

Voiding problems



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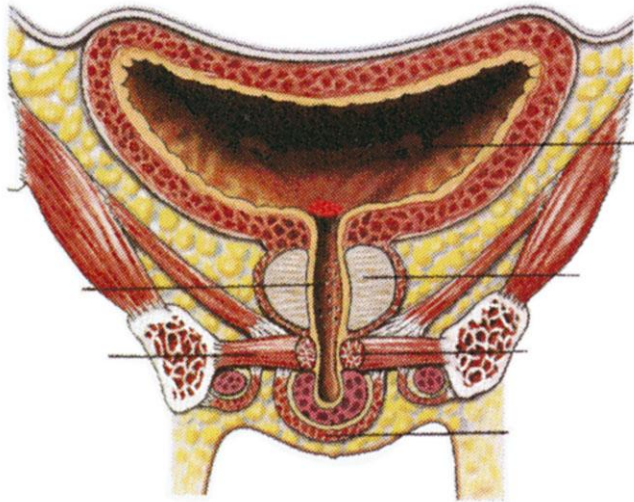
Topics:

- Anatomy and nervous control of voiding function
- Other factors with influence on voiding function
- Looking at polio survivors – do they have a special risk ?
- Voiding problems – what can be done ?

Why focus on voiding problems?

- PPS patients experience voiding problems more often than polio patients without PPS (Johnson 1996)
- Polio survivors experience voiding problems twice as often as the normal population (Kay, 2011)
- Polio survivors are much more bothered by their voiding problems (Kay, 2011)
- Incontinence has a major influence on quality of life (Farmdale 2011, Mönnikes 2011, Duggan 2011, Kim 2011)

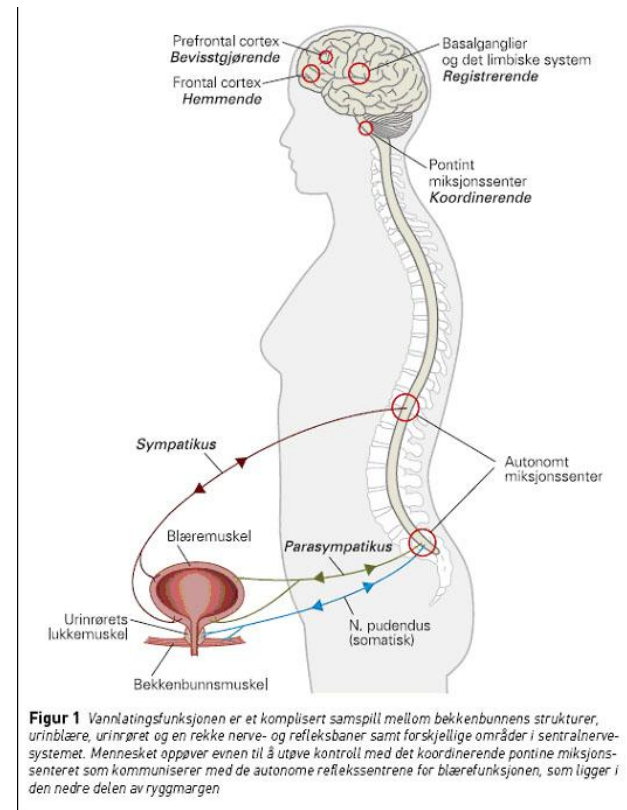
Bladder anatomy



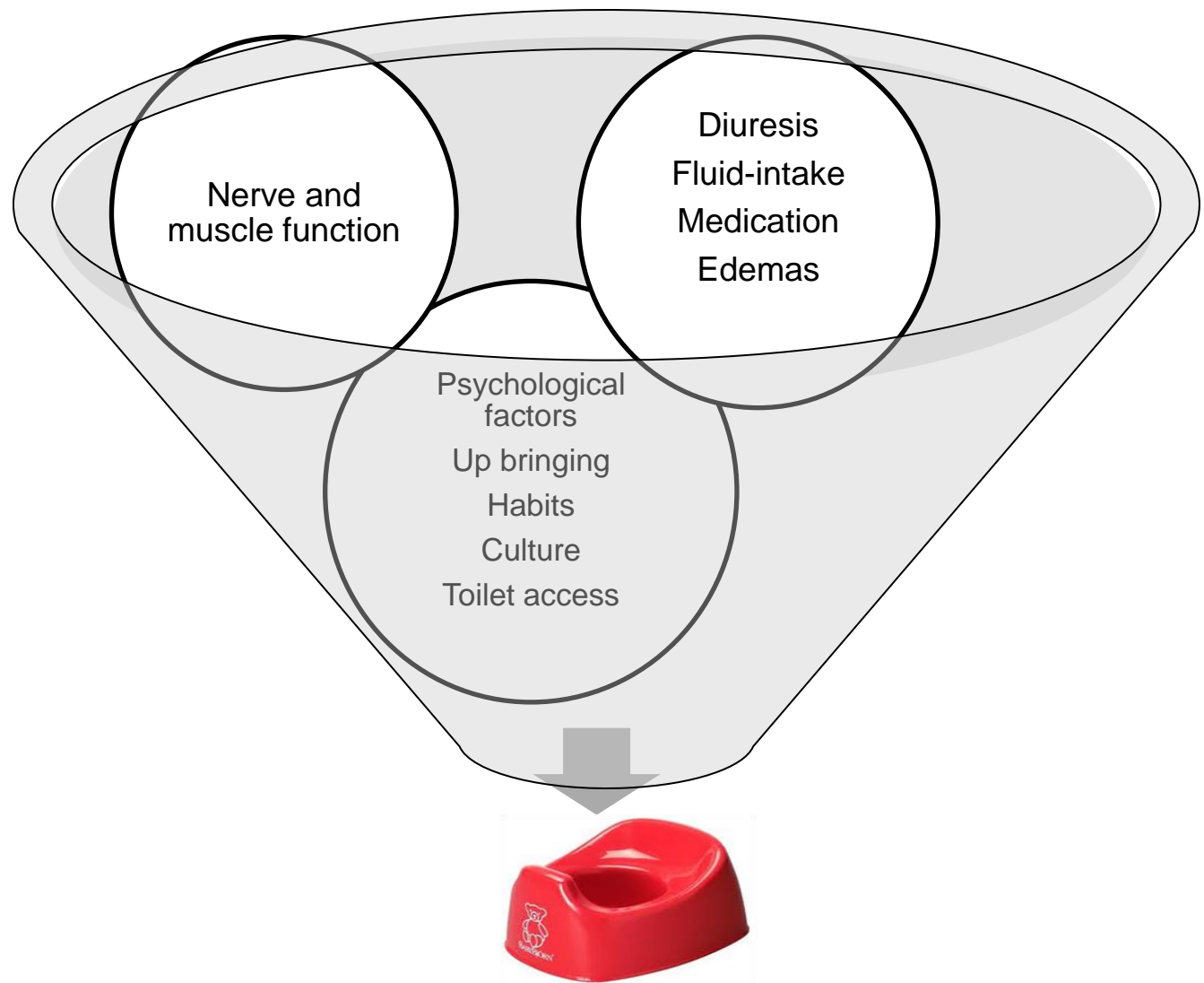
- Bladder wall (detrusor)
- Prostate
- Sphincter

Nervous control of voiding

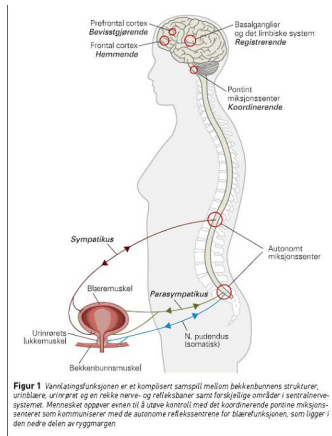
- Prefrontal cortex: awareness
- Frontal cortex: inhibition
- Basal ganglia: record of sensation
- Pons: coordination



Factors influencing voiding



Looking at polio survivors – do they have a special risk ?



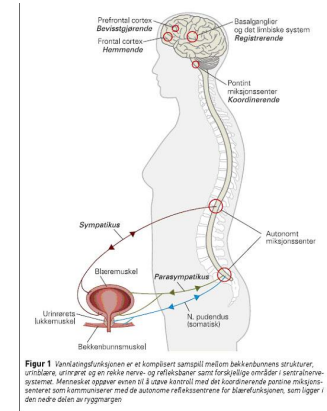
Looking at survivors - do they have a special risk ?

- **Nerve function**

- 20% of pt.s with acute polio have voiding problems (Skinhøj 1933, Toomey 1933, Wreight 1936)

- **Muscle function**

- Insufficient emptying - distension – weak muscle function



Clinical pathway for weak detrusor function

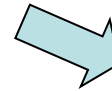
Insufficient emptying



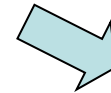
Urine left (residual urin)



Bladder is soon full again



Overflow (incontinens)



Total urinary retention

Looking at polio survivors – do they have a special risk ?

- Up bringing



- Toilet access



Voiding problems – what can be done?



What can be done?

- **Step 1:** patient level
- **Step 2:** basic healthcare level
- **Step 3:** specialist level

What can be done ?

Step 1: Patient level

- Drinking habits
- Toilet habits
- Toilet access

Drinking habits

- Drink 2-3 liters a day
- Do not drink 2-3 hours before going out, where there is no toilet access
- Do not drink 2-3 hours before going to bed

Toilet habits

- Do not suppress a desire to void, but go when you need
- Visit the toilet, so that the voiding volume generally is 2-300 cc
- Take the time for the toilet visits
- Go to the toilet before going out where there is no toilet access
- Go to the toilet before going to bed

Practical circumstances

- Make clothing easy to get off
- Make toilet access as easy as possible



What can be done ?

Step 2: Basic healthcare level

- Exclude other diseases (urine stix, UL scan, PSA)
- Drinking - voiding chart
- Urinary flow and residual urine

Drinking voiding chart

Time	Drinking volume	Voiding volume	Leakage/ activity
	cc	cc	
	cc	cc	
	cc	cc	

How is fluid intake distributed throughout the day ?

Is the voiding volume generally between 100 and 300 cc ?

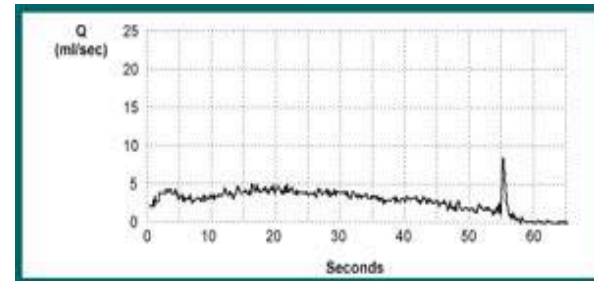
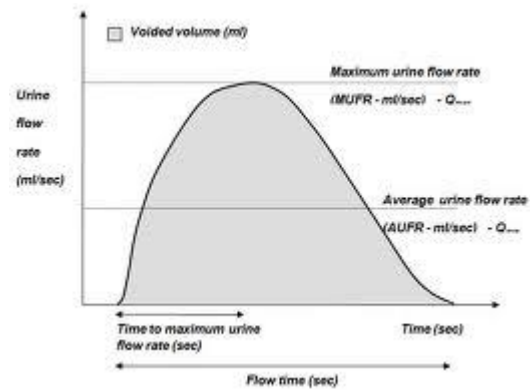
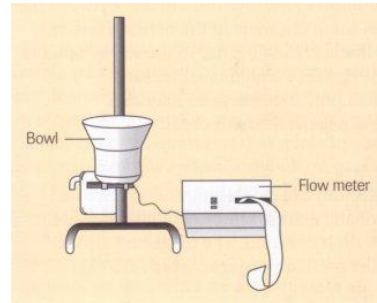
How is the urine production at night ?

Hint:



Edemas in paralyzed legs may result in increased urine production at night

Urinary flow



Residual urine

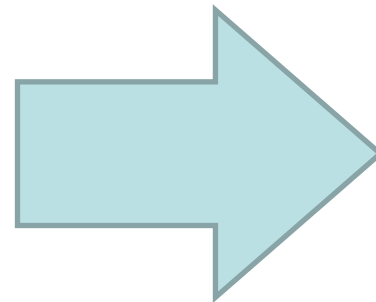


< 100 cc

What can be done ?

Step 2: Basic healthcare level

- Residual urine > 100 cc
- Voiding volumes < 100 cc
- If the problem is not solved

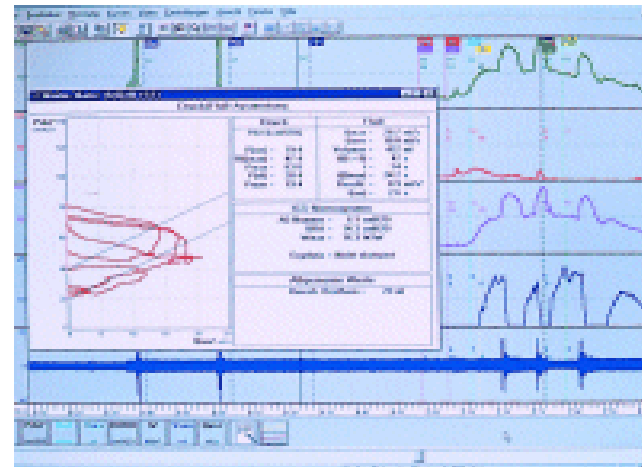


to urologist!

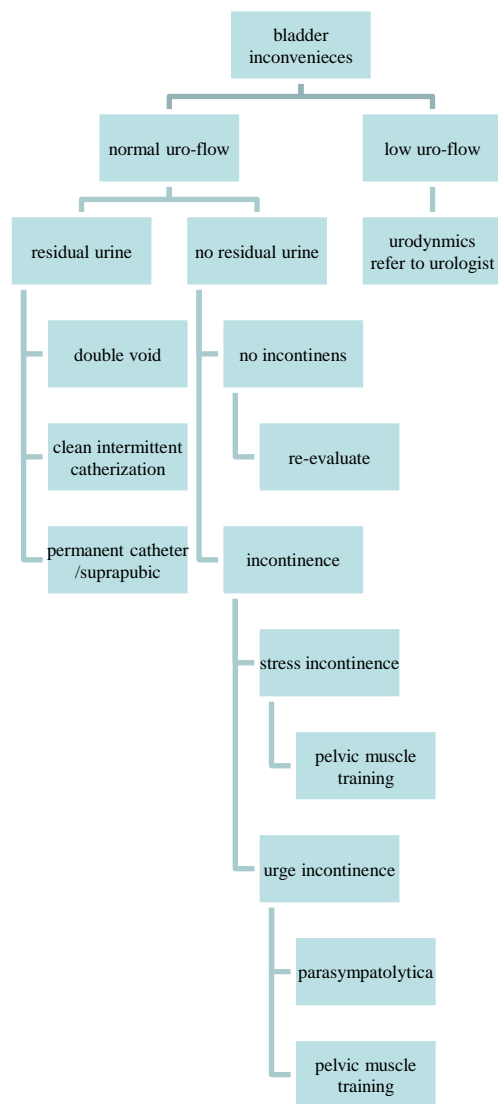
What can be done ?

Step 3: Specialist level

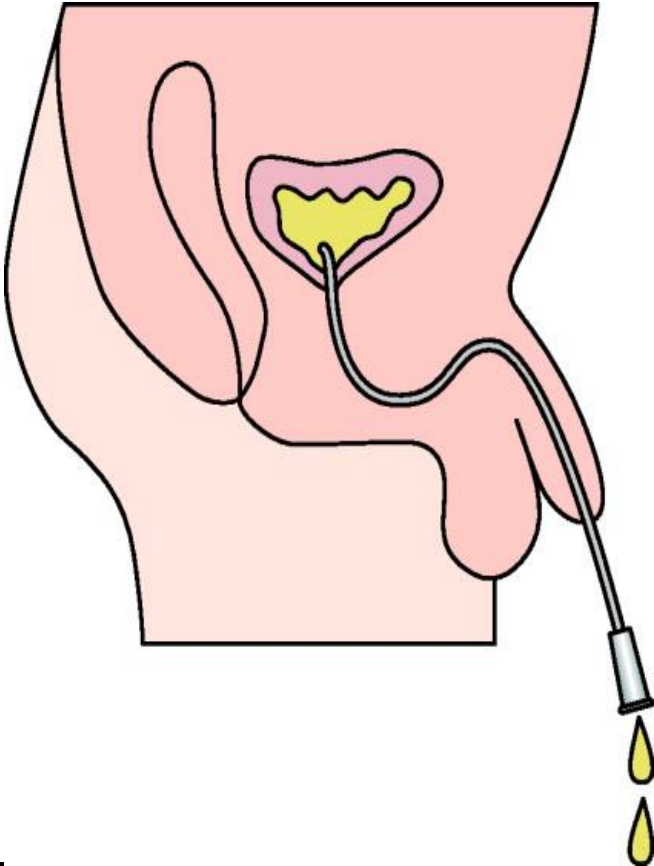
- Full urodynamic examination



Treating bladder inconveniences



Clean intermittent catheterization



Disposable catheters



Take home messages

- Polio patients experience voiding problems that influence their quality of life
- The problems can alliviated – often by simple means
- Successful rehabilitation must also address these problems

Thank you for your attention !





VOIDING PROBLEMS

What can I do?

●● Voiding problems

What can I do?

Drinking habits

- drink 2–3 liters per day
- do not drink 2–3 hours before going out where there is no toilet access
- do not drink 3–4 hours before going to bed

Toilet habits

- do not suppress a desire to void, but go when you need
- visit the toilet so that your voiding volume generally is 200–300 cc
- take your time for toilet visits
- go to the toilet before going out where there is no toilet access
- go to the toilet just before going to bed

Practical circumstances

- make your access to the toilet as easy as possible
- if you have trouble getting off your pants, consider whether pants with rubber bands can substitute buttons and zippers

Swollen legs

Swollen legs cause voiding at night.

Swollen legs may be relieved by:

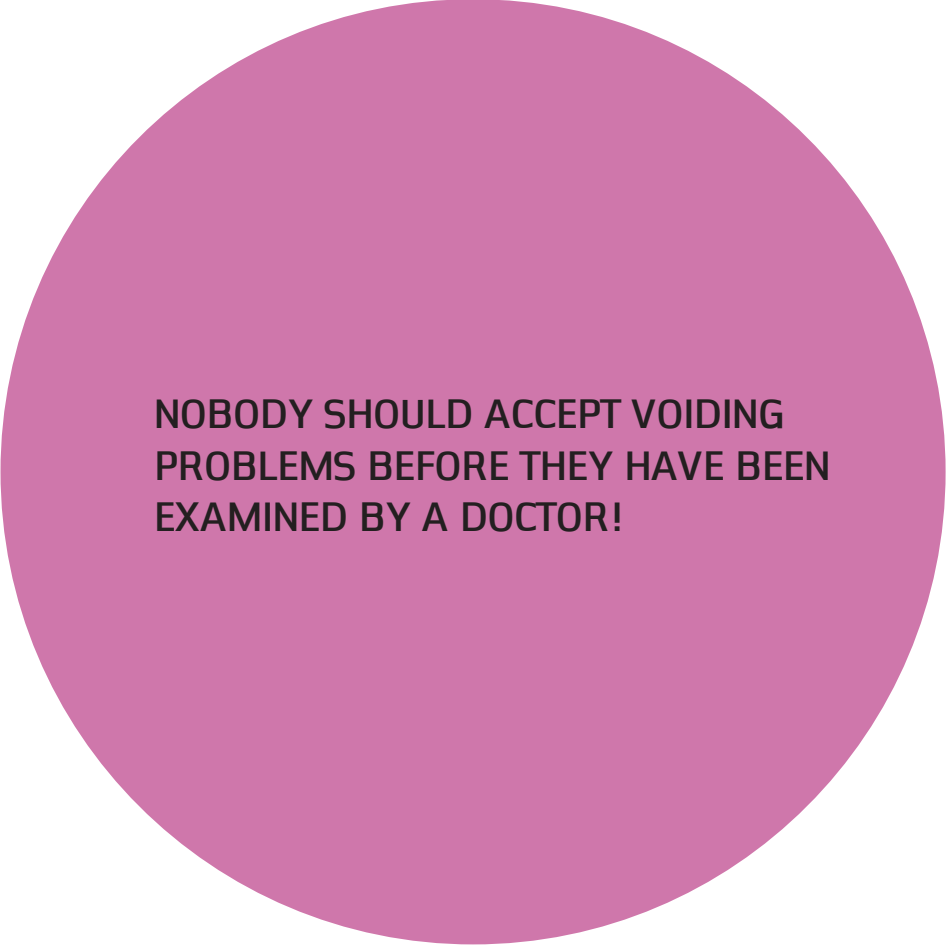
- elevating legs as much as possible when sitting
- exercise that stimulates the venous pump in the legs
- use of compression stockings

Swollen legs can be caused by other diseases than weak muscles. If you have swollen legs you should discuss it with your doctor

Contact your doctor if


- the symptoms has arisen within 1–2 years
- if the above advice is of no help

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**NOBODY SHOULD ACCEPT VOIDING
PROBLEMS BEFORE THEY HAVE BEEN
EXAMINED BY A DOCTOR!**



A close-up photograph of a wheelchair's rear wheel and axle. The wheel is dark and has a textured surface. The axle is metallic and connects to a black plastic frame. The background is blurred, showing what appears to be a paved surface and some foliage.

PTU is a national association engaged in creating equal conditions and increased quality of life for the more than 100,000 Danish people who suffer from serious injuries following an accident or a disease.

More info on www.ptu.dk

Disclaimer: The following are unofficial notes which have not been read by or approved by the speaker.

- The pamphlet on "Voiding Problems" prepared by Dr. Kay was sent to the directors for their use with patients.
- Background on PTU – Danish Polio Association founded in 1945 as an institute where children would go to have their training. It has survived all these years although there are

no longer many polio survivors. Accident victims with spinal cord injuries are also treated there. It is both a patient organization and a rehabilitation organization.

- Reference and abstract referred to in the first slide (PPS patients experience voiding problems more often than polio patients without PPS – Johnson 1996) was sent to the directors during the call.
- In Denmark, in the 1940s and 1950s hospital ward routines were very rigid. Pots were distributed before breakfast and not again until after lunch. Patients had to suppress need to void.
- Toilet access – being disabled added to the problem. Inconvenience may add to incontinence due to the time to get seated.
- Clothing – suggest elastic bands in place of buttons or zippers.
- Arm rests could be added to make it easier to get up and down.
- Three steps can be taken to help alleviate the problem:
 - Patient level – discuss drinking habits – how much and at what times of the day.
 - Basic healthcare level – exclude other diseases. Ask patient to keep a chart for three days on fluid intake and voiding volume.
 - Specialist level – patients with bladder inconveniences and low urinary flow should see a urologist for a urodynamic examination.
- Edema of the legs – when legs are elevated, the edema disappears. The fluid goes into the circulation and comes out as urine. If patient has edema, they may have a larger urine production at night which may cause a problem if the patient cannot get up at night.
- Dr. Kay sent the directors the link to her poster for the polio conference in Copenhagen on the subject of voiding problems in a Danish population of polio survivors. This was in response to a question about the prevalence of the different voiding symptoms among men and women.
- Voiding problems, regardless of cause, should be addressed by a person's PCP to increase their quality of life.