

Annals of Reproductive Medicine and Treatment

Review Article

Conservative Primary Care of Urinary Incontinence and Pelvic Organ Prolapse in Primary Health Care

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Abstract

The evidence supporting conservative care strategies for pelvic floor dysfunctions (urinary incontinence and pelvic organ prolapse) is strong, and international recommendations endorse pelvic floor muscle training in particular as first-line treatment. However, the availability and enactment of these care strategies are variable. The reasons are complex and relate to several levels in the health care system. Consequently, there is a need to describe the current status of conservative care and point to opportunities for leveraging interprofessional care, especially between physiotherapists and nurse practitioners who are both identified as key care providers. Physiotherapists and nurse practitioners are well positioned to leverage their skills within their respective scopes of practice to bridge the care gap that currently exists at the primary health care level regarding pelvic health.

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Submitted: 04 June 2018 Accepted: 16 July 2018 Published: 18 July 2018

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Kevwords

- Pelvic health
- · Pelvic floor
- Primary health care
- Interprofessional care

INTRODUCTION

Despite a high prevalence of pelvic floor dysfunction, and the availability of clinical practice guidelines for effective conservative care, these conditions are not managed well at the primary health care level. However, there lies great potential for improved care by leveraging interprofessional teams and mobilizing current evidence. Recent research in the Netherlands demonstrates that family physicians adhere to clinical practice guidelines in diagnosing urinary continence, but lack the time, staff and competences to carry out interventions [1]. The literature confirms under-treatment for related conditions [2]. As nurses, nurse practitioners (NPs) and physiotherapists (PTs) provide effective conservative management for many pelvic floor disorders [3-6], a primary health care team is well positioned to promote collaboration and improve pelvic health. European and Canadian guidelines on approaches to urinary incontinence highlight the importance of conservative management [4,5] and a collaborative model of practice may help achieve best practices.

Primary health care is an approach that encompasses people across their lifespan, and takes into account the broader determinants of health. The goals of primary health care in Canada include increasing access to care, promoting interprofessional collaboration, preventing and managing chronic diseases, ensuring continuity across the system, as well as reducing redundancies [7]. Nurse practitioners working in primary health care organisations improve the delivery of evidence-based care

through health promotion and disease prevention for individuals, families and communities [8].

The scope of practice for NPs and PTs varies by geographical location, with some regulatory bodies requiring additional training and registration for the ability to perform an internal pelvic exam. In Canada, NPs have the legislative authority to order and interpret diagnostic tests, perform internal pelvic exams, make and communicate medical diagnoses, as well as prescribe pharmaceutical agents [8]. Although NPs already perform internal pelvic exams, typically they do not include assessment or treatment of the pelvic floor and associated tissues. In Ontario, NPs can gain this competency with additional training [9], since these skills are not in the NP curriculum. The entry-level scope of practice for PTs in Canada includes the assessment and management of muscular, neurological and cardiopulmonary systems, and communicating a diagnosis [10,11]. The ability to assess and treat the pelvic floor via internal examination is an additional skill performed by physiotherapists who have completed post-graduate training [9] and registered with the appropriate regulatory body [11]. A Cochrane Systematic Review confirmed that tailored pelvic floor muscle training delivered by a physiotherapist who performs internal exams should be the firstline treatment for stress, urge and mixed urinary incontinence

Given their scope of practices, the efficacy of conservative management and their roles in primary health care settings,



there is a meaningful opportunity for PTs and NPs to collaborate to bridge the practice gap that currently exists with respect to pelvic floor dysfunction. As many pelvic floor disorders are underreported or undiagnosed, an emphasis on autonomous providers in primary health care may allow for prevention efforts and earlier screening to improve outcomes and quality of life for many people.

Pelvic floor dysfunction

The pelvic floor is located at the caudal aspect of the abdomen, and is comprised of the coccygeus muscle and the levator ani (pubococcygeus, puborectalis, iliococcygeus muscles). The pelvic floor, along with ligaments and other connective tissue, supports the pelvic organs (uterus, prostate, bladder, vagina, seminal vesicles, small bowel and rectum). Although pelvic floor dysfunction affects all people, the prevalence is highest among those with female internal sex organs. One of the largest risk factors for pelvic floor dysfunction is the process of childbirth. Vaginal delivery causes trauma to the pelvic floor [12], and additional complications from the use of forceps are common [13]. Menopause is a risk factor for pelvic floor dysfunction due to the drop in estrogen, while other contributors include obesity and chronic coughing [14]. Many children experience bladder and bowel dysfunction, which accounts for up to 40% of consultations with paediatric urologists [15]. The prevalence of urinary incontinence in males increases with age-from 15.5% among those aged 55-64 years, to 24% among those aged 65-74 years, and 30% in those over 75 years old [16].

Of pelvic floor disorders, urinary incontinence (UI) and pelvic organ prolapse (POP) are the most prevalent. Both issues, however, are underreported since many believe the signs and symptoms of dysfunction are a normal part of ageing, especially after childbirth [17]. These conditions contribute to social isolation, reduced mobility, a higher risk of falls, and reduced quality of life [18]. Among women with POP with similar objective measurements, those who are symptomatic have more depressive symptoms, distress and a poorer quality of life [19]. With such sequelae of pelvic floor dysfunction, there is a concomitant increase in the use of the health care system for medical and surgical management. Urinary incontinence, in particular, leads to a high economic burden because it is a factor for admittance to long-term care facilities for many older adults [4,18]. Consequently, identification and management in primary health care may prevent the progression of pelvic floor dysfunction and mitigate other health care problems and costs.

Urinary incontinence

Urinary incontinence (UI) denotes the involuntary leakage of urine with three common subtypes-stress, urge and mixed-for which conservative management is the recommended treatment [6]. Stress UI, which accounts for 50% of incontinence cases in Canada, is the leakage of urine when intra-abdominal pressure increases, such as during physical exertion, sneezing or coughing [4]. The primary mechanism of stress UI is the suboptimal contractile properties of the pelvic floor, which may be weakness, excessive tension or impaired co-ordination [20,21].

Urge UI is urinary leakage immediately preceded by, or associated with, a sudden urge to void, and represents 14% of

reported UI. Symptoms of urgency and frequency usually occur from involuntary contractions of the bladder muscle (detrusor muscle) at the wrong time [20], and urge UI ultimately results from longstanding over activity in the detrusor muscle. Behaviours such as frequent, unnecessary voiding to compensate for a poorly functioning pelvic floor can establish overactive bladder, which often leads to urge UI [22,23]. Mixed UI is a combination of stress and urge UI, and accounts for a third of reported UI [4].

Pelvic organ prolapse

Pelvic organ prolapse (POP) is defined as a downward movement of pelvic organs, which can result in herniation into or through the vagina (uterovaginal prolapse) or anal canal (rectal intussusception and rectal prolapse).24An anterior prolapse consists of bladder prolapse (cystocele) and uterine prolapse or vaginal apex (vaginal vault after hysterectomy). The posterior prolapse includes the rectal ampulla dropping into the vagina (rectocele) and may also include part of the sigmoid colon herniating into the vagina [24]. Prolapse is considered a neuromuscular condition due to trauma from vaginal childbirth, and to a lesser extent, obesity [25,26]. Over time, weakness and poor neuromuscular control of pelvic floor muscles translates to a lack of caudal support for pelvic organs, and leads to additional damage to the connective tissue that provide cranial support [22]. When support from the uterosacral ligaments, vaginal walls, endopelvic fascia and perineal membrane fail, prolapse occurs [22]

Collaborative care

There is significant high-quality evidence to support the assessment and conservative management of pelvic floor dysfunction by nurses and PTs alike. Management by nurses reduces episodes of UI with high patient satisfaction and improves quality of life [1], while PT management has shown high efficacy and is first-line treatment for UI [6]. In primary health care, access to and flow of care for pelvic floor dysfunction can be improved through collaboration. As many NPs and PTs in primary health care work with populations with chronic diseases, they can prevent pelvic floor dysfunction or begin treatment early by identifying people at high risk, and translating chronic disease self-management principles. Communication amongst health care disciplines, and improved knowledge of resources available for care may lower the threshold for patients to seek help [1]. Having a nurse who specialises in continence care work alongside family physicians may improve detection rates of pelvic floor dysfunction [27]. In such an environment, one clinician may identify and assess pelvic floor dysfunction, while another effects treatment, and communication is within the patient's circle of

Assessment

An assessment for pelvic floor dysfunction includes initial investigations, a subjective interview, and an internal physical exam. Ideally for the primary health care setting, an NP with training in pelvic floor muscle assessment would carry out the exam, and communicate relevant results to a PT to follow through on a management plan.

A subjective examincludes questions about voiding frequency, post-voiding issues [4], fluid intake habits, pelvic girdle pain,



obstetrics history, urogynaecological history and other sensory information. Reports of urine leaking during exercise, laughing or coughing may indicate stress UI, while sudden urgency with or without specific triggers may point to urge UI. Validated patient questionnaires can assess the severity and impact of UI on quality of life, such as the Urogenital Distress Inventory (UDI) and the Incontinence Impact Questionnaire (IIQ) [28]. A discussion about UI is indicated for patients with associated comorbid conditions. such as congestive heart failure, chronic obstructive pulmonary disease, diabetes, Parkinson's disease and multiple sclerosis [22]. When POP has become symptomatic, patients may report a vaginal bulge or protrusion, vaginal laxity, heaviness or dragging sensation, dyspareunia (difficult or painful intercourse), hesitancy or change in urinary stream due to compression of urethra, feelings of incomplete defecation or manual removal of stool due to herniation of bowel, recurrent urinary tract infections, and night time voiding (nocturia) [24].

Initially, a urinalysis may rule out a bladder infection [4], while a bladder diary that covers 24 hours [29] or 3-7 days [3,4,30], may elicit valuable information about frequency, leakage, timing of voids, fluid intake and bowel movements [23,31]. Although rarely used [23], a diary can function as a springboard for modifying voiding behaviours, habits 3 and tracks changes.

The physical assessment includes an internal pelvic examination to look for signs of atrophy and prolapsed [22]. A digital exam of the patient's pelvic floor muscles assesses their function. Strength (power) of a muscle contraction is graded from 0–5 on the modified Oxford scale, while muscle co-ordination is assessed by determining how and when the pelvic floor contracts

in response to a voluntary cough [22,32,33]. The assessor can provide feedback on the quality of their muscle contraction to ensure they are done appropriately during exercises. Muscles are palpated for tenderness and trigger points [33-35]. To assess for POP, the patients in crook-lying with the truck flexed, while propped up on their forearms. The patient performs a Valsalva maneuver (bearing down) so the clinician can assess the downward mobility of the pelvic visceral structure. To determine if a posterior prolapse is present, a rectal exam is completed [36,37]. These examination techniques are described in Table 1.

The gold standard for staging pelvic organ prolapse is the Pelvic Organ Prolapse Quantification (POP-Q), which has been endorsed by the International Urogynecological Association/International Continence Society. Although this classification system is onerous (use of ruler to measure) and confusing, it has standardized assessments. A simplified POP-Q has four ordinal staging points instead of nine; several studies have reported near perfect correlation between versions [38,39].

Management

Evidence-based clinical practice guidelines that reflect approaches with high and very high degrees of efficacy have been developed for the management of both UI [4,6,40] and POP [40]. They include pelvic floor muscle training, general exercises, stress reduction and behaviour modification. With only a few visits for management, most people can learn techniques to lessen the impact of pelvic floor dysfunction, and with an opportunity for booster sessions at longer follow up intervals, adherence to self-management plans is increased [41].

Table 1: Pelvic examination procedures for UI and POP.			
Examination Procedure	Description of Procedure	Indicator of MSK Dysfunction	Reported Psychometric Properties
PERFECT Manual muscle testing ³²	P-power, modified Oxford grading scale: 0-no contraction 1-flicker 2-weak squeeze, no lift 3-fair squeeze, definite lift 4-good squeeze with lift 5-strong squeeze with a lift •Positive test: <4/5	Pelvic floor muscle weakness	Kappa=0.48-0.77 ³³
	E-endurance, time (seconds) that a maximum contraction can be sustained •Positive test: <10 seconds	Decreased muscular endurance	Kappa=0.17-0.56 ³³
	R-repetition, the number of maximum voluntary contractions •Positive test: <10 repetitions	Decreased muscular endurance	Kappa=0.48-0.77 ³³
	F-fast contractions, the number of fast (one second) maximum contractions •Positive Test: <10 repetitions	Decreased motor control	Kappa=0.29-0.65 ³³
	ECT- timing, sustained voluntary contraction of the pelvic floor muscles with a cough Positive Test: no contraction prior to cough ³³	Pelvic floor muscle discoordination	Kappa=0.14-0.53 ³³
Pelvic floor muscle tenderness ^{34,35}	Firm digital vaginal or anal palpation of pelvic floor muscles •Positive test: pain ^{34,35}	Muscular tenderness and/or myofascial pain	Kappa=0.76-0.91 ³³
Pelvic organ prolapse identification	Observation of pelvic floor while person performs Valsalva maneuver in supine •Positive test: visualisation of descent of posterior or anterior vaginal wall, uterine, bladder or rectal descent ³⁶	Weakened connective tissues of pelvic organs	Kappa=0.61-0.87 ³⁷



Management of UI differs based on the individual's signs and symptoms, and the impact on quality of life. For stress incontinence, pelvic floor muscle training can help build strength and voluntary control [6]. Behaviour modification for stress UI includes avoidance of bearing down during bowel movements, and increased physical activity [40]. Weight loss may help reduce the severity of stress UI symptoms [40].

Urge incontinence may be effectively managed with behaviour modification to address triggers and maladaptive voiding patterns. For example, defensive voiding (urinating "just in case") can lead to the dysregulation of bladder reflexes, and subsequently, overactive bladder syndrome [22,23]. Treatment with education and techniques to counter such habits and feelings of urgency reduces the impact of urge UI. If indicated during assessment, interventions to reduce muscle tone in the pelvic floor muscles include manual release, trigger point therapy, diaphragmatic breathing, muscle energy inhibition strategies and stress reduction [42-44]. When pelvic floor muscles are tight, muscle training for strengthening-without attention to reducing tone-is a misguided approach, and demonstrates the need to tailor management to an individual's examination findings [21]. Pelvic floor muscle training does play a role in managing urge UI, as it supports reductions in muscle tone through inhibition pathways, and improved strength may be indicated after tone is addressed [6].

Conservative management for POP includes lifestyle modifications such as weight loss and avoidance of heavy lifting, education to lessen and prevent constipation, and pelvic floor muscle training.40A randomized controlled trial showed that one-on-one training of pelvic floor muscles improves endurance, strength, and coordination of the levator ani muscles, which in turn increases structural support for the pelvic floor [45]. A subsequent non-surgical option is the insertion of a vaginal pessary, fitted by a clinician. Pessaries have various shapes and sizes, and a ring shape is used successfully in over 80% of women [46].

Pelvic floor muscle training is important for people with UI and POP alike, and consists of more than conventional "Kegels;" key elements are education on the function of muscles, their coordination with other inner and outer unit muscles, strength training and building endurance [6]. Muscle activation in isolation, then during movement, and with co-activation of core and skeletal muscle groups, fosters a functional use of the pelvic floor contraction. A training method called PFilates (pelvic floor pilates), developed by urogynaecologist Dr. Bruce Crawford, exemplifies this approach and has been widely adopted. The key principles of pelvic floor muscle training in PFilates are to address multiple fitness parameters of the pelvic floor muscles (not just strength) and to integrate the function of deep inner unit core muscles in a synergistic and functional manner with outer unit muscles [47].

CONCLUSION

Conservative care for people with pelvic floor dysfunction is recommended by clinical practice guidelines [4,5] and has shown to be effective by high quality evidence [6]. A collaborative approach that utilises the skills, resources and accessibility of multiple health care providers including nurse practitioners and physiotherapists, would enhance primary care management of

urinary incontinence and pelvic organ prolapse by increasing patient access and improving outcomes. This collaboration builds on the growing recognition of the need to manage chronic conditions and to prevent sequelae that impact people's quality of life. Physiotherapists and nurse practitioners are well positioned to leverage their skills within their respective scopes of practice to bridge the care gap that currently exists at the primary health care level regarding pelvic health.

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Cite this article

Dufour S, Hondronicols A, Flanigan KMN (2018) Conservative Primary Care of Urinary Incontinence and Pelvic Organ Prolapse in Primary Health Care. Ann Reprod Med Treat 3(1): 1020.