

# **SNS COLLEGE OF PHYSIOTHERAPY COIMBATORE 35**

**COURSE NAME: PHYSIOTHERAPY IN NEUROLOGICAL SCIENCES**

**SUBJECT CODE: 6288**

**IV YEAR**

**TOPIC: FUNCTIONAL TRAINING IN BLADDER DYSFUNCTION**

# Design thinking approach

Empathize Understand patient's urinary symptoms, emotional distress, social stigma, and impact on ADL/QOL.

Define Identify type of bladder dysfunction (overactive, underactive, neurogenic, stress/urge incontinence).

Ideate Brainstorm functional training methods (pelvic floor training, bladder diaries, biofeedback, lifestyle strategies).

Prototype Develop individualized therapy protocol (scheduled voiding, PFM exercises, functional retraining).

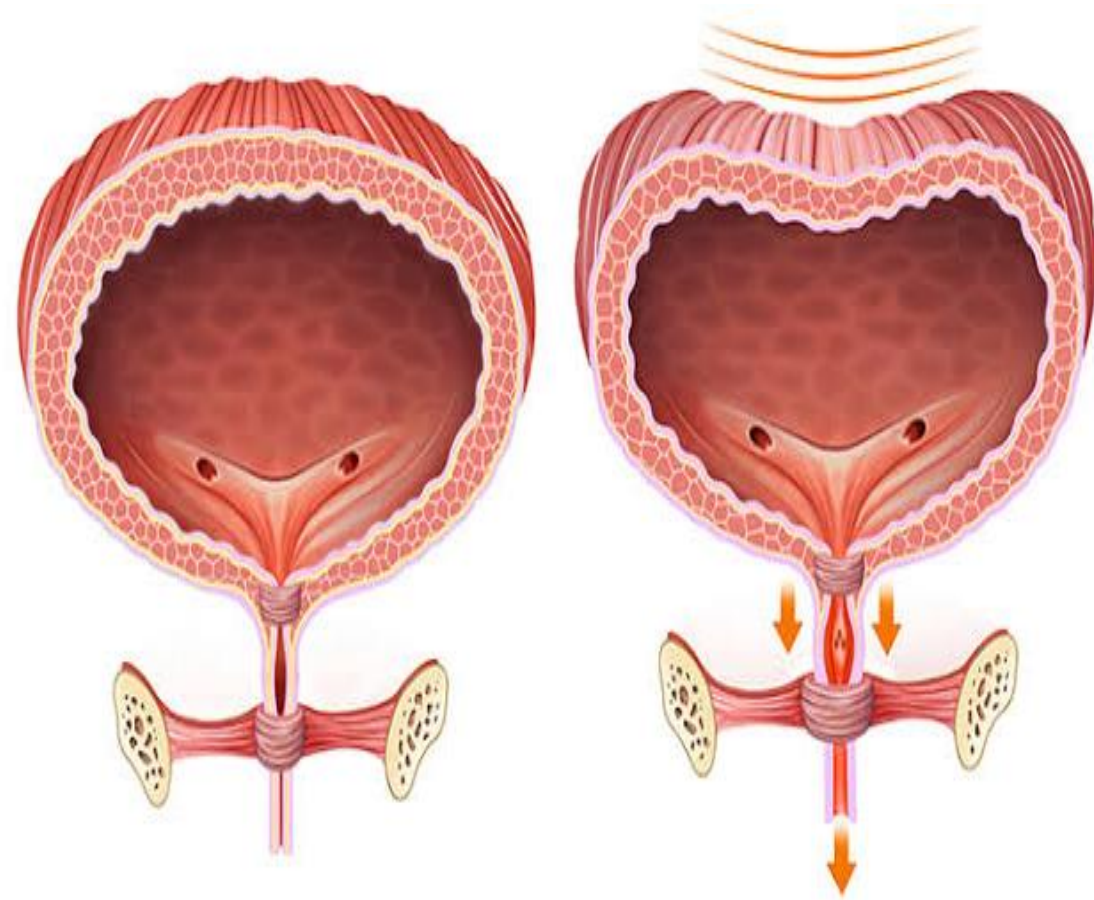
Test Implement plan, monitor frequency/urgency episodes, assess continence, re-adapt interventions.

# Introduction

Bladder dysfunction is the abnormality in storage or emptying of urine.

Common in neurological conditions (SCI, stroke, MS, Parkinson's, spina bifida) and non-neuro cases (stress/urge incontinence)

Physiotherapy plays a crucial role in restoring continence and functional independence.



# Definition

**Bladder dysfunction:** Any disturbance in normal storage, sensation, or evacuation of urine.

**Neurogenic bladder dysfunction:** Bladder and sphincter abnormalities due to neurological lesions.

**Functional training:** A rehabilitation approach focusing on behavioral, muscular, and lifestyle retraining to improve bladder control.

# Etiology

## **Neurological causes:**

Suprapontine lesions → Stroke, Parkinson's, TBI.

Spinal cord injury → Above/below sacral levels.

Multiple sclerosis, spina bifida.

## **Non-neurological causes:**

Pelvic organ prolapse

Childbirth trauma.

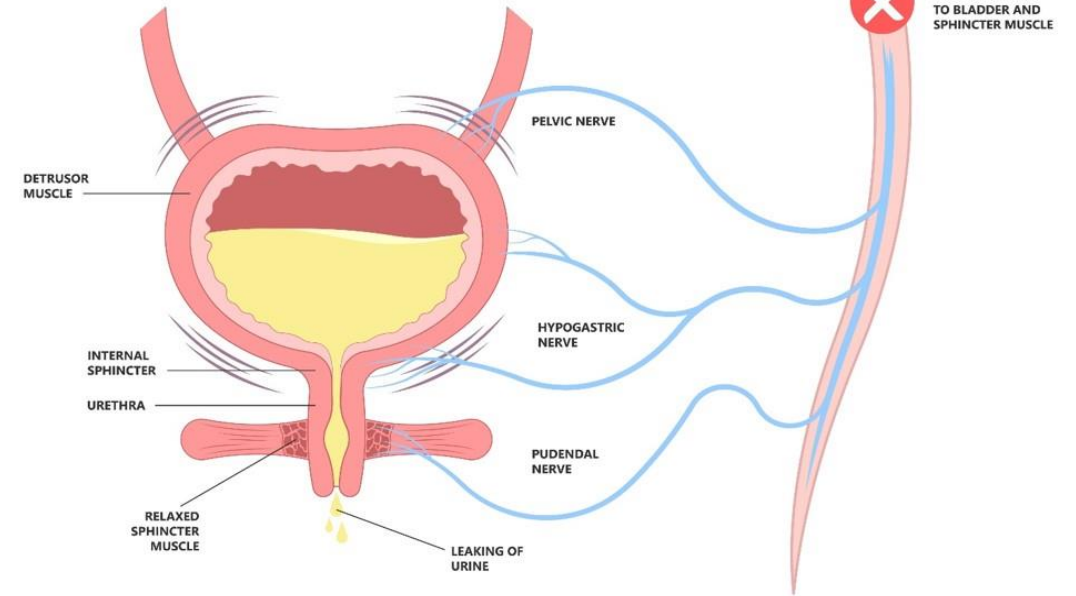
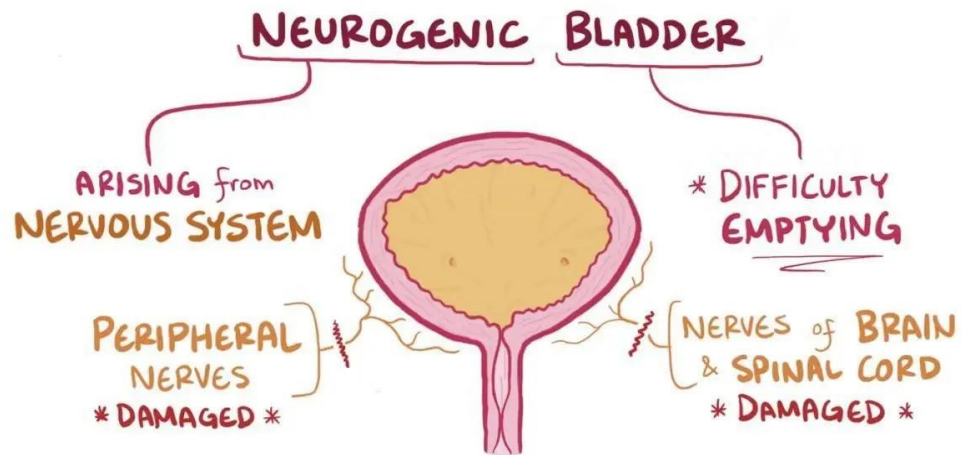
Aging

Hormonal changes.

Obstruction (BPH), UTIs.

# Classification / Types

1. Overactive bladder (OAB): urgency, frequency, urge incontinence.
2. Underactive bladder: weak contraction, incomplete emptying.
3. Stress urinary incontinence: leakage with cough/sneeze/exertion.
4. Mixed incontinence.
5. Functional incontinence: due to mobility/cognitive deficits.
6. Neurogenic bladder:
  - \*Spastic/hyperreflexic (UMN).
  - \*Flaccid/areflexic (LMN).



# Normal Bladder Function

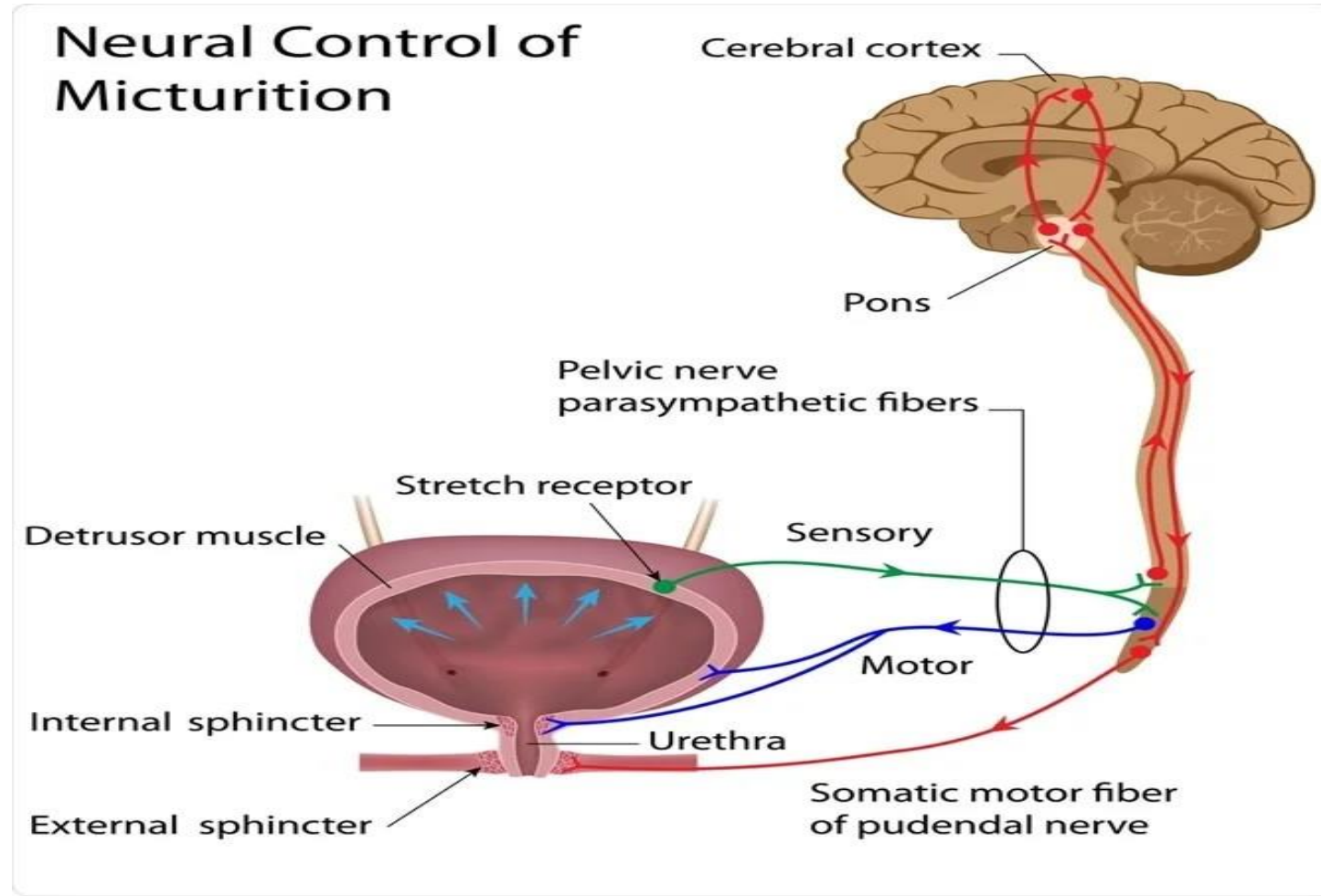
**Storage phase:** Detrusor relaxed, sphincter contracted.

**Voiding phase:** Detrusor contracts, sphincter relaxes.

Controlled by pontine micturition center, sacral cord (S2–S4), cortical input.



# Neural control



# Assessment

**History & bladder diary:** frequency, nocturia, leakage, urgency episodes.

**Clinical exam:** pelvic floor strength.

**Investigations:** Urodynamics, post-void residual volume, ultrasound.

**Questionnaires:** International Consultation on Incontinence Questionnaire (ICIQ), King's Health Questionnaire.

# Complications

- Recurrent UTIs.
- Hydronephrosis due to retention.
- Skin breakdown from incontinence.
- Social isolation, depression.

# Principles of Physiotherapy Functional Training

## **Goal:**

To improve bladder control, continence, and quality of life.

## **Strategies:**

Behavioural training.

Pelvic floor strengthening.

Neuromuscular re-education.

Functional retraining in daily activities.

Patient/caregiver education.

# Behavioural Training Approaches

Bladder diary & education.

**Bladder retraining:** Gradual increase in voiding interval (timed voiding).

**Urge suppression strategies:** PFM contractions, distraction, relaxation.

**Lifestyle modifications:** fluid intake regulation, caffeine/alcohol reduction, weight management.

# Pelvic Floor Muscle (PFM) Training

**Kegel's exercises:** graded contractions (slow/fast holds).

**PERFECT scheme:** Power, Endurance, Repetitions, Fast contractions, Every Contraction Timed.

**Functional PFM use:** contract before sneeze/lift (“Knack technique”).


**Biofeedback / EMG-assisted training.**

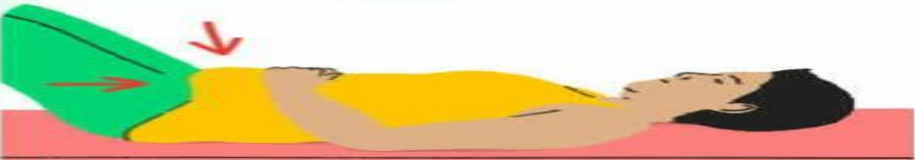
**Electrical stimulation** (for weak PFM).


# Pelvic floor exercises

## How to do Kegels

Pelvic floor exercises can help relieve symptoms of pelvic floor dysfunction, such as leaking urine, bladder issues, or pelvic pain.


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1 Lie flat on the floor with your knees bent. Locate your pelvic floor muscles (you use them to stop a stream of urine or hold back gas).
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2 Draw your pelvic floor muscles up and in, or imagine them rising like an elevator.
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3 Tighten your pelvic floor muscles for 3 seconds. Then relax them for 3 seconds. This is one Kegel. Repeat this until you've done 10 Kegels.

**10 Kegels**



Do one set in the morning and one at night. As you gain strength, increase to 10-second holds with 10 seconds rest.

# Neuromuscular Re-education

**PNF** for pelvic floor.

**Core strengthening:** transversus abdominis, multifidus activation.

**Postural re-education:** optimize bladder control in upright positions.

**Integration with ADLs:** practicing continence strategies during transfers, mobility, lifting.



# THANK YOU