

Long-term Efficacy of Pelvic Floor Muscle Rehabilitation for Older Women With Urinary Incontinence

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Abstract

Objectives: To determine the efficacy of pelvic floor muscle (PFM) rehabilitation for elderly women with urinary incontinence after five years of follow-up, and to assess the adherence to PFM exercises five years after physiotherapy.

Methods: We conducted a retrospective chart review of women ≥ 60 years old who underwent PFM physiotherapy for urinary incontinence between September 1999 and February 2004. PFM rehabilitation techniques were taught to patients by a certified physiotherapist. The mean number of sessions was eight. Telephone surveys were conducted at two months, six months, and one to five years after physiotherapy. Objective data on the efficacy of treatment (number of voids, incontinence, use of pads) and on adherence to PFM exercises were collected using a uniform grid. Data were used to determine the continence status at follow-up and compared with the data collected at the end of the PFM training sessions (improved, maintained, or deteriorated).

Results: Of 89 older women (mean age 70 years; range 60 to 81) treated during the study period, 40 were followed up to five years and were suitable for analysis. At five years of follow-up, 27.5% had improved, 57.5% remained stable, and 15% had deteriorated compared with their post-treatment continence status. Twenty-nine patients (72.5%) were continuing their PFM exercises, and 42.5% were performing the exercises daily. All adherent patients had "improved" or "stable" status after five years versus 45.5% of non-adherent patients ($P < 0.05$).

Conclusion: Pelvic floor muscle rehabilitation for urinary incontinence remains highly effective for up to five years in older women. Most women continue to perform PFM exercises five years after completing their physiotherapy education sessions.

Key Words: Urinary incontinence, older women, pelvic floor muscle rehabilitation, long-term efficacy

Competing Interests: None declared.

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Résumé

Objectifs : Déterminer, après cinq ans de suivi, l'efficacité de la réadaptation du muscle du plancher pelvien (MPP) chez les femmes âgées présentant une incontinence urinaire et évaluer l'observance des exercices visant le MPP, cinq ans à la suite de la physiothérapie.

Méthodes : Nous avons mené une analyse de dossiers rétrospective se penchant sur des femmes de 60 ans ou plus qui se sont soumises à une physiothérapie visant le MPP pour contrer l'incontinence urinaire entre septembre 1999 et février 2004. Les techniques de réadaptation du MPP ont été enseignées aux patientes par un physiothérapeute agréé. Le nombre moyen de sessions était de huit. Des sondages téléphoniques ont été menés à deux mois, à six mois et à 1-5 ans à la suite de la physiothérapie. Des données objectives sur l'efficacité du traitement (nombre de mictions, incontinence, utilisation de serviettes) et sur l'observance des exercices visant le MPP ont été recueillies au moyen d'une grille uniforme. Ces données ont été utilisées pour déterminer le statut quant à la continence au moment du suivi et ont été comparées aux données recueillies à la fin des sessions de formation MPP (amélioration, maintien ou détérioration).

Résultats : Parmi les 89 femmes âgées (âge moyen : 70 ans; plage : de 60 à 81 ans) traitées au cours de la période d'étude, 40 ont fait l'objet d'un suivi jusqu'à cinq ans et étaient admissibles aux fins de l'analyse. À cinq ans de suivi, 27,5 % avaient connu une amélioration, 57,5 % étaient demeurées stables et 15 % avaient connu une détérioration, par comparaison avec leur statut post-traitement quant à la continence. Vingt-neuf patientes (72,5 %) poursuivaient leurs exercices visant le MPP et 42,5 % le faisaient de façon quotidienne. Toutes les patientes faisant preuve d'observance présentaient un statut « amélioré » ou « stable » après cinq ans, par comparaison avec 45,5 % des patientes ne faisant pas preuve d'observance ($P < 0,05$).

Conclusion : La réadaptation du muscle du plancher pelvien visant à contrer l'incontinence urinaire demeure grandement efficace pendant jusqu'à cinq ans chez les femmes âgées. La plupart des femmes poursuivent leurs exercices MPP cinq ans après leurs sessions de formation en physiothérapie.

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INTRODUCTION

Urinary incontinence is a very common condition, affecting up to one third of women.¹ The prevalence of this condition increases as women age.¹ Unfortunately, it has a major impact on the quality of life of women.^{2,3} Several studies and meta-analyses have shown that pelvic floor muscle (PFM) training is effective as a first choice of treatment for urinary incontinence without any complications.⁴⁻⁶ It is proven effective for stress and urge urinary incontinence as well as for mixed urinary incontinence.^{4,5} The long term effect of PFM training has also been studied. When PFM training is initially successful, it is likely that the results will persist for years.⁷⁻⁹ Some studies have reported good short-term benefits of PFM training for older patients,^{10,11} but no studies have assessed the long-term effect of PFM in women over 60 years of age.

In this retrospective report, we studied the long-term efficacy of supervised PFM rehabilitation using a behavioural approach for older women with urinary incontinence. We also assessed the adherence of patients to performing the exercises five years after completion of physiotherapy training.

MATERIALS AND METHODS

We performed a retrospective chart review of all patients 60 years of age or over who had PFM training for all types of urinary incontinence at the University Institute of Geriatrics of Sherbrooke between September 1999 and February 2004. One hundred twelve older patients had been referred by their physician to have PFM rehabilitation as a first-line treatment for urinary incontinence, and 93 of these were women. The diagnosis of urinary incontinence had been based on a standard history, a physical assessment including a gynaecologic examination, a urine culture, and a bladder diary including daily fluid intake, the number and quantity of episodes of voiding and incontinence, and the number of pads used within a 24-hour period. When necessary, a urodynamic assessment was performed. Patients included in this study were autonomous and were evaluated on an outpatient basis. They were all mentally fit. Patients who were institutionalized or hospitalized, mentally impaired, or functional invalids, men, and women under 60 years of age were excluded from our study. Patients who had urge urinary incontinence and were already taking anticholinergics were instructed to continue taking them.

PFM rehabilitation techniques included manual stimulation, electrical stimulation, and biofeedback to identify, isolate, contract and relax the PFM; a program of graded PFM exercises (quality, power, endurance); perineal lock during activities causing urine loss (i.e., contract the pelvic floor before a rise in intra-abdominal pressure); bladder training

(i.e., changing voiding habits, including having a recommended daily fluid allowance, and counselling about bladder irritants); urge suppression technique; and control of constipation including fluid and dietary counselling. All physiotherapy sessions were conducted on a one-to-one basis and were provided by one of two physiotherapists. Both physiotherapists used the same techniques for evaluation and treatment. Physiotherapy session fees were covered by provincial health insurance.

At the end of the physiotherapy sessions, the urinary condition of patients was evaluated using a bladder diary and recorded in a file using a uniform grid that comprised objective and subjective data. Patients were then instructed to perform the exercises (mainly practising contractions) and to continue the application of techniques (perineal lock or urge suppression technique) in the circumstances that might cause urinary leakage.

The outcomes (long-term efficacy and patients' adherence to exercises) were assessed with a telephone survey conducted two months, six months, one year, two years, three years, four years, and five years after completion of physiotherapy instruction. Because this follow-up is conducted routinely by physiotherapists in our centre, the study data were obtained by reviewing the clinical files. Only patients with at least 50% improvement in leakage episodes by the end of the physiotherapy sessions were followed. Patients with less than 50% improvement were redirected to their doctor to readjust and receive further treatments. Objective data were obtained by questioning the patient about a bladder diary completed at home. Data included leaking episodes (number and volume), number of episodes of voiding and incontinence, and number of pads used per 24-hour period to determine the patient's current continence status (improved, maintained or stable, deteriorated or worsened). Patients were also asked about their adherence to PFM exercises and the frequency of PFM exercises at home. These data were recorded using a uniform grid and compared with the data obtained at the end of physiotherapy. When performing the telephone survey, all patients, regardless of results or adherence, were given the opportunity to have one or more sessions with a physiotherapist to refresh or consolidate the different techniques learned if needed.

Statistical analyses were performed using SPSS version 16.0 (SPSS Inc., Chicago, IL). Fisher exact test was used for comparison of categorical variables. A *P* value of < 0.05 was considered statistically significant.

This study was approved by the research ethics committee of the University Institute of Geriatrics of Sherbrooke.

RESULTS

Ninety-three female patients with a mean age of 70 years (range 60 to 81) were evaluated during the study period. Eighty-nine completed an average of eight (range 2 to 11) individual physiotherapy sessions of PFM rehabilitation with a certified female physiotherapist. The mean duration of the sessions was 15 weeks. The remaining four patients did not complete the sessions and were excluded from the analyses.

Forty-nine patients were excluded from the study or lost follow-up for the reasons shown in Table 1. Patients lost to follow-up had the same demographic characteristics and the same type and severity of incontinence as the studied patients. The remaining 40 patients were followed up to five years. At diagnosis, 23 of the 40 patients had urodynamic testing to determine or confirm the etiology of urinary incontinence. Ten had urge urinary incontinence, 10 had stress urinary incontinence, 17 had mixed urinary incontinence, and three had dysfunctional voiding. Ten of the 40 patients had a cystocele and/or uterine/vault prolapse and/or rectocele (grade $\leq 2/4$). Nine patients were taking anticholinergics.

Patients' bladder diaries completed at baseline and follow-up were used to determine continence status. At five years of follow-up, 27.5% of the 40 women had improved, 57.5% remained stable and 15% had deteriorated compared with their continence status at the end of the physiotherapy sessions (Table 2).

After five years, 29 patients (72.5%) were still performing PFM exercises, and 17 (42.5%) were doing them daily. All adherent patients were "improved" or "maintained" after five years, vs. 45.5% of non-adherent patients ($P < 0.05$; Table 3). Eight patients (20%) benefited from the consolidation sessions. We did not see a relationship between the severity of incontinence and the adherence to or motivation for exercises.

DISCUSSION

This study strengthens the conclusion that supervised PFM physiotherapy is a good choice of treatment for urinary incontinence, even in an elderly population. It showed that when PFM training is initially successful, older women with any kind of urinary incontinence have favourable long-term (at least five years) outcomes with supervised PFM rehabilitation. In our study, more than 70% of patients were still performing PFM exercises after five years, and all of them had improved or stable clinical status. Our compliance rate of 70% is similar to that reported in other studies.^{8,12} At five years, more than one half of patients who had stopped performing their exercises had deteriorated in their clinical status.

Table 1. Reasons for loss to follow-up or exclusion*

	Patients, n
No improvement after physiotherapy sessions (patient redirected to physician)	14
Unable to join	11
Non-adherence to PFM exercises during physiotherapy sessions	10
Patient asked to stop the follow-up	5
Serious illness/death	4
Surgery for urinary incontinence	4
Unreliable answers due to impaired cognitive function	1
Total	49

*Before the last telephone interview conducted five years after PFM physiotherapy.

Table 2. Objective continence status five years after treatment (n = 40)*

Continence status	Patients, n (%)
Improved	11 (27.5)
Maintained	23 (57.5)
Deteriorated	6 (15)

*Determined with data recorded in the bladder diaries.

Table 3. Continence status five years after physiotherapy according to PFM exercise adherence (n = 40)

Continence status	Adherent patients (n = 29) n (%)	Non-adherent patients (n = 11) n (%)
Improved or stable	29 (100)	5 (45.5)
Deteriorated	0	6 (54.5)

$P < 0.05$ for adherent vs. non-adherent patients.

Previous studies have reported favourable results with PFM training. Cammu et al. reported that when PFM training was initially successful, this favourable result persisted 10 years later in 66% of patients.⁷ Dattilo reported maintained or improved continence for 91% of patients after 16 months and a 69% rate of compliance.⁸ However, these studies involved women of all ages. Our data showed 85% favourable results after five years and a 72.5% rate of compliance with an older population with a mean age of 70 years. Therefore, despite having a small number of patients, this study confirms that PFM training is also effective for older women.

To our knowledge, no study has assessed the outcome of PFM training in geriatric female patients with more than two years of follow-up.

We observed a high percentage of patients lost to follow-up from the initial cohort of patients. Multiple external factors could not be controlled in this long-term study (Table 1). For example, a great number of patients remained unable to join. It is possible that a few patients were institutionalized or deceased, whereas others were confirmed to be dead. These are limitations that are attributable to an elderly population.

One of the limitations of this study is that the follow-up was carried out by telephone. Scheduled interviews would have been optimal, but elderly patients often have transportation problems and limited mobility, making this option unrealistic. Furthermore, validated questionnaires sent by mail would not have been suitable for this older population because of their potential limitations in vision and understanding. If this study was to be carried out prospectively, validated questionnaires would be used. A prospective study would in fact be preferred, but with limited financial resources and few physiotherapists skilled in pelvic floor rehabilitation available in our community, this was not an option for us.

CONCLUSION

Pelvic floor muscle rehabilitation with physiotherapy support seems effective for elderly women. Women who are willing to continue the exercises in the long term have very good results at five years of follow-up. Eighty-five percent of the women for whom continence status was improved at the end of physiotherapy had improved or maintained clinical status five years after the training. Therapeutic success depends on adherence to exercises. Non-adherence to exercises predicts failure of PFM training.

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