Bladder Dysfunction and LUTS

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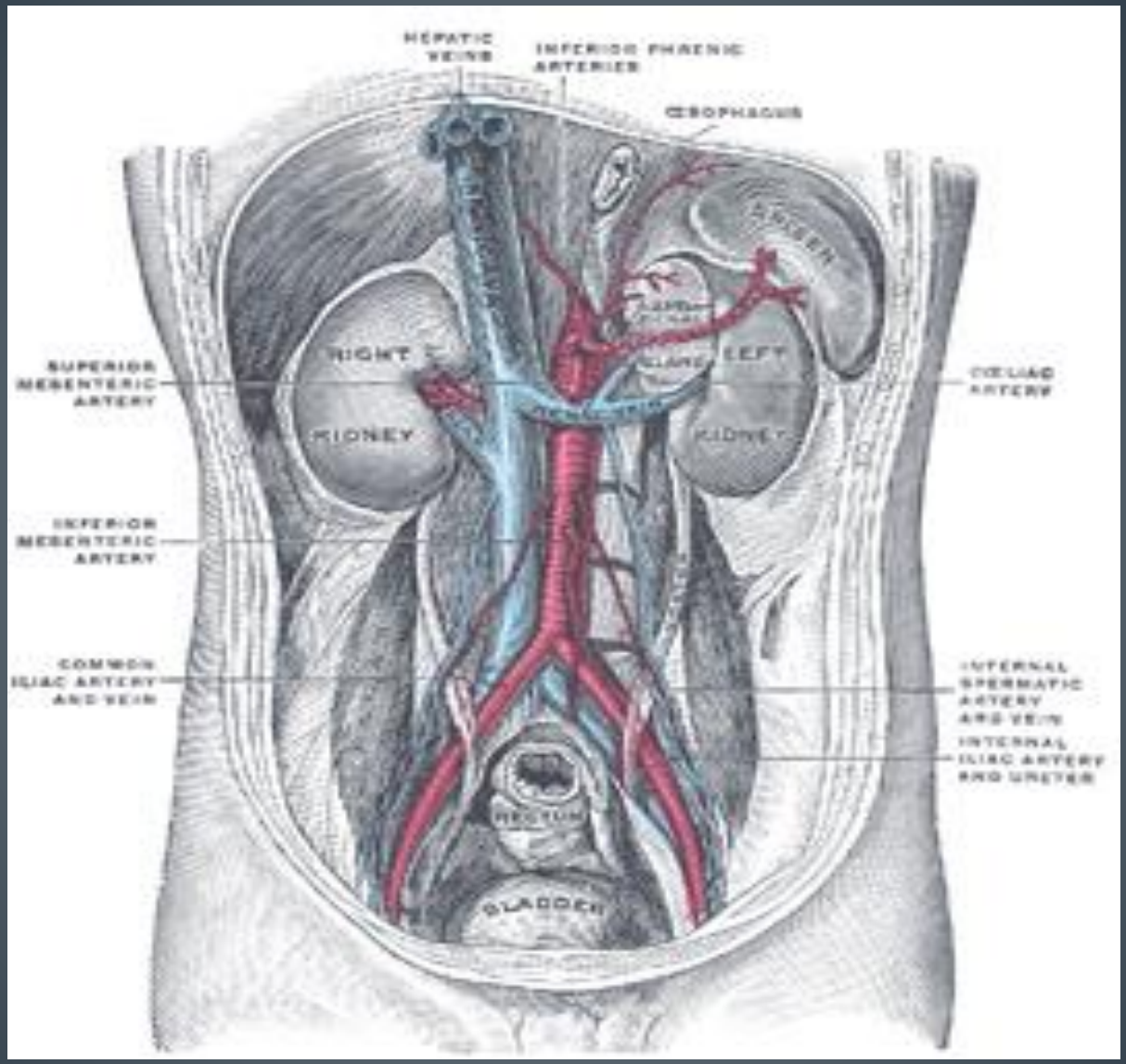
In order to understand why a bladder is not functioning properly we need to understand normal bladder function

Aims of session

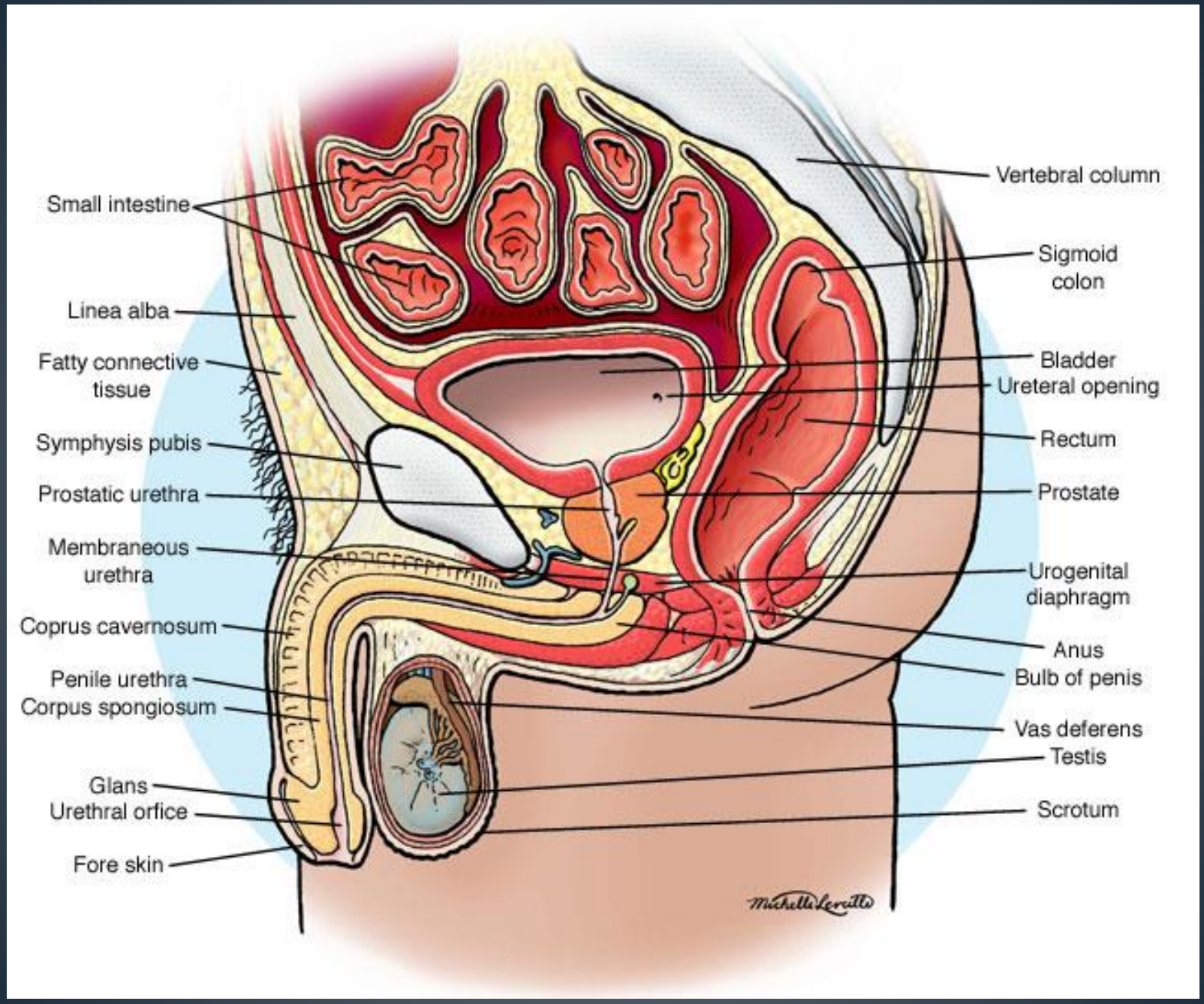
- Brief overview of anatomy and physiology of the bladder and micturition

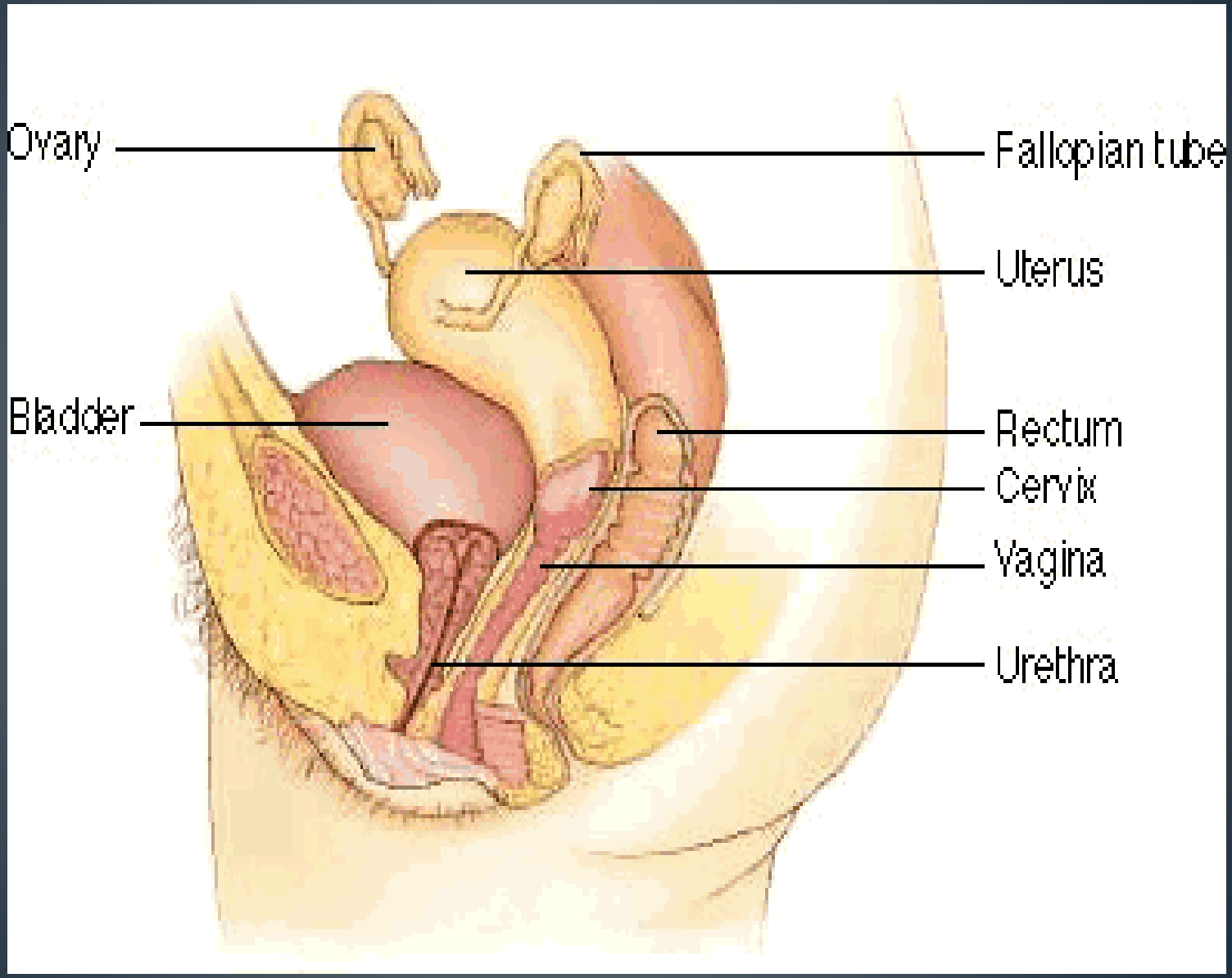
- Different types of bladder dysfunction
  - Causes
  - Signs and symptoms


HEPATIC VEINS
INFERIOR PHRENIC ARTERIES
ŒSOPHAGUS
SUPERIOR MESENTERIC ARTERY
RIGHT
LEFT
KIDNEY
KIDNEY
CŒLIAC ARTERY
INFERIOR MESENTERIC ARTERY
COMMON ILIAC ARTERY AND VEIN
INTERNAL SPERMATIC ARTERY AND VEIN
INTERNAL ILIAC ARTERY AND URETER
RECTUM
BLADDER

Urinary Bladder

- Hollow, collapsible, muscular organ
- Lies in anterior of pelvis
- Posterior to symphasis pubis

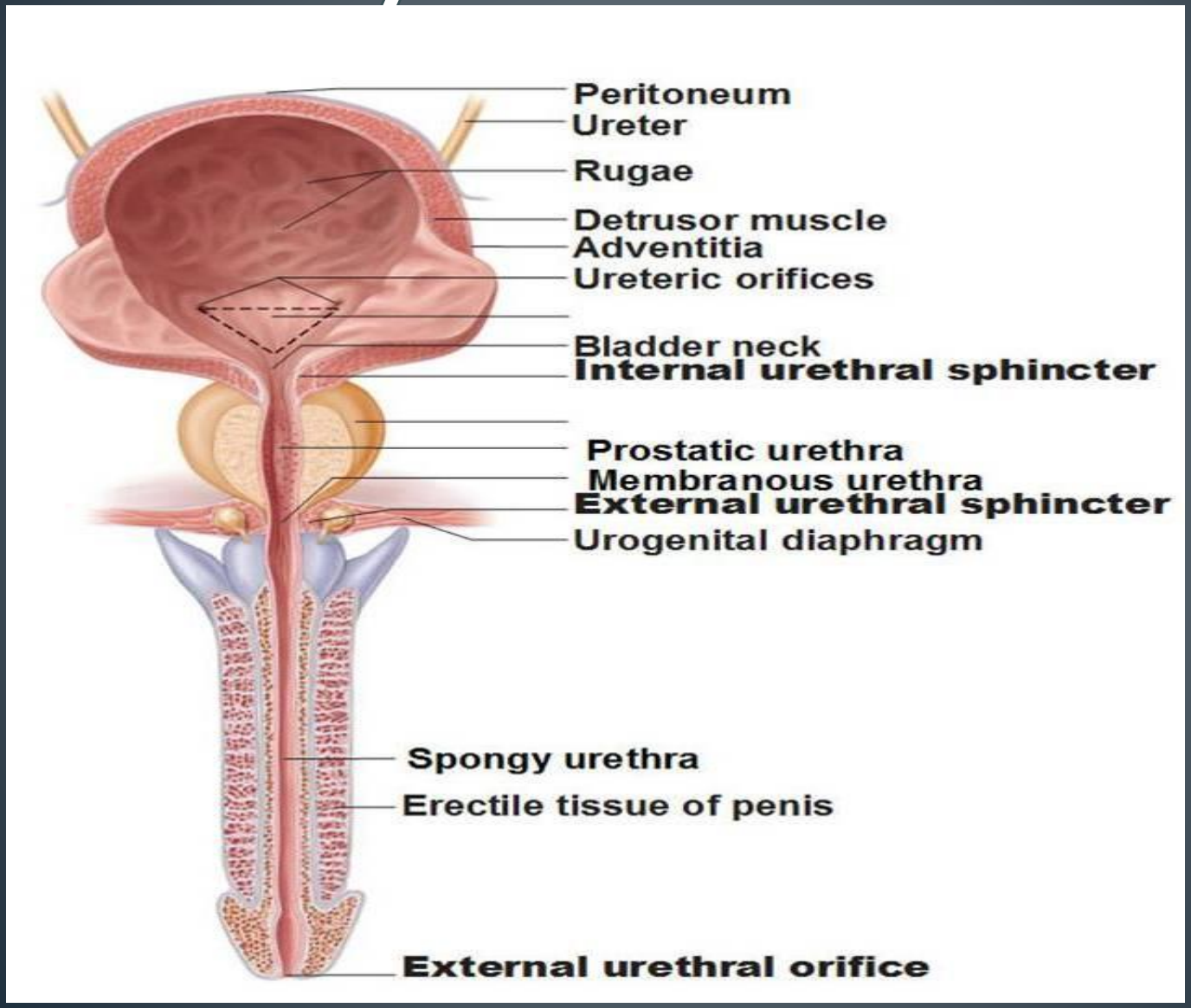

Small intestine
Linea alba
Fatty connective tissue
Symphysis pubis
Prostatic urethra
Membraneous urethra
Coprus cavernosum
Penile urethra
Corpus spongiosum
Glans
Urethral orfice
Fore skin
Vertebral column
Sigmoid colon
Bladder
Ureteral opening
Rectum
Prostate
Urogenital diaphragm
Anus
Bulb of penis
Vas deferens
Testis
Scrotum
Michelle Leveille


Ovary
Fallopian tube
Uterus
Bladder
Rectum
Cervix
Vagina
Urethra

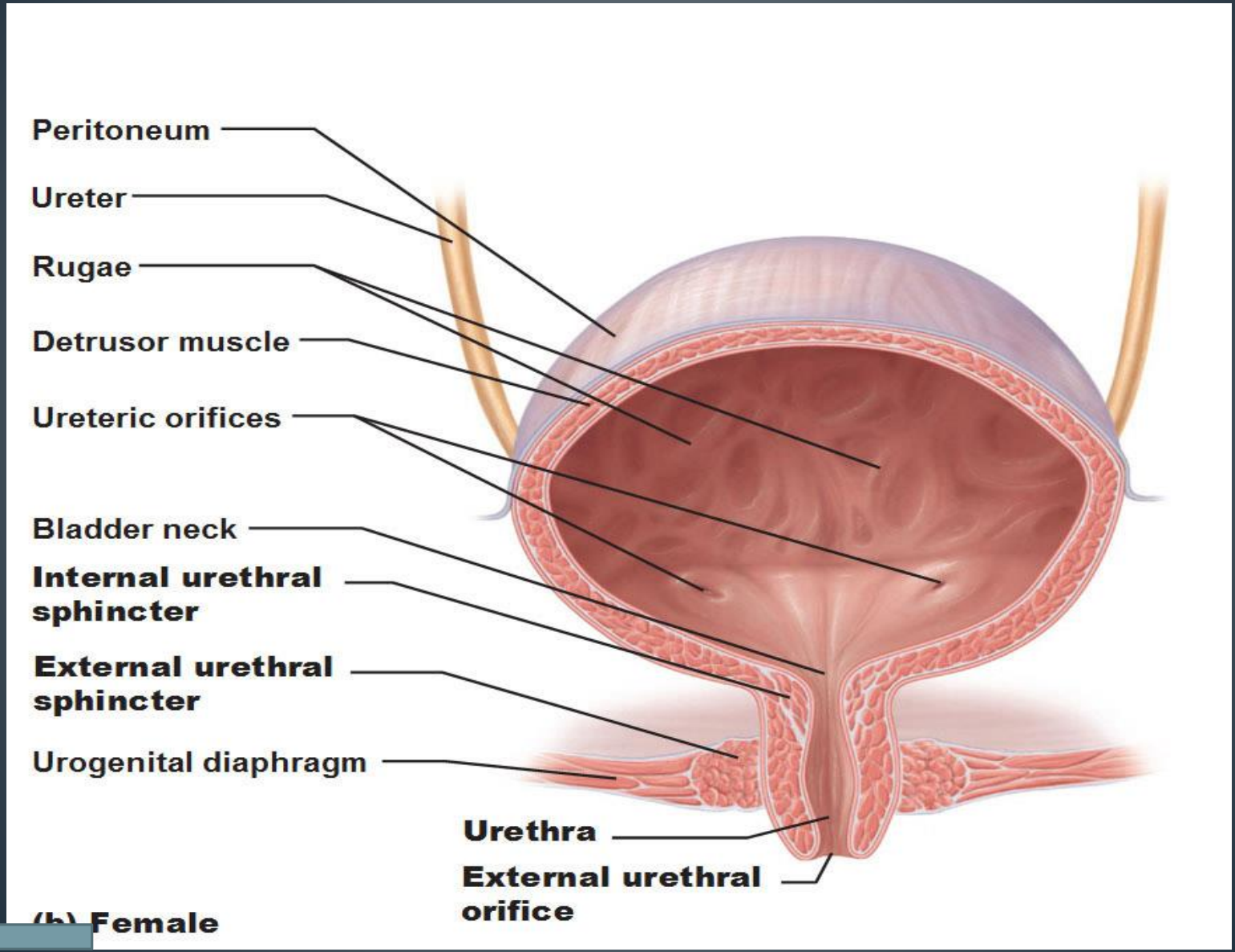
Bladder Structures

- Layers of the bladder
- Bladder neck – in men
- Bladder neck – in woman
- External Sphincter

Anatomy - Male



Anatomy – Female

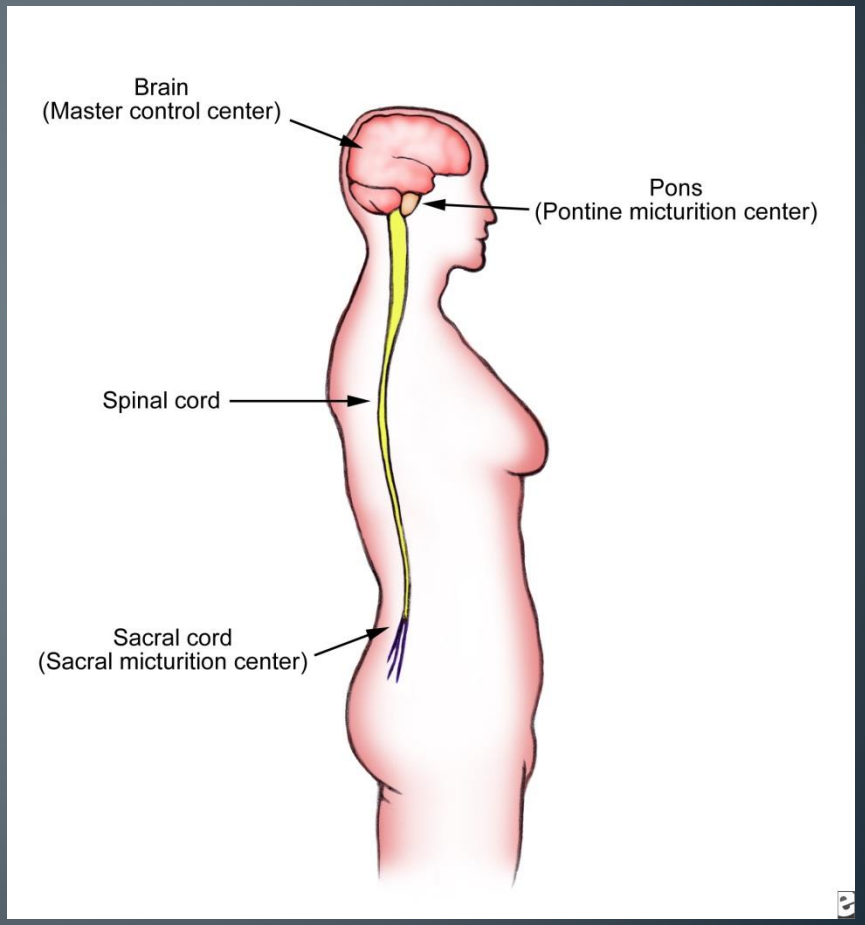


Controlling Micturition

- **Baby's Bladder**
  - **Simple spinal reflex arc**
- **Adult Control**
  - **Acquiring ability to inhibit reflex arc**

Micturition Centres

- Spinal Micturition centre
- Pontine micturition centre
- Cortical micturition centre

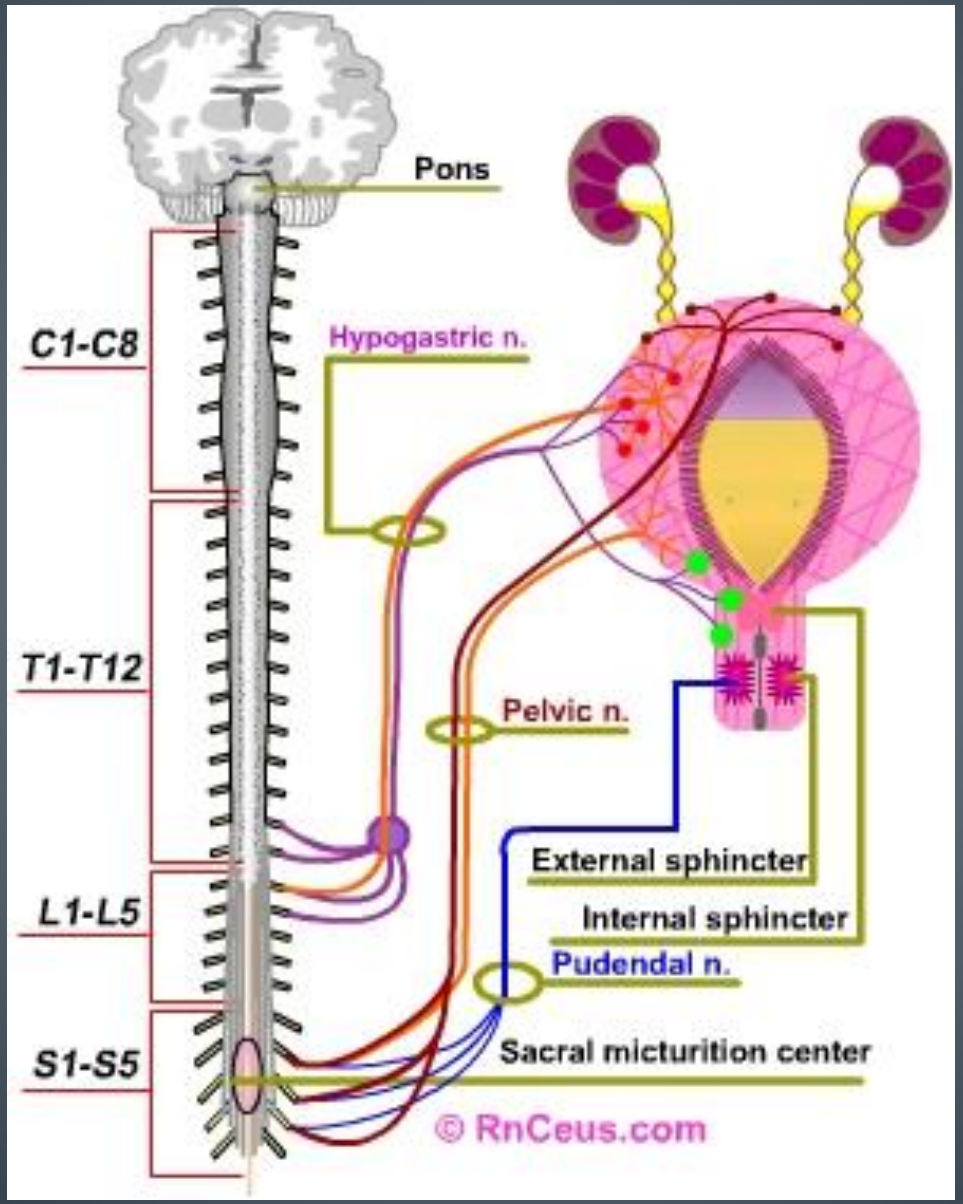


Innervation of the Bladder

Autonomic and Somatic supply

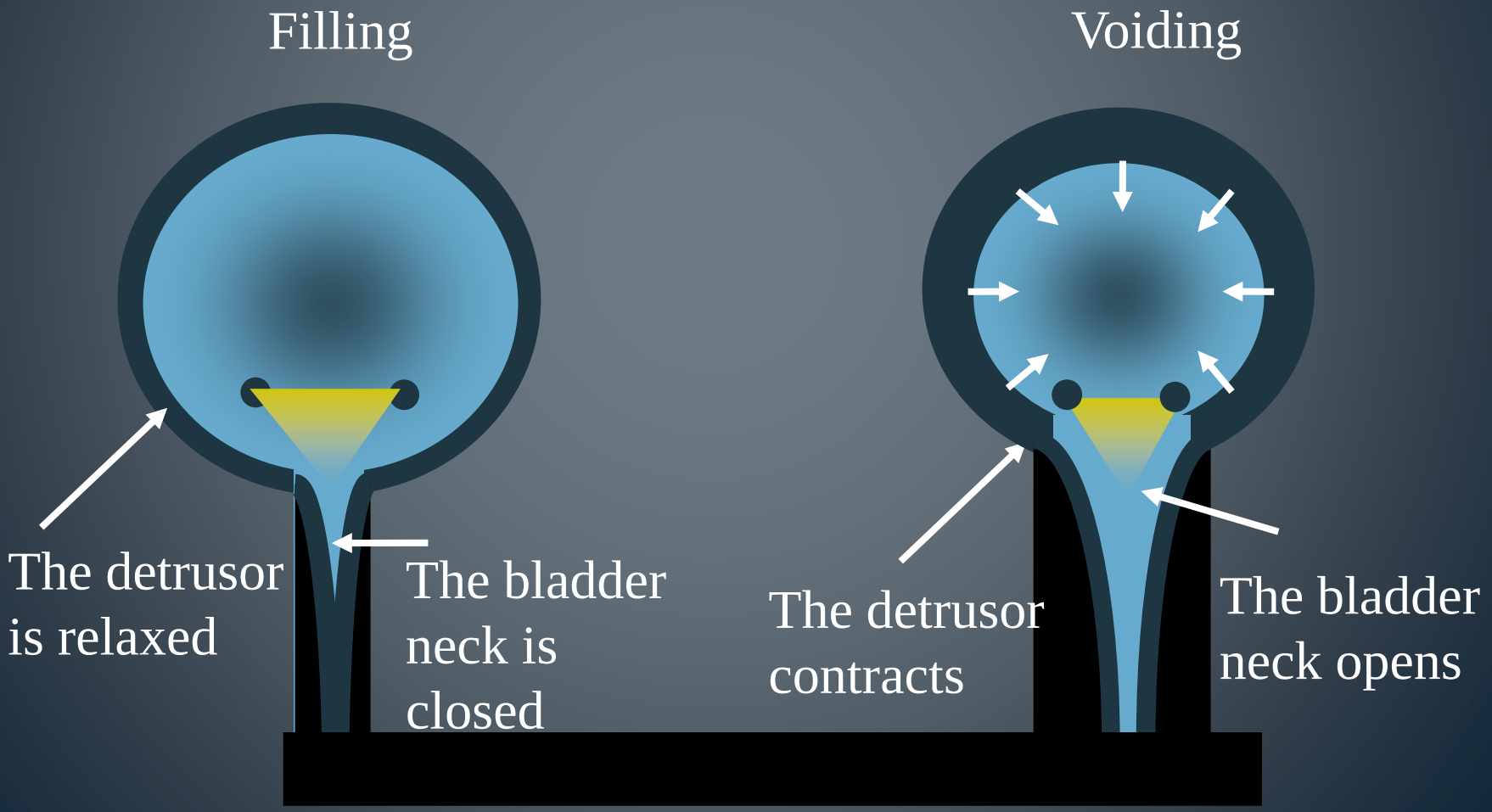
- Autonomic
  - Parasympathetic
  - Sympathetic
- Somatic
  - Pudendal

Micturition



BLADDER FILLING AND VOIDING

The filling and voiding cycle is complex and requires co-ordination between contractile motions of the bladder and reciprocal motions of the bladder neck



Bladder Dysfunction

Lower urinary tract symptoms

- Storage
- Voiding
- Post micturition

Storage

- *Increased daytime frequency* – patient considers that he/she voids too often
- *Nocturia* – patient wakes one or more times to void

- *Urgency* - sudden compelling desire to pass urine

Voiding

- Problems emptying bladder:
  - Incomplete emptying
  - Passing small amounts of urine

Post micturition

- Feeling of incomplete emptying
- Post micturition dribble

Complications

- Incontinence
- Retention

Including:

UTIs

Pylonephritis

Retention of urine

Vesicoureteric reflux

Renal calculi

Chronic kidney disease

Sepsis

Cancer from long term indwelling catheter

Diagnosis

History

- Medical history
- Previous pelvic surgery
- Trauma
- Medications
- Fluid intake and level of hydration
- Assess self-caring tasks

Physical Examination

- Vaginal and pelvic floor assessment
- Urethral pressure profile
- Bowel assessment
- Skin condition
- Urinalysis
- Psychological Assessment

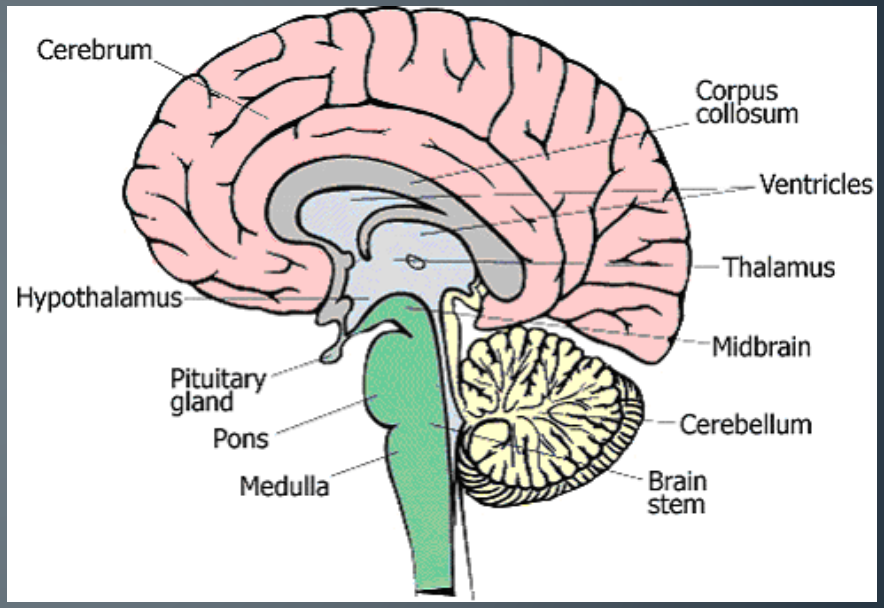
Investigations

- Urinalysis/MSU
- Ultrasound
- Urodynamics
- Flow rate/uroflowmetry
- Video cystometrogram
- Urethral pressure profile
- Renal function

Neurogenic bladder dysfunction

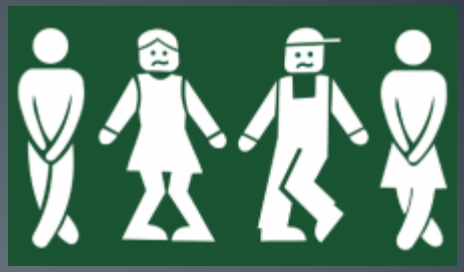
Brain Stem Lesions

- Stoke
- brain tumour
- Parkinson's disease
- Hydrocephalus
- Cerebral palsy
- Shy-Drager syndrome



all examples of brain lesions.

LUTS



- Lesions above the Pons :
  - Detrusor hyperrelfexia (over active bladder)
  - Frequency and urge incontinence.
  - Storage of urine is difficult and volumes low.
  - Nocturia.

Spinal Cord Lesions

- spinal lesions include:
  - spinal cord injuries e.g. following motor vehicle and driving accidents,
  - Multiple sclerosis,
  - myelomeningocele.

LUTS

- Lesion between Pons and the sacral spinal cord (e.g.paraplegic or hemiplegic) the individual will experience:
  - detruser hyperreflexia.
  - detruser-sphinter dyssynergia
  - Frequency, urgency, pass small amounts of urine

Sacral cord Lesions

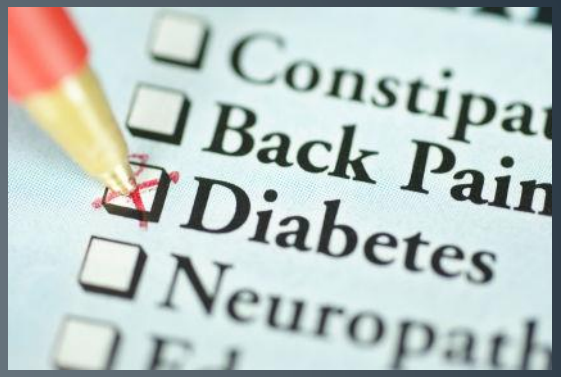
- Sacral cord tumour
- Herniated disc
- Crushing injuries to the pelvis
- Post surgery e.g. lumbar laminectomy. abdominal resections or radical hysterectomy.

LUTS- sacral cord lesions

- Damage to the sacral cord nerves result in:
- being unable to void
- sensory neurogenic bladder (urgency and frequency)
- detruser areflexia (complete or incomplete emptying of the bladder)

Peripheral Nerve Neuropathy

- Diabetes Mellitus
- AIDS
- Poliomyelitis
- Guillain-Barre syndrome
- Severe herpes in genito-anal area
- Neuro syphilis
- Pernicious anaemia



LUTS: Peripheral nerve damage

- Bladder distension
- Hypo contractile bladder
- Urinary retention
- Large residual volumes
- Sensation of filling absent
- Overflow incontinence

Non Neurogenic Voiding Dysfunction

- Behavioural or psychological disorders – especially in children
- Not caused by injury, illness or birth defect

- May be exacerbated or triggered by spicy foods, caffeine and alcohol

Voiding dysfunction

- Poor co-ordination between bladder muscle and urethra

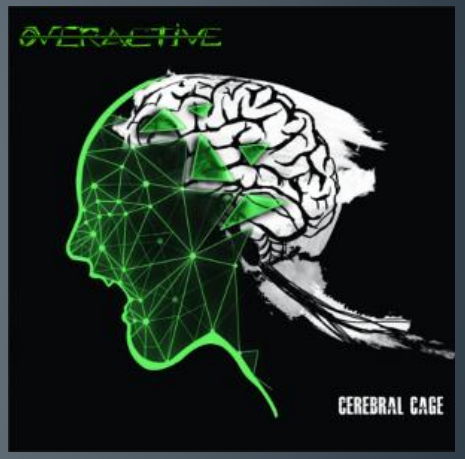
- Non-relaxing pelvic floor muscles +/- nerve dysfunction

LUTS – non-neurogenic

- Frequency
- Hesitancy
- Slow or weak stream
- urgency
- Incomplete emptying
- Small amounts of urine
- dribbling
- Nocturia

Sensory overactivity

- Urinary tract infection
- Stones
- Tumours
- Faecal impaction
- Prostate enlargement
- idiopathic bladder overactivity



Bladder over activity in the elderly

Most common cause of incontinence

Thank You