Pelvic Floor Muscle Training in Males: Practical Applications

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The pelvic floor muscles are vital to male genitourinary health. Pelvic floor muscle training may prove helpful in a variety of clinical circumstances: stress urinary incontinence that follows prostate surgery, overactive bladder, postvoid dribbling, erectile dysfunction, ejaculation issues including premature ejaculation, and pelvic pain due to levator muscle spasm. UROLOGY 84: 1–7, 2014. © 2014 Elsevier Inc.

The pelvic floor muscles (PFMs) have long been recognized as important structural and functional components of the pelvis. Pelvic floor muscle training (PFMT) is defined as "any program of repeated voluntary PFM contractions taught by a health-care professional."[1] PFMT in males is not a new concept, Hippocrates and Galen having described it in ancient Greece and Rome, where it was performed in the baths and gymnasiums; strengthening the PFMs was thought to promote general and sexual health, spirituality, and longevity.[2]

Arnold Kegel[3] popularized exercises of the PFM to improve sexual and urinary health after childbirth.[4,5] Kegel[6] employed the principle of functional restoration of a segregated group of muscles—well established in orthopedics, neuromuscular, and plastic surgery and physical medicine and rehabilitation—applying it to the PFM. Additionally, Kegel[6] recognized that surgery to correct vaginal, urethral, and rectal incompetence could be facilitated by preoperative and postoperative PFMT to improve the texture, tone, and function of the perineal muscles.

Men have similar PFMs as do women and an equivalent capacity for exercising them, with the potential for parallel benefits to urinary and sexual health. However, most men are unfamiliar with PFM exercises, and urologists do not envision their role as instructors of PFMT. The task of teaching PFMT is labor-intensive, and office visits do not allow sufficient time to adequately instruct patients with respect to PFM anatomy and function, the proper technique of PFMT, and the application of the exercises to the specific problem. Additionally, PFMT without biofeedback is not remunerative as only an office visit can be billed. Table 1 reviews PFMT coding.

Why has male PFMT been given short shrift and not achieved the status of first-line treatment, despite being a safe and simple approach? Experts in female pelvic health have widely adopted PFMT. Females are often introduced to Kegel exercises at their first gynecology visit and thereafter the exercises are reinforced at well visits, particularly during pregnancy and postpartum, whereas men do not see urologists for routine well care and seek consultation only after a problem arises, usually later in life.

Our medical culture does not commonly promote lifestyle improvement measures and exercise programs such as PFMT. Our medical ethos is pharmacology and surgery-centric, with aggressive prescription writing by physicians and a patient population that often expects a quick fix to their problems.

One of the greatest challenges limiting adoption is that there are no well-designed, comprehensive, easy-to-follow PFMT programs. Consequently, either PFMT does not get utilized or patients receive cursory verbal instructions and perhaps a pamphlet, usually ineffective means of teaching. Alternatively, patients may undergo office biofeedback or be referred to a physiotherapist; however, of those physiotherapists who specialize in the pelvic floor, the vast majority of patients treated are females.

The PFMs, as with all skeletal muscles, are subject to the force of adaptation.[5] The PFMs consist of muscle fibers, of which 70% are slow-twitch type 1 (fatigue-resistant fibers that maintain static tone) and 30% are fast-twitch type 2 (fatigue-prone fibers that are capable of active contraction); a decrease in the proportion of the fast-twitch fibers can occur with aging, inactivity, and nerve innervation damage.[7] Applied exercise can enhance PFM strength, tone, durability, and responsiveness,[6] since muscles increase in strength in direct proportion to the demands placed upon them.[6]

The deep PFM—the levator ani muscle—is comprised of the pubococcygeus, iliococcygeus, and puborectalis muscles. These muscles, in conjunction with the urethral and anal sphincters, play an important role in urinary and bowel continence. The superficial PFM—the bulbocavernosus

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Table 1. PFMT coding

Urologist Codes*		
CPT Code	Procedure	Note
51784	PFMT/biofeedback	Use first/last visit to gauge improvement
90901	Biofeedback any modality	6 sessions maximum (90901 or 90911)
90911	Biofeedback (EMG and/or manometry)	6 sessions maximum (90911 or 90901)
Physiotherapist Codes†		
CPT Code	Procedure	
97140	Manual therapy techniques	
97110	Therapeutic exercises	
97112	Neuromuscular reeducation	
97535	Self-care/home management training	
97530	Therapeutic activities	

CPT, Current Procedural Terminology; EMG, electromyography; PFMT, pelvic floor muscle training.

Pelvic physiotherapy reimbursement is highly variable, depending upon the insurance carrier; the biofeedback codes listed under urologist codes are physical therapy codes as well but are generally not used by physical therapists because payment is often denied.†

* Health Policy Brief, American Urological Association, Volume XXI, Number 3, Pages 1-2, March 5, 2013.

† Niva Herzig, Core Dynamics Physical Therapy, Englewood, NJ (oral communication, February 2014).

(BC), ischiocavernosus (IC), and transverse perineal muscles—function in maintaining erectile rigidity and the expulsion of the contents of the urethra.[8] When contracted, the BC engorges the glans and corpus spongiosum, expels residual urine from the bulbar urethra, and ejaculates semen from the urethra at the time of climax.[8] The IC stabilizes the erect penis and inhibits venous return to help maintain penile rigidity and intracavernosal blood pressures that far exceed systemic systolic blood pressures.[9]

It is well understood by urologists that PFMT increases urethral closure pressure and can help stress urinary incontinence (SUI) as well as inhibit involuntary bladder contractions (IBC) and help overactive bladder (OAB); however, many are not well acquainted with other utilities of PFMT. PFMT can potentially benefit continence, erectile and ejaculation problems, and may be useful in the male urology patient with the following: SUI, OAB, postvoid dribbling (PVD), erectile dysfunction (ED), ejaculatory dysfunction including premature ejaculation (PE), and pelvic floor tension myalgia.

PFMT may be advantageous not only for those who have any of the aforementioned issues, but also as a means of helping to prevent these problems. For example, PFMT before undergoing prostatectomy may help avert the occurrence of SUI.[10-12] This holds true for every domain in which PFMT has utility.

In the pediatric population, PFMT is a beneficial adjunct to other treatments, paralleling its advantages in adults. It has efficacy when used in children with dysfunctional voiding[13] and lower urinary tract dysfunction[14] including urinary incontinence[14,15] and urinary tract infections. There has been a paradigm shift in the management of pediatric lower urinary tract dysfunction away from medications and surgery and toward biofeedback-based PFMT. Originally expensive and labor intensive, use of animated computer games has permitted resolution of dysfunctional voiding and coexisting conditions including reflux and constipation.[13]

MATERIALS AND METHODS

A MEDLINE (via PubMed) search for "male pelvic-floor exercises" garnered 218 articles, and nonrelevant articles were excluded. Additional searches were made for the specific clinical situations potentially benefited by PFMT. Manual searches of reference lists were undertaken. The intent was to focus on the indications and efficacy of PFMT in males and not on PFMT regimens. Table 2 details key messages and levels of evidence.

PFMT for SUI

SUI is provoked by activities including sneezing, coughing, bending, lifting, exercising, and positional change. It most commonly occurs following radical prostatectomy, although it can also occur after surgery done for benign prostate conditions.

The levator ani muscle helps support and reinforce the external sphincter mechanism. The internal sphincter mechanism, from a continence leverage standpoint, is ideally situated at the vesical neck, whereas the external sphincter mechanism is downstream from the internal sphincter and does not have the mechanical advantage of the internal mechanism.

When the internal sphincter mechanism is damaged, the vesical neck is often rendered in a partially scarred fixed-open position that no longer has the elasticity and suppleness to provide closure. Continence then becomes dependent upon the auxiliary external sphincter mechanism. However, the external mechanism is not designed for sustained contraction as is the internal mechanism, and although there is a baseline tonicity to this muscle, only a relatively brief intense contraction can be elicited upon demand.

The "guarding" reflex[16] is an increase in the magnitude of contraction of the external sphincter mechanism during urine storage, a means of maintaining continence as urine volume increases. The "cough" reflex[17] is a contraction of the external sphincter mechanism that occurs with coughing, a means of maintaining continence during a sudden increase in intra-abdominal pressure.

Since the external sphincter mechanism is a voluntary skeletal muscle that is contributed to by the levator ani, PFMT can increase its tone, strength, power, and endurance, resulting in