

# Conservative Management of Urinary Incontinence

*This guideline has been reviewed and approved by the Executive and Council of the Society of Obstetricians and Gynaecologists of Canada.*

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**Evidence:** The Cochrane Library and Medline (1966 to 2005) were searched to find articles related to conservative management of incontinence. Review articles were appraised.

**Values:** The quality of evidence is rated, and recommendations are made using the criteria described by the Canadian Task Force on Preventive Health Care.

**Benefits, Harms, Costs:** Evidence for the efficacy of conservative management options for urinary incontinence is strong. These options can be advocated as primary interventions with minimal or no harm to women.

## Recommendations:

1. Pelvic floor retraining (Kegel) exercises should be recommended for women presenting with stress incontinence. (I-A)
2. Proper performance of Kegel exercises should be confirmed by digital vaginal examination or biofeedback. (I-A)
3. Follow-up should be arranged for women using pelvic floor retraining, since cure rates are low and other treatments may be indicated. (III-C)
4. Kegel exercises may be offered as an adjunct to other treatments for overactive bladder (OAB) syndrome, but they should not be the only treatment offered for these symptoms. (I-B)
5. Although functional electrical stimulation (FES) has not been studied as an independent modality, it may be used as an adjunct to pelvic floor retraining, especially in patients who have difficulty identifying and contracting the pelvic muscles. (III-C)
6. FES should be offered as an effective option for the management of OAB. (I-A)
7. Vaginal cones may be recommended as a form of pelvic floor retraining for women with stress incontinence. (I-A)
8. Continence pessaries should be offered to women as an effective, low-risk treatment for both stress and mixed incontinence. (II-B)
9. Bladder training (bladder drill) should be recommended for symptoms of OAB, since it has no adverse effects (III-C), and it is as effective as pharmacotherapy. (I-B)
10. Behavioural management protocols using lifestyle changes in combination with bladder training and pelvic muscle exercises are highly effective and should be used to treat urinary incontinence. (I-A)

J Obstet Gynaecol Can 2006;28(12):1113–1118

## Abstract

**Objective:** To outline the evidence for conservative management options for treating urinary incontinence.

**Options:** Conservative management options for treating urinary incontinence include behavioural changes, lifestyle modification, pelvic floor retraining, and use of mechanical devices.

**Outcomes:** To provide understanding of current available evidence concerning efficacy of conservative alternatives for managing urinary incontinence; to empower women to choose continence therapies that have benefit and that have minimal or no harm.

**Key Words:** Urinary incontinence, stress incontinence, overactive bladder, urge incontinence, conservative management

**This guideline reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Local institutions can dictate amendments to these opinions. They should be well documented if modified at the local level. None of these contents may be reproduced in any form without prior written permission of the SOGC.**

**Key to evidence statements and grading of recommendations, using the ranking of the Canadian Task Force on Preventive Health Care**

Quality of Evidence Assessment*	Classification of Recommendations†
I: Evidence obtained from at least one properly randomized controlled trial.	A. There is good evidence to recommend the clinical preventive action
II-1: Evidence from well-designed controlled trials without randomization.	B. There is fair evidence to recommend the clinical preventive action
II-2: Evidence from well-designed cohort (prospective or retrospective) or case-control studies, preferably from more than one centre or research group	C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making
II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be included in this category.	D. There is fair evidence to recommend against the clinical preventive action
III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees	E. There is good evidence to recommend against the clinical preventive action
	I. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

\*The quality of evidence reported in these guidelines has been adapted from the Evaluation of Evidence criteria described in the Canadian Task Force on the Periodic Preventive Health Exam Care.<sup>13</sup>

†Recommendations included in these guidelines have been adapted from the Classification of Recommendations criteria described in the Canadian Task Force on the Periodic Preventive Health Exam Care.<sup>13</sup>

**INTRODUCTION**

The most common types of urinary incontinence (the involuntary loss of urine) are stress incontinence and urge incontinence. Stress incontinence is the involuntary leaking of urine during effort or exertion, or while sneezing or coughing. Urge incontinence, or overactive bladder (OAB) syndrome, involves a constellation of symptoms including frequency, urgency, and leakage immediately preceded by urgency.<sup>1</sup> The rate of urinary incontinence in adult women is 20% to 50%.<sup>2</sup> This has a significant impact on their quality of life.<sup>3-5</sup>

Surgical and pharmacotherapeutic treatment is available, but the risks and benefits are not always acceptable to women.<sup>6,7</sup> Conservative management is usually advocated as an initial intervention since it carries minimal risks.<sup>8-12</sup> This consensus guideline will review the interventions presently available.

The quality of evidence reported in these guidelines has been described using evaluation of evidence criteria outlined in the report of the Canadian Task Force on Preventive Health Care (Table).<sup>13</sup>

**PELVIC FLOOR RETRAINING**

**Methods**

Pelvic floor rehabilitation programs are aimed at strengthening the pelvic floor musculature. This musculature includes the levator ani group, the external anal sphincter,

and the striated urethral sphincter. The rehabilitation programs may include simple oral or written information, exercises performed with biofeedback, pelvic muscle contractions stimulated by functional electrical stimulation (FES), motor relearning exercises, or any combination of the above. Success is dependent on a continuous, regular home exercise program to avoid deconditioning.<sup>14</sup> Because many different teaching modalities, lengths of treatment, and outcome measures have been used, comparison of trial outcomes is difficult.<sup>15</sup> However, the same principles used for training any striated muscle should be respected in pelvic floor retraining. Written and oral instructions are not adequate, as approximately 30% of women are unable to contract their pelvic floor on demand and 25% actually promote incontinence by straining.<sup>16</sup>

**Examples of Training Programs**

1. *Written instructions.* These instructions will usually include an explanation of the pathophysiology of urinary incontinence, a description of the relevant pelvic floor anatomy, and an exercise program.

2. *Exercises with biofeedback.* Biofeedback devices such as vaginal cones and vaginal balloon devices provide tactile or visual digital display feedback to facilitate identification and recruitment of the correct muscles.

3. *Functional electrical stimulation.* These devices produce low level electric current, which causes pelvic muscles to contract, simulating a voluntary pelvic contraction.

### Effect on Stress Incontinence

Pelvic floor retraining has been recommended for the conservative treatment of stress incontinence, OAB, and mixed incontinence. Contracting the muscles of the pelvic floor is thought to press the urethra against the symphysis to augment pressure transmission to the urethra during a cough and also directly to increase intraurethral pressure.<sup>17</sup> Although these effects will happen reflexively when the pelvic floor muscles are strengthened by regular exercise, timing the contraction to coincide with an increase in intra-abdominal pressure (coughing, jumping, etc.) can further enhance the effect. Both strength and coordination are important for this “knack” manoeuvre.

Pelvic floor muscle retraining appears to be more effective than no therapy for stress and mixed incontinence, but there are only a few randomized studies comparing muscle retraining with other treatment modalities. Long-term studies are also lacking. It is therefore not possible to ascertain whether muscle retraining is more effective than other treatments.<sup>15</sup>

In a review, short-term subjective cure rates for stress incontinence were approximately 21% (9–36%), and short-term subjective significant improvement rates were 69% (55–85%).<sup>18</sup> After two years, less than 50% of women continued to exercise regularly.<sup>16</sup> This led to a two-year cure rate of 8% (0–9%) and a significant improvement rate of 40% (20–42%). After 15 years, 28% were exercising weekly and 36% periodically, yet only 46% had gone on to surgery. Those women who had been satisfied following the therapy 15 years earlier were less likely to seek further interventions.<sup>14</sup>

Pelvic floor muscle retraining is often combined with biofeedback and behavioural modification. Although randomized trials have not shown an advantage with the addition of biofeedback, it is often recommended. It is felt that direct auditory or visual feedback improves both pelvic floor awareness and patient motivation.<sup>15</sup>

Motor relearning exercises (“knack”) involve contracting the pelvic floor during problematic situations (e.g., coughing, sneezing, jumping, and lifting). Knack can reduce leakage episodes during coughing by 73% to 98%,<sup>15,19</sup> and should therefore be added to a rehabilitation program.<sup>15</sup>

### Effect on Overactive Bladder Syndrome

How contracting the pelvic musculature can inhibit detrusor contractions is unclear. It may be that the pelvic muscle contraction causes a reflex inhibition of the detrusor muscle.<sup>20</sup> A benefit may be realized even if the bladder contraction is not completely inhibited, as the urethral pressure will be increased thereby increasing resistance to urine flow.

There is insufficient evidence to advocate the use of pelvic floor retraining for OAB.<sup>15</sup> There are few randomized controlled trials, and all use different treatment modalities. There is weak evidence that pelvic floor retraining may be beneficial and equivalent to medical management.<sup>20</sup>

### Recommendations

1. Pelvic floor retraining (Kegel) exercises should be recommended for women presenting with stress incontinence. (I-A)
2. Proper performance of Kegel exercises should be confirmed by digital vaginal examination or biofeedback. (I-A)
3. Follow-up should be arranged for women using pelvic floor retraining, since cure rates are low and other treatments may be indicated. (III-C)
4. Kegel exercises may be offered as an adjunct to other treatments for OAB syndrome, but they should not be the only treatment offered for these symptoms. (I-B)

## FUNCTIONAL ELECTRICAL STIMULATION

### Methods

Functional electrical stimulation (FES) is the application of electrical stimulation to the pudendal nerve. The two effects seen with this therapy depend upon the frequencies used; they are a passive contraction of the pelvic floor muscles or a reflex inhibition of bladder contractions.<sup>18</sup> The advantage of this therapy is that it does not require voluntary patient effort, but its disadvantage is that the passive muscle contractions are weaker than voluntary ones.

### Effect on Stress Incontinence

Because of the diversity of protocols studied, findings concerning the role of FES are inconclusive.<sup>15</sup> It is recommended as an effective teaching modality for very weak pelvic musculature as it can jump-start the muscles.<sup>21</sup> In a randomized prospective study comparing FES with pelvic exercises for treatment of stress incontinence, both modalities significantly reduced symptoms.<sup>22</sup>

### Effect on Overactive Bladder Syndrome

FES has been utilized mostly to treat OAB syndrome. One-year follow-up after treatment shows cure rates of 30% (22–33%) and improvement rates of 72% (70–73%).<sup>18</sup>

### Recommendations

5. Although FES has not been studied as an independent modality, it may be used as an adjunct to pelvic floor retraining, especially in patients who have difficulty identifying and contracting the pelvic muscles. (III-C)
6. FES should be offered as an effective option for the management of OAB. (I-A)

## **VAGINAL CONES**

### **Methods**

Since pelvic floor retraining has high discontinuation rates, vaginal cones were developed to make it easier to perform pelvic floor contractions. The cones are placed in the vagina above the level of the pelvic floor musculature. Contraction of these muscles is required to prevent the cone from slipping out of the vagina. A 15-minute session, twice daily, is usually recommended. The vaginal cones are of varying weights, and a woman inserts a cone of increasingly heavier weight as she is able to retain it. The advantages of using cones as a method of exercising the pelvic muscles include ease of use, shallow learning curve, and short daily time commitment, all of which may lead to increased compliance.

### **Effect on Stress Incontinence**

Cones appear to be effective. The risk of having stress incontinence after using vaginal cones is less than with no treatment (relative risk [RR] 0.74; 95% confidence interval [CI] 0.59–0.93), but there is no difference when cones are compared with pelvic floor muscle retraining or electrostimulation.<sup>22</sup> Using cones with pelvic floor retraining or electrostimulation appears to be no more beneficial than using cones alone.<sup>23</sup> This evidence is limited by the heterogeneity of the trials. Early discontinuation of cones is seen in approximately 25% of users (0–63%). This is comparable to the drop-out rates for electrostimulation and pelvic floor retraining.

### **Recommendation**

7. Vaginal cones may be recommended as a form of pelvic floor retraining for women with stress incontinence. (I-A)

## **MECHANICAL DEVICES FOR URINARY INCONTINENCE**

### **Methods**

Pessaries have been used since ancient times for the treatment of pelvic organ prolapse.<sup>24</sup> More recently, pessaries designed for the specific treatment of urinary stress incontinence have been developed. These pessaries work by providing mechanical support to the urethra. Urethral plugs are devices placed inside the urethra. All mechanical devices are traditionally used for stress incontinence and not for OAB symptoms.

### **Effect on Stress Incontinence: Pessaries**

There are no randomized trials looking at pessaries. Three studies examining the effect of continence pessaries have been published.<sup>25–27</sup> Retrospective studies by Donnelly and Farrell found that over 50% of women with either pure

stress incontinence or mixed incontinence treated with pessaries were satisfied with the results and continued pessary use for up to 11 months.<sup>25,27</sup> These authors relied for the most part on the incontinence ring and the ring with support and knob. Robert, who used the incontinence dish and incontinence ring, had a 24% cure rate in a prospective intent-to-treat cohort study lasting one year.<sup>26</sup> In patients with a history of pelvic surgery, pessary success rates were reduced. Complications with pessaries were minimal.

### **Effect on Stress Incontinence: Urethral Plugs**

The few studies looking at urethral plugs report a 43% median success rate,<sup>28</sup> but enthusiasm must be tempered by the fact that users experience a 30% urinary tract infection rate. No recent studies have been published, which may indicate a waning enthusiasm for urethral plugs.

### **Recommendations**

8. Continence pessaries should be offered to women as an effective, low-risk treatment for both stress and mixed incontinence. (II-B)

## **BLADDER TRAINING**

### **Methods**

Bladder training is also called bladder drill. It works by activating cortical inhibition over the sacral micturition reflex centre.<sup>29</sup> Bladder training is aimed at increasing the voiding interval and decreasing urgency and associated urge incontinence. It is used in patients with OAB symptoms including urgency, frequency, urgency incontinence, and nocturia. There are usually three components to the training: patient education, scheduled voiding, and positive reinforcement.<sup>29</sup> Fluid management, bladder diaries, and urge suppression are often added. The specific behavioural techniques may not be as important in the treatment effect as providing all the components together.<sup>29</sup>

### **Effect on Overactive Bladder Syndrome**

A Cochrane review of bladder training for urinary incontinence in adults<sup>30</sup> found five trials, involving 457 participants, that assessed the effect of bladder training on female urinary incontinence.<sup>31–35</sup> Two studies comparing bladder training with no treatment found no statistically significant treatment effects.<sup>31,32</sup> Two studies comparing bladder training with drugs found that bladder training resulted in higher rates of perceived cure among participants.<sup>33,34</sup> There is a 50% rate of side effects with the use of anticholinergics.<sup>30</sup> One trial found no difference between bladder training and pelvic muscle training plus biofeedback.<sup>35</sup> Two recently published randomized trials have demonstrated the effectiveness of bladder training in women.<sup>10,11</sup> Dougherty et al. compared “behavioural management for continence

(BMC),” a three-step sequenced protocol including self-monitoring, bladder training, and pelvic muscle exercises, with no treatment.<sup>10</sup> Self-monitoring included reduction in caffeine consumption, adjustment of the amounts and timing of fluid intake, decreasing excessively long voiding intervals, and making dietary changes to promote bowel regularity. After self-monitoring, participants went on to do bladder training and, if necessary, pelvic muscle exercises with biofeedback. At two years, the BMC group had decreased its urinary incontinence severity by 61%, and the control group’s severity increased by 184%. Subak et al. randomized women to six weeks of bladder training or no treatment, and found that the treatment group had a 40% decrease in mean weekly incontinence episodes.<sup>11</sup> Despite such improvements, it is likely that only a small number of patients will be completely cured of their bladder symptoms.<sup>36</sup>

### Recommendations

9. Bladder training (bladder drill) should be recommended for symptoms of OAB, since it has no adverse effects (III-C), and it is as effective as pharmacotherapy. (I-B)
10. Behavioural management protocols using lifestyle changes in combination with bladder training and pelvic muscle exercises are highly effective and should be used to treat urinary incontinence. (I-A)

### Summary of Conservative Incontinence Treatment Options

#### Stress Incontinence

Pelvic floor retraining stressing the “knack” by using

- verbal or written instruction for patients able to voluntarily contract the pelvic floor
- manual, auditory, or visual biofeedback
- functional electrical stimulation for those unable to voluntarily contract pelvic muscles
- vaginal cones
- pessaries

#### Overactive Bladder

Pelvic floor retraining, with pelvic floor contraction with symptoms of urgency

- FES
- Bladder retraining (bladder drill)
- Combinations of lifestyle modification, bladder drill, and pelvic muscle retraining

### CONCLUSION

The practice of the conservative management of urinary incontinence is widespread and should be encouraged. All modalities appear to be more effective than no therapy. Unlike surgical treatment of urinary incontinence, which

carries a significant risk of complications and poor long-term outcomes, conservative management is associated with minimal adverse outcomes. For a significant number of patients, the results of conservative management are satisfactory and may obviate the need for medical or surgical interventions.

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