Management of neurogenic bladder (bowel) and pressure ulcers

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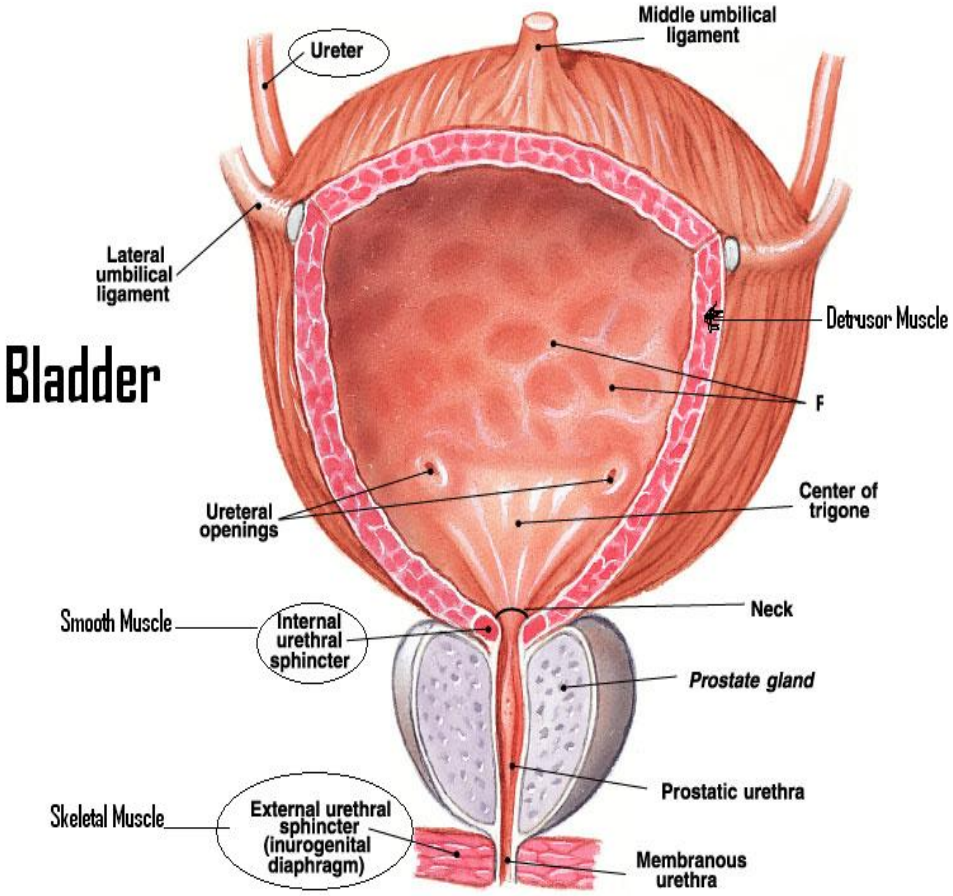
The Urinary System

The Sphincter Muscles

- The internal sphincter – involuntary
- The external sphincter – voluntary

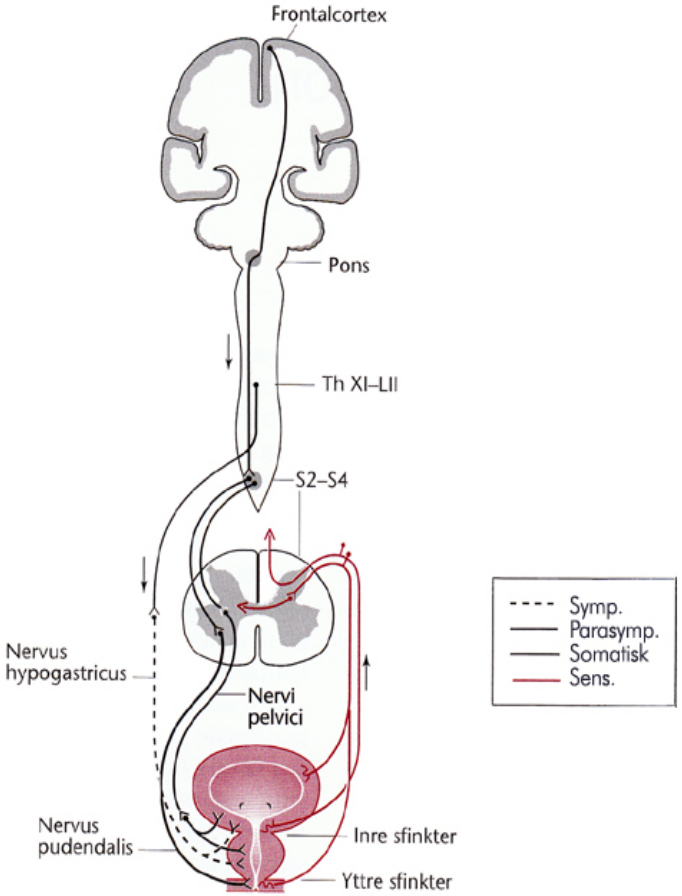
The Urethra

- Males: 18-25 cm long
- Females: 3,5-5 cm long



Bladder innervation

Stimulation	Response
Parasympathetic (S 2-4)	Excitatory to detrusor, relaxes sphincter - void
Sympathetic (T11- L2)	Inhibitory to detrusor, ↑trigone & Urethral tone
Somatic (S2 - 4)	Excitatory to the external sphincter



The Bladder

- Capacity: 400-500 ml (2 cups)
- Rate of filling: 20-100 ml/h
- First feeling of urge: 200 ml (1 cup)
- Strong desire to void: 400 ml

Normal Voiding (urination)

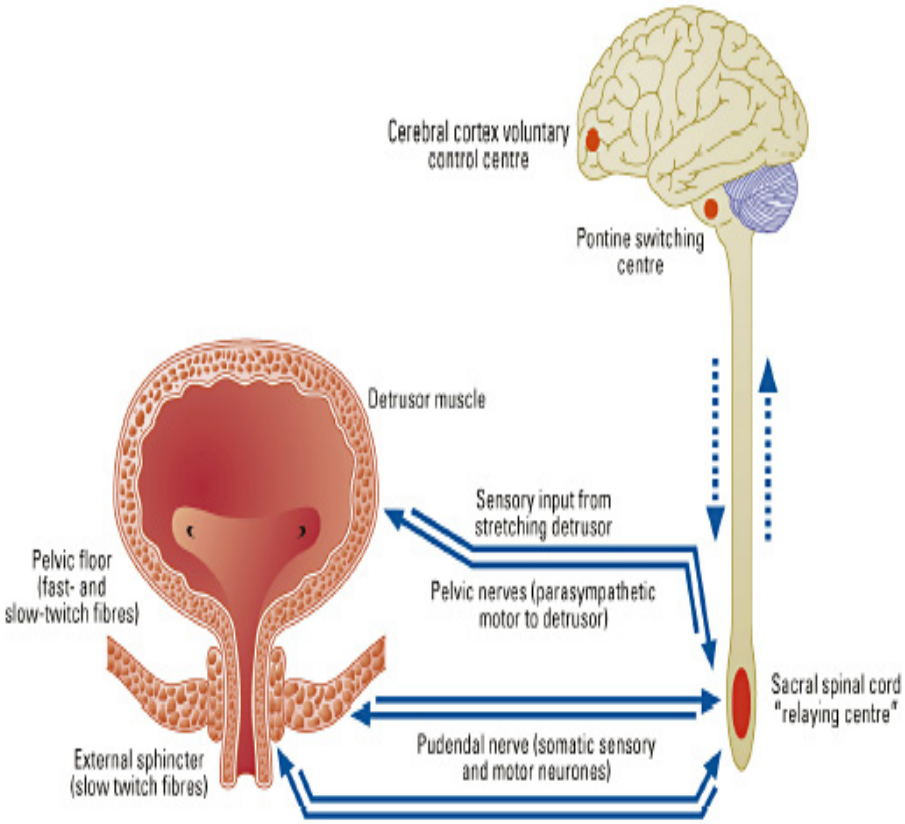
Three Basic steps

1. The sphincter muscles relax
2. The bladder muscles (detrusor) contracts (squeeze) to help push the urine from the bladder
3. The bladder is emptied through the urethra and urine is removed from the body.

Coordination of voiding controls by two main centers

- **Pontine Centre**
coordinates relaxation of the sphincter when the bladder contracts

- **Sacral Centre**
is a reflex center that initiates bladder contraction



Acutely after SCI – Spinal shock

- The nervous system is unable to transmit signals
- Flaccid paralysis below the level of injury (areflexia, hypotonia)
- Loss of bowel and urinary bladder reflexes
- Patient need **indwelling catheter**
- Flaccid paralysis of bowel
- Paralytic ileus 0-10 days

Neurogenic Bladder

Dysfunction of the urinary bladder caused by a lesion of the nervous system.

- Upper motor lesion - suprasacral lesion

⇒ **spastic bladder**

- Lower motor lesion – sacral lesion

⇒ **flaccid bladder**

Spastic bladder –Reflex bladder

- External sphincter spastic
- Bladder muscle twitchy (like legs)
- Can’t sense when bladder is full
- Involuntary urination: frequent, small amounts
- Bladder and sphincter may contract simultaneously: Detrusor External Sphincter Dyssynergia (DESD)

  - *Dyssynergia* occurs when the sphincter muscles do not relax when the bladder contracts

Flaccid bladder - Non-reflex bladder

- External sphincter weakness
- Bladder muscle doesn’t work - becomes overdistended, or stretched
- Can’t sense when bladder is full
- Overflow incontinence

Bladder management program

Depends on :

- Level of injury
- Completeness of injury
- Hand function
- Mobility
- Gender
- Personal choice
- Cultural issues
- Mental condition
- The availability and expertise of Personal Assistants, caregivers, District Nurses etc.

Types of bladder management

- Indwelling catheter (IDC / SPC)
- Intermittent catheterization
- Condom Catheter
- Reflex or trigger voiding
- Others

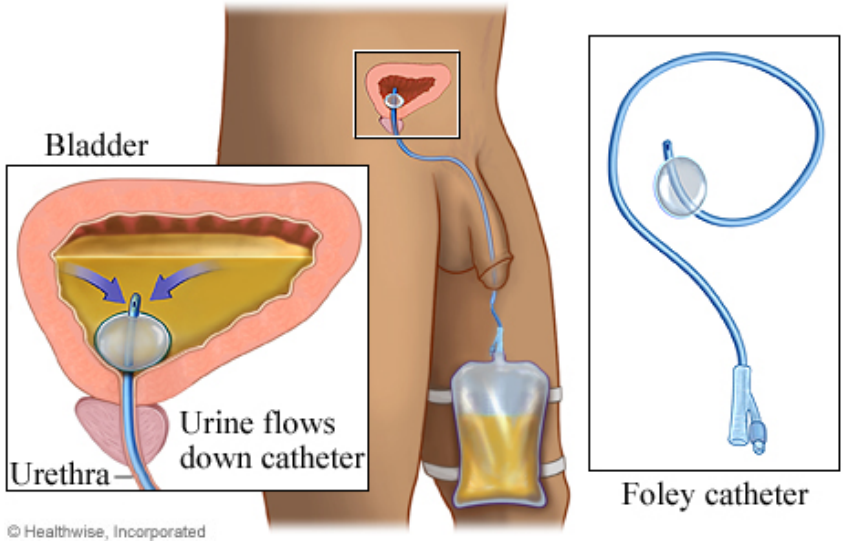
Indwelling Catheter (IDC)

Advantages with IDC:

- Vital in the beginning due to Spinal Shock
- Prevents VUR (reflux)
- Simple to manage

Disadvantages with IDC:

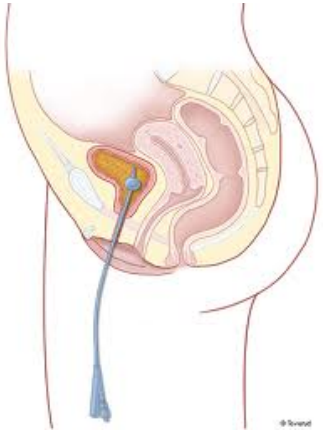
- Infection risk
- Can be blocked



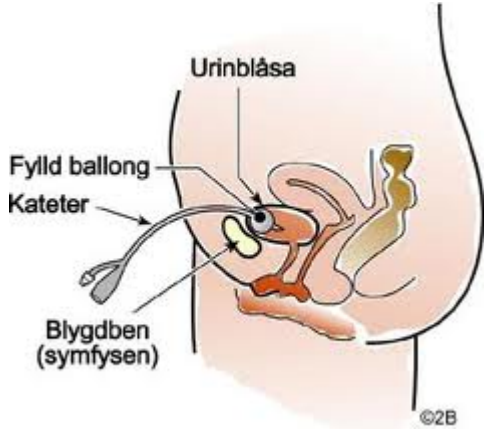
Suprapupic Catheter (SPC)

- Alternative for patients who can't manage CIC
- The catheter goes through the abdomen into the bladder

Indwelling urethral catheter



Suprapubic catheter



Care of IDC/SPC

- Changed regularly, depending on material of catheter every 6 – 12 weeks
- Ensure that catheter is kept without kniks and blockages
- Increased fluid intake (water) <2-3 liters / day
- Good hygiene
- Bladder washouts if catheter tends to get blocked
- Urine bag to be kept so it does not stretch the catheter
- Clamp during daytime

Clamping IDC/SPC

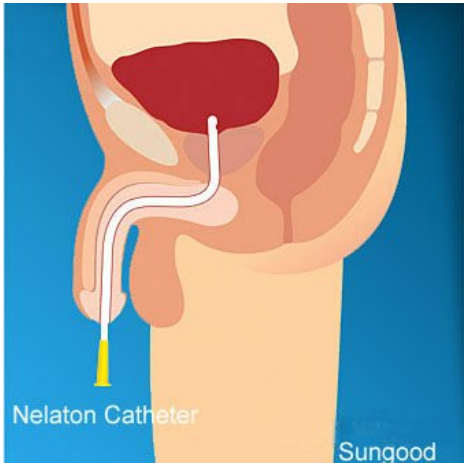
- To maintain bladder function

- To investigate:
- does the patient have sensation of the bladder filling up?
- urine production during the day

- Integrity – no urinary bags visible

Routines - to introduce CIC

- Clamp the indwelling catheter for a couple of hours at the time
- Give information about CIC
- Extract the indwelling catheter
- Start CIC
- Observation
- Follow-up



Goal:

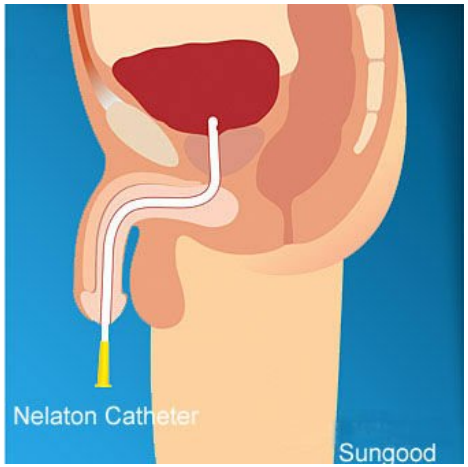
– to make the patient as independent as possible

Clean Intermittent Catheterization (CIC)

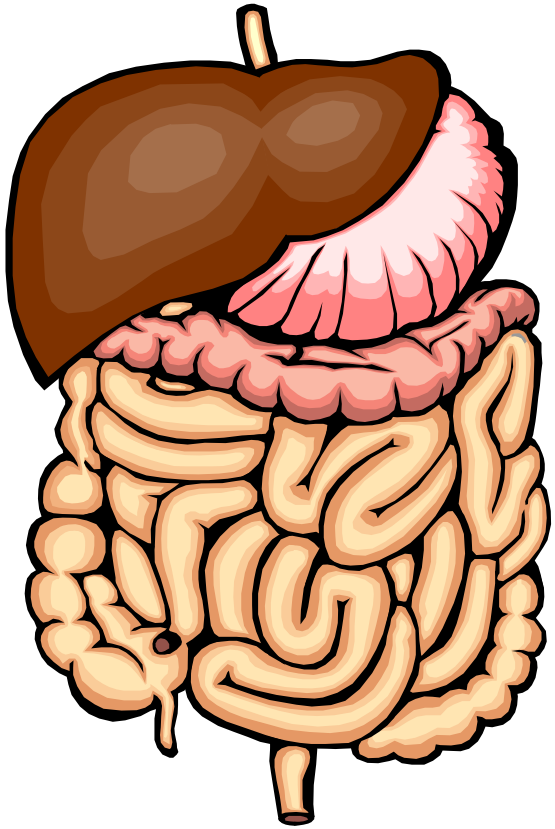
- The best method of bladder emptying for SCI patients
- The bladder is emptied by single use catheters 4-6 times/day

Prevents:

- Urinary Tract Infection (UTI)
- Leakage
- Kidney problems



Neurogenic Bowel



Katarzyna Trok

Normal defecation physiology

- Interaction between involuntary and voluntary activities

- **Gastro-colic reflex** (involuntary)
  - Starts in the colon in response to full stomach
  - Moves stool to the rectum

- **Holding reflex** (voluntary)
  - Contraction of external anal sphincter and puborectalis muscle

Reflex bowel

- Transit times severely prolonged
- No voluntary control of external sphincter
- Defecation reflex intact
- Risk of recto-anal dyssynergia

Flaccid (areflexic) bowel

- Loss of reflex defecation
- No reflex peristalsis
- External sphincter flaccid

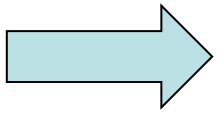
Practical advice

Establish regular routine by:

- emptying bowel in a sitting position
- trying the same time of day
- emptying at least 3 times per week
- eating regular and healthy meals
- being physically active
- using medication if necessary
- BEING PERSISTANT

Goals of the management

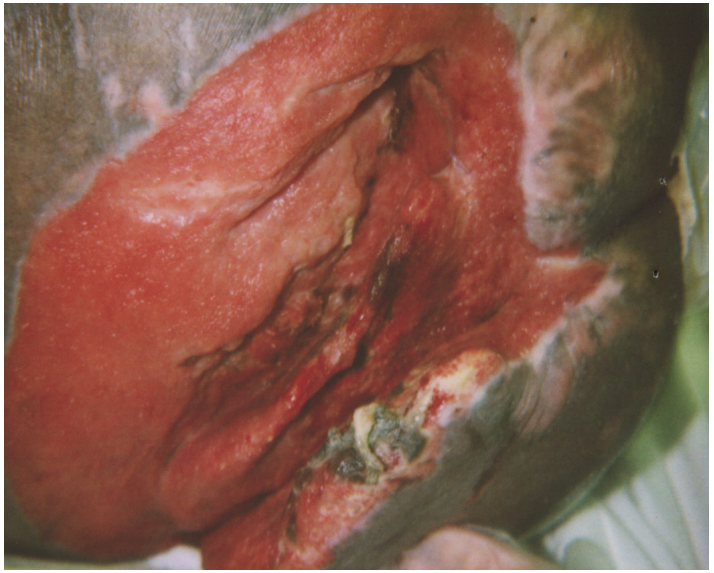
- Planned evacuation
- Regular evacuation
- Reasonable time for stool evacuation



- Quality of life
- Social participation
- Comfort

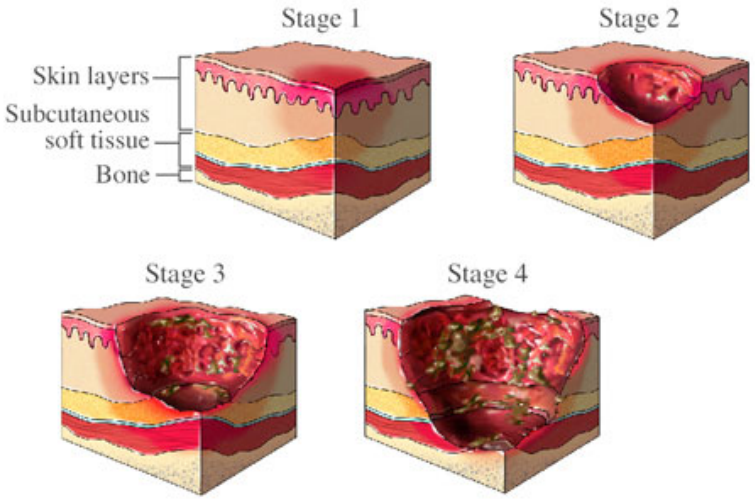
Pressure ulcers = Bedsores =Decubitus ulcers

A Pressure ulcer is an area of the skin and underlying tissue that is dead or dying as a result of the loss of blood flow to the area



Pressure ulcer classification

- Category/Stage I: Nonblanchable Erythema



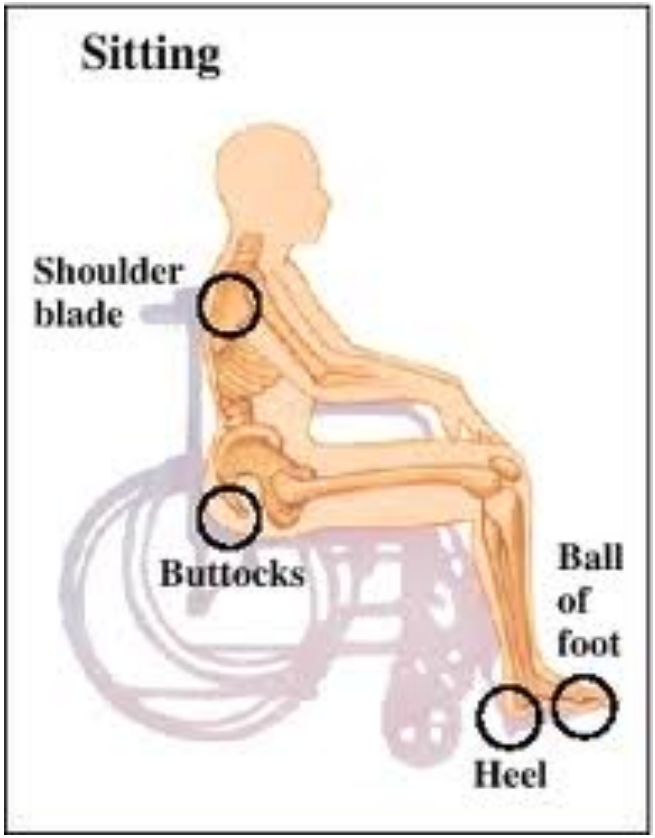
- Category/Stage II: Partial Thickness Skin Loss
- Category/Stage III: Full Thickness Skin Loss
- Category/Stage IV: Full Thickness Tissue Loss

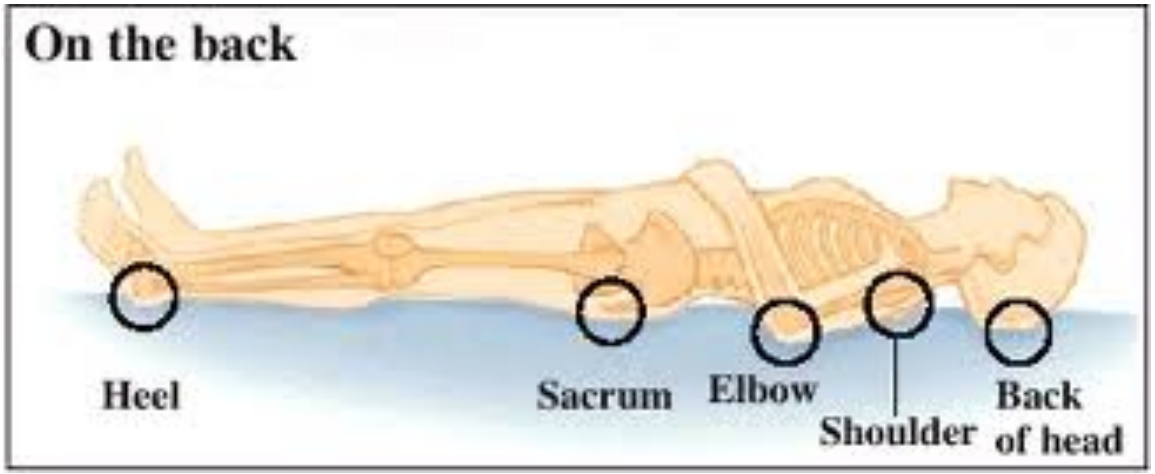
Consequences

- Bed rest until pressure ulcer is healed
  - weeks, months to years
- Impact on physical, emotional and social life

- Costs
- **It can lead to death!**

Most Common Areas





Risk Factors for SCI patients

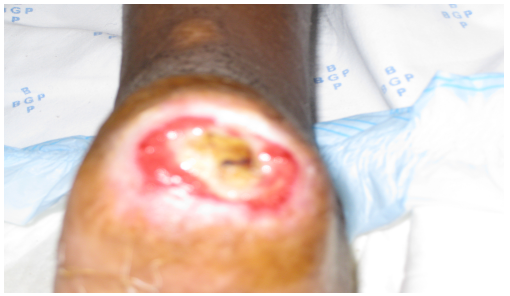
- Limited mobility
- Lack of sensation
- Moisture from bladder or bowel
- Spasticity
- Diseases (e.g Diabetes)
- Circulatory problems

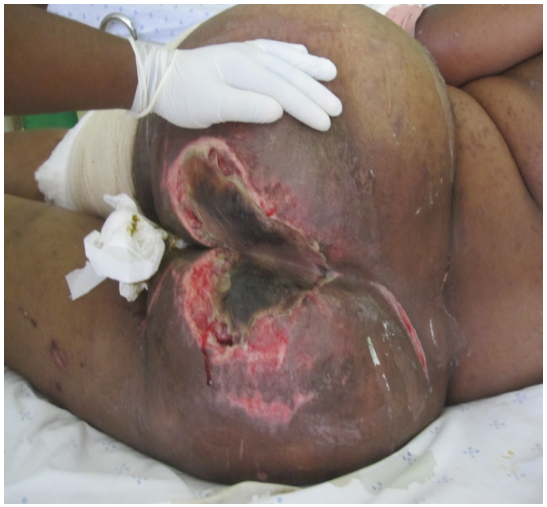
Risk Factors for SCI patients

- Overweight
- Underweight
- Smoking
- Bad sitting position
- Wrong mattress or cushion
- The force of friction or shearing

Prevention strategies

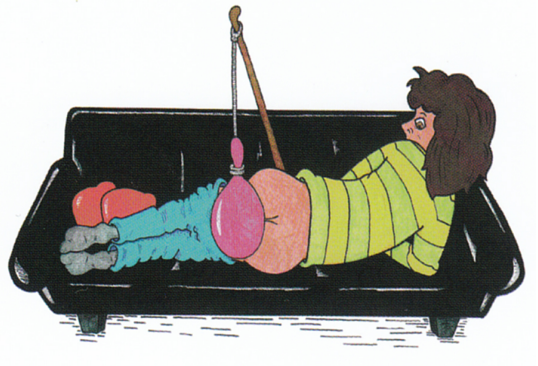
- Appropriate mattress
- Positioning in bed
- Protect heels and sacrum – pillows
- Avoid patient lying on catheter
- Change position every 2 hours
- Logroll patient with instable spine





Prevention strategies

- **Education of patient and carers**
- Daily skin inspection (mirror!)
- Pressure relief
- Frequent shifting of weight



- Mattress needs to provide proper support
- Seat cushion needs to fit body & chair
- Good transfer techniques
- Appropriate equipment in god condition

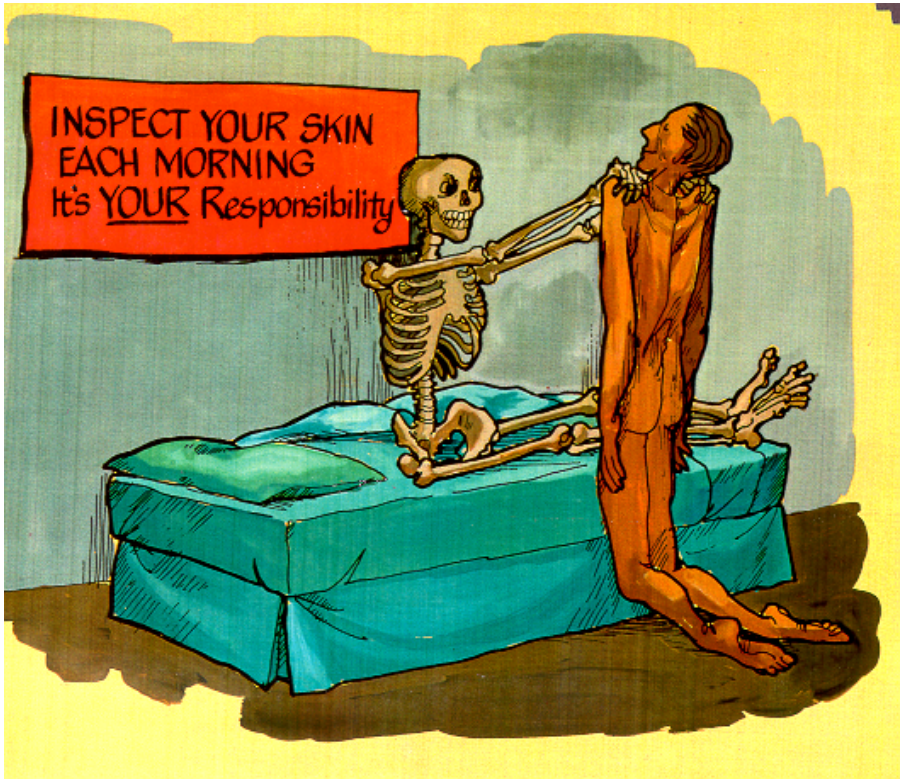
Management

- Recognise the symptoms
- Identify causes
- Immediately remove the source of pressure
- Manage the woundbed and excudate
- Keep the patient off the affected area until it has completely healed
- Stay in contact with the rehabilitation team
- Keep good documentation

Dressing

- Technics *Sterile or clean method*
- Material *Of highest importance*
- Frequency *Not to often! Maintain the environment*
- Documentation *Written and photography*
- Involving the patient *To be able to succeed*

Pressure ulcer can be prevented by pressure relief and good skin care



Check! React! Act!