Urinary Incontinence: PT Management in the Elderly

Dr. Zeinab Shiravi
PhD, PT
Assistant Professor, TUMS

Urinary Incontinence

Myths

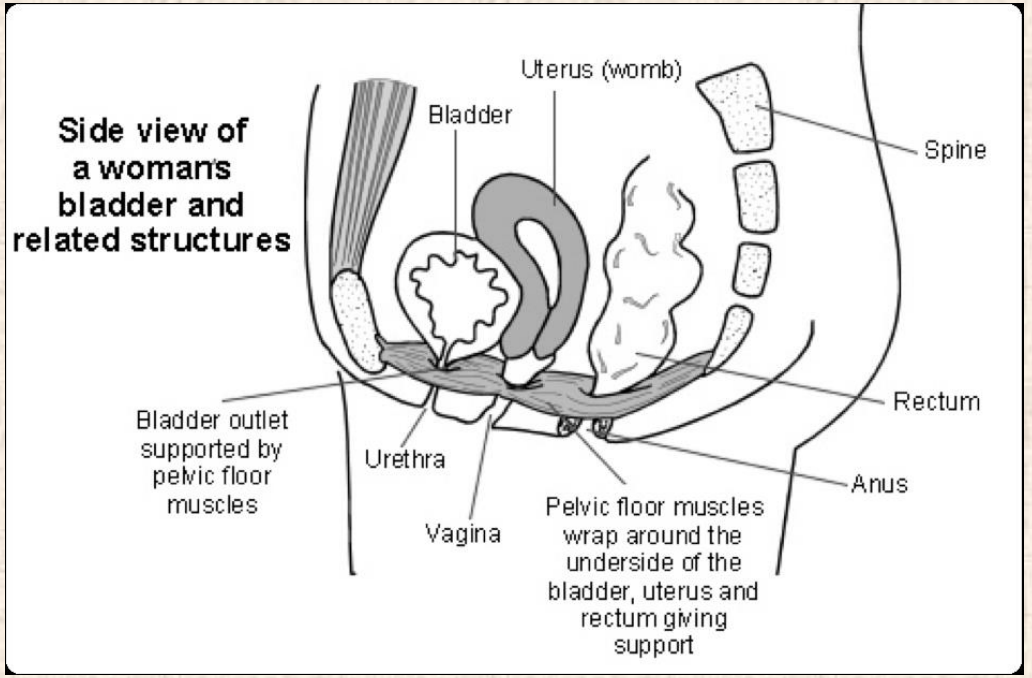
- It only happens to elderly
- It is normal with activity
- Limiting fluid intake will help
- PFM exercises don’t work
- You just have to live with it

Facts

- 50% of elite athletes report UI
- It is never normal to leak
-Limiting fluid can increase bladder irritability
- PFM strengthening is effective with proper technique
- Most improve with PFMT and behavioral treatments

Function of the Pelvic Floor Muscles

- **Continence and evacuation**
  - Bladder
  - Bowel
- **Support**
  - Pelvic Organs
- **Stability**
  - Lumbo-pelvic system
- **Control of Intra-abdominal Pressure**
- **Sexual Function**



Pelvic Floor Dysfunction in the Elderly

1. Overactive bladder (urgency, nocturia)
2. Urinary incontinence (stress, urge or urgency, and mixed incontinence)
3. Urinary retention (complete or incomplete)
4. Fecal incontinence
5. Chronic constipation
6. Pelvic organ prolapse
7. Sexual dysfunction
8. Chronic pelvic pain syndromes.

Risk factors for Pelvic Floor Muscle Dysfunction

- Female
  - Pregnancy
  - Childbirth
  - Menopause
  - Gynaecological surgery
- Age
- Obesity
- Lower urinary tract symptoms
- Prostatectomy
- Functional Impairment

- FAMILY HISTORY
- ETHNICITY AND RACE (ENVIRONMENTAL COMPONENT)
- CO-MORBIDITIES
- PHYSICAL ACTIVITY
- CAFFEINE USE AND CARBONATED DRINKS
- SMOKING
- CHRONIC COUGH
- CHRONIC CONSTIPATION AND STRAINING

Pelvic Floor Rehabilitation (PFR)

PFR consists of biofeedback (BFB), functional electrical stimulation (FES), pelvic floor muscle training (PFMT), vaginal cones (VC) in female patients, and behavioral interventions

- Pelvic floor muscle training (PFMT)
  - –with or without biofeedback (BFB)
  - –with or without adjuncts such as cones, resistance devices etc

Biofeedback

Pelvic floor muscle re-education

- Surface electrodes placed perianally or rectal/vaginal probe with computer screen.
- Manual and verbal feedback from PT

Treatment Plan

Pelvic floor pain, muscle spasm:

- Frequency/duration of treatment: 1 to 2 times per week, 8-12 visits x 4-12 weeks. This may vary depending on evaluation

Pelvic floor muscle weakness:

- Frequency / duration of treatment: 2-4 visits x 4-8 weeks. This may vary depending on evaluation

PFMT HISTORY

Pelvic floor rehabilitation (PFR) is nowadays an important strategy for the treatment of many pelvic floor disorders in adults and in older people.

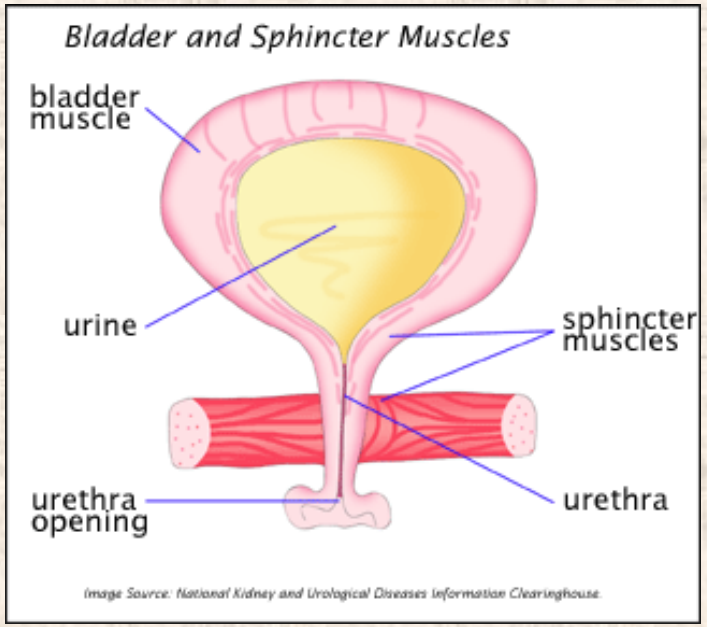
The recognized pioneer of PFR is the American gynecologist Arnold H. Kegel who in the years 1948–1951 proposed pelvic floor muscle (PFM) exercises to prevent and/or treat female urinary incontinence and genital prolapse.

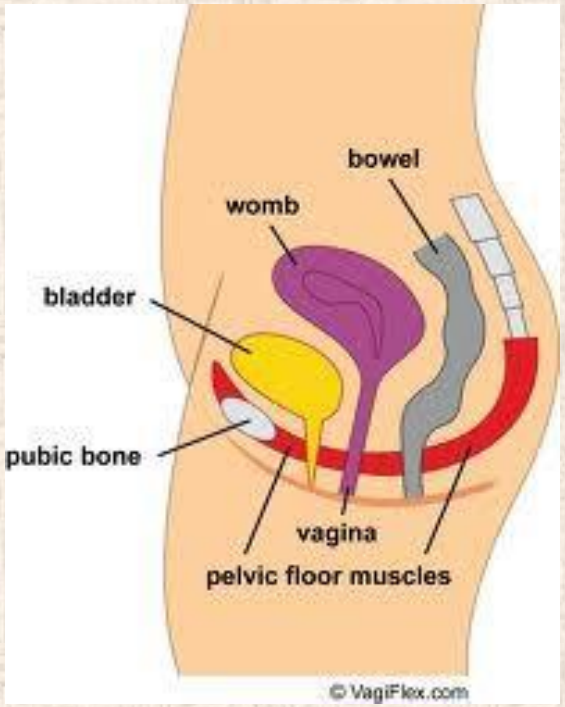
Kegel's techniques were also used successfully by other authors.

PFMT HISTORY

In 1996 American guidelines on the management of UI in adults emphasized the role of rehabilitation treatment, and, finally, in 1998 the ICS during the first International Consultation on Incontinence (ICI) proposed the algorithms of UI suggesting PFMT as the initial most important therapeutic strategy.

Pelvic Floor Muscle Exercises (Kegels)





"Squeeze like you're trying to hold back gas"

Exercise 1 (long hold for strength)

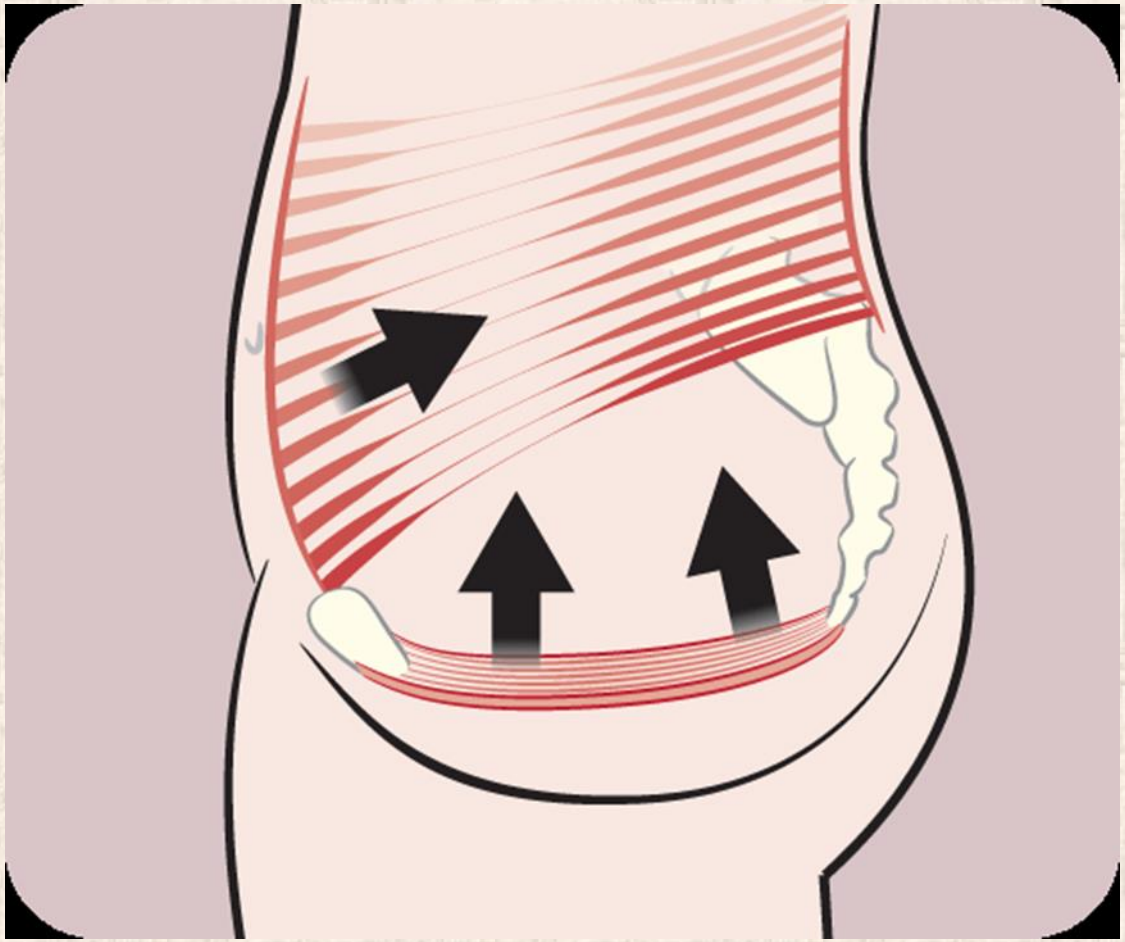
Step 1

Sit, stand tall, lie on your back or kneel on your hands and knees (see diagrams on page 2).

Step 2

Imagine what muscles you would tighten to stop yourself from passing wind or to ‘hold on’ from passing urine. If you can’t feel a distinct tightening of these muscles, ask for some help from a women’s health physiotherapist who can help you to get started.

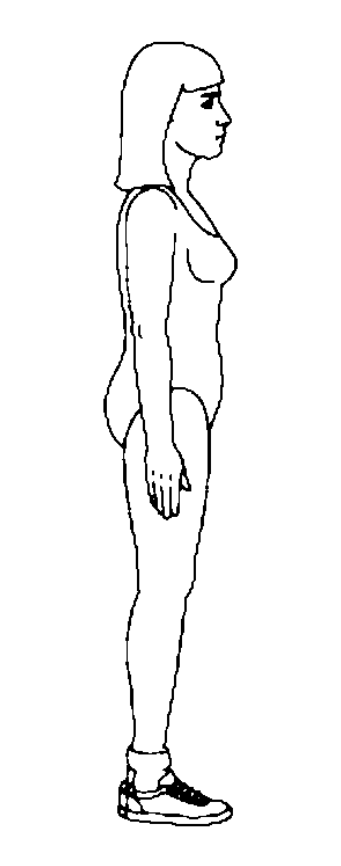
- **STEP 3**
- NOW THAT YOU CAN FEEL YOUR PELVIC FLOOR MUSCLES WORKING, TIGHTEN THEM AROUND YOUR FRONT PASSAGE, VAGINA AND BACK PASSAGE AS STRONGLY AS POSSIBLE AND HOLD FOR THREE TO FIVE SECONDS. BY DOING THIS, YOU SHOULD FEEL YOUR PELVIC FLOOR MUSCLES ‘LIFT UP’ INSIDE YOU AND FEEL A DEFINITE ‘LET GO’ AS THE MUSCLES RELAX. IF YOU CAN HOLD LONGER, THEN DO SO. REMEMBER, THE SQUEEZE MUST STAY STRONG AND YOU SHOULD FEEL A DEFINITE ‘LET GO’. REPEAT UP TO TEN TIMES OR UNTIL YOU FEEL YOUR PELVIC FLOOR MUSCLES FATIGUE.
- REST FOR A FEW SECONDS IN BETWEEN EACH SQUEEZE.

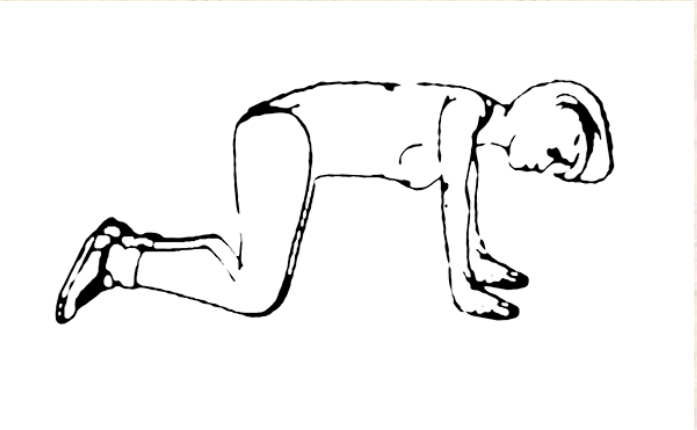


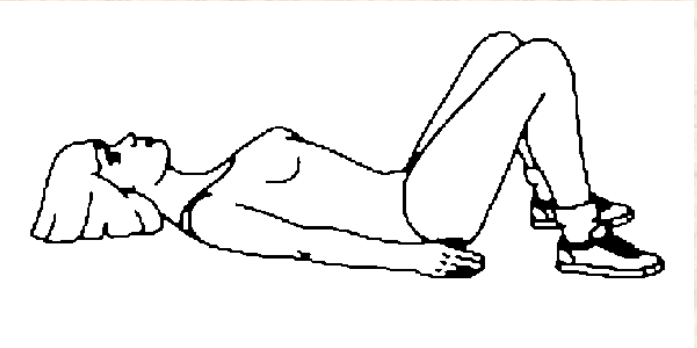

RELAX

Exercise 1 (long hold for strength)

Steps one to three count as one exercise set. Do three sets per day in different positions. Do your pelvic floor exercises every day for the rest of your life.







Exercise 2 (quick squeeze for power)

Squeeze and lift your pelvic floor muscles as strongly and as quickly as possible. Do not try to hold on to the contraction, just squeeze and let go.

Rest for a few seconds in between each squeeze. Repeat this 10 to 20 times or until you feel your pelvic floor muscles fatigue. Do this exercise three times a day.

Box 2. Possible permanent changes to the pelvic floor muscles due to strength training.[32]

- lift of the pelvic floor to a higher anatomical location inside the pelvis
- increase of the cross-sectional area of the muscles (hypertrophy)
- increase 'stiffness' of the connective tissue within and around the pelvic floor muscles
- reduce the levator hiatus area

The above changes may lead to an automatic function of the pelvic floor with less opening of the levator hiatus and less downward movement of the pelvic floor during an increase in intra-abdominal pressure.

During both exercises you should:

- feel your pelvic floor muscles ‘lift up’ inside you, rather than feel a downward movement
- relax your thighs and buttocks
- keep breathing normally
- stop exercising if your muscles fatigue.

Pelvic Floor Rehabilitation (PFR)

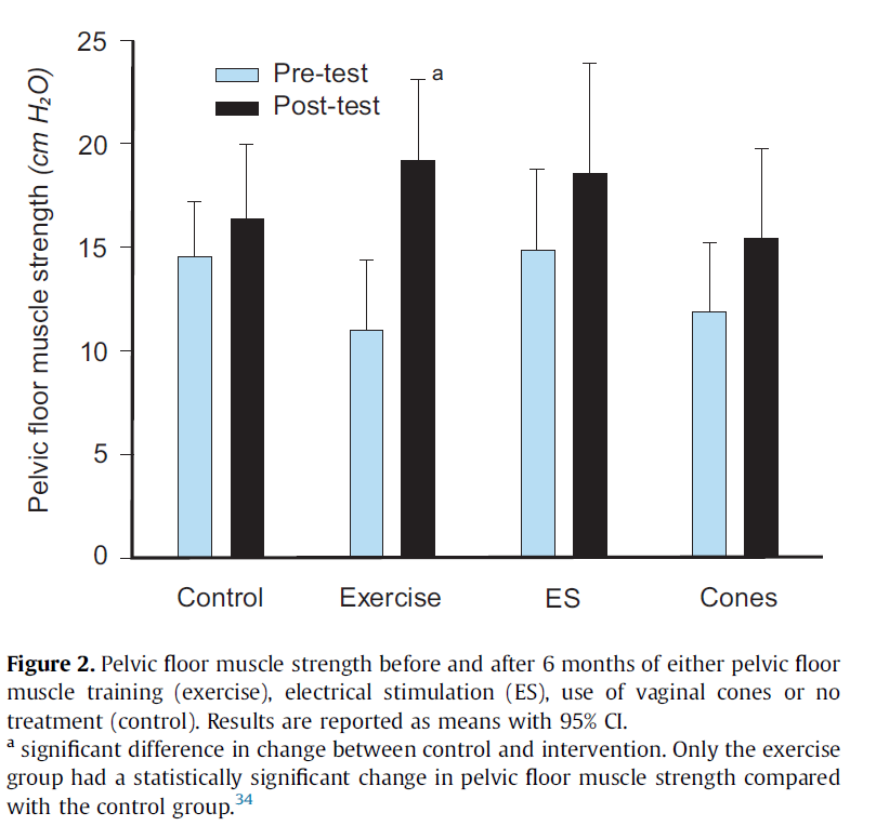


Figure 2. Pelvic floor muscle strength before and after 6 months of either pelvic floor muscle training (exercise), electrical stimulation (ES), use of vaginal cones or no treatment (control). Results are reported as means with 95% CI.
[a] significant difference in change between control and intervention. Only the exercise group had a statistically significant change in pelvic floor muscle strength compared with the control group.[34]

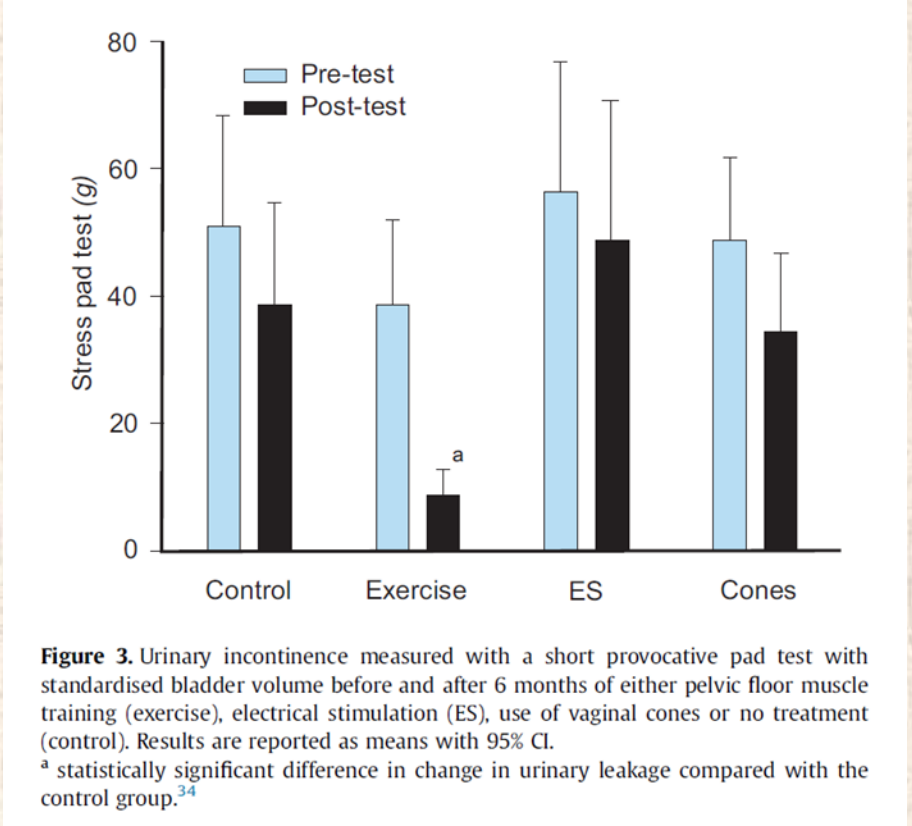


Figure 3. Urinary incontinence measured with a short provocative pad test with standardised bladder volume before and after 6 months of either pelvic floor muscle training (exercise), electrical stimulation (ES), use of vaginal cones or no treatment (control). Results are reported as means with 95% CI.
[a] statistically significant difference in change in urinary leakage compared with the control group.[34]

Bø K, Talseth T, Holme I. Single blind, randomised controlled trial of pelvic floor exercise, electrical stimulation, vaginal cones and no treatment in management of genuine stress incontinence in women. BMJ. 1999;318:487–493.

Pelvic Floor Rehabilitation
according to the Integral Theory

The Integral Theory System for pelvic floor rehabilitation (PFR) differs from traditional methods in four major ways:

1. It addresses symptoms of urgency, nocturia, frequency, abnormal emptying and pelvic pain in addition to stress incontinence

2. It introduces special techniques to strengthen the 3 directional muscle forces, and their ligamentous insertions.

3. It combines electrotherapy, hormones, fast and slow twitch exercises.

4. It is designed to seamlessly fit into a patient's daily routine.

It is emphasized that the urethral closure induced by Kegel-type muscle contractions differs radically from natural urethral closure.

Towards a more time efficient method for pelvic floor rehabilitation – use of a "fit ball"

It was evident from radiological studies (Petros & Ulmsten 1993), that the organ and muscle movements observed during Kegel exercises, were radically different from those observed during coughing and straining, in that widely different muscles and ligaments were involved.

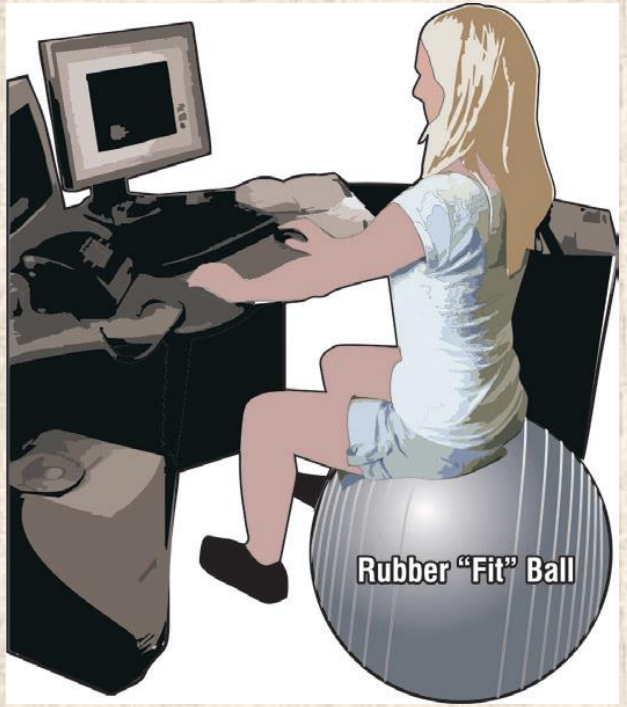
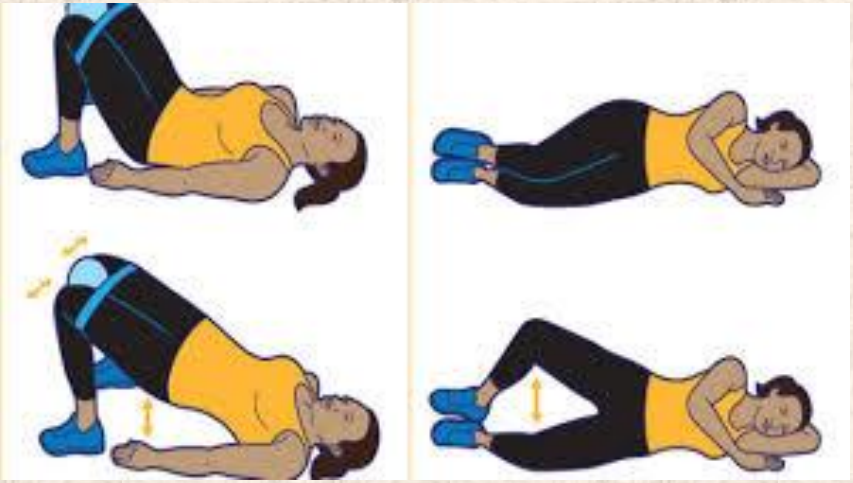


Fig. 5-03 The patient sits on a rubber ball instead of a chair. The act of balancing enforces correct posture, and slow twitch contracture of the abdominal, pelvic, and thigh muscles.

Functional PFM exercises with Swiss ball. **a**, **b** In sitting position

muscles for 10 s then the pelvis was lifted off on the floor and relax



Conclusion

The Integral Theory System for pelvic floor rehabilitation closely mimics the natural muscle movements, and provides improvement for a much wider spectrum of symptoms than traditional Kegel exercises.

A natural evolution of this system is the use of the rubber “fit ball” instead of a chair. This is a very simple method, and extremely time efficient.

Group versus individual pelvic floor muscle training

A Cochrane review concluded that 90% of those who had combined group and individual supervision reported improvement versus 57% of women receiving individual supervision only.

Most group training regimens of PFMT include individual teaching of a correct contraction and assessment and feedback of ability to contract.

Box 3. Possible advantages and disadvantages of group pelvic floor muscle training.

Advantages

- Cost-effective compared with individual training with a physiotherapist
- Less time consuming for therapist
- Motivating for physiotherapist to reach more patients at the same time
- Can inform and teach about other health issues
- Can include other important exercises for women's health issues
- The women inspire and advise each other
- Motivating factor for women to start an active lifestyle, empowering them to perform regular exercise

Disadvantages

- Therapist may lose individual contact with a patient and must trust that the proper pelvic floor muscle contractions are being performed without assessment during contractions
- Set time for classes is a challenge for adherence
- Negative influence from women who do not respond to training may occur
- Some women may feel too embarrassed about their condition to enjoy a group setting
- Some women may need closer follow-up by individual manual therapy (eg, women who are unable to contract the pelvic floor muscles)
- Need for an extra room, gym or open space for the class

PELVIC FLOOR MUSCLES EXERCISE CLASS

Example of a pelvic floor muscle exercise class following the Norwegian pelvic floor muscle training model.[33]

Exercise	Duration *(minutes)*	Music
Warming up, walk, step touch, body awareness, posture	4:00	Y
PFMT: standing with legs apart	3:00	
Strengthening for back and abdominal muscles in prone	2:30 to 3:00	Y
PFMT: prone, one leg in flexion and abduction	3:00	
Strengthening for arms, back and abdominals in dog position	2:30 to 3:00	Y
PFMT: frog position	3:00	
Strengthening for abdominals and back in crook lying	2:30 to 3:00	Y
Relaxation, breathing and neck and shoulder stretch in sitting	2:30 to 3:00	Y
PFMT: sitting position with legs crossed	3:00	
Stretches, ergonomics and strengthening for thigh, gluteal and back muscles in standing	2:30 to 3:00	Y
PFMT: standing with flexed hips and knees	3:00	
Stretches, breathing and relaxation in standing	4:00	Y

PFMT = pelvic floor muscle training, Y = yes.

The Role of PFR and Behavioral Techniques in Wealthy and Frail Elderly

People in the elderly may be considered as wealthy or frail. In contrast to wealthy, the term "frail older persons" defines the people over the age of 65 years with a clinical presentation of impaired physical activity, mobility, balance, muscle strength, motor processing, cognition, and feelings of fatigue. This clarification is very important in order to plan therapeutic programs for pelvic floor dysfunction in the elderly.

No differences exist among the rehabilitation treatments for adult and wealthy older people.

In the following years, many researchers showed the efficacy of behavioral interventions, especially designed for frail older people with cognitive and physical impairments and now considered the mainstay of UI treatment in these cases.

Physiotherapy in the treatment of urinary incontinence in elderly women

Bo K 2020

UI is defined as involuntary loss of urine that is demonstrable objectively and constitutes a social/hygienic problem. Urinary incontinence can affect both men and women at different ages. It is more prevalent, however, in women, and may be considered a greater problem in the elderly, who may also have other problems, such as difficulty in walking, and generally impaired capacity for the activities of daily living. In a Norwegian study, 27% of the women aged 74-75 years who lived at home, were found to have urinary incontinence. Studies from other countries have shown a prevalence of 30% in patients in hospitals and 50-70% in nursing homes. **Randomized controlled trials have shown a positive effect of pelvic floor muscle exercise in women with stress incontinence**. Some researchers have found a negative association between age and response to treatment, but this is contradicted by results from other studies. Few randomized controlled studies have evaluated the effect of pelvic floor muscle exercise alone or in combination with bladder training in elderly women. However, the results from two controlled studies and other uncontrolled trials show a potentially high effect of physiotherapy to treat urinary incontinence in elderly women. More controlled randomized studies are needed using reliable and valid outcome measures to evaluate each method of physiotherapy separately. **Both bladder training and pelvic floor muscle exercises have no known side effects and can be recommended for today's elderly population.**

Long-term efficacy of pelvic floor muscle rehabilitation for older women with urinary incontinence

Simard C. 2010

OBJECTIVES:

To determine the efficacy of pelvic floor muscle (PFM) rehabilitation for elderly women with urinary incontinence after five years of follow-up, and to assess the adherence to PFM exercises five years after physiotherapy.

METHODS:

We conducted a retrospective chart review of women ≥ 60 years old who underwent PFM physiotherapy for urinary incontinence between September 1999 and February 2004. PFM rehabilitation techniques were taught to patients by a certified physiotherapist. The mean number of sessions was eight. Telephone surveys were conducted at two months, six months, and one to five years after physiotherapy. Objective data on the efficacy of treatment (number of voids, incontinence, use of pads) and on adherence to PFM exercises were collected using a uniform grid. Data were used to determine the continence status at follow-up and compared with the data collected at the end of the PFM training sessions (improved, maintained, or deteriorated).

Long-term efficacy of pelvic floor muscle rehabilitation for older women with urinary incontinence

- **RESULTS:**
- OF 89 OLDER WOMEN (MEAN AGE 70 YEARS; RANGE 60 TO 81) TREATED DURING THE STUDY PERIOD, 40 WERE FOLLOWED UP TO FIVE YEARS AND WERE SUITABLE FOR ANALYSIS. AT FIVE YEARS OF FOLLOW-UP, 27.5% HAD IMPROVED, 57.5% REMAINED STABLE, AND 15% HAD DETERIORATED COMPARED WITH THEIR POST-TREATMENT CONTINENCE STATUS. TWENTY-NINE PATIENTS (72.5%) WERE CONTINUING THEIR PFM EXERCISES, AND 42.5% WERE PERFORMING THE EXERCISES DAILY. ALL ADHERENT PATIENTS HAD "IMPROVED" OR "STABLE" STATUS AFTER FIVE YEARS VERSUS 45.5% OF NON-ADHERENT PATIENTS ($P < 0.05$).
- **CONCLUSION:**
- **PELVIC FLOOR MUSCLE REHABILITATION FOR URINARY INCONTINENCE REMAINS HIGHLY EFFECTIVE FOR UP TO FIVE YEARS IN OLDER WOMEN. MOST WOMEN CONTINUE TO PERFORM PFM EXERCISES FIVE YEARS AFTER COMPLETING THEIR PHYSIOTHERAPY EDUCATION SESSIONS.**

Conclusions (1)

Pelvic floor rehabilitation (PFR) is nowadays an important strategy for the treatment of many pelvic floor disorders in adults and in older people.

Screening for UI in the elderly is very important because their prevalence is high, the condition is underestimated, the consequences are bothersome, and the outcome of PFR is often successful.

Conclusions (2)

Pelvic floor muscle training (PFMT) is the core of the PFR also in wealthy elderly, while in frail older people conservative management can often be directed to achieving dependent continence by use of behavioral treatment (prompted or timed voiding). The pharmacologic therapy should be used in addition to PFR, mainly in the treatment of urge urinary incontinence.

Conclusions (3)

There is a need for high quality studies of multicomponent behavioral interventions in frail older adults in all settings, with evidence on their effectiveness in reducing UI, improving quality of life, impact on caregivers, and long-term benefit.

It is suggested to organize in every geriatric or rehabilitation department a team devoted to conservative management of pelvic floor dysfunctions, notably urinary incontinence.

References

Pelvic Floor Rehabilitation of the Elderly

Paolo Di Benedetto

PELVIC FLOOR EXERCISES

the women's
the royal women's hospital
victoria australia

Pelvic Floor Rehabilitation
according to the Integral Theory

Towards a more time efficient method for pelvic floor rehabilitation and with a wider symptom scope

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Invited Topical Review

Physiotherapy management of urinary incontinence in females

Kari Bø [a,b]

[a] Norwegian School of Sport Sciences, Department of Sports Medicine, Oslo, Norway; [b] Akershus University Hospital, Department of Obstetrics and Gynecology, Lørenskog, Norway

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From Kegel exercises to pelvic floor rehabilitation: A physiotherapeutic perspective

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Thank You