

INCONTINENCE

An aggressive approach to treatment

by Peter Dornan

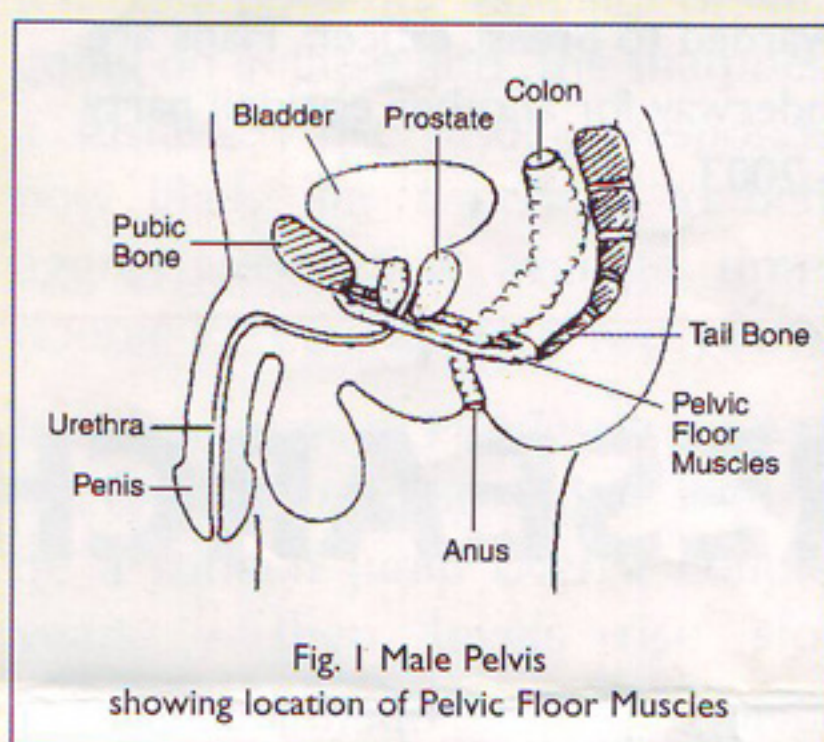
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STANDARD TREATMENT OPTIONS

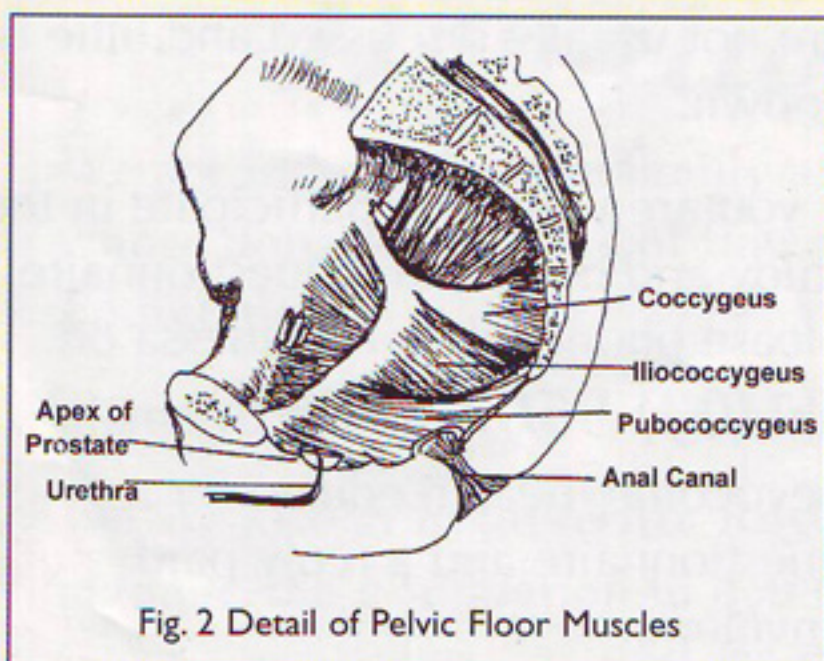
1. Behavioural Intervention
 - Pelvic floor exercises
 - Biofeedback/electrical stimulation
 - Modifications in diet and fluid intake
 - Bladder training
2. Pharmacological intervention
3. Surgical

NEW APPROACH

The working hypothesis of this program centers on expanding the philosophy involved with Behavioural Intervention particularly in relation to pelvic floor activity, based on the role of the pelvic floor in providing bladder neck support and supplementary urethral closure pressure. (DeLancey 1990, Gosling et al 1981).



The prime focus is to develop a highly efficient (super fit) neuromuscular and vascular system which controls all of the structures which form the pelvic and abdominal cavities, including pelvic floor muscles.

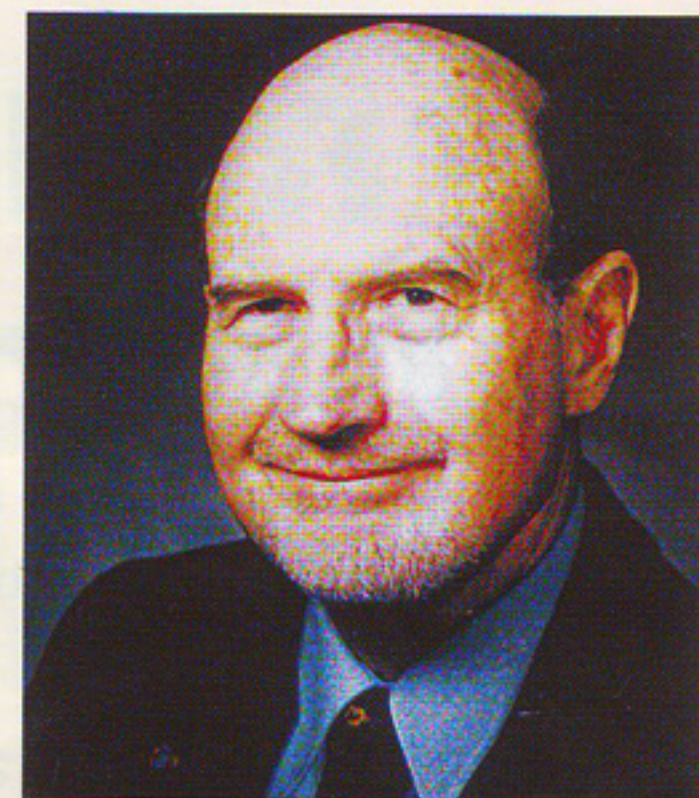


Further, as there are seven command centers which control bladder voidance and continence, it is essential that a specific intense system of exercises be undertaken to improve all reflex circuitry relating to this control.

For incontinence involving nerve damage, and I refer particularly here to the "nerve-sparing" operation for men who have undergone a radical prostatectomy, any nerve damage in this instance should be a neuropraxia (compression or stretching of the nerve), and the pathway should reactivate by nine months to two years. However, recent evidence suggests that the main damage during surgery is probably to the blood vessels supplying the nerves, and this may be one reason for long-term neural deficiency (R.Appell.1999). In view of this speculation, the extended hypothesis of this program is to dynamically and functionally retrain elements of the local vascular, muscular and neural system to the extent that a collateral circulation may be introduced, therefore leading to a more normal bladder control situation. **(This is not unreasonable. An average man can increase the width of his iliac artery from 6mm to 12mm by dedicated aerobic training).**

The program aims to achieve these goals at four levels.

1. To gain control, strength, power, endurance and speed of muscle contraction of the pelvic floor muscles.
2. To dynamically and functionally retrain and integrate the pelvic floor muscles with the abdominal muscles.
3. To dynamically and functionally retrain components of the reflex circuitry mechanism involved with continence.
4. To aerobically condition elements of the local vascular system supplying neural and other structures in the pelvic region.



PROGRAM

FIRST LEVEL:

Pelvic Floor Exercises:

These are standard but specific exercises regularly prescribed for incontinence management. Initially the patient is directed to learn to correctly identify the muscles that need to be exercised.

Exercise 1:

Imagine you are at a party and you are trying desperately to prevent passing wind from the bowel. Contract the muscles around the anal sphincter which surrounds the back passage. Learn to tighten them and relax them.

Exercise 2:

Imagine you are passing urine. Now envisage trying to stop the flow of urine. Image you are releasing and then preventing the flow. Do not do this exercise while you are actually passing urine, except for a test.

Exercise 3:

Locate the perineal area (perineum) between your anus and vagina (or testicles). Imagine you are holding a red-hot needle which you aim at this region. Try to pull your perineum back inside your body and away from the needle.

Exercise 4:

When you have mastered the above exercises, try and contract the muscles involved in the above three exercises together, as if you are trying desperately not to lose any urinary or faecal matter.

The Exercise Routine

Before actually starting the exercises, it is important to understand we are trying to train the muscles for both speed of contraction and endurance. Therefore, these pelvic floor contractions need to be practiced at a fast rate and then a slow rate. (Keep in mind the pelvic floor muscles are composed predominately of slow twitch or endurance fibres).

Fast: contractions should be performed as quickly as possible, ensuring each one is a full strong contraction.

Contract - Relax, Contract- Relax
(5 repetitions)

Slow: contractions are sustained for as long as five seconds.

Contract -two-three-four-five, relax
(5 repetitions)

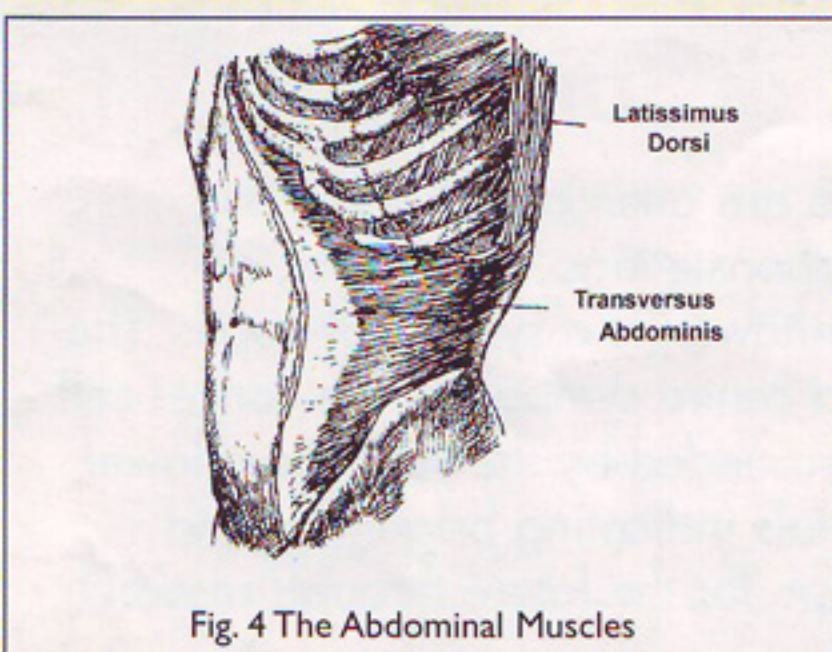
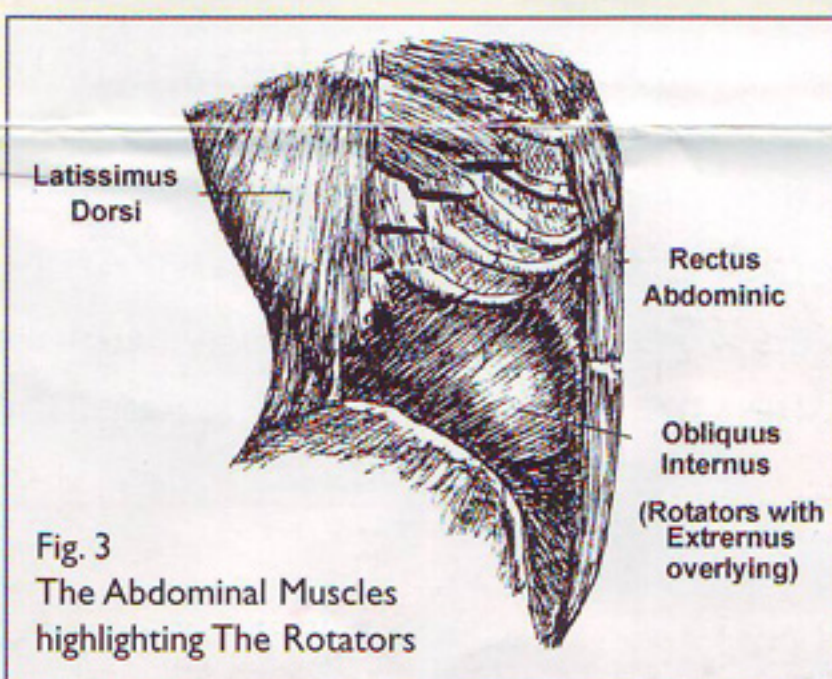
Be aware that the muscles may tire quickly. As soon as you can achieve an efficient contraction of the first three exercises working together (i.e. Exercise No, 4) it is not necessary to do them individually again -simply do exercise No.4 only.

Regularity: A reasonable goal in the early stages is to try and complete the full program twice a day. As you achieve fitness, add one or two more sessions. Do not have unrealistic goals; for instance, attempting ten sessions a day may lead to boredom and probably non-compliance. The bottom line, however, is you must never give up; **YOU MUST PERSIST.**

"Never confuse motion with action"
Benjamin Franklin

SECOND LEVEL : **Integration of pelvic floor muscle activity with abdominal muscle activity**

Once the patient has gained control of the pelvic floor muscles, then all muscles involved with pelvic and trunk stability should be dynamically and functionally retrained. At this stage it is important to gain strength, speed and endurance of the abdominal muscles, particularly the rotators (Fig 3), the transversus (Fig 4)



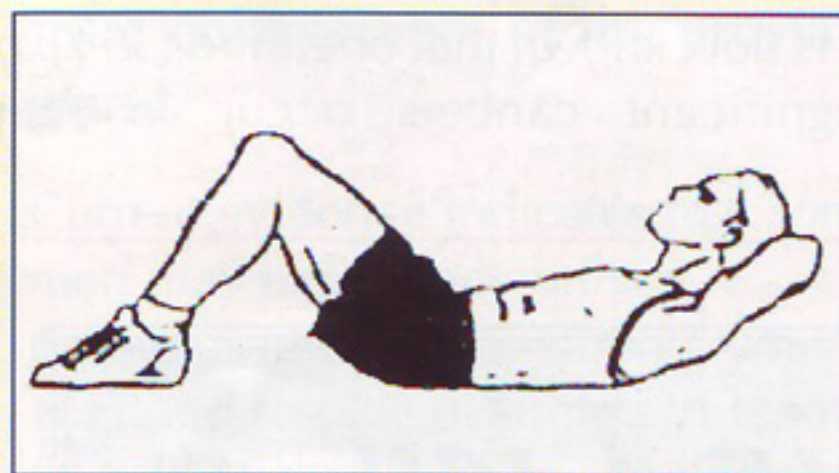
and multifidus muscles. Recent research has shown a strong link between abdominal muscle activity and pelvic floor activity.

Obliquus Externus, Obliquus Internus and Transversus Abdominis contraction has been shown to occur automatically during a maximal pelvic floor contraction. (Sapsford, Hodges, Richardson et al, 2001). In another study (Sapsford and Hodges 2001), it was found that pelvic floor activity preceded abdominal muscle activity. This was viewed as the pelvic floor being activated as part of the motor program in normal activation of the abdominals.

To train this integrated mechanism effectively, it is important to ensure that, during exercise, the abdominal muscles are deliberately co-activated at the same time as the pelvic floor muscles, (that is, while performing the fourth pelvic floor exercise).

There are many variations and levels of abdominal exercises. The patient's fitness status will determine this. Generally I prefer to start with the traditional "crunch" exercise.

- Lie on your back with your knees bent, feet flat on the floor, hands behind your head.
- Brace your abdominal muscles as if you are about to be dealt a blow to them (i.e. flatten your navel to the floor)
- Co-activate your pelvic floor muscles -(pull them all on together)
- With your hands balancing your head, raise your head and shoulders as in a half sit-up (or "crunch"), while holding the pelvic floor contractions on, then lower your head and shoulders
- If you need more resistance, hold a weight behind your head.

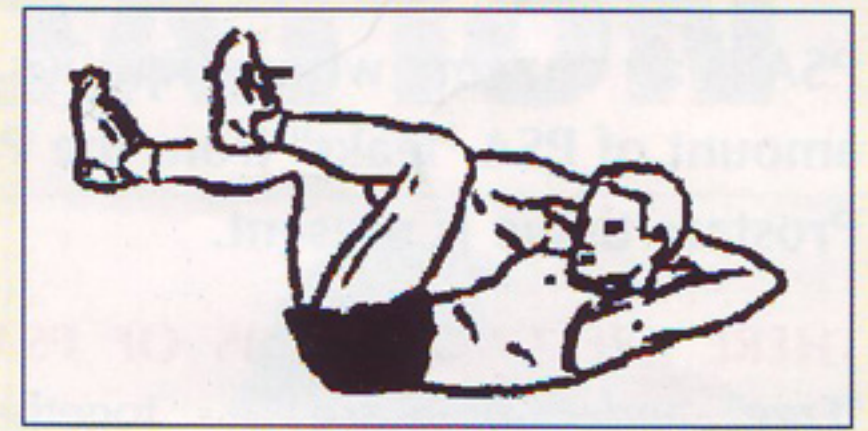


If you are grossly unfit, start with three repetitions

As you get fitter, you can build up to the "bicycle manoeuvre".

- Lie on your back, with your hands behind your head
- Prepare by co-contracting your braced abdominal and pelvic floors.

- Use a pedalling motion to "crunch" your left knee to your right elbow, then alternate sides, as in a cycling action.



Over weeks, or months, try and accumulate a combined session total of all abdominal exercises-, to reach at least 200 repetitions. (Elle does 400 a day - it would be nice to secretly aim for that).

THIRD LEVEL

To dynamically and functionally retrain components of the reflex circuitry mechanism involved with continence.

This entails activities which stresses and trains the pelvic floor muscles while carrying out functional activities. Firstly, the aim is to contract the pelvic floor muscles during walking, building through to jogging, then up to hard running, eventually over hilly tracks. It is important to increase the effect of heel impact by varying the degree of difficulty of the terrain - hard, uneven surfaces. The intention here is to "joggle" the internal systems about in an attempt to stimulate, retrain and strengthen bladder control reflex circuitry.

Secondly, the patient is educated to voluntarily contract the pelvic floor muscles during other dynamic activities such as lifting, coughing, and changing postures.

FOURTH LEVEL

To aerobically condition elements of the local vascular system supplying neural and other structures of the pelvic region.

Ultimately, this involves an aerobic training program, such as cycling or running, while functionally co-activating the pelvic floor muscles. The aim is to create an enhanced (or collateral) vascular system supplying any damaged nerves in the urogenital area.

"I am a great believer in luck, and I find the harder I work the more I have of it"

Thomas Jefferson