

Benefits of pelvic floor rehabilitation for urinary incontinence after prostatectomy: a review of the literature

Abstract

Background: Most healthcare professionals involved in the care of men diagnosed with prostate cancer are aware of the importance of providing a comprehensive plan of care for post prostatectomy patients. There are studies that have found it beneficial to add pelvic floor muscle training to post-surgical protocols, along with adjunct treatments including biofeedback and electrotherapy. Other studies argue training should begin pre-operatively and continue after surgery with no use of adjunct therapeutic modalities. Currently, there is a limitation in consistent recommendations for pre or post screening, and the addition of treatment measures used by providers to ensure the healthy return of function to the pelvic floor in men who undergo prostatectomy.

Objective: To evaluate the effectiveness of conservative treatment in male patients with urinary incontinence post radical prostatectomy.

Design: A review of the literature of before-after studies, reviews, prospective and qualitative studies and randomized control trials on the effect of pelvic floor muscle re-education for urinary incontinence, both pre and post prostatectomy.

Results: Six randomized control trials, 3 reviews, 2 before and after studies, and 1 qualitative study were identified. A total of 652 patients were review in the randomized controlled trials. The validity of the trials was moderate to high for a reduction in incontinence from 6 months to 1 year from date of surgery in 5 of the trials. The other trial tested the level of incontinence on patients after only 3 preoperative physical therapy sessions and found no improvement in duration of time for incontinence postoperatively. There was a trend in the reviews towards preoperative and early postoperative management using pelvic floor muscle reeducation to improve incontinence. In one before and after study significant reduction in time towards continence was found. The other before and after study showed a 90% decrease in incontinence 1 year after prostatectomy. The qualitative study provided evidence of the use of behavioral therapy to overcome intrinsic and extrinsic barriers during pelvic floor muscle training for improving the outcomes of male incontinence after surgery.

Conclusion: There is evidence that both postoperative and early preoperative pelvic floor muscle training is beneficial to the outcomes of the level and duration of male incontinence after radical prostatectomy. More research is needed in this area to further show the significance of conservative treatments utilizing physical therapy interventions.

Limitations: A literature review on the efficacy of physical therapy on the treatment of post prostatectomy urinary incontinence reveals that physical therapists have a potential role as integral members of the healthcare team involved in the improvement of the quality of life of men after radical prostatectomy. Lacks of randomized controlled trials were found on the topic. Therefore, further studies are necessary to validate the success of physical therapy intervention.

Keywords: urinary incontinence, pelvic floor, prostate cancer, prostatectomy, pelvic floor muscle training, pelvic floor dysfunction, pelvic floor biofeedback, electrical stimulation

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Abbreviations: ICS, international continence society; UI, urinary incontinence; PFMT, pelvic floor muscle training

Introduction

Currently, the research is limited regarding specific time frames for when to begin pelvic floor muscle re-education after prostatectomy

to maximize the early return to urinary continence. The role of the pelvic floor is “to provide support of the pelvic organs and prevent incontinence by promoting voluntary closure of the urethral and anal sphincters.” thus controlling bowel and bladder function. Physical therapists have long used strategies such as biofeedback, electrical stimulation, behavioral therapy, and strengthening to treat pelvic floor dysfunction. The profession has recognized the need to incorporate

men in pelvic health screens. From this, physical therapists began to recognize the need to address the dysfunctional pelvic floor of males after surgeries to treat prostate cancer. Many male patients diagnosed with prostate cancer will undergo a prostatectomy. With the advent of technology, this surgery is now performed with robotics to minimize invasiveness to already compromised structures. Some problems experienced after surgery may be solved by technology; however, men continue to suffer from urinary incontinence (UI). The literature is not clear on the practice patterns of urologists when it comes to offering pelvic floor rehabilitation to patients before recommending surgical intervention.¹

Discussion

The International Continence Society (ICS) has defined urinary incontinence as leakage of any amount of urine.² There are about six types of urinary incontinence. Stress urinary incontinence is the type typically experienced after prostatectomy. Stress UI is the involuntary loss of urine associated with activities that increase intra-abdominal pressure.³ Examples are coughing, sneezing, laughing, bending, lifting, and changing positions.

The literature reports a large range in the prevalence of stress urinary incontinence in males after radical prostatectomy.⁴ This is mainly due to the vast number of studies that have attempted to define it.⁵ Rudy, Woodside, and Crawford⁶ reported the incidence of urinary incontinence after radical prostatectomy as 0.5% to 87%, and this range remained consistent in recent literature. Many patients seem to show some recovery 1 year after prostatectomy; however, more superior outcomes could be experienced earlier with the addition of pelvic floor therapy.⁵ This study found evidence that, unlike some mixed reviews in the literature, there is a great deal of benefit when pelvic floor muscle training (PFMT) is instituted before and after prostatectomy.⁵ The purpose of instituting PFMT into the treatment protocol of patients undergoing prostatectomy is to re-educate the pelvic floor muscle strength to a degree that will allow the floor to retain the strength needed to substitute for weak urethral and anal sphincters.⁷

Bauer et al.⁸ found that even with the improved surgical technologies over the years, urinary incontinence remains one of the largest concerns of men following a prostatectomy. Bauer et al.⁸ study focused attention on the pathogenesis, diagnosis and treatment options for post prostatectomy incontinence. Treatment options included pharmacologic intervention, surgery and non-invasive therapies.⁸ These authors recommend patients receive PFMT, including biofeedback and electrical stimulation, immediately following removal of a catheter to decrease the rate of post prostatectomy incontinence.⁸

A recent study² compared the use of biofeedback to no biofeedback for PFMT intervention in two groups (treatment and control) of men who had recently undergone prostatectomy and experience urinary incontinence. The treatment group was further sub-divided. One sub group received biofeedback, along with an exercise protocol. The other sub group participated in regular physical therapy sessions with standardized exercise protocols and no biofeedback.² The 1 hour pad test was used to gather objective data before and after each rehabilitation session.² The 1 hour pad test did not reveal any significant difference between the treatment group and the control group before the program. The group receiving the exercise protocol along with biofeedback revealed a significant increase in the level of

continence experienced.² It is important to note that this study also supports the early initiation of PFMT after prostatectomy. Greater outcomes in the recovery of continence were found in men who began a rehabilitation program within 3 months of surgery as opposed to patients who waited longer.²

Evidence has also shown that PFMT, without the addition of biofeedback, after removal of a pre-surgical catheter is an effective treatment, providing early success with urinary continence.⁹ The goal of this study was to determine effectiveness of early PFMT on the length of time experienced and extensiveness of incontinence.⁹ Patients were provided with a pelvic floor exercise plan and detailed instruction, in advance of surgery, to perform as soon as the catheter was removed.⁹ The study defined continence as a loss of no more than 2 grams of urine on a 24 hour pad test and zero pad use.⁹ Continence levels were evaluated at 1, 2, 3, 6 and 12 months after surgery.⁹ Daytime and nighttime continence improved in 40, 49, 70, 86 and 88% of all participants, respectively.⁹ The results were compared to similar studies that did not use biofeedback, and found patients experience a shorter period of urinary incontinence when pelvic floor re-training is initiated immediately after removal of a catheter.⁹

Centemero et al.¹⁰ performed a randomized control trial to investigate the benefits of preoperative PFMT on early continence after a prostatectomy. The investigators hypothesized that because patients will need to have muscle re-educated after surgery, it would be feasible to initiate the training before surgery to gain the motor skills and necessary preparation for success.¹⁰ One group of patients was given a 30 day preoperative PFMT exercise regimen. Another group was given no instructions for preoperative pelvic floor exercises. Continence was defined as no leakage of urine on the 24 hour pad test.¹⁰ A negative stress test was used to indicate the participants increase in quality of life. After 1 month, 44.1% of patients in the exercise group were continent as opposed to 20.3% in the no exercise group. Similarly, after a 3 month follow up, 59.3% in the exercise group were continent versus 37.3% in the no exercise group.¹⁰ The hypothesis was supported by results that showed preoperative intervention may improve the rate of early incontinence, as well as patient reported increases in the quality of life related to incontinence.¹⁰ A more recent randomized control trial¹¹ compared the results of preoperative and postoperative PFMT together to only postoperative PFMT, and found no significant differences in time to regain control of continence. More research in comparing pre versus post prostatectomy is warranted, as the number of postoperative rehabilitation sessions in this particular study was only three.

There have been similar findings¹² suggesting that other preoperative strategies be considered as well. The use of behavioral therapy has demonstrated to be an effective addition to general pelvic floor strengthening and biofeedback. Burgio et al.¹² reported use of preoperative behavioral training as an adjunct to biofeedback decreased time to regain continence after radical prostatectomy. This group of researchers tested the theory that using behavioral training with biofeedback would hasten the return to continence in the 6 months following surgery.¹² Behavioral therapies generally involve educating the patient while providing positive reinforcement. Behavioral techniques commonly used in PFMT include prompted, interrupted, and timed voiding. A bladder diary may be incorporated to monitor patient compliance. The patients in this study were taught pelvic floor exercises, and received visual feedback of intra-abdominal pressures and external anal sphincter contraction.¹² These patients were also

instructed to slow or stop the stream of urine during voiding at least once a day.¹² The results of the study showed significant decreases in urine loss when coughing, sneezing and getting up from lying down.

A group of researchers performed a randomized control trial¹³ to study the effects of a long term guided PFMT program on continence and perceived quality of life following radical prostatectomy. The outcome measures were number of pads used and perceived problems with level of incontinence measured 6 weeks, 3, 6, and 12 months after surgery.¹³ Complete continence was defined as zero pad status. Participants who performed PFMT with and without guided training showed the same level of continence after 6 weeks and 3 months.¹³ However, patients who received intensive, guided PFMT by a physical therapist from 6 months to 1 year experienced a significant decrease in UI. One year after surgery, 92% of patients in the guided therapy program had outcome measures of zero pad status.¹³ Continence rates steadily improved over the 1 year treatment period. This suggests that, with long term patient compliance of a guided PFMT program, a complete continence status is achievable.¹³

Hirschhorn et al.¹⁴ noticed a substandard level of support for preoperative PFMT for men scheduled to have prostatectomies in Sydney, Australia. This posed a problem, because prostate cancer is the most common type of cancer in Australian men.¹⁵ The result was a qualitative study investigating provider and patient perceived barriers and enablers to preoperative PFMT.¹⁴ Interviews were coordinated with providers who would typically refer patients for pelvic floor rehabilitation after prostatectomy. Primary medical providers interviewed included urology cancer surgeons, nurses, and general practitioners. Also interviewed were typical providers of PFMT, including continence nurses and physical therapists.¹⁴ Patients in the study all underwent radical prostatectomies in the Sydney area.¹⁴ Patients expressed the best opportunity to receive a referral for preoperative PFMT is with the urological cancer surgeon during consultation and scheduling for surgery. Patients denied receiving this information during the initial meetings. Other visits would be for post-operative follow up and subsequent problems.¹⁴ There was also the idea of a communication breakdown from initial surgeon referral to a nurse, and then on to the office administration for proper handling of the referral. These results are likely representative of many areas in which men who undergo prostatectomy do not receive referral for rehabilitation either preoperatively or immediately postoperatively to decrease the risk of developing incontinence.¹⁴ One proposed method of improving the process is to establish a clinical relationship between surgeons and providers of PFMT with a directory of each provider, ultimately streamlining referrals.¹⁴

Conclusion

Post prostatectomy urinary incontinence treatments have improved over the years, despite the limited research promoting the addition of pelvic floor rehabilitation. The evidence that is available, though not vast, is strong. Studies reviewed showed a decrease in the severity of UI, duration of UI, or both. There is also the importance of quality of life after establishing some level of continence. Quality of life could be defined differently from person to person, and improving one's level of continence is a relevant measure. Given the success possible using conservative measures of managing UI, surgeons and nurses

involved in prostate cancer treatment should routinely refer patients for pelvic floor rehabilitation before and after prostatectomy.

There are implications for future research. This research of the literature found a limited number of studies in favor of using PFMT to treat urinary incontinence after prostatectomy. Therefore more randomized control trials on conservative treatment methods for men having prostatectomy are warranted to validate the success of physical therapy intervention. Evidence based research is required to strengthen the recommendations for the treatment of male urinary incontinence associated with prostatectomy. Further research should be done to evaluate the effectiveness of pre and postoperative PFMT, including muscle strengthening, biofeedback, electrical stimulation and behavioral modification for patients undergoing prostatectomy.

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Conflict of interest

The author declares no conflict of interest.

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