

PREVENTING URINARY INCONTINENCE through PELVIC FLOOR REHABILITATION in DISABLED ELDERLY

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CONFLICT OF INTEREST DISCLOSURE

I have no potential conflict of interest to report

AGENDA

- 1. Urinary Incontinence (UI): definition**
- 2. UI: epidemiology**
- 3. UI: clinical aspects**
- 4. UI: pelvic floor rehabilitation as modality of prevention and treatment**
- 5. Conclusions**

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Urinary Incontinence

Urinary incontinence (UI) , defined as the complaint of any involuntary leakage of urine, is a common condition that may affect many neuropathic patients, women of all ages, men after radical prostatectomy, and elderly people.

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Urinary Incontinence

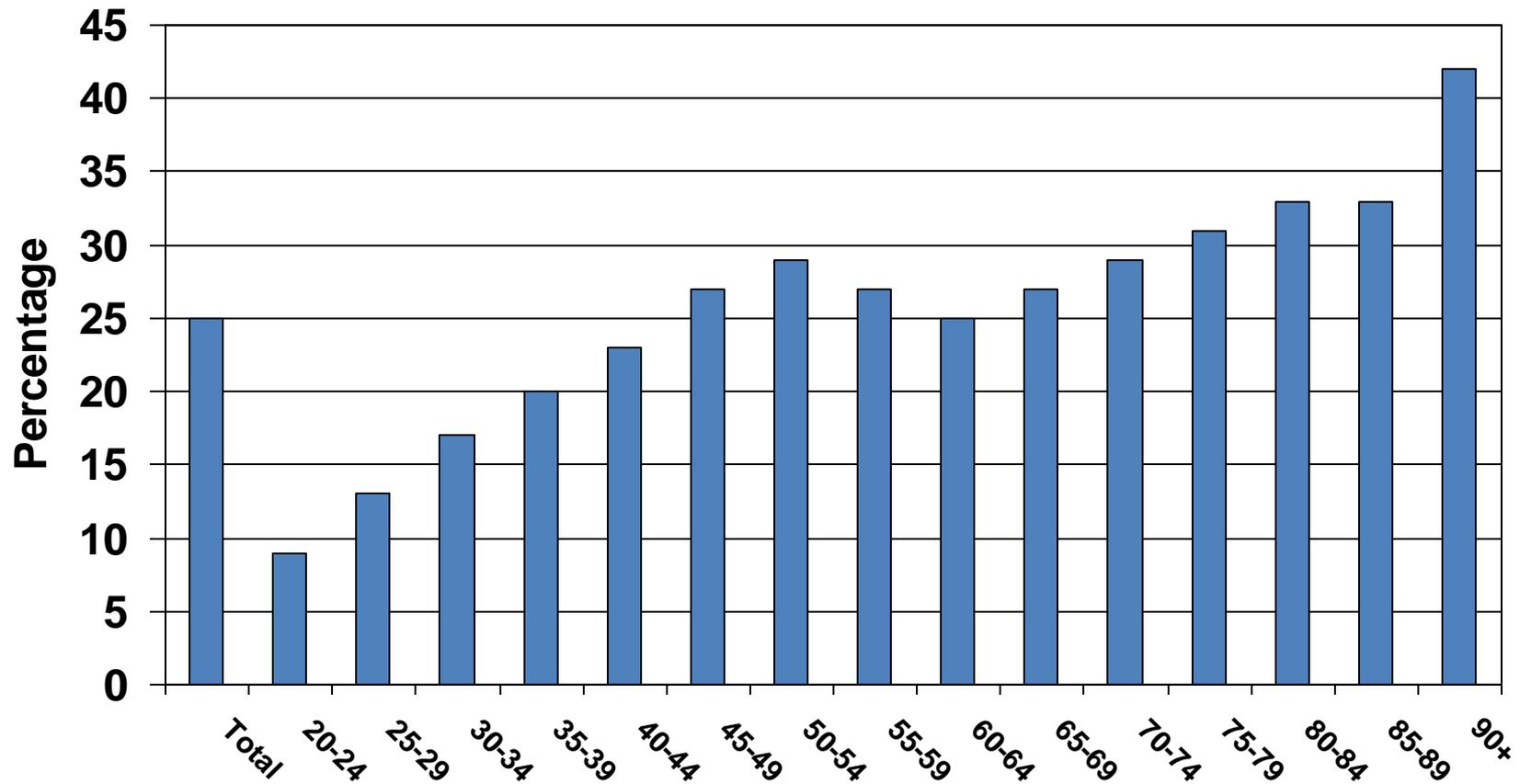
**Several European and American epidemiological studies
→ a range of prevalence of UI between 10% and 40%.
Among older women a range of prevalence between 10%
and 50% or even wider remains a reasonable estimate.
There are no studies reporting UI in older people with
previous disability.**

Examples of prevalence of any UI in studies of older women living in the community

First author	Ref	Year	N	Age	Prevalence (%)
Yarnell	59	1981	1 060	65+	50
Diokno	74	1986	1 150	60+	38
Molander	75	1990	4 206	70-90	17
Sandvik	63	1993	1 820	60+	32
Brocklehurst	62	1993	840	60+	12
Holtedahl	76	1998	507	60-74	47
Hunskaar	77	1998	1 876	65+	17
Roberts	78	1998	762	50+	58
Chiarelli	79	1999	12 417	70-75	35
Iglesias	70	2000	486	65+	42
Maggi	71	2001	1 531	65+	22

Prevalence of UI (any leakage) in women of 20 years+

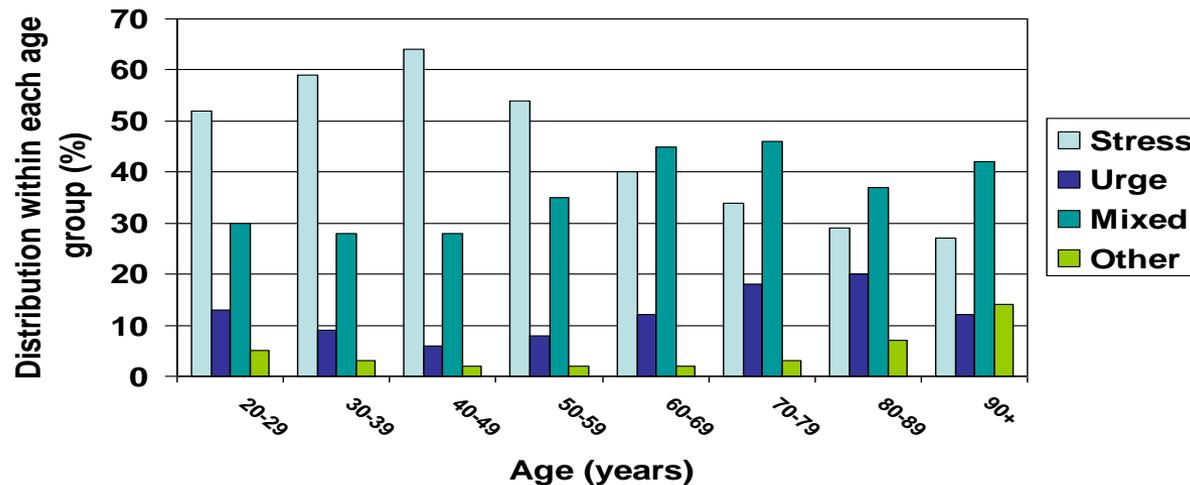
Data from the EPINCONT study



Urinary Incontinence

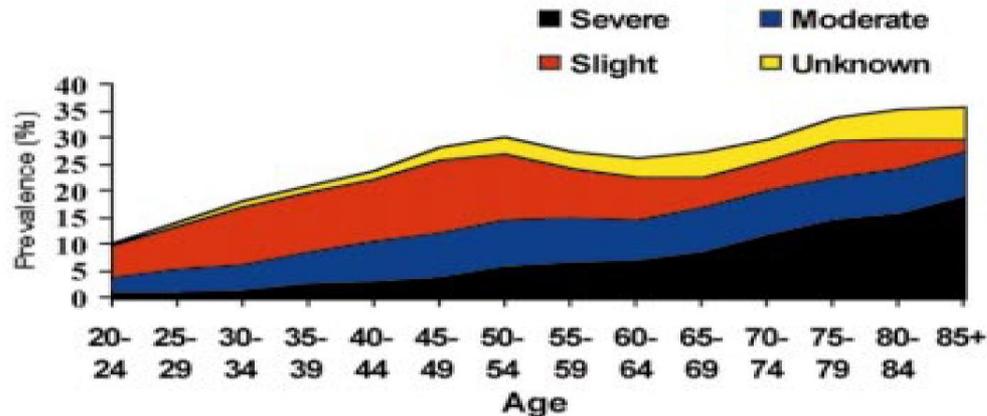
Distribution of different type of UI in age groups.

Data from the EPINCONT study



Urinary Incontinence

Prevalence of UI by age group and severity
 Data from the EPINCONT study



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Urinary Incontinence in the elderly

1. **Transient or reversible** (see acronym DIAPPERS) **UI**
2. **Established UI**

Transient UI in the elderly

- Treatment of conditions that provoke or exacerbate UI

Delirium

Infection

Atrophic vaginitis (in females)

Pharmacological

Psychological

Excess urine output

Reduced mobility

Stool impactions

Established UI in the elderly

Stress UI → involuntary urine leakage on effort or exertion or on sneezing or coughing (**SUI**);

Urge UI → involuntary urine leakage accompanied or immediately preceded by urgency (**UUI**);

Mixed UI → involuntary urine leakage associated with both urgency and effort (**MUI**);

Overflow UI → involuntary urine leakage due to severe urinary retention;

Functional UI → when leakage is secondary to restricted mobility, reduced dexterity or cognitive problems.

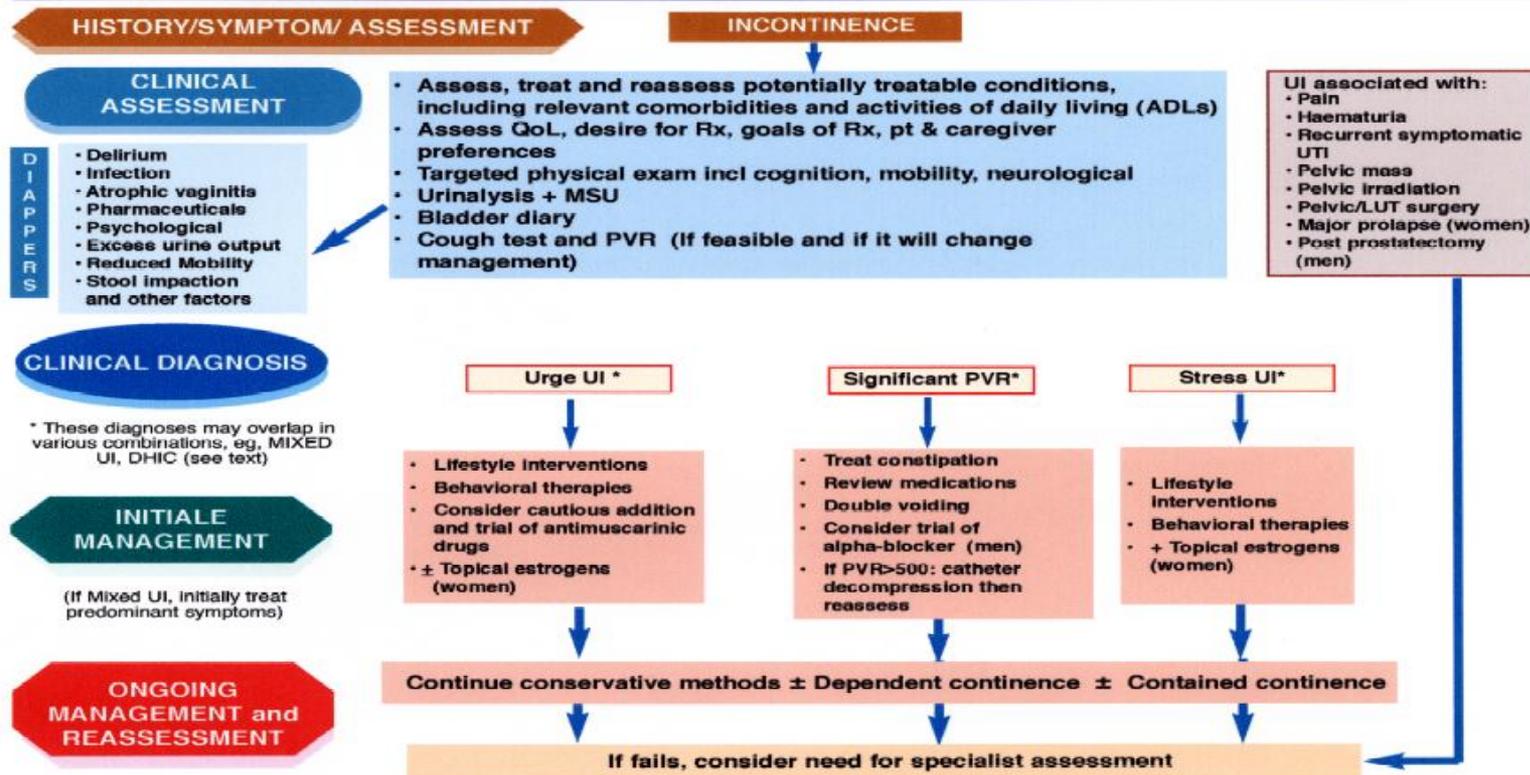
Comorbid conditions that can cause or contribute to UI in frail elderly people are outlined in the algorithm proposed by the 1st International Consultation on Incontinence (ICI) in collaboration with International Continence Society (ICS): Monaco, 1998.

That was the first time in which pelvic floor muscle training (PFMT) was cited as modality of treatment of urinary incontinence. In the following years PFMT should be more and more indicated in other dysfunctions of the pelvic floor, in men (mainly after radical prostatectomy), and in the elderly.

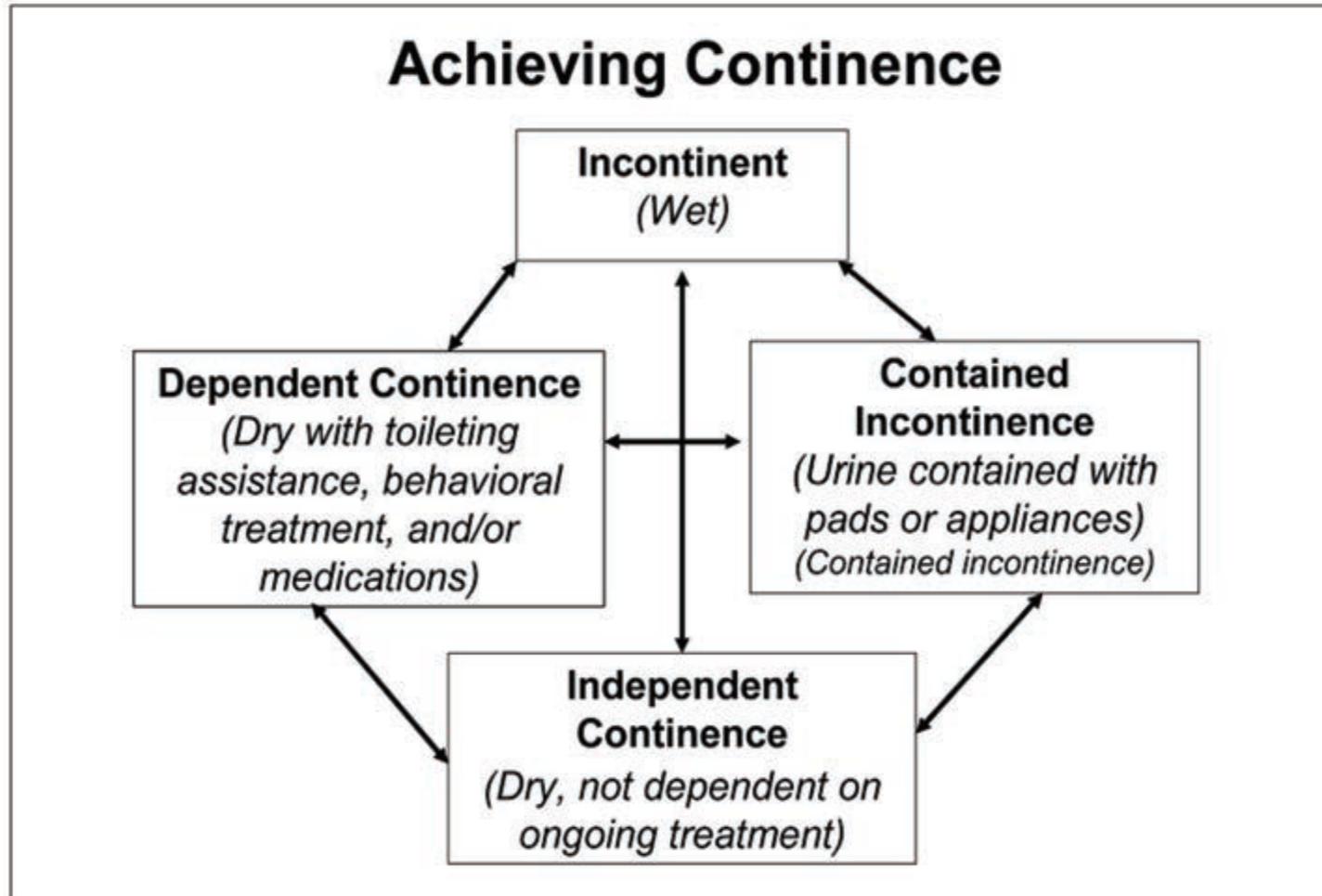
Pelvic Floor Dysfunction

- Micturition (bladder filling and/or voiding)
In this context we include Overactive Bladder (OAB)
- Defecation (constipation, fecal incontinence)
- Prolapse (pelvic organ prolapse in women)
- Sexuality
- Pain

MANAGEMENT OF URINARY INCONTINENCE IN FRAIL OLDER PERSONS



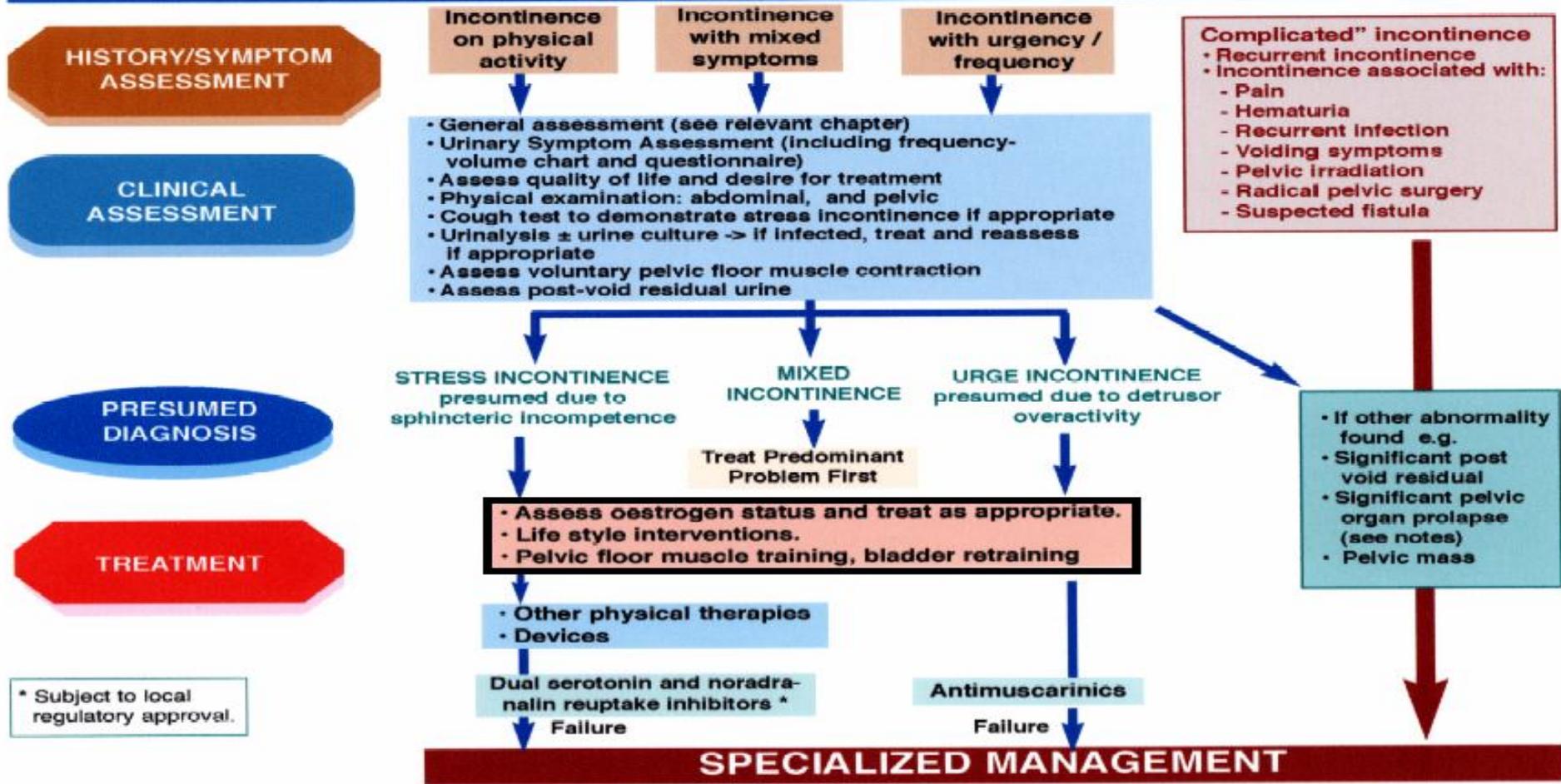
International Consultation
 on Incontinence, 1998



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Initial Management of Urinary Incontinence in Women



Urinary Incontinence

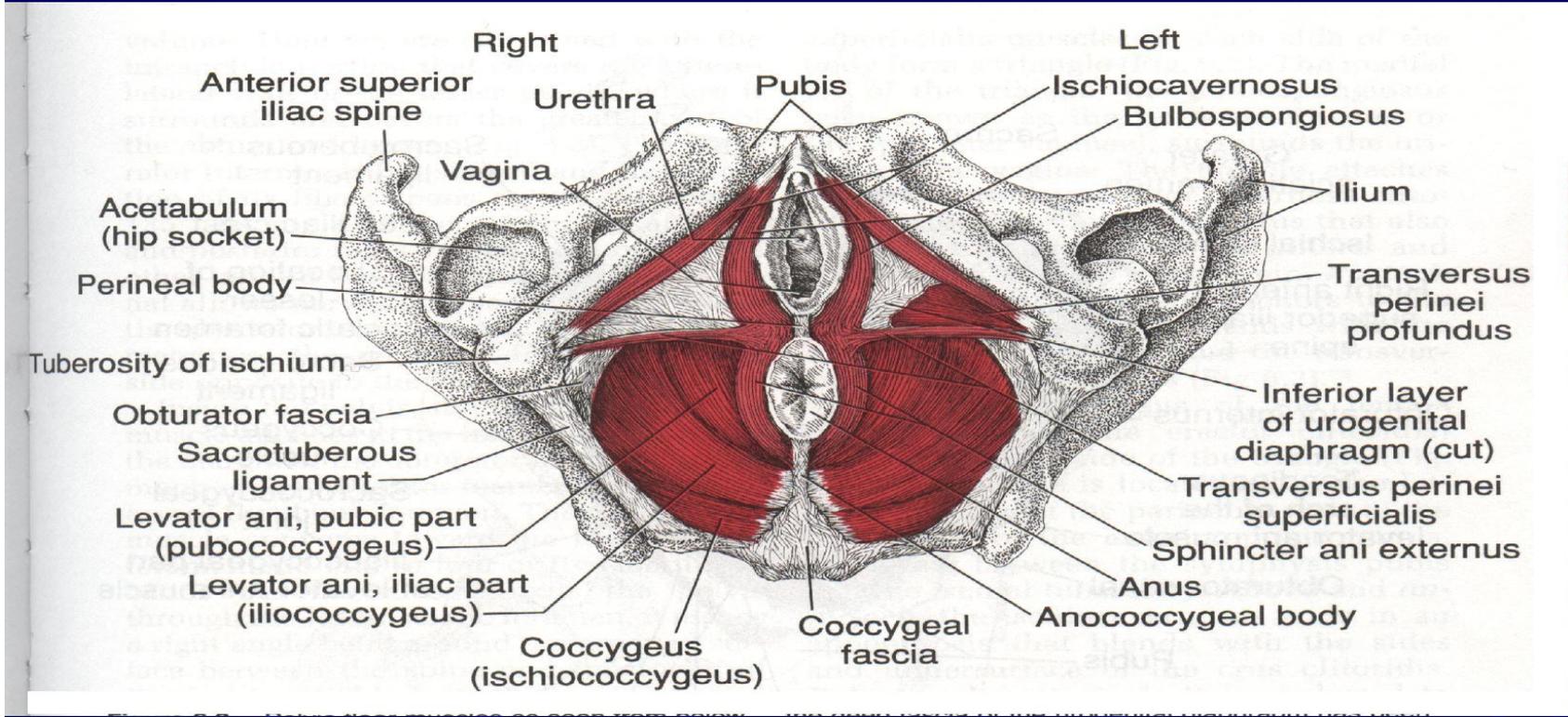
Myths

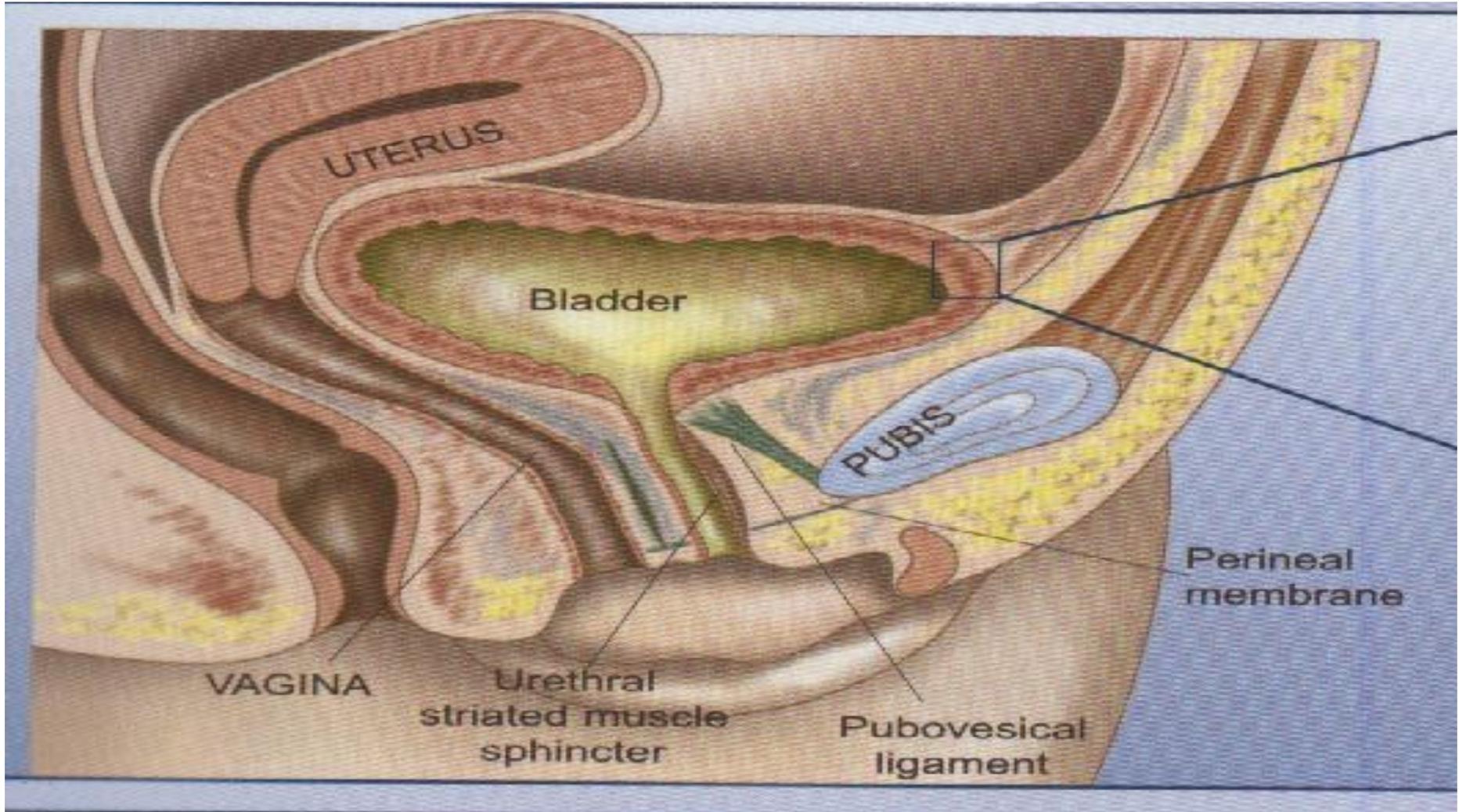
- It only happens to elderly
- It is normal with activity
- Limiting fluid intake will help
- PFM exercises don't work
- You just have to live with it

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

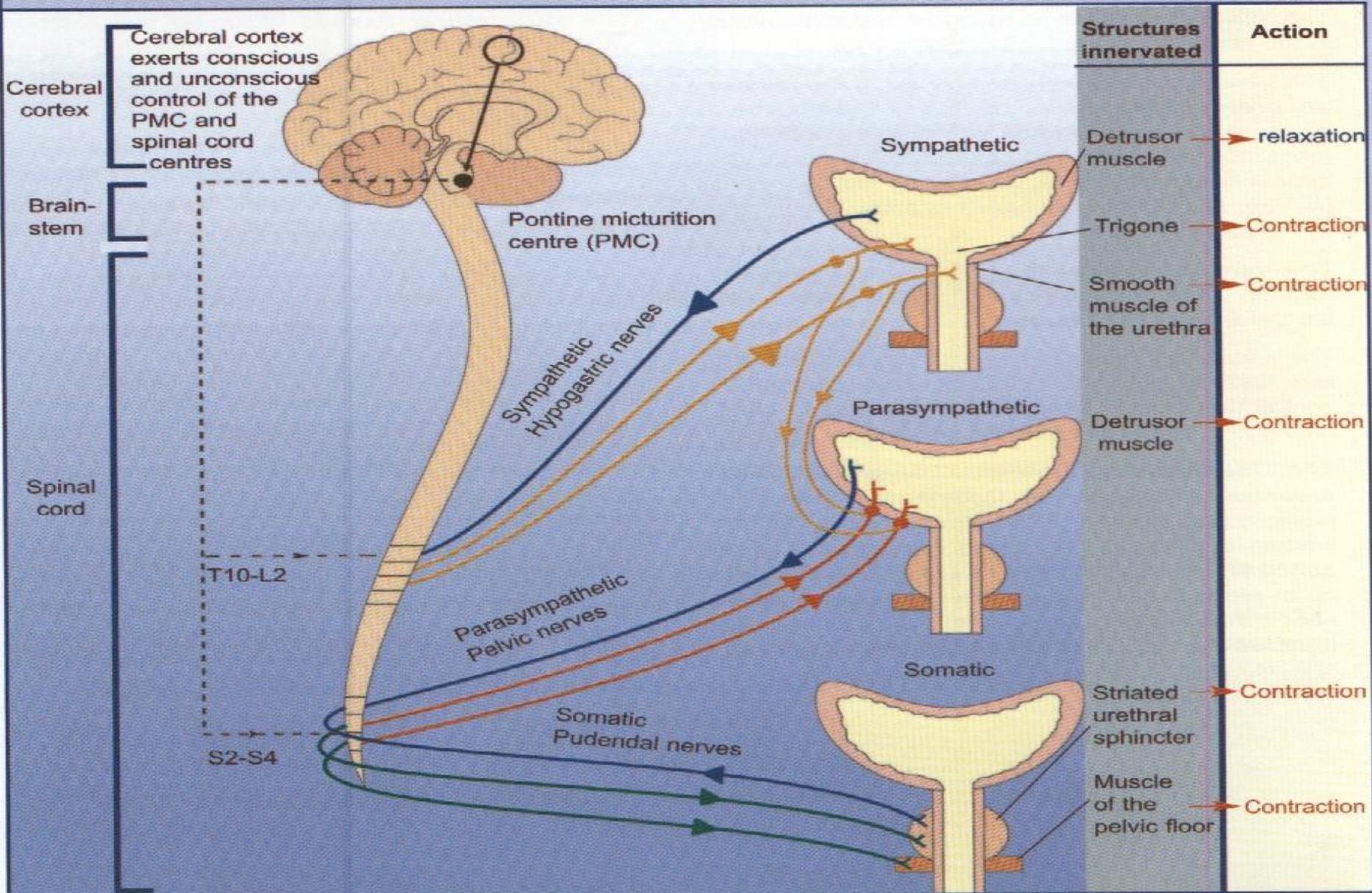
Pelvic Floor Muscles



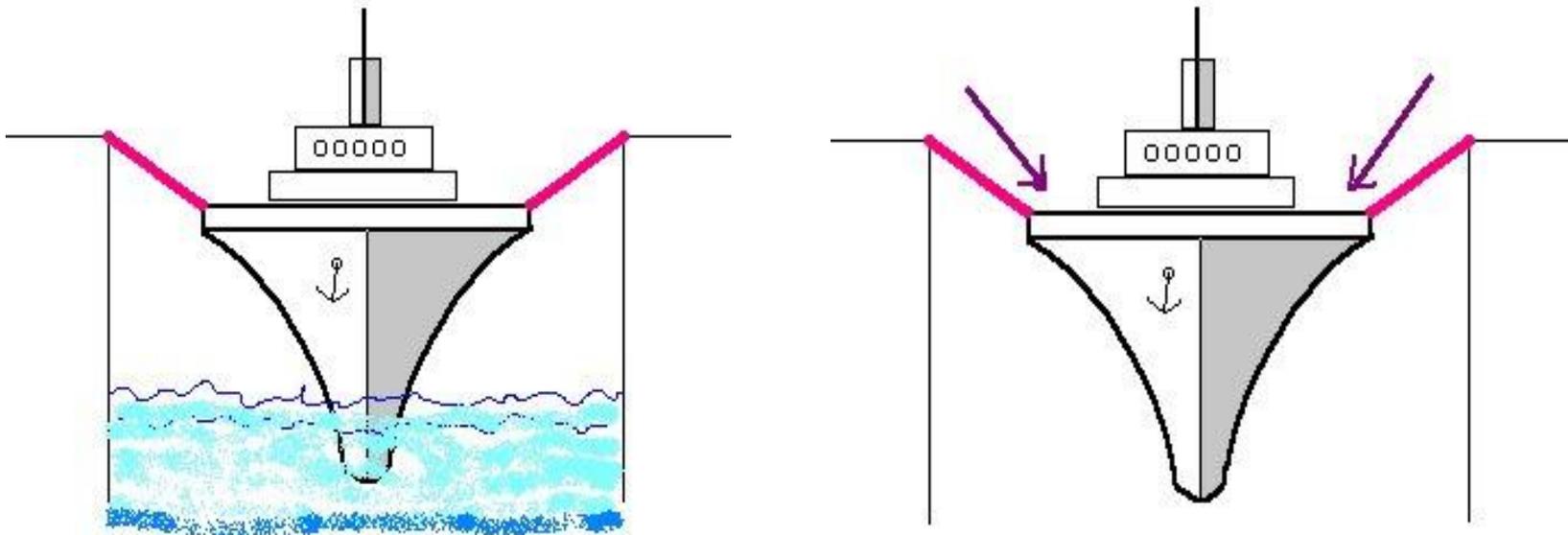


Innervation of the LUT

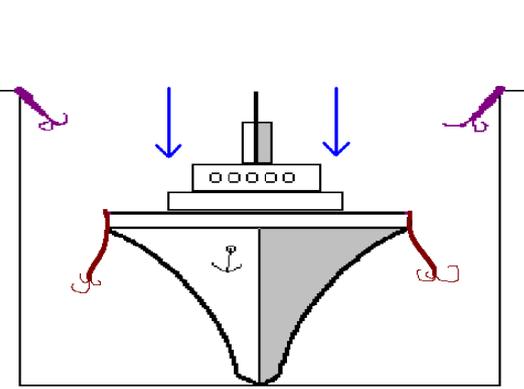
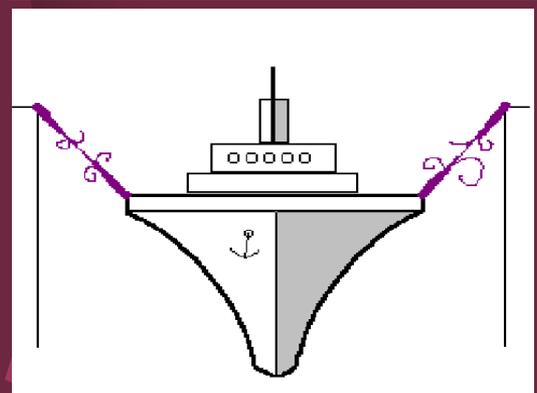
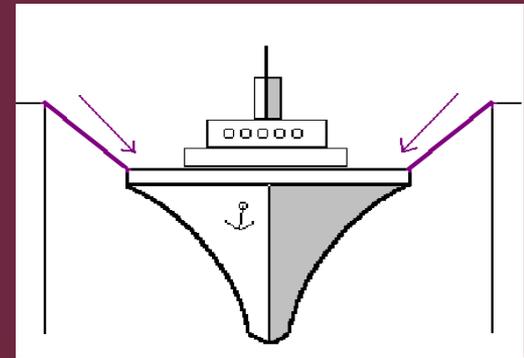
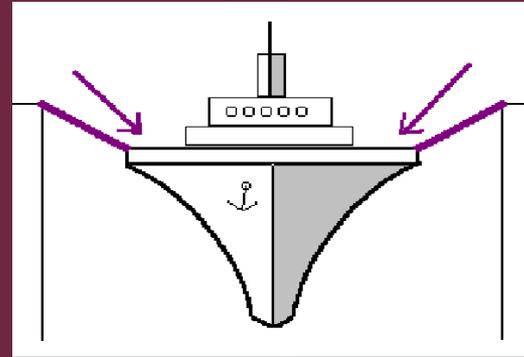
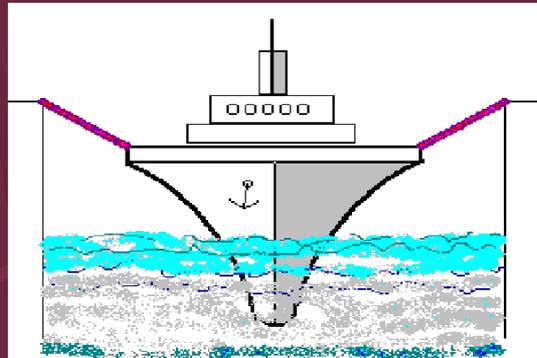
I Peripheral and spinal innervation of the LUT



PELVIC ORGAN PROLAPSE BOAT IN DRY DOCK CONCEPT



Boat in dry dock concept of pelvic organ prolapse. A) Boat is supported by water (pelvic musculature) and held in place by its moorings (pelvic ligaments and fascia). B) If the water is removed, the moorings are suddenly placed under great strain. Likewise, loss of pelvic floor tone places excessive force on the pelvic ligaments and fascia. (From Norton PA: Pelvic floor disorders: the role of fascia and ligaments. Clin Obstet Gynecol 36:927, 1993)



Pelvic Organ
Prolapse/SUI

A hospital-based study by Hung et al showed that the prevalence of OAB syndrome increased significantly with advancing age. The percentage of patients with OAB wet were as high as 33.3% in women after the age of 65 years. However, the elderly have an increased tendency towards incomplete bladder emptying, and this frequently coexists with detrusor instability. A series of studies by Griffiths et al showed that elderly patients may have underperfusion of the frontal lobes of the cerebral cortex (reflecting regional impairment of function), which appears to be causally related to urge incontinence and reduced bladder sensation

They also demonstrated that factors, such as reduced sensation of bladder filling, elevated fluid intake and infrequent voiding, may contribute to severity of urine leakage in elderly patients. Incomplete bladder emptying, which elevates post-void residual, may be caused by impaired detrusor contractility. The impaired detrusor contractility in elderly patients may have two aspects: high post-void residual urine volume and reduced detrusor contraction strength. Resnick and Yalla defined a patient with urge incontinence, poor detrusor contractility, and high residual urine without urethral obstruction as having detrusor hyperactivity with impaired contractile function (DHIC).

In a study of pelvic architecture in patients with UI, an elderly group showed decreased pelvic muscle mass along with decreased general muscle mass. Moreover, atrophy and weakness of the pelvic muscles induces changes in pelvic architecture angle and results in UI.

Consequently, it is assumed that UI is associated with muscle mass loss because pelvic muscle and architecture play important role in the pathogenesis of urinary incontinence.

Pelvic Floor Rehabilitation (PFR)

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

Pelvic Floor Muscle Contraction in women

Contraction of the PFM results in an inward movement of the perineum and an upward movement of the pelvic organs.

Two types of contraction (voluntary contraction resulting from impulses arising in the cerebral cortex, and a reflex contraction) → maintain support of the pelvic organs; close the urethra, anus and vagina, thus avoiding loss of urine or stool; additionally PFM contraction inhibits detrusor muscle.

A contraction of the PFM must have sufficient strength, resulting from muscle capacity and neurogenic drive.

Pelvic floor muscle training in males

- Strong contraction to gain elevation of testicles & movement of penis into body
- Sitting, Standing, Lying: 3 – 10 strong holds of 10 “ twice a day
- Slight lift whilst walking
- The “knack”

Rehabilitation techniques, appropriately chosen according to the specific problem, all have the primary objective of improving pelvic floor performance in order to allow the perineum to best carry out its functions of pelvic visceral support, bladder inhibition, strengthening of the urethral and anal sphincters and counteracting intra-abdominal pressure rises.

Physiotherapy in the treatment of urinary incontinence in elderly women

Bo K

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 et al

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).

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.

ICI - 2016

Initial treatment should be individualized and influenced by goals of care, treatment preferences and estimated remaining life expectancy, as well as the most likely clinical diagnosis (GoR C).

In some frail older persons the only possible outcome may be containment; management with continence products, especially for people with minimal mobility (require assistance of > 2 people to transfer), advanced dementia (unable to state their name), and /or nocturnal urinary and fecal incontinence.

- Conservative and behavioral therapy for UI includes lifestyle changes (GoR C), bladder training for more fit alert persons (GoR B), and prompted voiding for frailer, more impaired older people (GoR A).
- For the select cognitively intact older person with UI , PFMT may be considered, but there are few studies (GoR C).

Personal recent clinical cases (1)

- D.F, 72 yrs, F: Stroke 6 mo ago; right hemiplegia; SUI and nocturia.
PFMT supervised (2 sessions/week; every day 30x3 5'' contraction of PFM's with 10'' rest between contractions).
Significant reduction of nocturia and daily urine losses during effort.
- G.F., 66 yrs, F: Multiple Sclerosis (RR) since 1991; mixed UI.
Self PFMT after two sessions of PFM's education + antimuscarinics.
Good result after one month of treatment.

Personal recent clinical cases (2)

- S.A., 74 yrs , M: Stroke 7 mo ago; left hemiplegia; UI with associated voiding failure (DHIC syndrome: detrusor hyperactivity with impaired contractility).
PFMT associated with intermittent catheterization.
Good result: reduction of urine losses.
- ML, 88 Yrs, F: UI after surgery (neck of femur fracture).
Complete recovery (no urine losses) after 30 days of self PFMT.

Overview

Neurogenic Disabled Elderly → PFMT in selected cases

Non Disabled Incontinent Elderly → PFMT is needed

Non Disabled Continent Elderly → Physical activity with incorporated PFMT as a primary or secondary prevention

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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.

UI is not an inevitable consequence of aging, also in neuropathic patients; it is important, therefore, to identify other non-lower urinary tract conditions that can exacerbate or precipitate UI.

Conclusions (2)

The conservative management, in fit and motivated people, includes mainly bladder retraining and PFR (biofeedback, electrical stimulation, and pelvic floor exercises), considered as a first-line option in the initial management. 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. In the last 30 years, PFR became more and more important in the functional treatment of many other pelvic disorders, including fecal incontinence, constipation, chronic pelvic pain, and sexual disorders.

Conclusions (3)

Studies on functional training with behavioral interventions (prompted voiding and bladder training) and PFMT report on improvements in endurance, strength, and walking ability, and subsequently reductions in UI in frail older adults in community-dwelling and long term care settings. However, functional training alone did not appear effective in reducing UI. *There is some evidence that multicomponent behavioral interventions lead to improvements in UI in frail elderly, although this depends on the specific interventions and the population.*

Conclusions (4)

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.

But, independently of these conclusions, I suggest to organize in every geriatric or rehabilitation department a team devoted to conservative management of pelvic floor dysfunctions, notably urinary incontinence.

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