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.

Achieving Bladder Dysfunction Management

5

Test

Implement the plan and monitor outcomes.

4

Prototype

Develop an individualized therapy protocol.

3

Ideate

Brainstorm functional training methods.

2

Define

Identify the type of bladder dysfunction.

1

Empathize

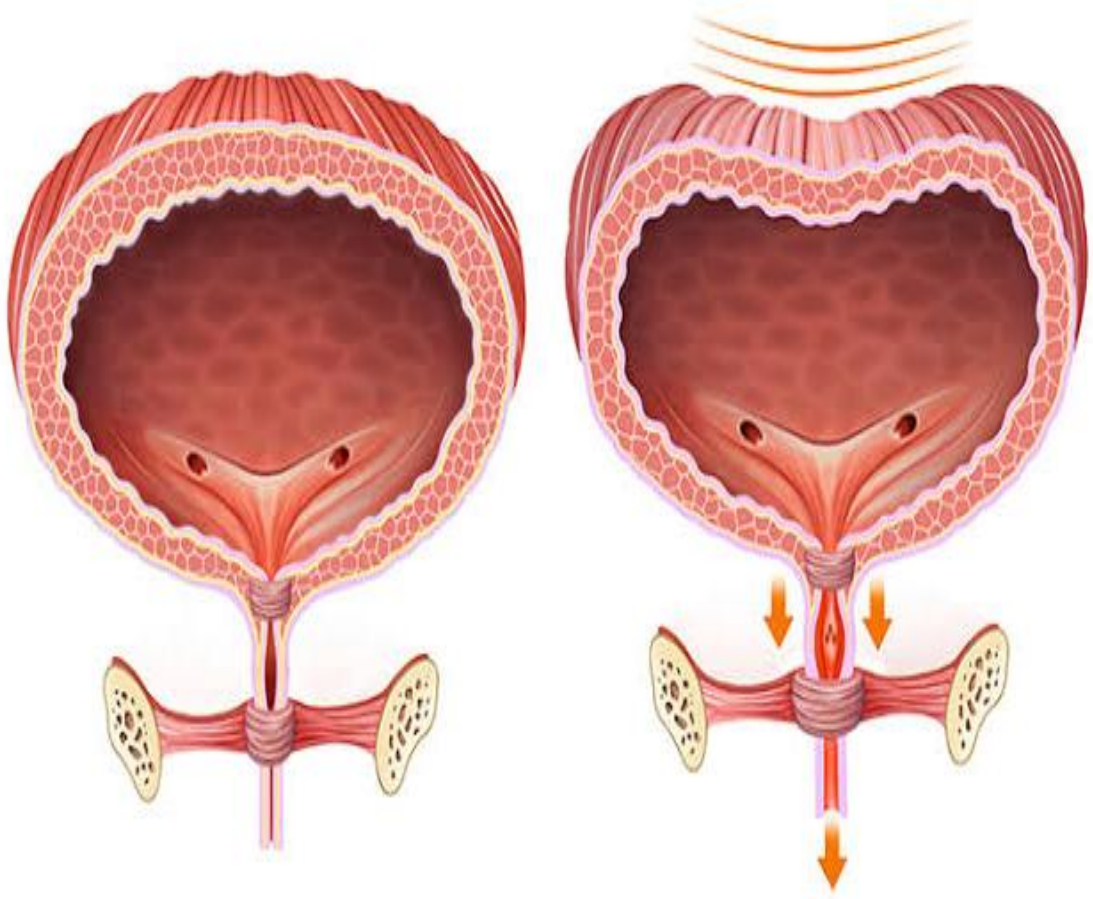
Understand patient's symptoms and emotional distress.

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.

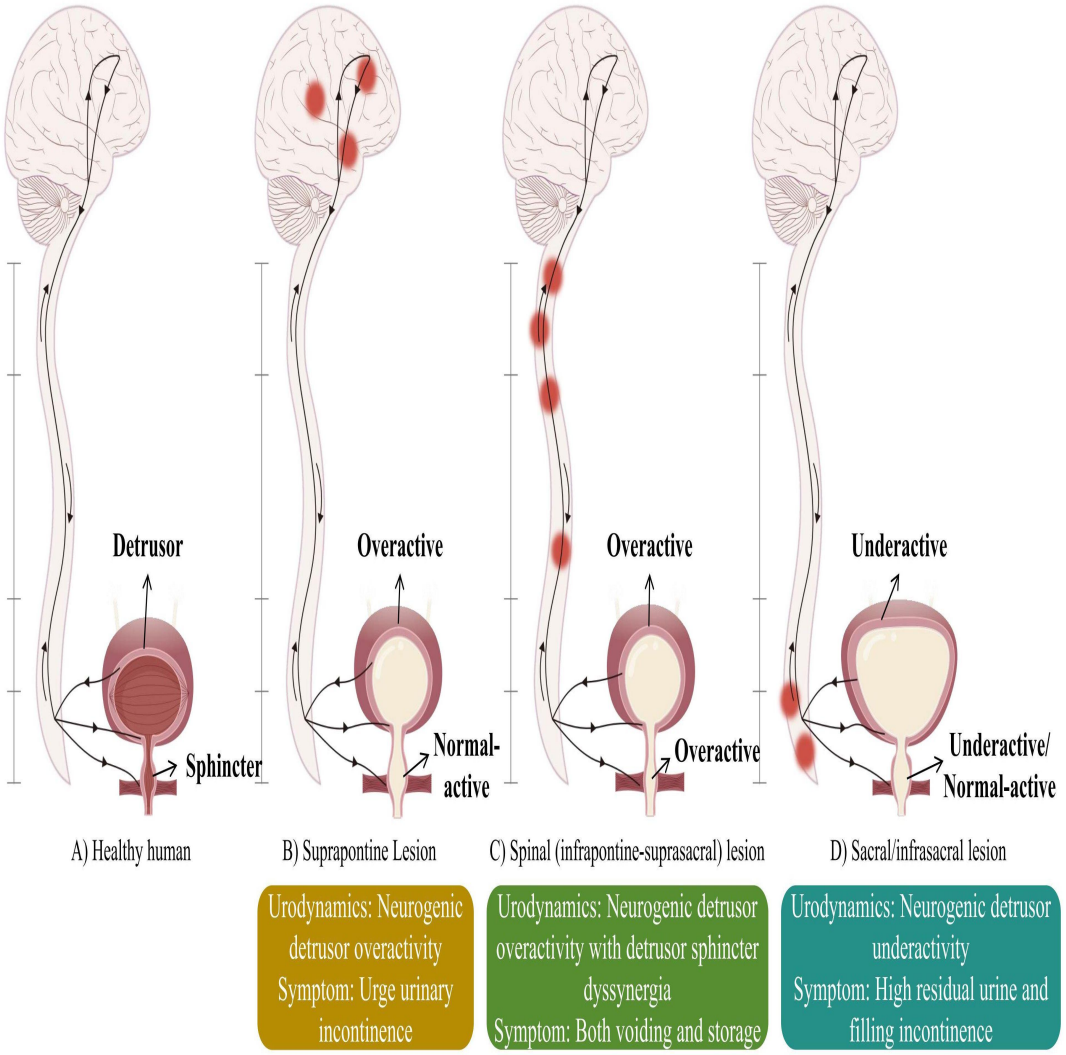
Etiology

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

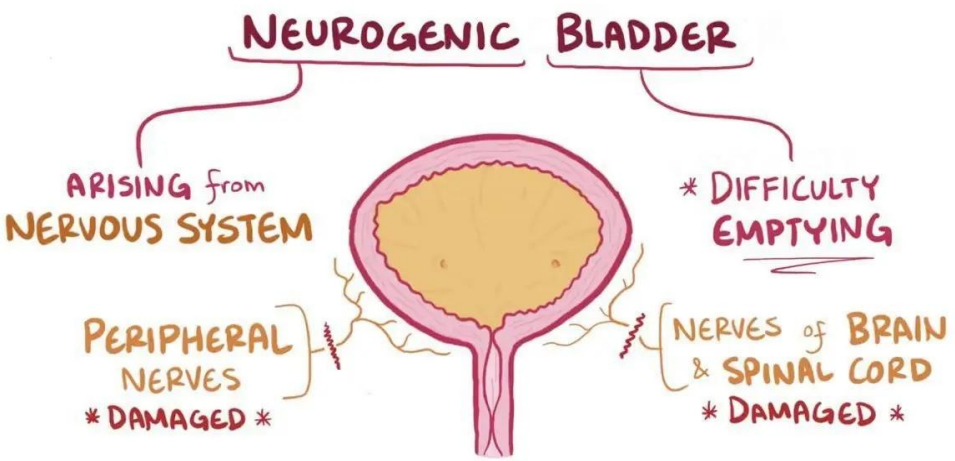
Hormonal changes.
Obstruction (BPH), UTIs.

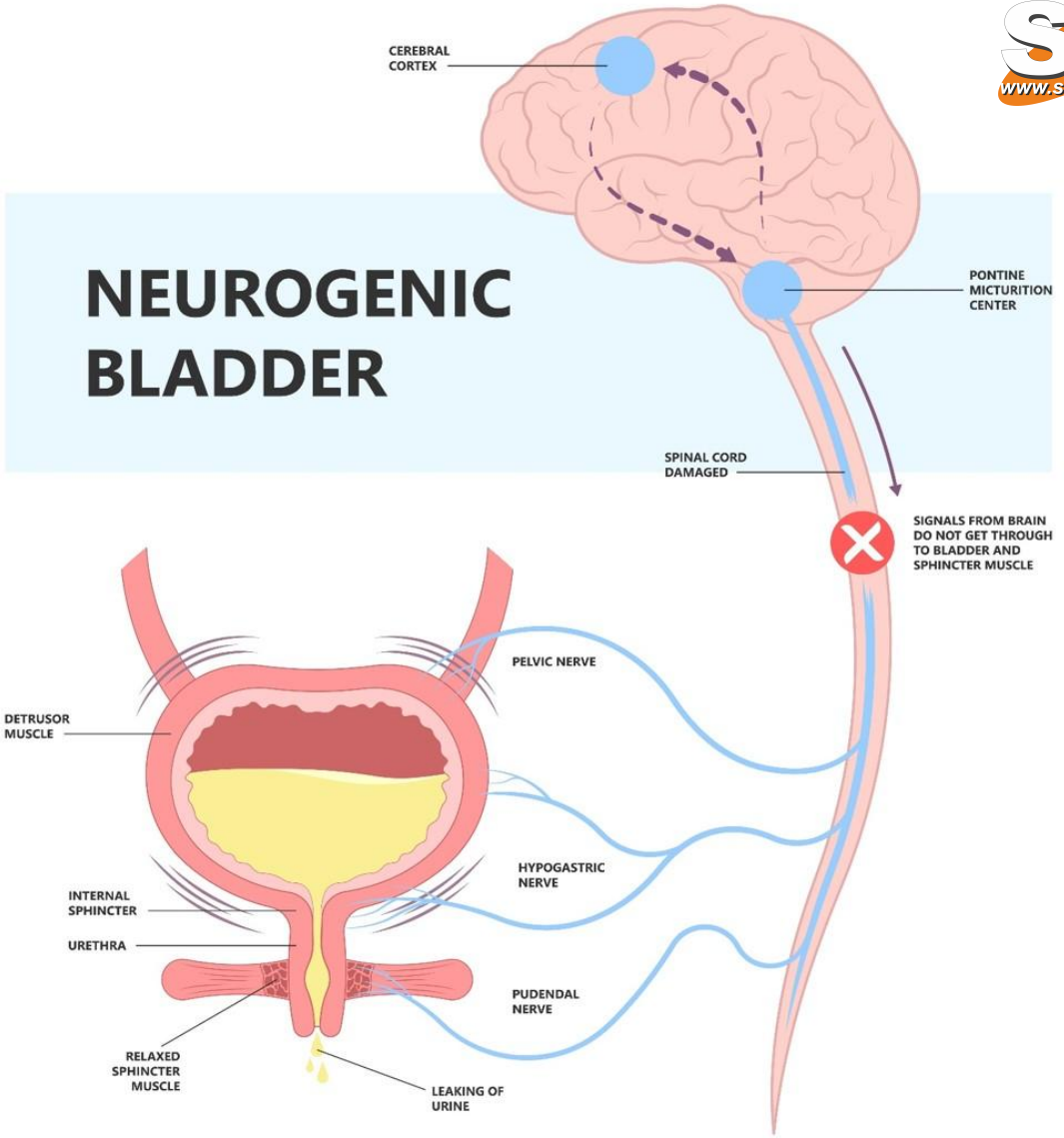


Classification / Types

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).


NEUROGENIC BLADDER
ARISING from NERVOUS SYSTEM
PERIPHERAL NERVES
* DAMAGED *
* DIFFICULTY EMPTYING
NERVES of BRAIN & SPINAL CORD
* DAMAGED *

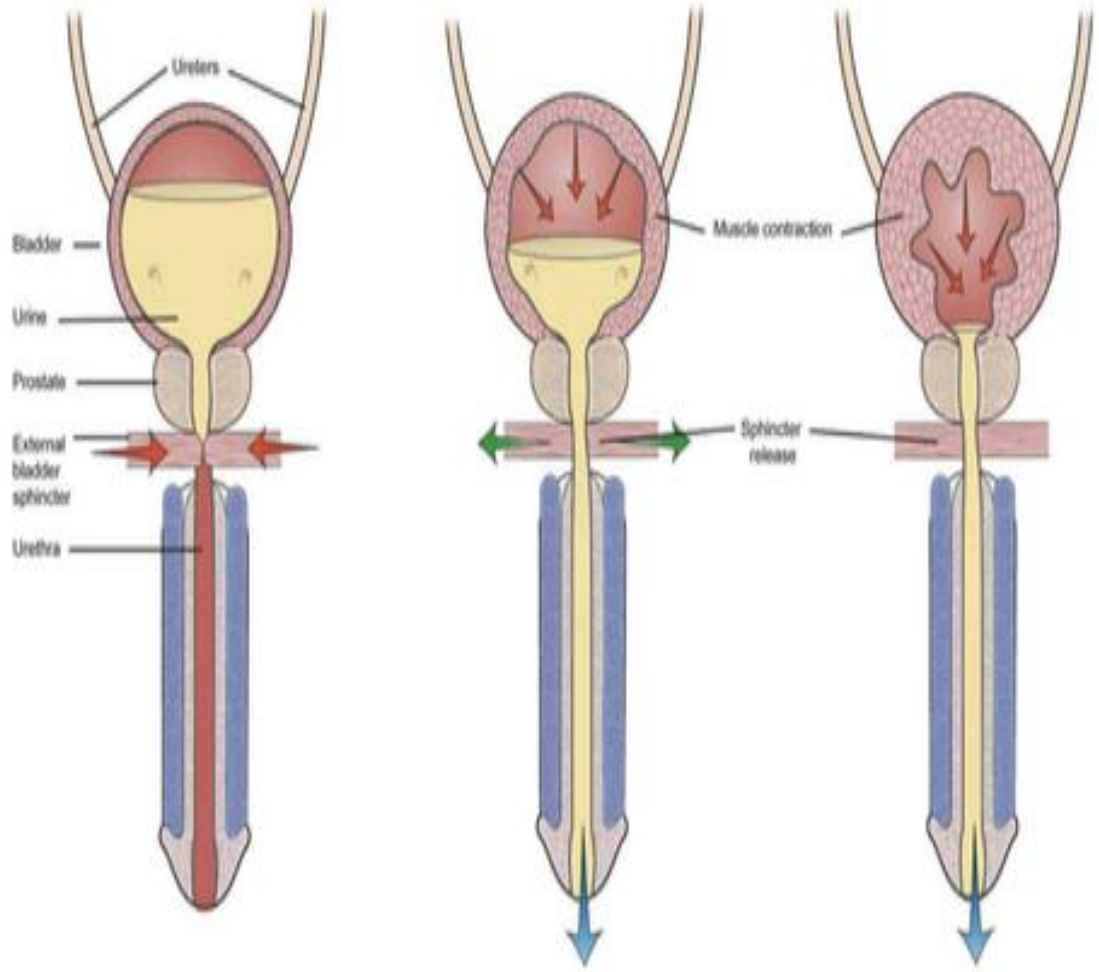

NEUROGENIC BLADDER
CEREBRAL CORTEX
PONTINE MICTURITION CENTER
SPINAL CORD DAMAGED
SIGNALS FROM BRAIN DO NOT GET THROUGH TO BLADDER AND SPHINCTER MUSCLE
DETRUSOR MUSCLE
PELVIC NERVE
HYPOGASTRIC NERVE
INTERNAL SPHINCTER
URETHRA
PUDENDAL NERVE
RELAXED SPHINCTER MUSCLE
LEAKING OF URINE

Normal Bladder Function

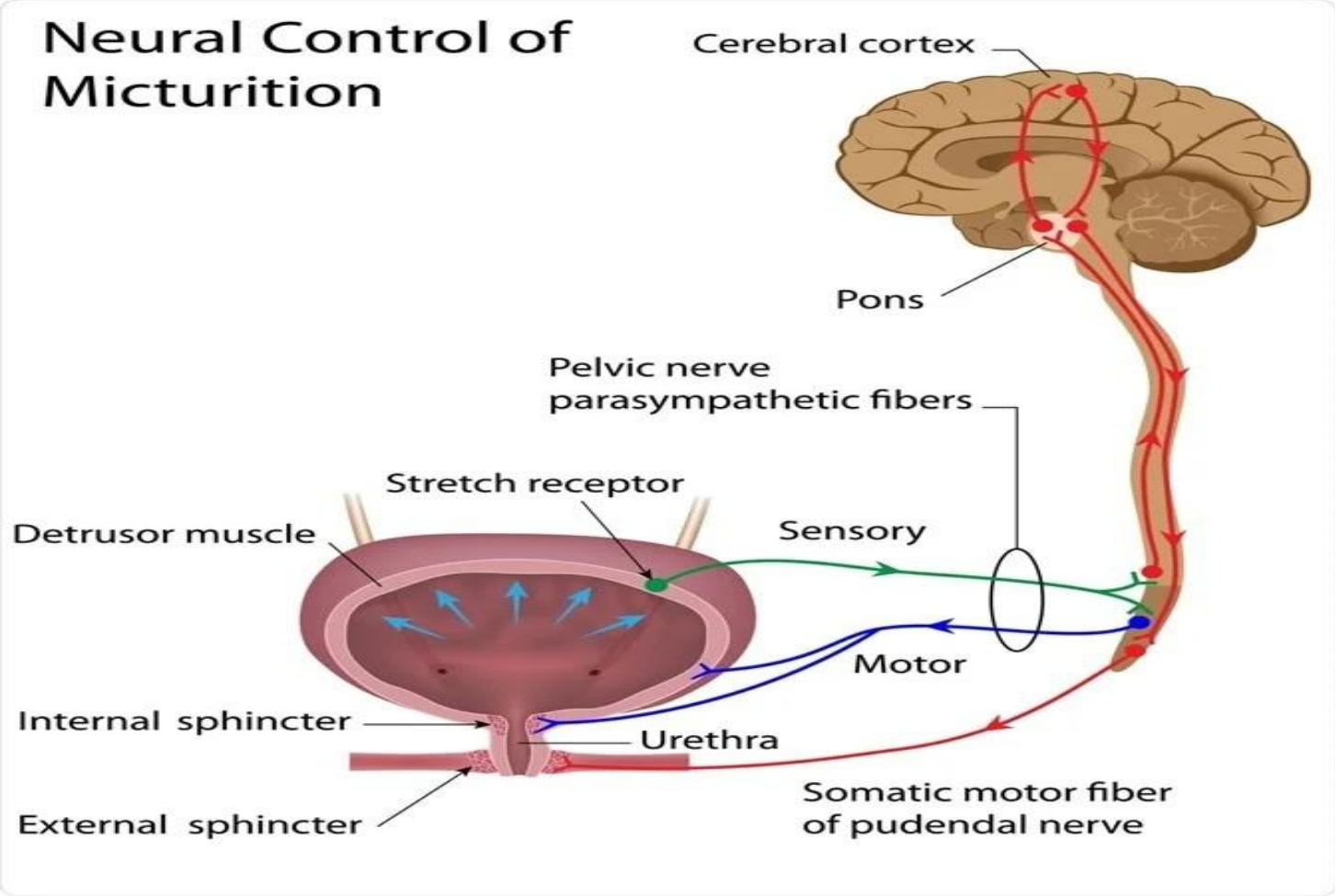
Storage phase: Detrusor relaxed, sphincter contracted.

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.

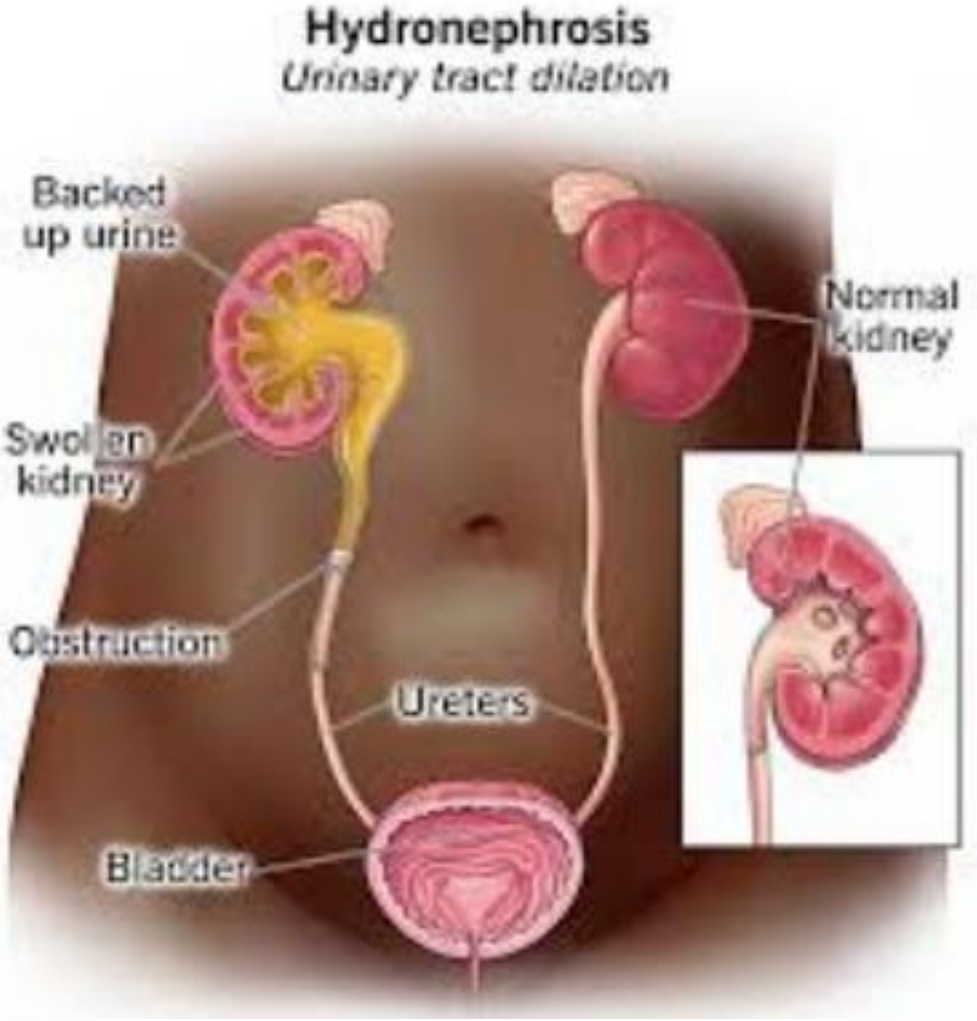
Clinical exam: pelvic floor strength.

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).

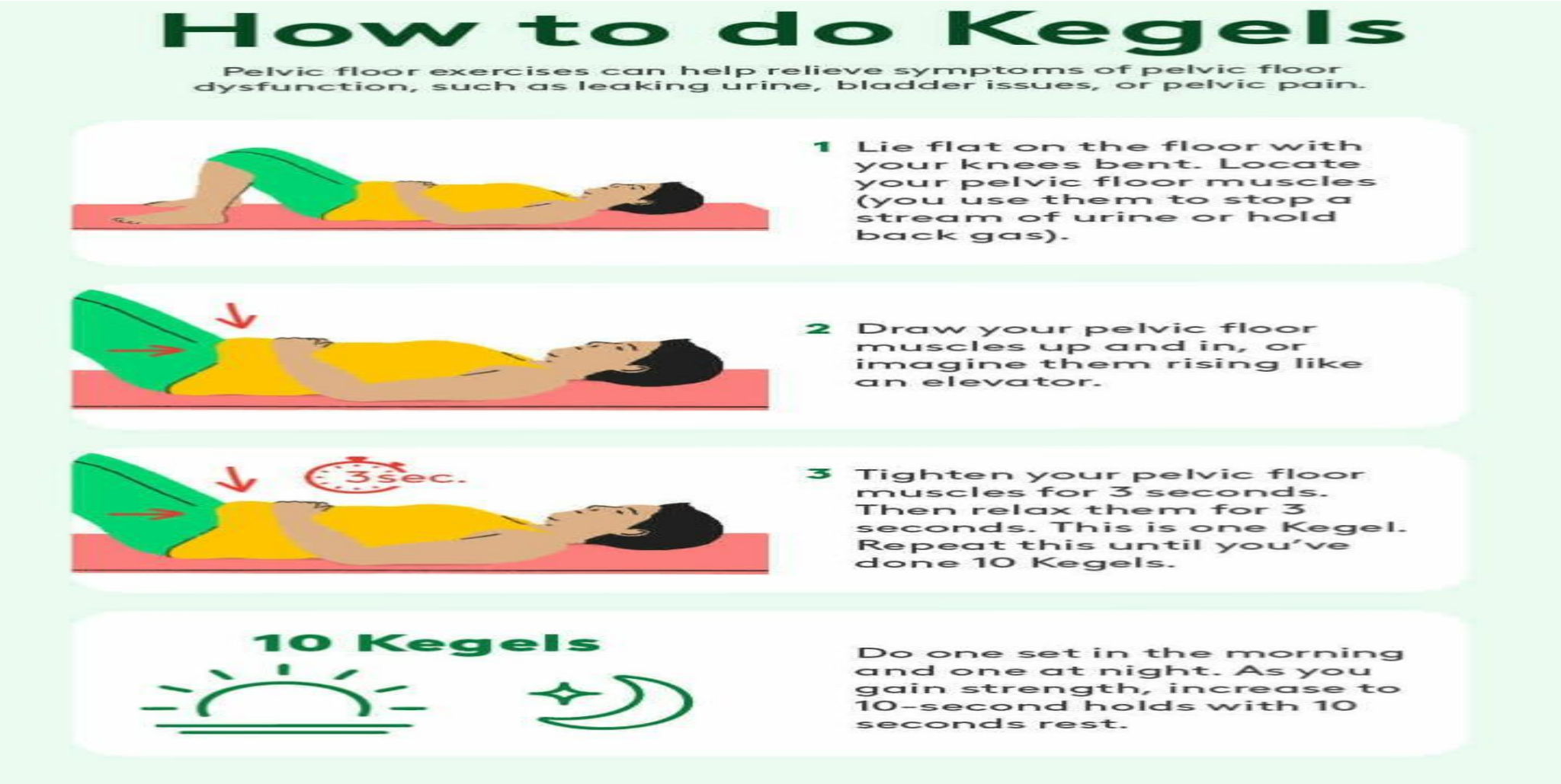
PERFECT scheme: Power, Endurance, Repetitions, Fast contractions, Every Contraction Timed.

Functional PFM use: contract before sneeze/lift ("Knack technique").

Biofeedback / EMG-assisted training.

Electrical stimulation (for weak PFM).

Pelvic floor exercises



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