## Peer review

# Community physiotherapy and continence nurse specialist management of a woman with multiple sclerosis and urinary incontinence: a case study


### Abstract

This case study presents information about the care of a woman with multiple sclerosis (MS) who had walking/balance difficulties and urinary incontinence. Post-treatment, the community physiotherapist and continence clinical nurse specialist (CNS) both thought the longer-term outcomes were better than either expected. We have reported this case to stimulate debate about future research on the effectiveness (or not) of transversus abdominis (TrA) contraction along with pelvic floor muscle (PFM) training for urinary incontinence in people with neurological conditions, and to advocate for more deliberate teamwork outside the usual members of the continence team.


*Keywords: Urinary incontinence, multiple sclerosis, Clinical Pilates, pelvic floor muscle training.*

### Introduction

A woman with an 11-year history of symptoms that were diagnosed as relapsing-remitting multiple sclerosis (MS) was referred, during a relapse, to a physiotherapist for rehabilitation of walking and balance problems. When it became clear the patient had bothersome urinary symptoms, including urinary incontinence, the physiotherapist referred the patient to a continence clinical nurse specialist (CNS).

After the patient was discharged from physiotherapy, the two clinicians met in a corridor and experienced an 'aha' moment; both had observed better than expected outcomes in this case. They postulated that the interplay between treatments might have contributed to the continence outcomes. A brief summary of the case is presented as a vehicle for discussing the synergy between the separate but potentially complementary interventions (Clinical Pilates and pelvic floor muscle (PFM) training) and the possible benefits to be gained from deliberate teamwork between health professionals.


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**Competing interest statement:** ***No competing interest declared.***

### Ethics approval

The Lower South Regional Ethics Committee confirmed that ethical approval was not needed for this case study report. The patient gave written informed consent for her case to be reported and she was offered this manuscript to check and agree before it was submitted for publication.

### Case presentation

The patient was a late-middle-aged, postmenopausal woman with an 11-year history of symptoms of relapsing-remitting MS and worsening urinary symptoms. There was no other important medical history. Medications included oral oxybutynin 5mg twice daily (recently prescribed by the general practitioner), vitamin B12 injections, iron tablets and complementary therapies (evening primrose oil and other dietary measures) but no immunotherapy.

On referral, the patient was bothered by fatigue, although she was able to participate in all activities of daily living and she was on sick leave. The patient lived with her spouse in their own home, which was accessible. She was independently mobile, although the physiotherapist reported the patient had fallen during an assessment of her balance and gait.

### Assessment

At her first hospital out-patient continence clinic appointment, the patient reported symptoms of urinary frequency and urgency,

urge urinary incontinence and stress urinary incontinence. There was no nocturia, dysuria, haematuria or bladder pain. Urinary flow was good and there were no symptoms suggestive of obstruction. Urinary leakage (drops each time) occurred most days. No bowel problems were reported.

A 24-hour bladder diary was completed [1]. The diary showed voided volumes between 100ml and 250ml every two to three hours during the day, two urge episodes and a total fluid intake (all non-caffeinated) of 1.5 litres.

The King's Health Questionnaire (KHQ)[2] showed some bother for five of the 10 listed bladder symptoms; the most bothersome ("a lot") were urgency, urge incontinence and stress incontinence. Urinary symptoms had most effect on the role limitations quality of life (QoL) domain, with moderate effect on the emotional and physical/social limitations domains. Overall, the KHQ scores suggested good general health, although the patient's urinary symptoms moderately affected her QoL.

Abdominal examination was unremarkable. Vaginal examination showed no atrophic vaginitis, no demonstrable urinary incontinence with cough and a grade one cystocoele on Valsalva. An Oxford Scale grade one voluntary PFM contraction was palpated vaginally[3]. Portable ultrasound bladder scan revealed an elevated post-void residual of 183ml, reduced to 21ml two weeks later after the oral oxybutynin dose was reduced from 10mg to 5mg daily. The midstream urine sample and urine cytology were normal.

## Management

Treatment began with an explanation of common urinary symptoms in MS and why these might happen. The patient's current fluid intake of about 1.5 litres per 24 hours with minimal caffeinated fluids was considered appropriate and endorsed. Frequency strategies were suggested; in particular, resisting the temptation to void "just in case".

PFM training was introduced after the patient felt confident with frequency strategies; it was hoped that improved PFM performance would assist with urge suppression[4] and reduce stress urinary leakage[5]. Although at initial assessment the patient had a Grade i voluntary PFM contraction, a Grade iii contraction was palpated with a concurrent transversus abdominis (TrA) muscle contraction. The patient was familiar with a TrA muscle contraction because this was a key component of the Clinical Pilates programme taught and supervised by the physiotherapist.

The PFM strength training programme began with three contractions held for two seconds each, with a two-second rest between contractions, repeated twice daily. Patient and CNS agreed that, initially, a 'combined' TrA and PFM contraction might be a useful way to facilitate a very weak PFM contraction. Each week the programme was progressed, with the addition of either one further contraction or one second longer hold. The training goal was 10 to 12 contractions held for six to eight seconds, each repeated three times daily[6]. After eight weeks, the patient began integrating her exercise into daily activity to establish a routine or exercise habit. She used a voluntary PFM contraction to counteract an intra-abdominal pressure[7] and to suppress urgency[4], as needed.

## Outcome

The patient has continued a daily Clinical Pilates programme, and integrated her PFM training with this throughout (what is now) a two and a half years of active review by the CNS who sees the patient monthly to check post-void residual urine. At 12 months the 24-hour urinary diary data suggested that voiding frequency increased and voided volumes decreased over this period, with fewer urge episodes. Frequency, urgency, urge and stress incontinence were still bothersome, although less so. The KHQ also suggested an improvement in continence-specific QoL, with a reduction in role limitations, physical/social limitations and less emotional impact. Patient-reported benefits were a greater sense of symptom control and increased confidence in being able to participate in social activities without worrying about her bladder. This was congruent with the patient-reported outcome relayed by the physiotherapist in the corridor conversation; the patient had told the physiotherapist she had an improved feeling of overall wellbeing that was attributed to a greater sense of symptom control.

## Discussion

Based on her prior clinical experience of the nature and usual progression of continence symptoms in people with MS, and the patient's poor PFM function at the time of referral, the CNS was surprised by an apparent improvement and then maintenance in incontinence-specific QoL. In addition, the reasonably slow deterioration in other typical MS bladder symptoms (such as frequency) was unexpected.

It is acknowledged that the variable nature of MS symptoms and progression, and the lack of control comparison, means that it is not possible to say with any certainty that there was an association between the interventions and outcomes.

## Clinical Pilates programme and PFM training synergy

Core stability, achieved through training of core muscles, including the abdominal muscles, is thought to be pivotal for efficient biomechanical function during physical activity[8]. Sapsford stated that PFM rehabilitation: "does not reach its optimum level until the muscles of the abdominal wall are rehabilitated as well"; within the abdominal muscle group the focus of training appears to be the TrA[9]. While there is a developing evidence base for co-contraction of the TrA muscles and PFM during spinal, abdominal and pelvic activity in women with and without urinary incontinence[9], the extent to which training of one can be used to treat dysfunction in the other is contested[10].

Clinical Pilates is one approach used widely in rehabilitation to deliver core stability training, although most literature to date concerns its use in sport and musculoskeletal rehabilitation. Kibler *et al.* defined core stability as:

> *... the ability to control the position and motion of the trunk over the pelvis to allow optimum production, transfer and control of force and motion to the terminal segment in integrated athletic activities*[8].

In core stability training, initial exercises target muscles of the trunk and pelvis (particularly the TrA) while maintaining a neutral spinal position; exercises are then progressed to incorporate complex movements[11] to create proximal stability for distal mobility[8]. In the present case, the physiotherapist considered that a combination of greater proximal stability and lower limb strength was needed to improve mobility and balance and decrease the risk of falls. We have not found any clinical studies reporting the effect of core stability or TrA training in people with neurological conditions.

The use of PFM training in the management of urinary incontinence is supported by a biological rationale based on the role of the muscles in bladder neck support, their contribution to the sphincteric closure mechanism of the urethra and inhibition of a detrusor contraction with a voluntary PFM contraction[12].

In women with MS there may be little relationship between their neurological or urinary symptoms and their PFM function, although typically women with MS seem to have very weak PFM that tires quickly and some will also have PFM 'spasticity' [13]. We agree with Sherburn and Frawley that "there is no substitute for isolated muscle rehabilitation" [14]. Nevertheless, we hypothesise that where a voluntary PFM contraction is not or barely possible due to complex motor and sensory nerve conduction abnormalities such as this case, facilitating a contraction through co-contraction of a functioning TrA muscle is useful and might improve continence outcomes. Further research is needed in this area.

## Interprofessional rehabilitation

Only in retrospect did the physiotherapist and CNS recognise the potential synergy in their interventions. Multidimensional community-based neurorehabilitation aims to enhance QoL and function [15]. This multidimensional rehabilitation typically includes contributions from more than one health professional [16]. Teamwork is recognised as a core component, even cornerstone, of contemporary rehabilitation [17], and it seems that collaborative teamwork is an expected and essential part of the current drive to patient-centred care [18].

Such interprofessionality occurred retrospectively in this case. As interprofessionality is espoused as a process that will improve patient outcomes [19] we speculated that prospective and deliberate collaborative and coherent teamwork could have made more use of the synergy between the treatments and perhaps resulted in other gains in effectiveness or efficiency. In the absence of collaborative teamwork, there was a risk the patient could have been overwhelmed and fatigued by multiple interventions and apparently conflicting advice; fortunately, this did not seem to happen here.

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