Pelvic floor muscle exercises for men

There are four functions of the male pelvic floor muscles. They support the abdominal contents, maintain urinary and faecal continence, allow the elimination of urine and faeces, and have an important role in sexual activity (Box 1).

**Assessment of men with continence problems**
Both objective and subjective assessment of the pelvic floor muscles are required to diagnose and treat continence problems in men (Dorey, 2001).

**Subjective assessment**
This is based on the patient’s account of his symptoms and should include:
- Age, occupation, hobbies and activities;
- Main symptoms and associated symptoms;
- Duration and severity of symptoms;
- Amount and frequency of leakage;
- Whether the patient can stop urinating voluntarily (the urine stop test);
- Bowel activity, diet and body mass index;
- Surgical history (dates of prostatic or abdominal surgery);
- Medical history, including history of prostatitis, latex allergy, metal implants, medications, radiotherapy, neurological problems;
- Previous treatment for continence problems;
- Sexual problems including difficulty achieving or maintaining penile erection or premature ejaculation;
- Functional factors such as mobility and dexterity;
- Motivation;
- Medical investigations such as urinalysis, urine sample for microbiological investigation, ultrasound to detect post-void residual urine volume, blood test for prostate specific antigen, urodynamics, cystoscopy, 24-hour pad test, frequency/volume chart.

**Objective assessment**
Objective assessment of the pelvic floor muscles includes an abdominal, perineal, neurological and digital rectal examination. This assessment can be undertaken by a nurse or physiotherapist with specialist supervised training.

The patient should be allowed to be chaperoned by a partner, friend or a member of staff. The objective assessment should always begin with an explanation of the reasons for the digital rectal examination. The best way of assessing the strength and endurance of the pelvic floor muscles is by feeling them. It is also possible to assess whether the correct amount of exercise has been given and to check the method used to exercise muscles. If the patient is unhappy about a previous treatment for continence problems; he may prefer a perineal examination. He should not be coerced against his wishes. The patient must give informed consent to the

**Support of the abdominal contents**
The levator ani consists of the pubococcygeus muscle and the iliococcygeus muscle, that together with the ischiococcygeus muscle form a muscular diaphragm that supports the pelvic viscera and opposes the downward thrust caused by an increase in intra-abdominal pressure. The pelvic floor muscles are supplied by sacral nerve roots, 2, 3 and 4.

**Maintenance of urinary and faecal continence**
Urinary continence is maintained in men by a mechanism that consists of the involuntary smooth muscle fibres of the internal urinary sphincter at the bladder neck and the voluntary striated muscle fibres of the horseshoe-shaped external urinary sphincter, surrounded by the pelvic floor muscles. The pelvic floor muscles and the external urinary sphincter are composed of about two-thirds type 1, slow-twitch, aerobic oxidative fibres and one-third type II, fast-twitch fibres (Gosling et al, 1981; Light et al, 1997). The slow-twitch fibres have a supportive role whereas the fast-twitch fibres help to raise urethral closure pressure during periods of increased intra-abdominal pressure (Fig 1).

The puborectalis muscle, which can be considered part of the pubococcygeus muscle, helps to maintain faecal continence by maintaining the anorectal angle. The external anal sphincter is in a normal state of tonic contraction but can provide greater occlusion of the anus when it is necessary to contain faeces and flatus.

**Elimination of urine and faeces**
Urination is initiated by voluntary relaxation of the striated pelvic floor musculature and external urethral sphincter and voiding is completed by a reflex action. The external urethral sphincter contracts after urination and together with the bulbocavernous muscle ejects the last few drops of urine. Faeces is eliminated by voluntary relaxation of the external anal sphincter and the pelvic floor muscles while the abdominal muscles contract.

**Sexual function**
Contractions of the ischiocavernosus muscles produce an increase in the intracavernous pressure and influence penile rigidity. Rhythmic contractions of the bulbocavernosus muscle propel the semen down the urethra resulting in ejaculation.
objective examination and the consent must be entered in the patient’s notes.

The patient should go to the toilet, if needed, before the examination. Then he should lie on his back with two pillows under his head with his knees bent and his feet on the plinth (the crook lying position) without underwear but with a sheet over his pelvis. He may retain his urinary sheath and drainage system if he has one.

Abdominal examination
The abdomen is palpated for pain and evidence of abnormal masses which will need further investigation. Bladder distension may indicate urinary retention, a hypotonic, or atonic bladder. It may be possible to palpate a ridge marking the extent of a full hard bladder indicating urinary retention, which will require an immediate referral to a urologist.

Perineal examination
While the patient is in the crook lying position, the pelvic area is observed for congenital abnormalities such as hypospadias (where the urethral meatus opens on the underside of the penis), enlarged testis, warts, haemorrhoids and tumours. The skin condition should be examined for evidence of redness, infection and excretion in the penile, perineal, scrotal and anal areas.

The patient should then be asked to:
- Tighten the anus as if to prevent wind escaping so the anal wink can be observed. Contraction of the anal sphincter causes the anus to pucker;
- Tighten at the front as if to prevent the flow of urine which should result in a scrotal lift and the base of the penis withdrawing towards the abdomen;
- Give an unguarded cough which may provide evidence of urine leakage;
- Cough while tightening the pelvic floor muscles to prevent urine leakage which may provide evidence of urinary control.

Neurological examination
A dermatome is an area on the surface of the body innervated by afferent fibres from a spinal root. The Sacral 4 (S4) dermatome can be tested using a cotton wool bud or a gloved finger, by stroking either side of the anus and perineum while asking the patient if it feels the same on both sides. The S2 dermatome may be checked by stroking the lateral surface of the buttock, lateral thigh, posterior calf and plantar heel and the S3 dermatome may be checked on the upper two-thirds of the inner surface of the thigh (Fig 2). If neurological impairment is suspected, the bulbocavernosus reflex may be tested during the digital rectal examination. This involves the application of gentle pressure on the glans penis during a digital rectal examination which should elicit an anal sphincter contraction unless there is neurological impairment. The patient should be told if this examination is necessary.

Digital rectal examination
The patient should remain in a supine position with hips and knees flexed. The therapist approximates a gloved index finger covered with lubricating gel to the anal meatus and asks the patient to bear down on to the finger as if he is passing wind. While the patient is bearing down, the finger is inserted with the finger pad towards the coccyx. The finger can then be inserted to 1–2cm in the anus where the integrity and tone of the external anal sphincter can be felt. Any areas of pain should be noted. With a lax sphincter, it may be possible to feel areas of scar tissue in the external anal sphincter where there is no muscle contraction.

REFERENCES

FIG 1. MALE PELVIC FLOOR

FIG 2. SACRAL DERMATOMES
The patient should be asked to contract the anus and hold for five seconds while the therapist grades the strength of the contraction and notes the duration of the hold. This can be repeated three times and the ability to perform fast contractions should be noted. The examining finger can then be inserted 3–4cm from the meatus to feel the anterior pull of the puborectalis. The anal sphincter and the puborectalis can be assessed using the modified Oxford scale: 0=nil, 1=flicker, 2=weak, 3=moderate, 4=good, 5=strong (Laycock, 1994). The patient should be informed of the findings.

**Diagnoses** After the subjective and objective assessment it is possible to make a list of problems, detail the aims of treatment, make a note of any advice to be given, and develop a treatment plan.

**Pelvic floor muscle exercises for stress incontinence** Stress incontinence in men may be caused by damage to the sphincter after a prostatectomy (Donnellan et al, 1997). The internal urethral sphincter at the bladder neck will be damaged by all forms of prostatectomy and continence will be dependent on a competent external urethral sphincter, reinforced by the pelvic floor musculature.

Exercises for the pelvic floor muscles should be taught individually to make sure the patient is lifting up muscle exercises are a realistic first-line conservative approach for the treatment of male urinary incontinence. Evidence suggests that pelvic floor muscle exercises are in the crook lying position with knees bent and apart, standing with feet apart, and sitting with knees apart. It is the intensity rather than frequency that is important as maximal voluntary effort causes muscle hypertrophy and increased muscle strength. Pelvic floor muscle exercises should be taught for endurance as well as for muscle strength by using submaximal contractions (Guyton, 1986). Muscle training, therefore, depends on the motivation of the patient and the adherence to the pelvic floor exercise regimen. It may help patients to keep an exercise diary.

The hold time for contractions in seconds can be ascertained from the digital rectal assessment. The rest time should exceed the hold time to allow muscle fibres to recover. There is no evidence to support a universal optimum number of repeat contractions, but ongoing objective assessment will help determine what is appropriate for each patient.

Exercises should be practised every day and should include some fast and some slow contractions. A typical programme practised twice a day could be: three maximal contractions in crook lying, three maximal contractions while sitting and three maximal contractions while standing, held for a specific length of time (up to 10 seconds). However, this is only a guide as some contractions may be activated quickly and some slowly.

The patient can be encouraged to lift the pelvic floor when walking to encourage the supportive role of the pelvic floor muscles. Men can be taught to tighten the muscles before activities which increase intra-abdominal pressure such as coughing, sneezing, standing or lifting.

**Pelvic floor muscle exercises for urge incontinence** Pelvic floor muscle exercises can be used to treat urge incontinence by strengthening pelvic floor muscles and regaining the ability to control the urge to void urine. It is suggested that when the pelvic floor contracts, the detrusor muscle will relax due to the activity of the perineopudendal facilitative reflex (Mahony et al, 1977).

**Postprostatectomy pelvic floor muscle exercises** Continence problems after a prostatectomy should be treated according to symptoms. Following transurethral resection of the prostate and radical prostatectomy, patients may have stress incontinence due to sphincter damage, or urge incontinence, or a combination of both. Preprostatectomy pelvic floor muscle exercises may prevent or reduce the risk of incontinence (Porru et al, 2001; Sueppel et al, 2001).

**Pelvic floor muscle exercises for postmicturition dribble** Contracting the pelvic floor muscles strongly after voiding may facilitate a contraction of the bulbocavernous muscle, thus eliminating urine from the bulbular portion of the urethra. This is called a ‘squeeze out’ contraction (Dorey, 2001).

**Pelvic floor muscle exercises for erectile dysfunction** Patients with erectile dysfunction may benefit from pelvic floor exercises (Dorey, 2000a; 2000b; 2000c).

**Conclusion** Evidence suggests that pelvic floor muscle exercises are a realistic first-line conservative approach for the treatment of male urinary incontinence. The same exercises can also be used as a first-line approach for men with erectile dysfunction. There is also a role for preventive pelvic floor muscle exercises.