of physiotherapy treatment. They reported that a lower pre-treatment PFM passive force and greater PFM endurance could predict the successful outcome of physiotherapy treatment in women with persistent postpartum SUI (Dumoulin, et al., 2011). They argued that the muscle deficits targeted in their treatment may explain these predictors. Since their exercise program did not target PFM, women with a higher initial endurance had a greater chance of achieving a successful treatment outcome. Identification of the patients who may benefit more from PFM exercises is an important issue that should be further addressed in future research.

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Perineal massage for preventing perineal trauma and incontinence

A Cochrane review was undertaken to evaluate the effects of antenatal perineal massage in preventing perineal trauma at delivery. Based on four trials, the review concluded that antenatal perineal massage was associated with an overall reduction of the incidence of trauma requiring suturing (reduction of 9% to 17%) (Beckmann & Garrett, 2006). Moreover, women practicing perineal massage were less likely by 16% to have an episiotomy (Beckmann & Garrett, 2006). There was an overall 32% reduction in perineal pain reported by women randomized to perineal massage (Beckmann & Garrett, 2006).

Instrumented antenatal massage using the Epi-No<sup>®</sup> has shown promising results: it has been associated with a reduction in the rate of episiotomy and an increase in the rate of intact perineum at delivery (Hillebrenner, Wagenpfeil, Schuchardt, Schelling, & Schneider, 2001; Kok et al., 2004; Kovacs, Heath, & Heather, 2004; Ruckhaberle et al., 2009). There is presently a large study by Shek et al. (2010) under way to further investigate the effectiveness of the Epi-No on perineal lesions and pelvic floor dysfunction outcomes such as incontinence.

Recently, perineal massage during delivery in the second stage of labor, using Vaseline, was shown to increase the likelihood of perineal integrity and reduce perineal traumas (episiotomy and tears). Hence, it seems that perineal massage may be an effective way to preserve an intact perineum in labor (Geranmayeh et al., 2011).

Larger randomized controlled trials are required to properly evaluate the effectiveness of manual and instrumented antenatal massage as well as massage during delivery for preventing perineal lesions. Most importantly, the impact of these interventions on continence needs to be investigated (Beckmann & Garrett, 2006).

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**Topic: Physical therapy for urinary incontinence in the elderly**

**Presenter: Jacqueline de Jong, PT, MSc, Switzerland**

**Aetiology and Pathophysiology**

The fast aging of populations around the world is presenting challenges for developed countries. These challenges can be counteracted by optimizing opportunities for health, participation and security in order to enhance quality of life as people age [28]. Active ageing allows people to realize their potential for physical, social and mental wellbeing (WHO). Urinary incontinence (UI) is one of the four giants (B. Isaacs1975) of geriatrics (memory loss, depression, falls/immobility and UI) and has a negative impact on quality of life in age.

The aetiology and pathophysiology of UI is a complex interaction between ageing alterations and lifestyle changes like social isolation, immobility and depression [28]. Studies describes a variety in prevalence of UI in a population between the age of 70- 75 [11,12,26,28]. The incidence of UI in a geriatric population is between 50 and 70%, increasing with age, decline of cognition, reduced mobility, neurologic diseases, and depressions. Other causal factors of LUTS are the often presently comorbidities, urinary tract infections, side effects of medicaments and urogynaecologic operations [9,10,11,31].

Due to the causal factors, we see a change in symptoms of LUTS in age. The onset of nocturnal polyuria, (wet) urgency and dysfunctional voiding are typical symptoms. Moreover, anorectal dysfunctions can influence the micturition. Incontinence is provoked by irreversible ageing processes of the urogenital tract; decrease of detrusor contractility, reduction of bladder compliance, degeneration of the urethral sphincter system (muscle layer ↓, urethral closure force ↓, fibrosis of the connective tissue, vascularisation mucosa ↓, nerve sliding velocity ↓), und neuromuscular changes of the pelvic floor muscles (PFM) [26].

In our treatment we have to acknowledge the alterations that occur during ageing.

**Assessment of UI in the frail older women**

Age-related incontinence is rarely due to a single aetiology. The assessment must be adequate [3] but as minimally invasive as possible. Special consideration must be given to the level of cognition. Questions must be clear and adapted to the cognition level of the patient. Also sensitivity opposite the embarrassment of the aged patient is asked. Cognitive impairment is often combined with a decline of mobility and a higher risk for falls [18,32].

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**ICS outcome measures (ICS standardization committee 2005)**

- Patient observation and symptoms
- Documentation of the symptoms
- Anatomical and functional Measures
- Quality of Life
- Socioeconomic measures

The standardized assessment of the pelvic floor [22] must be completed with an exam of the hip joints and the low back for testing general mobility. Different studies have proven the relation between balance and incontinence, therefore assessments to perceive level of stability and coordination must be included.

Functional health is a primary prevention for UI. Improvement of muscle strength, mobility, stability and coordination can improve LUTS [1,18,19]. But also retaining mental activity and sensibility for lifestyle and environmental changes are contributing factors.

Treatment options for LUTS in geriatrics

Treatment options for LUTS in geriatrics do not differ from interventions used in a general population, but the effectiveness of treatments in a geriatric population is poorly investigated.

The efficacy of PFMT is in different studies and Cochrane reviews demonstrated [6,15,16] but there is still a lack of evidence due to the heterogeneity of the study protocols. The evidence for improvement of UI in a geriatric population is difficult to prove because of the frequently existing comorbidities and therefore multiple treatments. Proven is the changing morphology of the PF after PFMT in an older population [2].

The application of **biofeedback** is a beneficial intervention because of the poor awareness of the PFM particularly in a geriatric population [29].

The efficacy of electro stimulation

Spruijt et al (2003) compared PFMT (home exercises) with electro-stimulation. No significant result was found. To remark is that the use of electro stimulation is more burdensome in a geriatric population and less cost effectiveness. Cochrane reviews [6,15,16] showed no significance outcome in a general female population.

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The efficacy of bladder training and behavioural therapy

Toilet regimes can contain timed voiding, habit training, prompted voiding and bladder training. The choice of the training is dependent of cognition level, compliance and goal of the training (independent, dependent or social continence). The efficacy of bladder training is underestimated and often is a drug applied. Pharmacological (antimuscarinic) side effects can be the negative influence cognition [32]. Cochrane reviews have proven the efficacy of bladder and behavioural training [9, 23, 24].

The efficacy of lifestyle changes

The importance of an optimal functional and mental health is proven [1,18,19]. Malnutrition plays a role in relationship to other geriatric symptoms [27]. Causal relationship between depressions, functional dependence, dementia and comorbidities and malnutrition exists [27,33]. Obesity has a correlation with a high prevalence of UI. The level of activity, balance and walking ability are reduced and often comorbidities like hypertension and diabetes mellitus occurs. This reduces the function of the PFM. Nutrition advices are also useful regarding the often age-related obstipation or stool incontinence because of changes in the anorectal tract, side effect of drug therapy or lack of exercise [13,30] (Fox 2005). Recommendations concerning fluid intake, bladder irritants (caffeine, alcohol juice) have to be given [13,23,30]. Mobility restrictions can be the basis for not reach on time the toilet. Home environment changes like wearing practical cloths, use of tools and pads are meaningful and augment the quality of life [23].

Efficacy of whole body vibration training on SUI

Whole body vibration training (WBVT) might be a new method in the treatment of SUI. The effectiveness of WBVT is often studied for muscle performance and bone density. The efficacy von WBVT on UI is only poor investigated but showed in combination with PFMT positive results. One study measured the MVC, with and without WBV, of the PFM. The results showed a superposed augmentation of the MVC during WBV [20]. The working mechanism of WBV is based on activation of the muscle spindle. WBVT is a simple, feasible intervention and also patients with cognitive decline can absolve the training. A study of the Jong et al [5] compared the efficacy of WBVT alone with WBVT in combination with PFMT in a geriatric population suffering from SUI. The outcome showed in the WBVT group a small effect size, only the combination WBVT and PFMT was significant compared to the control group.

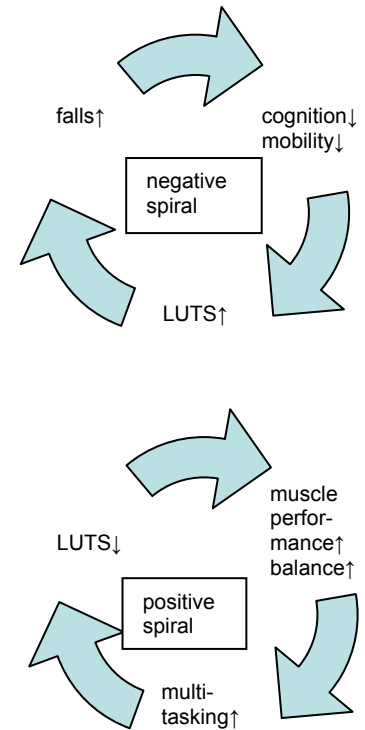
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Relation between falls and UI and functional mobility

Different studies demonstrate the relation between falls and UI. Patients suffering from urgency, OAB, and especially nocturnal polyuria are more affected than patients suffering from SUI. Management of incontinence can be effective in the context of falls [4,12,17] .

An optimal functional health reduces the incidence of LUTS. Combined muscle strength- mobility- and gait training are more effective as muscle stretching with low intensive muscle strength training to gain functional mobility [18] A study of Jenkins et Fultz [18] found a high correlation between improvement of the functional mobility and reduction of urinary loss.

Kim et al [19] described the effects of multidimensional exercise on functional decline, UI and falls. The training consists of progressive strength training, balance, walking and PFM exercises. The results showed that the increased physical fitness contribute to improved functional decline and urinary incontinence symptoms. Dumoulin et al [7,8] studied the relationship between balance- lower extremity strength and the impact and/or severity of mixed UI in aging community-dwelling women. Outcome measures showed that women with UI performed less good the functional tests. In another study the association with impaired executive function and UI was investigated. The results suggest that executive control deficits, such as difficulties in disengaging attention from one task to the other or in coping with interference are strongly associated with UI.



Conclusions:

- the treatment of LUTS is mainly the same as in a general population
- the efficacy of treatment is influenced by age-related comorbidities
- cognitive decline is a major factor to consider in the choice of the treatment
- different studies found a relationship between functional mobility and falls
- different studies found a relationship between functional mobility and UI
- improved muscle performance and balance can have a contribute benefit in the severity of LUTS
- A holistic multiple intervention program, considering age-related changes is recommend to decrease LUTS and to improve quality of life

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**Workshop # 39, 2 – 5 pm, Tues 16 Oct 2012**

**Evidence-based Physical Therapies for Treating Incontinence and Pelvic Organ Prolapse in Women**

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**Topic: Evidence for Physiotherapy in the prevention and treatment of pelvic organ prolapse**

**Presenter: Helena Frawley, PhD, FACP, Melbourne, Australia**

**Aims of this topic:**

1. To present the evidence for physiotherapy (PT) in the prevention and treatment of pelvic organ prolapse (POP)
2. Indications for pelvic floor muscle training (PFMT) and lifestyle advice
3. Effects of these interventions on POP symptoms, severity, morphological changes of the urogenital structures and pelvic floor muscles (PFM)
4. Effectiveness of PT as an adjunct to POP surgery

**This presentation will cover the following topics and attempt to answer common clinical questions in the conservative management of POP:**

How does PFMT work in the prevention / treatment of POP:

- Theory, biological rationale and mechanisms to explain how PFMT works
  - o What is the relationship between PFM and POP?
  - o 'Bracing' to close the PFM and prevent organ descent
  - o PFMT to effect morphological changes to the PFM:
    - muscle thickness, resting pressure, sEMG activity, strength (digital and manometry), endurance, levator hiatal dimensions
  - o Effect on symptoms: changes to POP symptoms following PFMT; what outcome measures to use to evaluate this
  - o Effect on signs: changes to POP-Q measures following PFMT
  - o Effect of raised intra-abdominal pressure on the PFM
- Current guidelines and clinical practice: who should be treated, what are the expectations of treatment, what lifestyle modifications are recommended?

What is the evidence for PT in treatment of POP:

- Summary of findings from randomized controlled trials
- Level of evidence and Grade of Recommendation

Is there a role for PFMT and lifestyle advice for women undergoing POP surgery?

- Theory, rationale, principles of trauma and tissue healing, mechanisms of action
- What are the current guidelines and clinical practice for women undergoing POP surgery?
- Effect of vaginal surgery on PFM, bladder, bowel and sexual function in women undertaking PFMT
- When to resume PFM exercises post surgery
- Summary of findings from randomized controlled trials, trials in progress
- Level of evidence and Grade of Recommendation



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## Notes

Record your notes from the workshop here