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Invited Topical Review

Physiotherapy management of incontinence in men

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KEY WORDS

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Introduction

Urinary and faecal incontinence are not usually at the forefront of physiotherapists' minds on graduation; they are conditions that society still reacts to with silence or stigma. These conditions do not seem to have a significant place outside women's health in physiotherapy practice and then mainly after pregnancy. As incontinence is often considered a women's health issue, incontinence in men has been greatly neglected. Urinary incontinence (UI), defined as 'the complaint of involuntary loss of urine',[1] is a common condition in adults, with considerable health consequences. Faecal incontinence (FI) also has significant health consequences. The International Continence Society definition of anorectal incontinence is 'the complaint of involuntary loss of flatus or faeces', which allows for a range of symptoms from loss of wind to solid faeces.[1] In recent years, partly due to the increase in lifespan and to improvements in survivorship with prostate cancer treatments, male UI and FI have become an area of importance to physiotherapists. UI has a significant impact on men, both physically and psychosocially, and it can dramatically affect their quality of life. This review summarises: the prevalence and burden of male UI and FI; the male continence mechanism; how the cause of continence differs between males and females; how the consequences of treating prostate cancer impact continence; how male incontinence is managed using the latest evidence; and future directions for research and practice.

While more common in women than men, UI affects from 5 to 32% of adult males, and prevalence increases with age;[2] this is predominantly due to the increase in survivorship of men with prostate cancer. Advances in the understanding of the causes of male UI have changed how men are managed when they present with incontinence. Prostate cancer is the second most prevalent cancer diagnosed in men, with more than 1.2 million cases in 2018.[3] It was the second most common cause of cancer death in Australia and many other countries in the world in 2019.[4] Men have a one in six risk of prostate cancer by the age of 85 years. Due to early detection and treatment, survival rates are high; the survival rate at 5 years is 95%.[4] The more common treatments for prostate cancer include radical prostatectomy and radiotherapy; unfortunately, both treatments have an impact on the urinary and faecal continence systems. UI is common after radical prostatectomy, with rates of 2 to 57% reported.[2] The diverse estimates of the prevalence of UI after radical prostatectomy may be explained by factors such as study design, population characteristics, the definition of continence used and how long after surgery continence is measured.[2] Subtypes of UI such as urgency UI (UUI), stress UI (SUI) and mixed UI differ in frequency in men as compared with women. In women, SUI is most common, whereas in men, UUI is reported as 40 to 80% and mixed UI as 10 to 30%, but SUI causes $<$ 10% of incontinence in adult men.[2]

The incidence of anal incontinence has not been reported specifically for males. There have been three systematic reviews of the published incidence of faecal incontinence in community-dwelling adults (aged $>$ 15 years) that included males.[5–7] However, failure to standardise definitions and characteristics of FI in adults has resulted in variations in incidence reported from 4 to 35%.[2] Allowing for significant underreporting of FI symptoms, the incidence of bowel problems 4 years after radiation treatment for prostate cancer is reported to be in the range of 9 to 40%.[8]

What is male incontinence?

Continence control in men

Maintaining continence is a complex function involving coordination of bladder, brain, muscles and social contexts. The bladder is a hollow muscular organ that functions to store and expel urine. Spending 99% of the time in the storage phase, the bladder collects the urine arriving from the kidneys via the ureters. The bladder undergoes receptive relaxation to allow for the increasing volume without a rise in pressure.[2] Low storage pressure is required to ensure free flow of urine drainage into the bladder from the upper urinary tract. Normally, no uncomfortable sensations such as pain, urgency or discomfort are felt during the filling stage. During this time the urethra and the sphincteric mechanism are closed and the high outlet resistance maintains continence.

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For men to maintain urinary continence, the pressure in the urethra must exceed the pressure in the bladder. Urethral pressure is generated by the circumferential smooth muscle of the bladder neck, the pelvic floor muscles (PFM) and coaptation of the elastic tissue of the mucosal walls and the vasculature of the urethra. The PFM have often been referred to as forming the urogenital diaphragm together with the striated urethral sphincter and the deep transperineal muscles; this 'diaphragm' does not, in fact, exist. The muscles in the male pelvic floor are a series of horseshoe-shaped loops that interact to constrict the urethra.

The striated urethral sphincter (SUS) lies below the prostate around the anterior and lateral sides of the urethra, attaching to the central tendon of the perineum and the perineal fascia, forming an omega shape. On contraction it is the strongest of the striated muscles, pulling on the urethra posteriorly against the fascia and perineal body between the urethra and anus.[9] This is countered by the contractions of the puborectalis and bulbocavernosus, which pull the urethra and the perineal body anteriorly.[10] The puborectalis is part of the levator ani. Together with the pubovisceralis and the iliococcygeus, these muscles sandwich the SUS.[11] The bulbocavernosus, which extends to the perineal body superiorly and cups the penile bulb inferiorly,[10] compresses the bulb of the penis, also constricting the distal urethra opposing the SUS (Figure 1).

Emerging evidence indicates that these muscles inside the pelvis contribute to the control of urethral pressure by differentially activating in a coordinated manner.[12,13] During the storage phase of micturition, the detrusor of the bladder is inhibited. The SUS has tonic activation at rest and phasic activity observed before and during increases in intra-abdominal pressure.[12,14] Stafford et al have also shown that both bulbocavernosus and puborectalis contract in a distal-to-proximal sequence during activities that increase intra-abdominal pressure, to increase the urethral pressure.[12]

Voiding is not simply the reversal of storage. A complex series of coordinated peripheral and central pathways, mainly under parasympathetic control, relax the urinary sphincters while activating the detrusor muscle. The central mechanism of micturition is very poorly understood. Fullness is a stimulus for voiding, and urge is a primary motivator. However, if it is conceptualised that *urgency* is the bladder's distress or 'pain', it can be understood how bladder dysfunctions might respond well to the biopsychosocial approaches used to manage pain. This approach extends the influences on pain beyond the biological and includes the social and psychological. Pain is perceived to be worse when there are elements that increase the danger that the body is in. In this paradigm, 'danger' is social embarrassment when incontinence occurs.

Male urinary incontinence

UI is not an isolated problem in men but a component of a multifactorial issue.[2] It is frequently seen with other lower urinary tract symptoms such as a weak stream, hesitancy and dribbling. These symptoms are caused by urine stream strength changes due to altered bladder compliance and the presence of obstruction. Erectile dysfunction is also a common issue seen in men with urogenital dysfunction. While beyond the scope of this review, male pelvic pain and erectile dysfunction are also common issues coinciding with UI and should be assessed for and managed.[15,16]

Benign prostatic hyperplasia and benign prostatic obstruction are common causes of detrusor overactivity, compliance impairment and urgency incontinence.[2] Other causes of UUI include neurogenic bladder secondary to neurological causes such as strokes and spinal cord damage. UUI or the complaint of 'involuntary loss of urine associated with urgency'[1] is the most common type of UI in men. It is typically associated with bladder overactivity and/or bladder outlet obstruction due to enlargement of the prostate.[2] With urodynamic studies, involuntary bladder contractions can be seen during the filling stage.[1] What is not understood is the cause of these bladder contractions. It is hypothesised that there is an afferent sensory signalling problem from the urinary tract, a processing issue in the brain or a primary problem in the bladder muscle.[17] There are several mechanisms by which bladder outlet obstruction can cause UUI. Hypertrophy of the detrusor muscle, denervation hypersensitivity and the afferent and efferent nerves have all been put forward as increasing bladder activity.[17] Removing the obstruction by a transurethral resection of the prostate improves the symptoms in many patients.

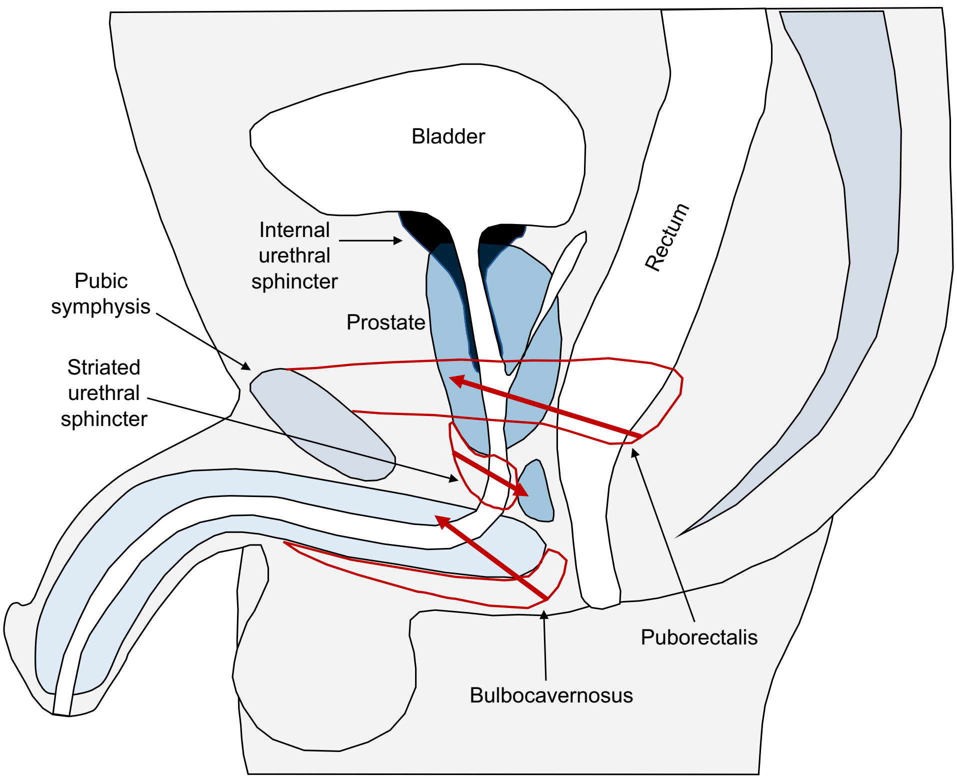

Figure 1. The male urogenital system and pelvic floor muscles. Thick arrows indicate the direction of action of horseshoe-shaped muscles to pull the urethra closed. Modified from Hodges et al[14].

Male urogenital dysfunction has traditionally been viewed from a prostate-centric view. While many of the causes can be traced back to the prostate, other systems need to be considered as well. Bladder dysfunction can be caused by lifestyle, ageing and neurological disease.[18–21] Bladder health is influenced by: learnt behaviours such as emptying the bladder 'just in case'; intake of fluids; caffeine and alcohol intake; and lifestyle factors such as smoking and obesity.[19]

Post-prostatectomy incontinence

The cause of post-prostatectomy incontinence is considered to be multifactorial, including sphincter dysfunction, detrusor muscle overactivity, low bladder compliance and post-surgical changes in sensation. Other commonly cited causes include: urethral sphincter deficiency or laxity; and the destruction of facial and ligamentous support of the bladder neck and PFM through surgical damage causing SUI.[22,23] The bladder's ability to store and empty efficiently is affected by: the effect of surgery on the detrusor muscle causing de novo under/overactivity, changes in bladder sensation and low bladder compliance.[24,25] When managing post-prostatectomy incontinence, these factors have to be assessed and managed.

Various regimens are described in the literature for training the male pelvic floor, but the management of post-prostatectomy incontinence has been challenged in recent times.[14] For many years the treatment for post-prostatectomy incontinence was modelled on how women were managed for incontinence. While pelvic floor muscle training (PFMT) has been successfully implemented for female stress urinary incontinence,[26,27] results have not been positive for managing post-prostatectomy incontinence.[28] The dissimilar outcome with the same training has been suggested to be due to a difference in the mechanism that causes SUI in men after radical prostatectomy versus the cause of SUI in women.[14] Women generally have physical damage to the urethra and PFM following pregnancy and vaginal delivery,[29] whereas men's pelvic floor musculature is largely unchanged after removal of the prostate.[30] The male continence mechanism, however, loses smooth muscle from the prostatic urethra and possibly sustains damage to the extrinsic urethral sphincter.[31] Many clinical trials have not accounted for the different types of incontinence present or the mechanism of injury, possibly accounting for the lack of success of various treatment options.[14]

Male faecal incontinence

The third and most problematic type of male incontinence is FI. The anal sphincter is a muscular tube consisting of the internal autonomically controlled sphincter and striated external sphincter.[2] Supported by the puborectalis, faecal control relies heavily on the external anal sphincter. It constricts the anus, supporting the role of the internal anal sphincter.[32] The external anal sphincter has no role in urethral constriction.

Bowel symptoms often do not manifest themselves for many years after the radiation treatments used to treat prostate cancer have been completed. The bowel will have changed motility due to stiffness, ischaemic changes and fibrosis, and a change in bacterial growth due to the DNA changes in cells. Faeces will move through the bowel at a changed rate, either faster causing diarrhoea or slower causing constipation and obstruction. The mechanism of injury is poorly understood but it is thought to be due to late radiation-induced toxicity.[8] The nerves supplying the bowels have been found to change over time after radiation exposure.

Late changes to nerve and muscle function following prostate cancer treatment, be it surgery or radiotherapy, may result in reduced anal sphincter tone and damage to the surrounding soft tissue. Radiation in particular may contribute to a combination of myenteric plexus degeneration, lumbo-sacral plexopathy or pudendal nerve injury.[33] This clinically means changes to the structure and therefore function of the bowel. Rectal compliance, measured by the volume tolerated, is reduced. Simultaneously, the internal anal sphincter thins, lowering anal sphincter tone, resulting in worsening faecal continence.[33]

Studies have shown that men irradiated for prostate cancer have decreased urethral length and increased fibrosis in the levator ani.[34] Scarring of irradiated muscles could affect their capacity to fulfil their continence role. All these changes are in addition to the changes of ageing habits and lifestyle. While several of these changes are irreversible, some may be reversible changes.

Burden of male incontinence

It has been long understood that incontinence is a significant burden with a significant psychosocial impact affecting quality of life, work absenteeism and depression.[35,36] It has a significant emotional impact that also affects the spouse, partner or carer.[37] The burden increases in men who also have climacturia, the leaking of urine with orgasm.[38] These problems are compounded by men being more reluctant to seek help for their incontinence problem compared to women.[39] The perceptions of men on how much their UI is a problem is greatly influenced by the amount of urine they feel leaving the urethra and the size of the wet patch on their clothing. Men who have experienced incontinence develop coping strategies for minor leaks and have a better understanding of which leaks will show on outer clothing.[40]

Despite the improvements made in surgical technique and radiotherapy, there is a high level of incontinence after prostate cancer treatment, which places a significant burden on men; it is a devastating and under-reported problem.[41] At initial diagnosis, men and their doctors are focused on the best treatment options for cancer removal, management and survival rather than on potential long-term effects of treatment.[42] Continence changes suddenly after surgery and gradually after radiation therapies. Sequalae are often understated by specialists when discussing treatment options with their patients.[42] This gap in communication between doctors and their patients adds to the stress and anxiety men face when going through the recovery process.

Assessment of the severity of symptoms is defined in the oncology literature according to mild, moderate and severe radiation adverse events on a variety of scales. Two commonly used scales, the CTCAE and the Modified LENT-SOMA, both downplay the impact incontinence has. For example, intermittent FI is rated as lower on the scales and faecal urgency (almost not making it or not being able to get to the toilet on time) four times per day is considered a mild adverse event.[43,44] This assessment of severity is in stark contrast to the experiences of patients suffering with incontinence, with one study finding that most people (69%) considered bladder and bowel incontinence as health states the same or worse than death.[45] A man contemplating his options for treatment, hearing 'you may have mild bowel side effects' would usually not interpret this as 'you may not make it to the toilet to empty your bowels several times a week'.

Management of male incontinence

Assessment and general management of male incontinence

While the management of male incontinence has been less investigated than incontinence in women, there are some common principles, with the first being the need for a thorough history. An in-depth history with a physical assessment is vital to the classification of the type of incontinence and will guide the treatment and management. Taking a detailed history includes identifying the main problem, the type of incontinence and the impact on physical and psychological wellbeing.[46] Severity can be objectively measured using volume of leakage, voiding diaries or pad usage. The medical, pharmaceutical and surgical history paired with previous treatments and their outcomes complete a comprehensive history.

For physiotherapists, the subjective history will guide most of the intervention. It may be augmented by a physical assessment. It is helpful to observe PFM contractions by visual inspection of the movement of the penis and the perineum, as well as palpation of the bulbocavernosus via the perineum. Accessory contraction of the abdominals, the gluteals and hip adductors can be discouraged during the assessment. The use of transperineal real-time ultrasound will give the patient visualisation of what he is doing.[47] Most protocols teach, measure and assess the male pelvic floor via the anal sphincter, encouraging contraction of the posterior pelvic floor. Changing the understanding of the male continence mechanism, the way that post-prostatectomy incontinence is assessed and managed must now be challenged. If pelvic floor over-activity, FI or anal sphincter weakness is suspected, a digital rectal examination may be indicated.[47] It should be avoided when assessing UI as it will encourage activation of the posterior pelvic floor when performing PFMT. Unlike with women, urinary tract infections are much less common. If infection is suspected from the history, a dipstick screen can be performed and, if required, a full urine culture should be requested by a medical practitioner.

Assessment includes diaries to capture fluid intake and bladder and bowel habits. Men have often changed their fluid intake and bladder habits as a coping strategy, but some coping strategies will exacerbate incontinence. Reducing fluid intake in the hope of reducing leakage often results in a decrease in bladder capacity, which worsens urgency and UUI.[19] Although bladder retraining and lifestyle interventions are effective for UI, the evidence comes almost exclusively from trials involving women,[20,21] although clinical experience suggests that men also benefit. Where the symptoms are related to obstruction, surgical removal of the prostate often makes a big difference; however, for some men, unless they are instructed on how to make changes to their bladder behaviour, the symptoms persist despite surgery. Caffeine intake has been significantly associated with moderate to severe incontinence,[48] so advice on reducing intake may help. UUI can be reduced by teaching men to suppress the urgency using the PFM, delayed voiding techniques and fluid management.[21,49] Research in this area is hampered by these techniques being poorly defined and combined with PFMT under the heading ‘behavioural training’.

Management of post-prostatectomy incontinence

Assessment before or after prostatectomy is similar to a general continence assessment, with the addition of information about the type of prostatectomy, catheterisation and perioperative events. When comparing studies of physiotherapy for the management of post-prostatectomy incontinence, it becomes apparent that there is a heterogeneity among the outcome measures used. The definitions of continence used include one pad or fewer,[50] leaking < 1 g urine in 1 hour,[51] < 2 g in 24 hours,[52,53] or no leakage reported on a bladder diary.[54] This is despite a call, back in 2014, to define continence as ‘any leakage’ rather than pad use or other scales.[55] Where quality of life tools are used there is also significant heterogeneity; commonly used tools include: the ICIQ-Urinary Incontinence (ICIQ-UI),[19] the ICIQ-Overactive Bladder (ICIQ-OAB),[53] the ICIQ on Male Lower Urinary Tract Symptoms Long Form (ICIQ-MLUTS),[41] the UCLA-PCI,[53] the IPSS,[56–58] visual analogue scales[54] and the KHQ.[56,59]

Transperineal real-time ultrasound and electromyography have given physiotherapists insights into the function of the male pelvic floor in recent years.[9,60,61] The SUS plays a significant role during changes in intra-abdominal pressure as well as with postural challenges, suggesting that the SUS contributes to continence during activity.[12] When comparing continent and incontinent men after radical prostatectomy, Stafford et al found that the activity of SUS, bulbocavernosus and puborectalis were significantly different between the two groups.[62]

The lower part of Figure 2 shows that PFMT with a urethral ± anal focus reduces the risk of incontinence at 3 months (RR 0.85, 95% CI 0.75 to 0.95). That is: the training has a definite preventive effect against incontinence 3 months after prostatectomy, although the magnitude of the effect is probably modest (ie, between 5 and 25% reduction in risk of incontinence). The upper part of Figure 2 shows that the effect of PFMT with an exclusively anal focus is very uncertain, with a confidence interval that spans from very effective through to mildly harmful. It is not ideal to compare these subgroups; it would

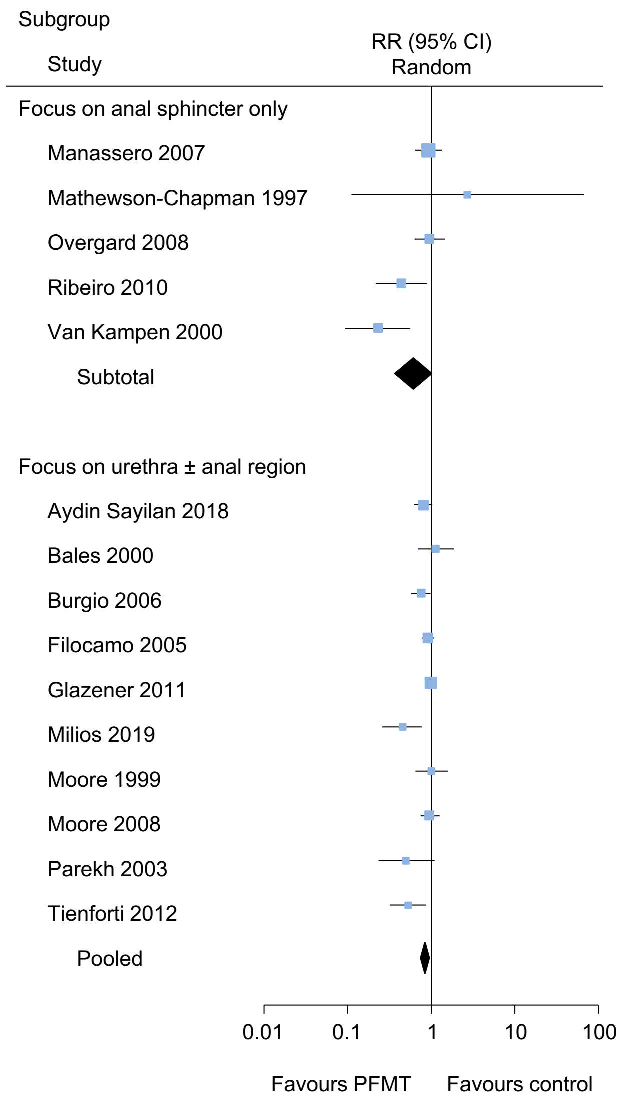

Figure 2. Forest plot of the effect of pelvic floor muscle training (PFMT) versus control on the risk of incontinence among men 3 months after radical prostatectomy. In the upper subgroup, PFMT was focused on the anal sphincter only. In the lower subgroup, PFMT included instructions on urethral sphincter activation.
Modified from Hall et al,[62] with the addition of data from a more recent trial by Milios et al.[88]

be more robust to have a head-to-head randomised comparison of PFMT with urethral ± anal focus versus PFMT with anal focus. Until such evidence is generated, PFMT with a urethral ± anal focus can be recommended.

The first goal of management of incontinence following prostatectomy is to change the pattern of recruitment of pelvic floor muscles (Table 1). It is clear from the literature that focus must be on the SUS when rehabilitating men after prostate surgery. With instructions focusing attention on the anterior pelvic floor, men should be taught to correctly activate the pelvic floor. Wording the instructions as ‘stop the urine flow’ or ‘shorten the penis’ will help men to focus on the area that includes SUS.[47,60] On the contrary, practices such as ‘stopping wind’ and assessing PFM strength via the external anal sphincter will focus the attention of the training on the posterior PF and the external anal sphincter, instead of on the SUS where it is needed.[47,60] Once they have the correct instructions, men who had a radical prostatectomy need to learn to tighten the SUS in anticipation of an increase in intra-abdominal pressure. As strength is usually not the main issue with post-prostatectomy incontinence, sets of maximum strength or quick contractions should not be the focus. Instead, men need to be encouraged to tighten the PFM in anticipation of a leak occurring. To help retrain when the contraction occurs, using the ‘if you leak – repeat the action’ method may help. The

Table 1
Goals of training for men scheduled to have prostatectomy, commencing preoperatively.

Optimise pattern of PFM contraction	Commence preoperatively, recommence after catheter removal Use transperineal ultrasound Target the pathophysiology of incontinence: SUS activation is central, with bulbocavernosus and gentle puborectalis as required Avoid excessive abdominal muscle use Avoid bias to posterior PFM (external anal sphincter)
Integrate PFM control into function	Train to pre-activate before changes in intra-abdominal pressure Increase length of hold with low intensity Encourage improved/enhanced coordination of the PFM in function rather than focus on muscle strengthening
Bladder training	Maintain bladder compliance/reduce detrusor overactivity
Low-intensity tonic hold training for sustained tasks	Once optimal muscle activation has been achieved, condition SUS to hold for longer durations Requires a monitored and progressed home exercise program Start low and progress to high-intensity activation Consider methods to achieve behaviour change to incorporate training into lifestyle
High-level strength and endurance training for high-intensity exercise	Commence once optimal muscle activation with holds of 30 seconds have been achieved Use transperineal ultrasound to assess Progress home exercise program
High-performance training for demand and unexpected challenges	Once strength and endurance has improved Aim to gain control with high intra-abdominal pressure Progress with weights, Pilates and core exercises

PFM = pelvic floor muscle.

repeated action should be practised a few times to help transfer the newly learnt skill into function. The aim here is to reach the automatic phase of motor learning.[14] More complex movements and activities can gradually be added to the program, integrating PFM control into function.

The second goal of management is to integrate PFM control into function. As these men return to normal function, their pelvic floor needs to cope with the loss of the smooth muscles of the urethral sphincter. Slow and tonic holds are required from the striated muscles. While this has not yet been studied, positive effects have been seen clinically when men are encouraged to engage their PFM at sub-maximal levels, slowly increasing holding time and progressing to practising this later in the day when muscles get tired. The last goal of PFMT is to ensure that the anterior PFM can cope with high-intensity and unexpected demand. Strength training may be required at this point, as well as the ability to quickly activate the muscles as part of a whole-body reaction. While no research has yet shown which protocols are optimum, the failure of many trials that focus on early strength training indicates that this stage should not start until patterns of activation are optimal and integrated into function.[63]

There is an increasing body of evidence to support prehabilitation of the PFM similarly to prehabilitation concepts applied in orthopaedic surgery. Conditioning the system to compensate for the loss of the prostatic urethra may be more effective while there is no swelling or pain. While a Cochrane review in 2015 did not find enough evidence to support conservative management of post-prostatectomy incontinence,[64] Chang et al did find that if the timing of training was taken into account, effectiveness of pelvic floor exercises increased.[65] At 3 months there was a 36% reduced odds of post-prostatectomy incontinence with prehabilitation.[65] Few of the studies measured outcomes at 6 months; although the 6-month effect may be similar, the estimate was very imprecise. One large trial, which has had a significant impact on subsequent meta-analyses, only looked at the outcomes of four sessions of postoperative treatment at 12 months, concluding that one-on-one physiotherapy was unlikely to be effective.[66] Considering the burden that incontinence places on men already struggling with a diagnosis of cancer, being dry at 3 to 6 months rather than at 9 to 12 months is worthwhile for quality of life and mental health.

If the conclusions of the Hall and the Chang meta-analyses are combined, it can be surmised that introducing PFMT preoperatively, focusing on the SUS and managing bladder dysfunction, should produce an improved continence outcome for these men. The new goals of training men with post-prostatectomy incontinence have been summarised in Table 1. A clinical trial testing this new protocol is currently underway in Australia.[67]

Electrical stimulation has been used to augment PFMT for post-prostatectomy incontinence management in many studies. Electrical stimulation is applied either via surface electrodes, activating the pudendal nerve and hence the PFM, or via an anal electrode. It is unclear if stimulation via anal electrode reaches the SUS. Recent reviews and meta-analyses have shown that the addition of electrical stimulation may have small benefits, especially in those who are unable to activate their PFM.[68–70] Care must be taken when adding electrical stimulation in this patient group, as its safety in the presence of cancer is still inconclusive. Disseminated tumour cells have been reported in the blood and bone marrow of men with prostate cancer.[71] As the evidence for the addition of electrical stimulation is not strong, and with the lack of any discussion on the risk of dissemination of cancerous cells by exogenous electrical currents, electrical stimulation can only be recommended for use in the terminally ill.[72]

There has been some interest in looking at the effect of deliberately training regional muscles that may co-activate with the pelvic floor, such as the transverse abdominis, rectus abdominis and the diaphragm; this has been called 'advanced PFMT'.[73] Various forms of exercise have been suggested as forms of augmenting PFMT, including Pilates, hypopressive exercises, trunk muscle training, whole body vibration and diaphragm training.[74–78] Unfortunately, a recent meta-analysis was unable to find any benefit for the use of these protocols over PFMT alone.[79] This could be explained physiologically if we consider that these muscles, when activated out of sequence, could cause pressure on the pelvic floor and increase the movement that occurs at the bladder neck. However, these exercises might be useful if they were introduced later in rehabilitation, once the activation of the pelvic floor has been optimised.

Management of post-radiation faecal incontinence

Very little evidence exists to support conservative management of radiation-induced FI. Researchers have advocated a systemic approach to the management of bowel symptoms, due to adverse events. There is also a call for medical practitioners to use incontinence services.[33] At present there is no 'best' treatment for this clinical scenario, and the outcomes of both medical and surgical management can be disappointing.

Treating men with radiation-induced FI requires an in-depth detailed assessment. A comprehensive assessment includes identifying the symptoms that bother the patient before differentiating between those caused by irreversible damage and those that can be mitigated. It has been suggested that biofeedback and PFMT, which carry no risk of harm, are useful in 60 to 90% of faecally incontinent patients in the general population. They are especially useful in people with impaired puborectalis and external anal sphincter. However, a Cochrane review on the management of FI in adults concluded that there was insufficient evidence to show whether biofeedback has any benefit.[80] No studies of biofeedback or PFM retraining in patients who have developed FI after radiotherapy have been published to date.

PFMT should be focused on exercises specific to the anal sphincter. Men can be taught to strengthen their external anal sphincter, as well as the levator ani, by focusing on the posterior portion of the muscle. If weakness of the muscle is the main issue, a strengthening protocol should be used with maximal holds. Urgency suppression is required for men with faecal urgency or urge-induced FI; this may include desensitising the rectum with balloon training. An anal plug may be used in some cases of FI; however, they are often poorly tolerated.[81]

One study has examined at sacral nerve stimulation for incontinence after multimodal oncological therapy for pelvic tumours.[82] Eleven patients who had incontinence refractory to medical treatment and PFMT were treated with sacral nerve stimulation. The authors reported good outcomes at 2 years, but no conclusions could be drawn on the efficacy of sacral nerve stimulation from such a small case series.

The literature recommends that bowel symptoms are treated symptomatically and by a multidisciplinary team.[8] Dietetic referral for advice may include dietary fibre manipulation, reduced fat diets and changes in carbohydrate intake, especially lactose and fructose.[83] It is also helpful to provide patients with coping strategies such as anal plugs, pads and skincare strategies such as using barrier creams and flushable wipes. FI incontinence management is usually suggested to be multimodal, with dieticians an integral part of the treating team. Vague advice was found around recommending a low residue diet, pain control and the use of anti-diarrhoeal medication when symptoms were bothersome. Due to the lack of any controlled trials, medical algorithms such as those published by Andreyev in 2012 are based on case series and reports.[8]

Future directions for research and practice

Research on managing male incontinence has come a long way over the last 20 years. Led by research on managing post-prostatectomy incontinence, physiotherapists are no longer adapting evidence based on female research and practice. Where physiology overlaps, such as with overactive bladder syndrome, research combining men and women is justified. Overactive bladder syndrome – a symptom group of urinary urgency accompanied by day time frequency and/or nocturia, with or without urgency incontinence – [84] is estimated to be present in up to 27% of men and may co-exist with prostate issues.[85]

Future research should look at overactive bladder syndrome and urgency incontinence using a central sensitisation lens, and randomised control trials are needed to determine which physiotherapy modalities and educational techniques best treat the symptoms of overactive bladder syndrome. The central nervous system, physiological and psychological effects of bladder outlet obstruction also require research. There is an emerging understanding of the psychological effect of incontinence on men but more work is needed to understand how the burden of incontinence affects the ability to work and socialise.

There are fundamental gaps in the protocol for PFMT that need testing and developing. Mirroring the call in female PFM research,[86] research is needed to define the protocol for PFMT, its long-term effectiveness, the exploration of different exercise therapy approaches and the use of appropriate behavioural change techniques in men with incontinence. Emerging interventions that have potential to be helpful, such as hypopressives and Pilates, should also be examined more closely, especially as a progression following attainment of coordinated PF contractions. Robust research is needed on the use of electrotherapy, magnetic stimulation and the use of biofeedback. All protocols should be carefully designed to focus on the urinary sphincter, avoiding the anal sphincter. Most importantly, considering the strain on healthcare systems, predictive models are needed to identify preoperatively or early postoperatively who will still be incontinent after 12 months of PFMT. This requires inception cohort studies with robust methods and appropriate statistical analysis.[87] Researchers should follow standard terminology and outcome measures so that such studies can be combined in a meta-analysis.

There are pressing research priorities in this field. Research in assessing, diagnosing and managing FI in men is a priority. The long-term effect of radiation therapy on urogenital function has been ignored for too long, resulting in a large gap in current knowledge. Lastly, a better understanding of the burden of FI will improve the outcome measures used to measure the long-term adverse effects of treatment. Cancer survivorship and indeed 'thrivership' following surgery drive these as priority issues.

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