

# ICCS stappenplan: behandeling van incontinentie

Neurourology and Urodynamics 36:43–50 (2017)

AND

## Treatment of Daytime Urinary Incontinence: A Standardization Document From the International Children's Continence Society

Shang-Jen Chang,<sup>1,2</sup> Erik Van Laecke,<sup>3</sup> Stuart B. Bauer,<sup>4</sup> Alexander von Gontard,<sup>5</sup> Darius Bagli,<sup>6</sup>  
Wendy F. Bower,<sup>7</sup> Catherine Renson,<sup>3</sup> Akihiro Kawauchi,<sup>8</sup> and Stephen Shei-Dei Yang<sup>1,2,4</sup>

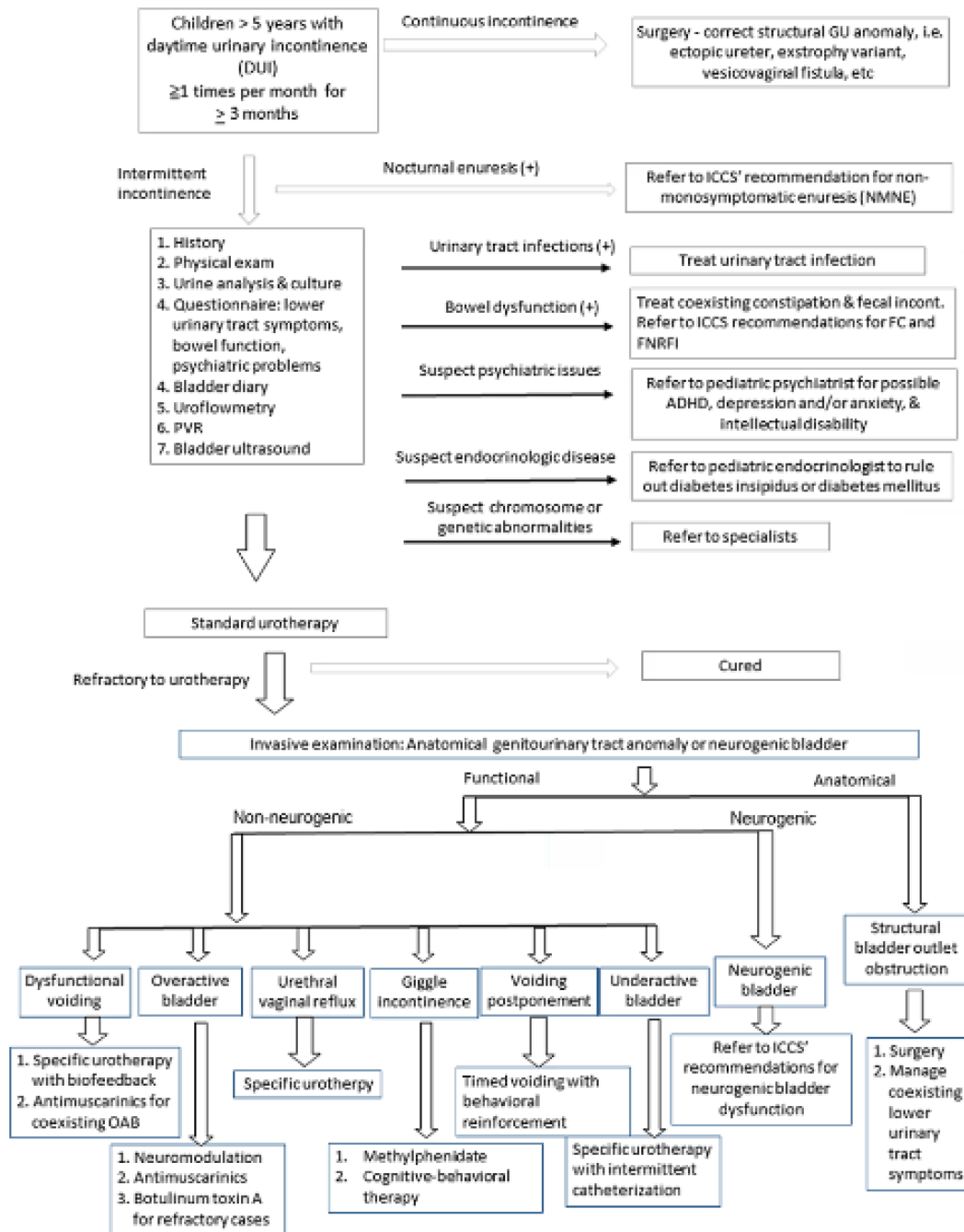


Fig. 1. Algorithm of strategy in managing children with daytime incontinence.

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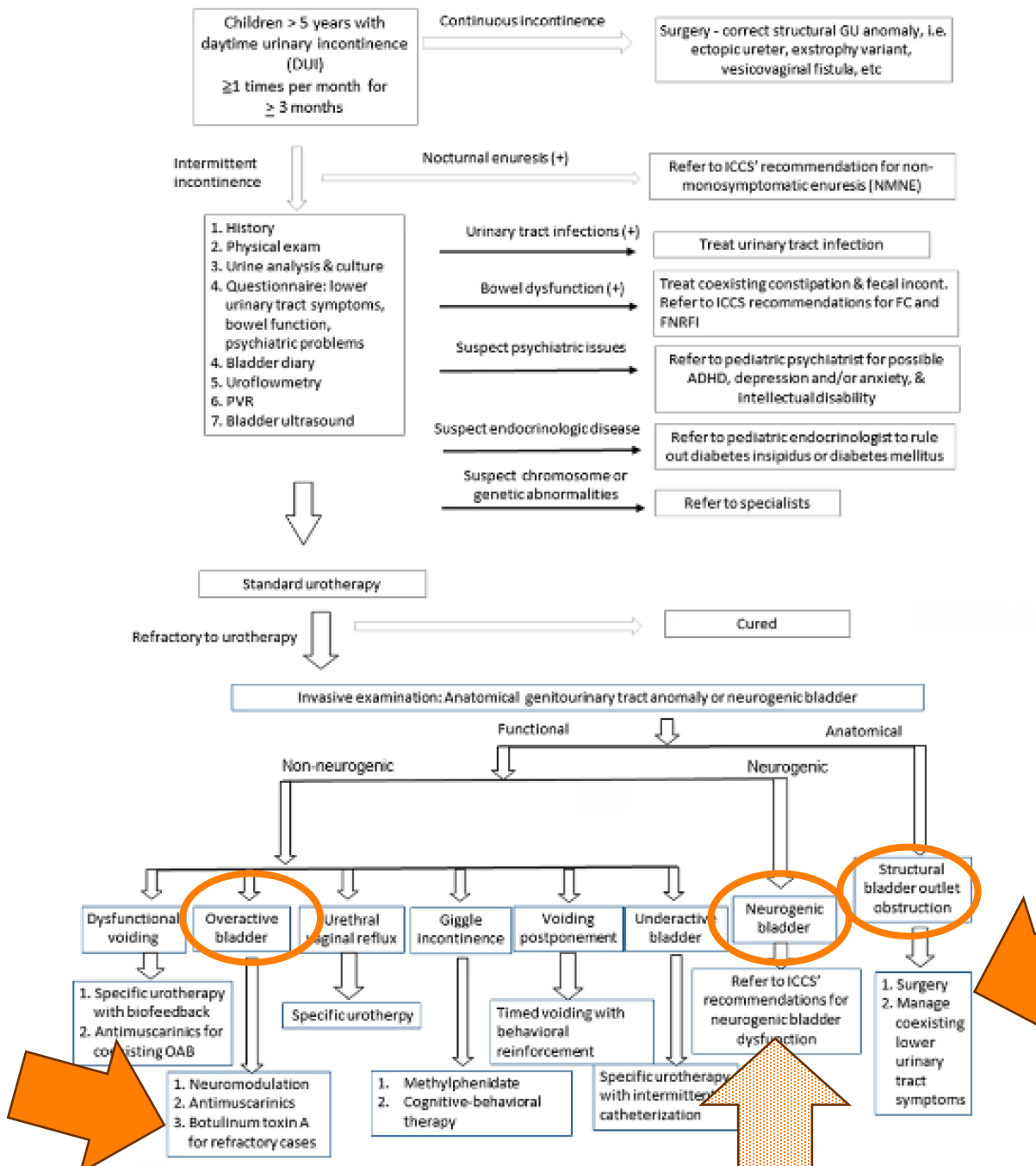
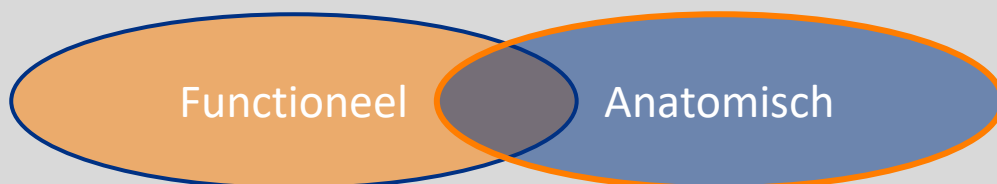


Fig. 1. Algorithm of strategy in managing children with daytime incontinence.

# Chirurgie bij functionele incontinentie

## Overactiviteit / compliance

1. Botox
2. Correctie infravesicale obstructie

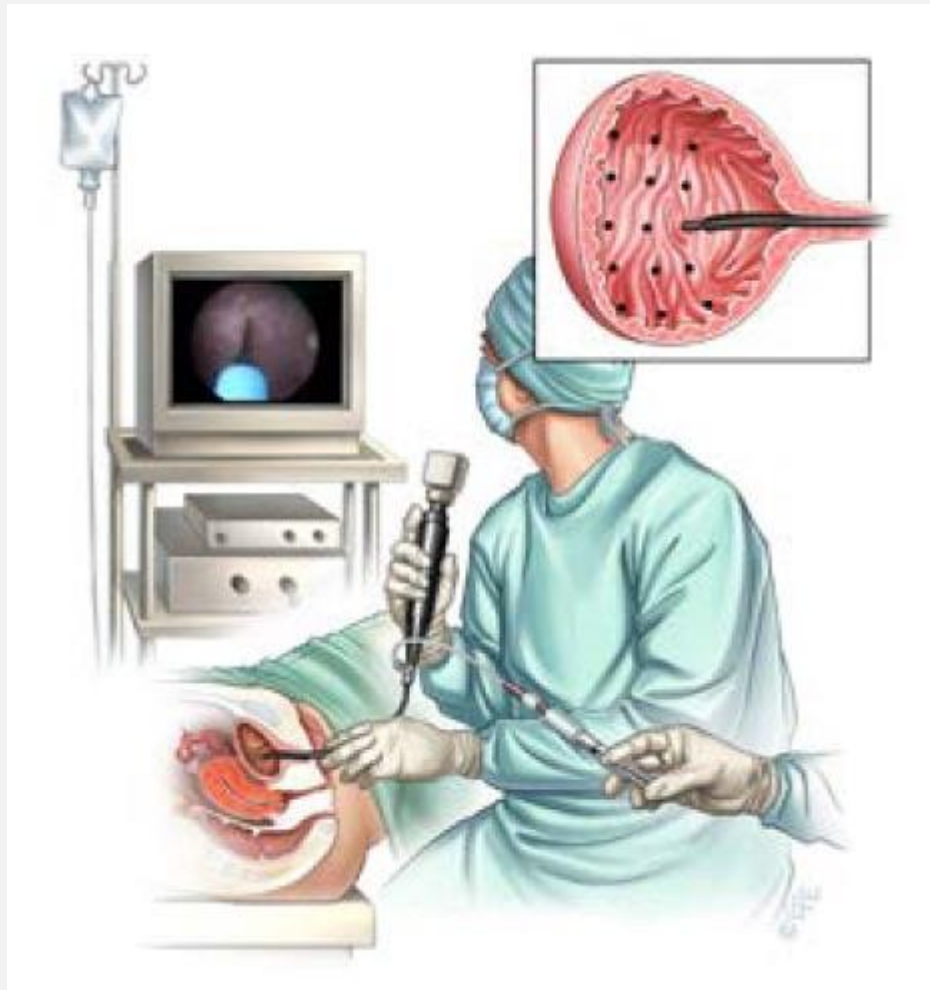


3. (Augmentatie)

## Insufficiënte blaashals

- Bulk blaashals
- Sling
- Burch suspensie
- Artificiële urethra sfincter (AUS)
- Blaashalsplastiek
- Sluiten blaashals

# Chirurgie bij functionele incontinentie: **Botox**



## Indicatie:

Therapie-resistente incontinentie met

- Instabiele contracties (OAB)
- Verminderde compliantie

## Techniek:

- Cystoscopie & submucosale injectie
- 5-12 IE / kg, max 300-360 IE
- 10-20 injecties
- Test-dosis 100 IE?

# Botox

Review > Toxins (Basel). 2020 Feb 18;12(2):129. doi: 10.3390/toxins12020129.

## Mechanism of Action of Botulinum Toxin A in Treatment of Functional Urological Disorders

Yu-Hua Lin <sup>1 2 3</sup>, Bing-Juin Chiang <sup>1 4 5</sup>, Chun-Hou Liao <sup>1 4</sup>

Affiliations + expand

PMID: 32085522 PMCID: PMC7077222 DOI: 10.3390/toxins12020129

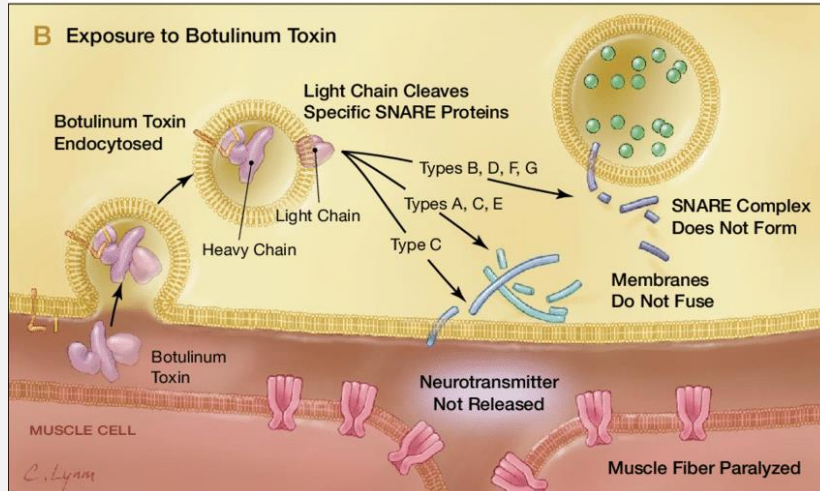
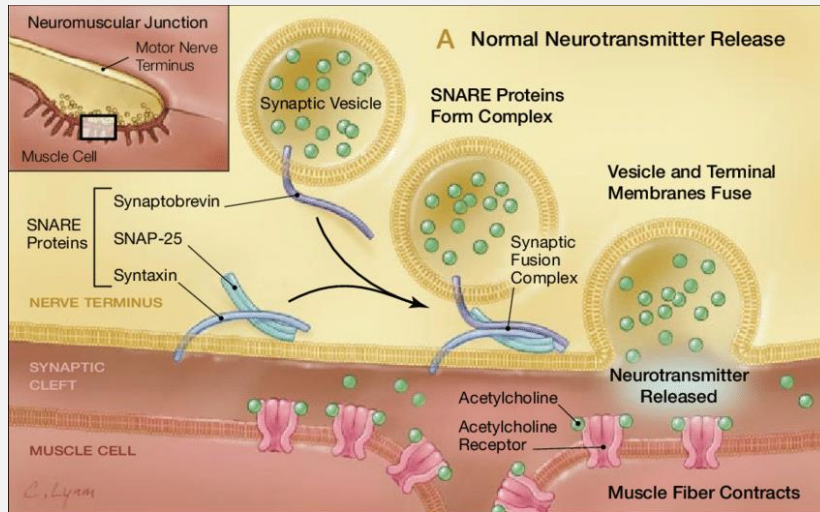
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ACTIONS

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## Werkingmechanisme:

- blokkeert acetylcholine release in synaps efferente zenuwen

> Verlamming blaasspier

- blokkeert ATP release in purinerge sensorische zenuwen

> Afname urge

- effect 2-6 wkn na injectie

# Botox: EAU-ESPU richtlijn

## EAU Guidelines on Paediatric Urology

C. Radmayr (Chair), G. Bogaert (Vice-chair), B. Burgu,  
M.S. Castagnetti, H.S. Dogan, F. O'Kelly, J. Quaedackers,  
Y.F.H. Rawashdeh, M.S. Silay  
Guidelines Associates: L.A. 't Hoen, U.K. Kennedy,  
M. Gnech, M. Skott, A. van Uiter, A. Zachou  
Guidelines Office: J.A. Darraugh



**EAU** European  
Association  
of Urology

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The difference in results is probably due to study design. Despite the low level of evidence for the use of anticholinergics and antimuscarinics, their use is recommended because of the large number of studies reporting a positive effect on OAB symptoms. Although  $\alpha$ -blocking agents are used occasionally, an RCT showed no benefit [567]. **Botulinum toxin injection seems promising, but can only be used off-label [568].**

=> alleen off-label

# Botox: evidence

Effectief in 67-86% bij OAB:

- Afname incontinentie: volume en #
- Toename blaascapaciteit
- Toename compliantie
- Lagere PdetMax
- Afname frequency / urgency

Ondersteunend aan urotherapie

Liao internat neurourol J 2015

Leon JPedSurg 2014

Hoebek PedUrol 2006

## Urinary incontinence in children: botulinum toxin is a safe and effective treatment option

Dermot Thomas McDowell · Damien Noone ·  
Farhan Tareen · Mary Waldron · Feargal Quinn

**Table 1** Effect of first dose of BoNT-A in the patient cohort

	CS	PS	TF	Insufficient follow up/ no data
Response to first dose of BoNT-A				
Male ( <i>n</i> = 35)	26 (74.2%)	7 (20%)	1 (2.9%)	1 (2.9%)
Female ( <i>n</i> = 22)	12 (54.5%)	4 (18.2%)	5 (22.7%)	1 (4.5%)
<b>Total (<i>n</i> = 57)</b>	<b>38 (66.7%)</b>	<b>11 (19.3%)</b>	6 (10.5%)	2 (3.5%)
Mean duration of effects in months (range)				
Male	6.0 (2–12)	6.9 (1–18)		
Female	6.7 (3–18)	9.3 (3–14)		
Total	6.1 (2–18)	7.7 (1–18)		

CS complete response, PS partial response, TF treatment failure

# Botox: evidence

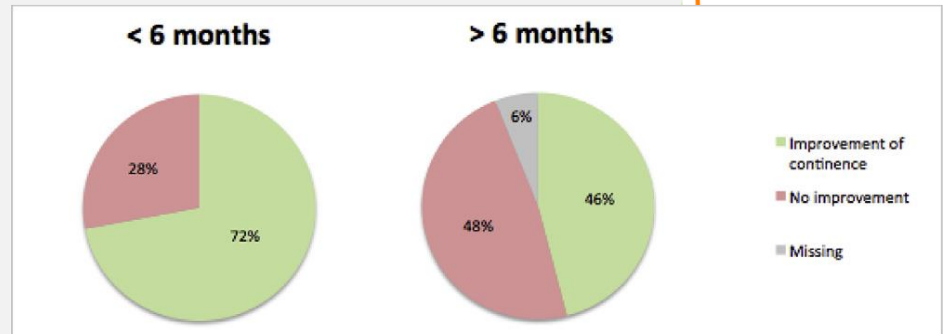
Werkingsduur: 6-9-12 mnd

Complicaties:

- blaasontledigingsstoornissen:
  - tot 60% PVR
  - CIC 0-11%
  - Relatie dosis?
- UWIs
- Hematurie
- Systemische effecten:
  - kortademiig, spierzwakte, lusteloos

## Intravesical botulinum-A toxin in children with refractory non-neurogenic overactive bladder

Annemarth P. Lambregts<sup>a</sup>, Anka J. Nieuwhof-Leppink<sup>b,\*</sup>,  
Aart J. Klijn<sup>a</sup>, Rogier P.J. Schroeder<sup>a</sup>



Response on urinary incontinence after initial BTX-A treatment in the short (< 6 months) and long term (6-12 months).



# Botox: vragen mbt OAB

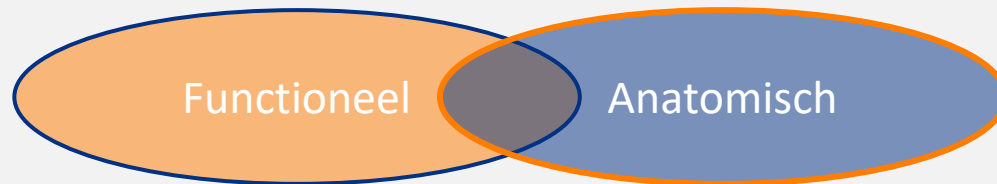
- Dosering?
- Herhaling nodig / zinvol?
- Effectiever dan anticholinergica?
- Veiliger dan combinatie-therapie?



## Overactiviteit / compliance

1. Botox

2. Correctie infravesicale obstructie



3. (Augmentatie)

# Chirurgie bij functionele incontinentie: infravesiculaire obstructie

Instabiele contracties als gevolg van urethra-obstructie?

## Jongens

1

- Meatus stenose

3

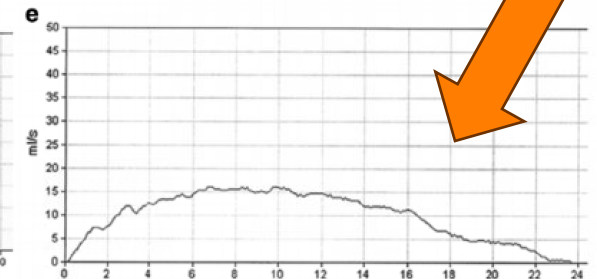
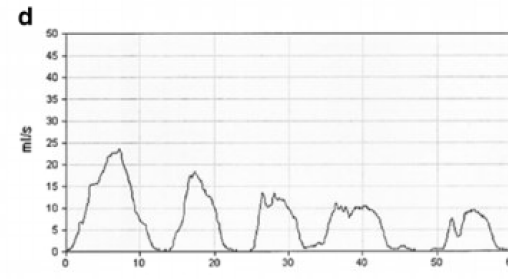
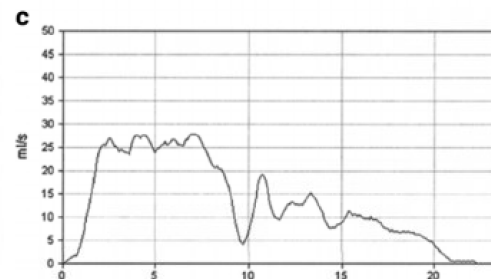
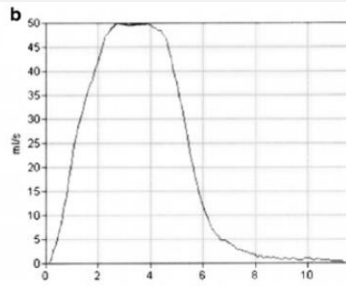
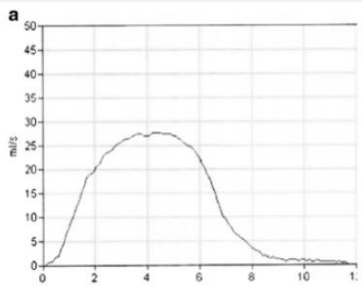
- Urethra kleppen
- Syringokele
- Strictuur

2

## Meisjes

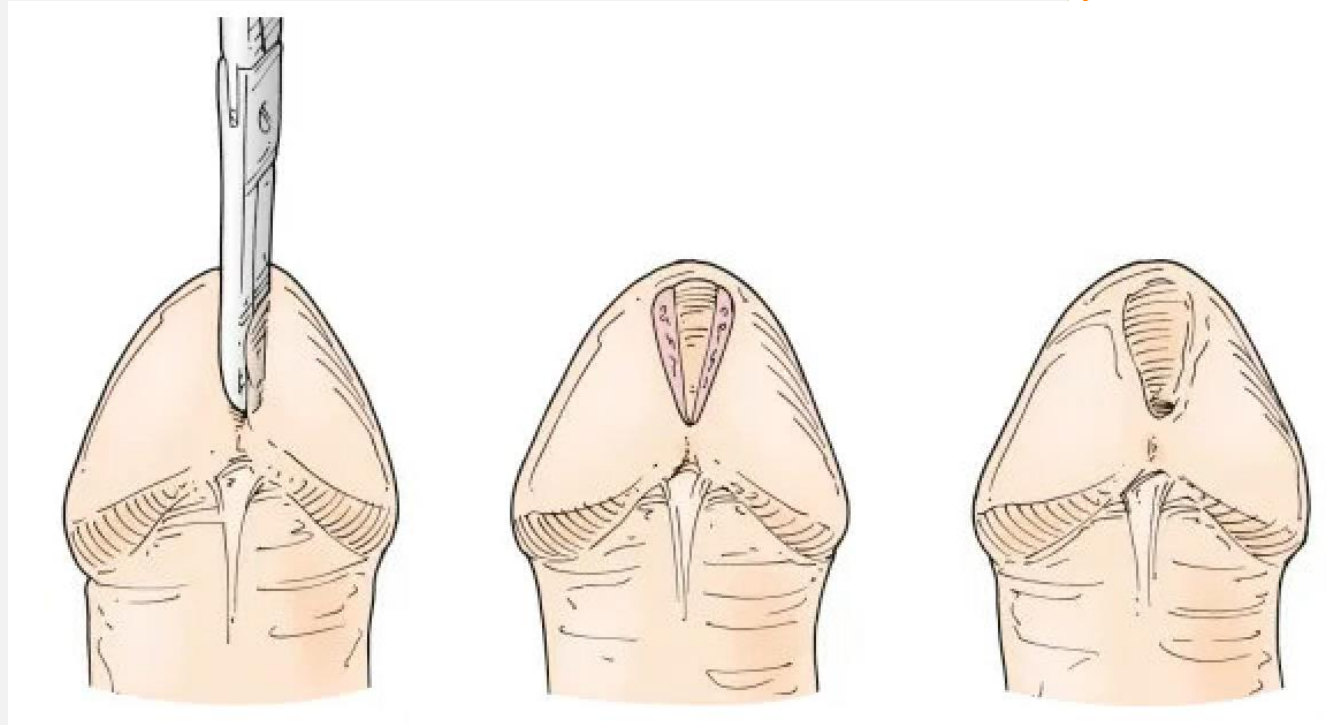
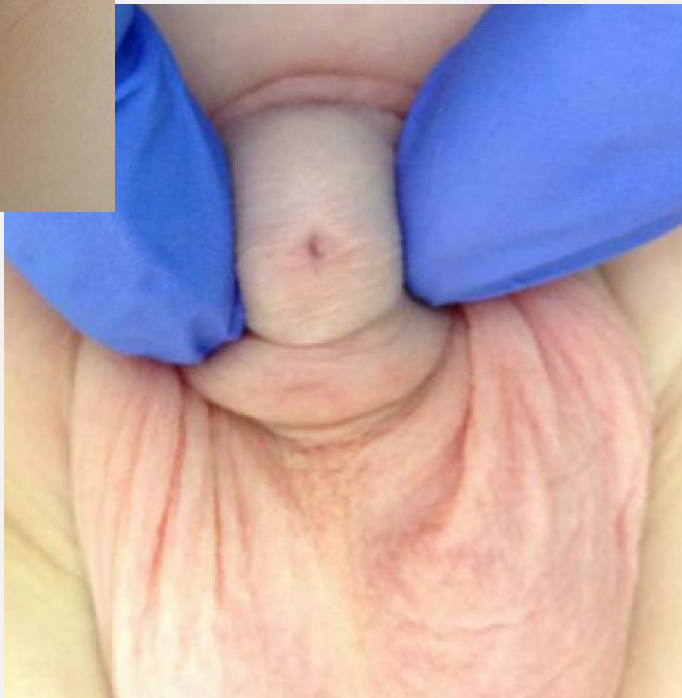
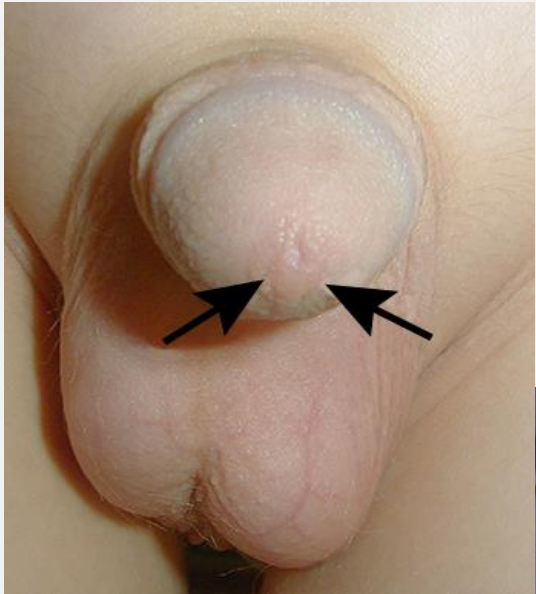
- Anterior directed urinary stream (ADUS)

- Strictuur



1

# → Infravesicale obstructie: meatus stenose



## 2 → Infravesicale obstructie: ADUS



Case Reports > J Pediatr Urol. 2017 Dec;13(6):636. doi: 10.1016/j.jpuro.2017.08.008.

Epub 2017 Sep 19.

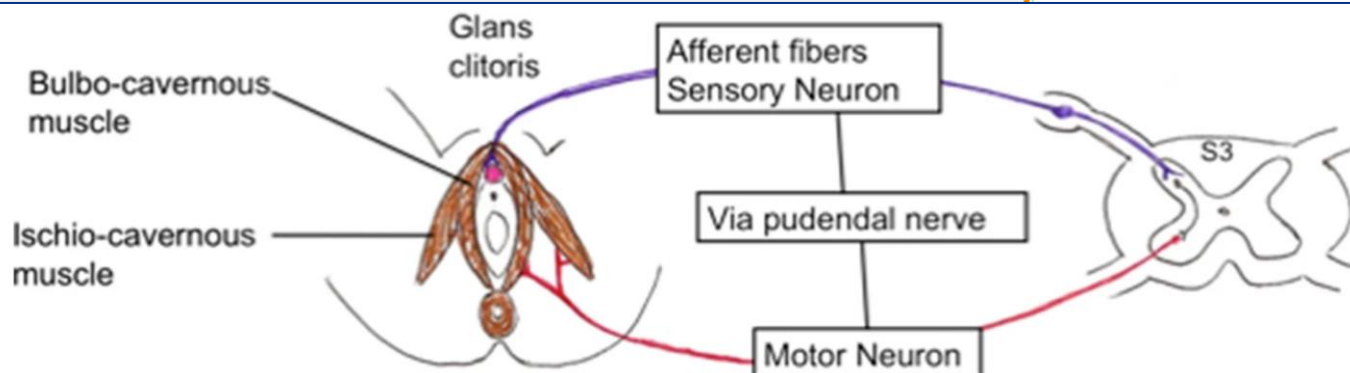
### Anterior deflected urinary stream

Wisam Abbas<sup>1</sup>, Mark Woodward<sup>1</sup>, Mohamed Sameh Shalaby<sup>2</sup>

#### Bulbocavernosus-reflex:

Prikkeling clitoris =>

Contractie bekkenbodern



2

## Infravesicale obstructie: ADUS

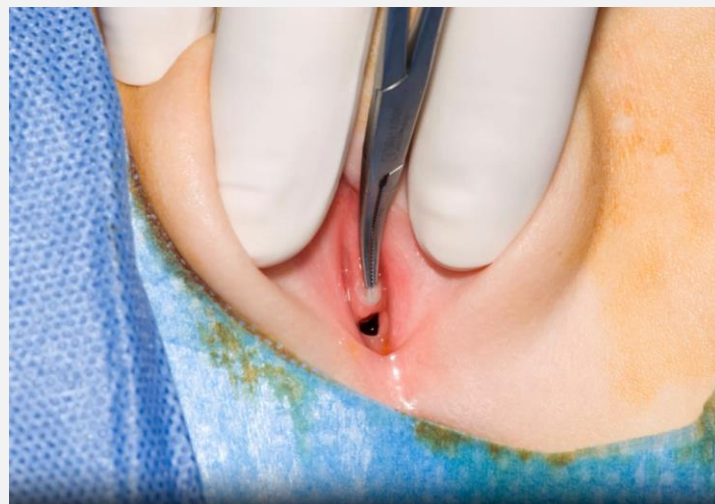
Case Reports

> J Pediatr Urol. 2017 Dec;13(6):636. doi: 10.1016/j.jpuro.2017.08.008.

Epub 2017 Sep 19.

### Anterior deflected urinary stream

Wisam Abbas<sup>1</sup>, Mark Woodward<sup>1</sup>, Mohamed Sameh Shalaby<sup>2</sup>



> BJU Int. 1999 Feb;83(3):294-8. doi: 10.1111/j.1464-410x.1999x.00929.x.

## Anomalies of the external urethral meatus in girls with non-neurogenic bladder sphincter dysfunction

P Hoebeke <sup>1</sup>, E Van Laecke, A Raes, J D Van Gool, J Vande Walle

**Conclusion:** Girls presenting with meatal anomalies have more severe dysfunction, as estimated by urodynamics. Although the natural history of these anomalies and the incidence in the normal population is not known, it is thought that there is an aetiological correlation between the functional voiding disorders and the meatal anomaly. Surgical treatment to correct the anomalies is proposed.

## Relatie ADUS & mictiestoornissen?

Beperkt effect

>> alleen als falen andere therapie

> J Pediatr Urol. 2021 Dec;17(6):791.e1-791.e5. doi: 10.1016/j.jpurol.2021.08.022. Epub 2021 Sep 3.

## The effect of meatal correction on daytime urinary incontinence in girls with an anterior deflected urinary stream

Frank-Jan van Geen <sup>1</sup>, Anka J Nieuwhof-Leppink <sup>2</sup>, Renske Schappin <sup>3</sup>, Aart J Klijn <sup>4</sup>, Laetitia M O de Kort <sup>5</sup>

### Conclusion

Of the 274 girls with ADUS and DUI, only 29% achieved continence after meatotomy. No convincing indicator for therapy success could however be found. Therefore, we discourage a meatotomy as standard treatment in girls with ADUS and DUI, when continence is pursued. It should only be considered in therapy-resistant girls as last-resort option after conservative treatment has failed. A clear expectation of success should be discussed with the patient and parents leading to shared decision-making.

3

# Infravesicale obstructie: urethra kleppen

Comparative Study > Neurourol Urodyn. 2017 Sep;36(7):1924-1929. doi: 10.1002/nau.23214.

Epub 2017 Jan 31.

## Long-term effect of conservative treatment versus low threshold endoscopic desobstruction on urine incontinence and urgency in boys with persistent overactive bladder symptoms: A cohort study

Pauline M L Hennus<sup>1</sup>, Joop van den Hoek<sup>2</sup>, Arno W Hoes<sup>3</sup>, Rolf H H Groenwold<sup>3</sup>,  
J L Ruud Bosch<sup>1</sup>, Tom P V M de Jong<sup>1,4</sup>, Laetitia M O de Kort<sup>1,4</sup>

5 jaar na start behandeling:

=> geen verschil in uitkomst

Cave: kans op strictuur na TUR: 4%

TABLE 2 Results of boys treated for persistent overactive bladder symptoms according to two different treatment centers and strategies

	Center 1-N (%)	Center 2 – N (%)	Hazard ratio
Patients	105 (100)	44 (100)	
Treatment			
•UCS (N, %)	98 (93.3)	16 (36.4)	
•Age at urethrocystoscopy (median –IQR)	8.3 (6.7-10.0)	8.6 (6.8-9.6)	
•Desobstructive treatment	93 (88.6)	5 (11.4)	
Daytime incontinence			0.86 (0.56-1.30)
•never	67 (63.8)	35 (79)	
•≤1 time a week	19 (18.1)	6 (14)	
•Several times a week	15 (14.3)	1 (2.3)	
•Every day or more	4 (3.8)	2 (4.5)	
Nocturnal incontinence			
•Never	66 (62.9)	31 (70.0)	
•<1 time a week	20 (19.0)	8 (18.0)	
•Several times a week	5 (4.8)	2 (4.5)	
•Every day or more	14 (13.3)	3 (6.8)	
Dry both day and night	78 (74.3)	36 (81.8)	0.72 (0.51-1.14)
LUTS	38 (36.2)	15 (34.1)	0.67 (0.38-1.25)



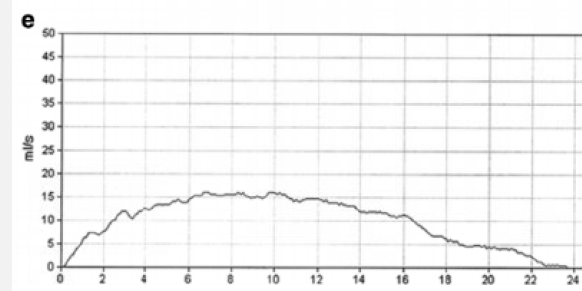
# Conclusie: infravesicale obstructive & OAB



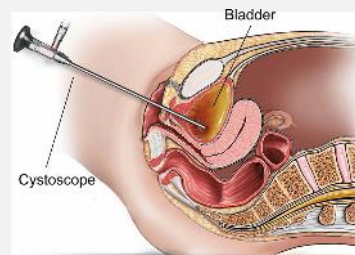
Oorzaak voor instabiele contracties: ?

Diagnostiek:

- lichamelijk onderzoek
- straalrichting
- uroflow



Cystoscopie: op indicatie



# Chirurgie bij functionele incontinentie: blaasaugmentatie

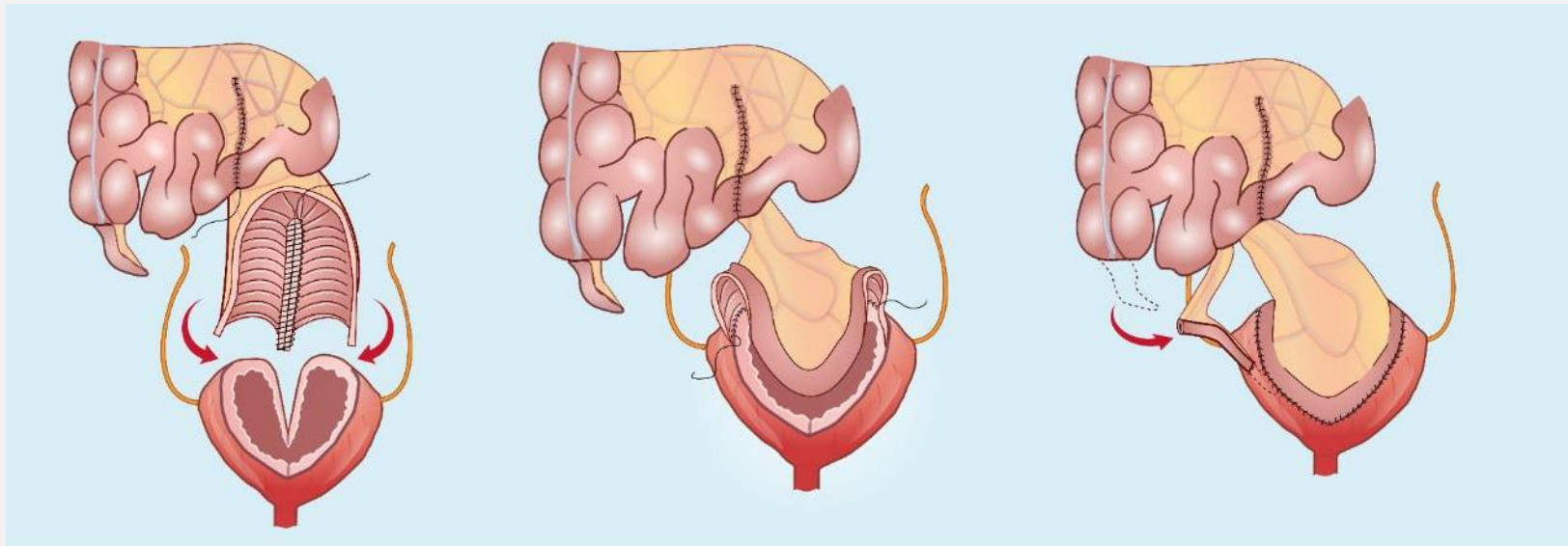
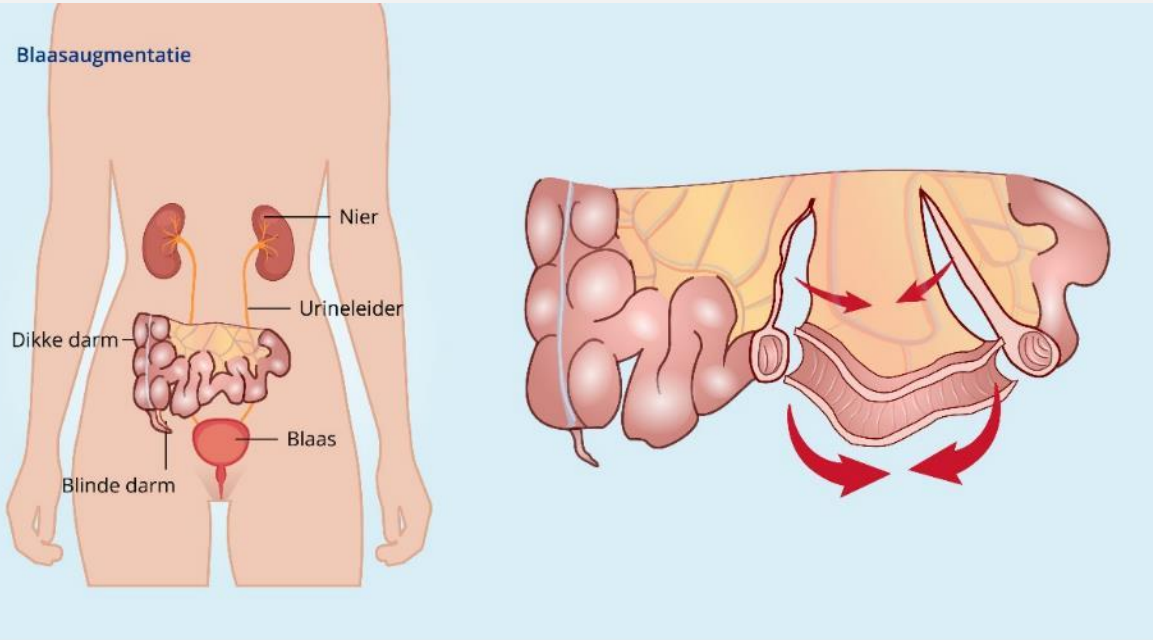
## Rol voor blaasaugmentatie?

Indicatie:        falen andere behandelingen  
                      nagenoeg geen rol bij functionele incontinentie

Hoe:                blaas-vergroting mbv dunne darm



# Blaasaugmentatie / ileo-cystoplastiek



# Blaasaugmentatie

## Nadelen:

- Geen spontane mictie meer
- Slijmvorming in de blaas:
  - Stenen, UWIs
- Metabole ontregeling
- Maligniteit



# Chirurgie bij incontinentie

functioneel

overactiviteit

compliance



botox



obstructie?



augmentatie



anatomisch

blaashalsinsufficiëntie

bulk blaashals

sling

Burch suspensie

artificiële sfincter

blaashalsplastiek

# Insufficiënte Blaashals

- Blaasexstrofie – epispadie
- Urogenitale sinus / cloacale ARM
- Ectope ureterokele / ureter ectopie
- Neurogene sfincter dysfunctie
- Urethrale kleppen
- Overige anatomische afwijkingen

# Bulk injectie blaashals

Sinds 1985

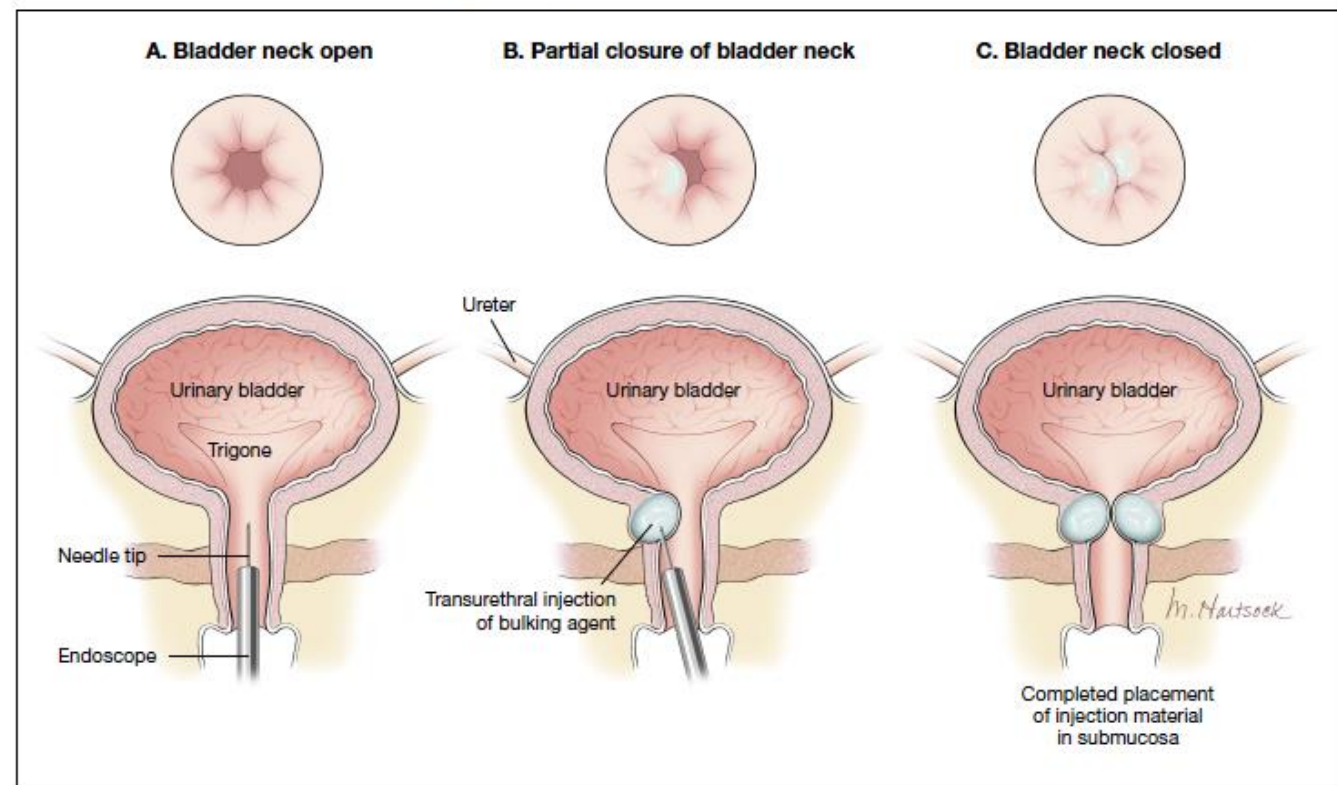
+++ weerstand in urethra

Gebruikt volume: 2-4 ml

Cave:

- granuloom
- Kortdurend effect
- Migratie: herhaling nodig (50%)

**FIGURE 3** Urethral bulking agent injection results in closure of the bladder neck



# Bulk injectie blaashals: effect

Studies bij pt met:

- neurogene blaas
- exstrofie

Effect bij idiopathische incontinentie?

> BJU Int. 2003 Apr;91(6):536-9. doi: 10.1046/j.1464-410x.2003.04127.x.

## Endourethral injection of bulking agents for urinary incontinence in children

P Godbole <sup>1</sup>, R Bryant, A E MacKinnon, J P Roberts

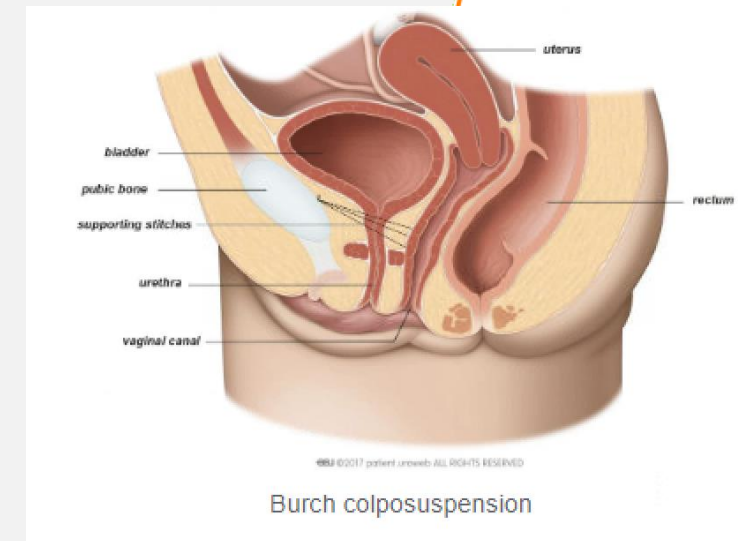
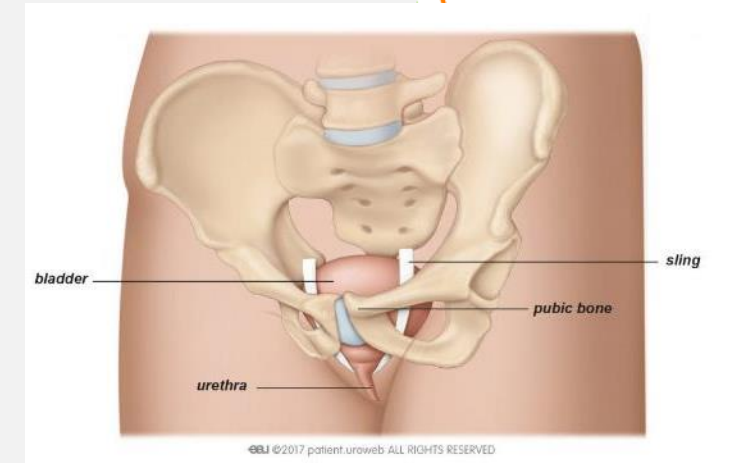
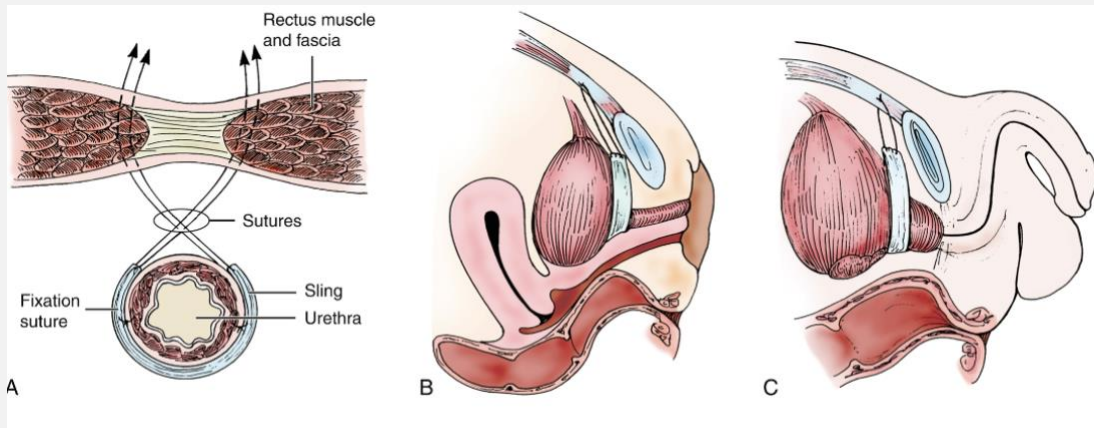
**Results:** At a median (range) follow-up of 28 (11-65) months three children were completely dry after a single injection; there was no change in four and a short-term improvement (median 25 months, range 4 days to 37 months) in eight. After this period all children deteriorated to their original incontinence grade; hence the overall cure rate was three of 15.

**Conclusion:** This experience with a long-term follow-up differs from previously reported high success rates for the endourethral injection of bulking agents for urinary incontinence in children. Despite a short-term benefit, in the long-term this technique was unreliable and often ineffective. Patients and their carers should be given a realistic and guarded prognosis.



# Rectus fascie sling & Burch colposuspensie

- 1982
- Doel: elevatie en compressie urethra
  - Sling: graft of flap rectus fascie
  - Burch: vagina



# Rectus fascie sling & Burch colposuspensie

## Postop:

- Mictie: CIC bij neurogene blaas
- Complicaties:
  - Moeite CIC
  - Erosie
  - Incontinentie

## Alternatief:

- Ander materiaal: intestinale submucosa, fascia lata.
- Burch plastiek: alleen urethra-suspensie

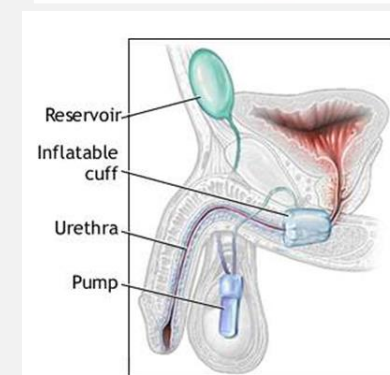
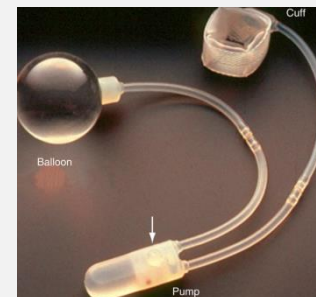
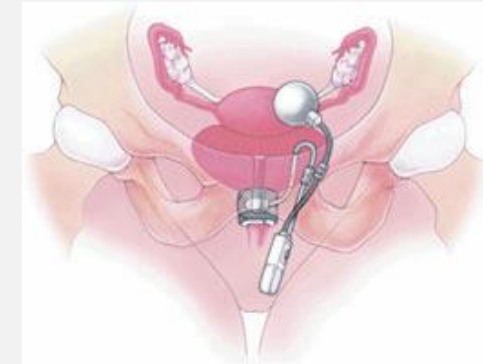
> J Pediatr Urol. 2022 Apr;18(2):187-195. doi: 10.1016/j.jpuro.2022.01.001. Epub 2022 Jan 19.

What makes the bladder neck sling procedure a success in a selected population of children and adolescents? A STROBE-compliant investigation

**Conclusion:** In our study population, bladder neck sling placement achieved good results in the treatment of severe organic urinary incontinence with hypoactive sphincter. To optimize treatment outcome, bladder neck sling placement should be combined with enterocystoplasty.

# Artificiële urethra sfincter

- 1973
- AMS800
- Blaashals bij vrouwen en prepuberale jongens
- Bulbaire urethra postpuberale jongens
- Indicatie:
  - Sfincter-incompetentie met spontane mictie, goede capaciteit / compliantie.
- (Relatieve) contraindicaties:
  - CIC
  - Rolstoel
  - Eerdere urethra-chirurgie



adam.com

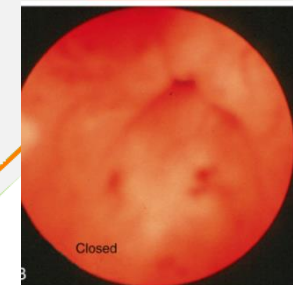
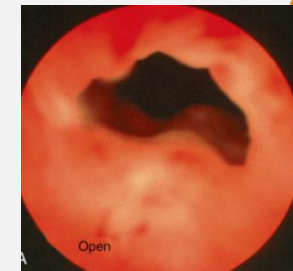
# Artificiële urethra sfincter

Complicaties / gevolgen:

- Spontane mictie prepuberaal, CIC na puberteit
- 40-50% alsnog augmentatie bij neurogene blaas
- Erosie / infectie: 16%

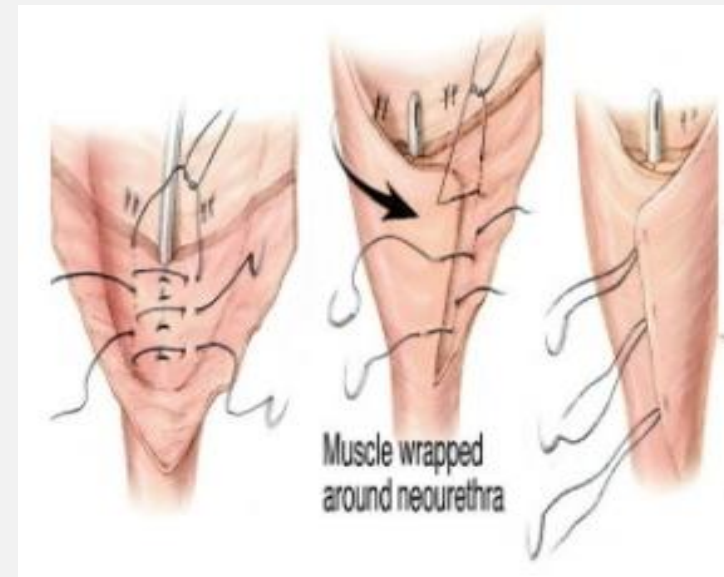
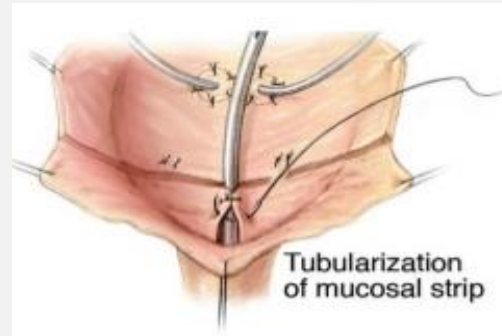
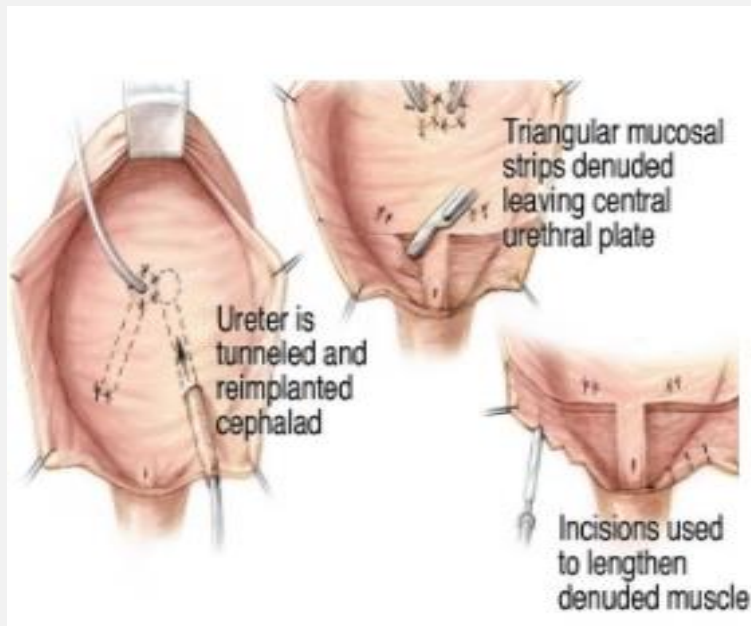
Effectief: 63-97%

Levensduur: 10+ jaar, mean 4.7 jr



# Blaashalsplastiek

- Vele technieken
- Principe: Urethra verlengen en versmallen.



# Blaashalsplastiek

- Ureter reimplantatie
- Verlies capaciteit > augmentatie?
- Verlies spontane mictie?
- Verlies transurethraal CIC?
- Verlies van ventielwerking bij neurogene blaas

# Sling vs blaashalsplastiek

## Long-term follow-up of bladder outlet procedures in children with neurogenic urinary incontinence

T.C. Noordhoff <sup>a,\*</sup>, J. van den Hoek <sup>a</sup>, M.J. Yska <sup>b</sup>, K.P. Wolffenbuttel <sup>a</sup>, B.F.M. Blok <sup>a</sup>, J.R. Scheepe <sup>a</sup>

**Summary Table** Gender and continence outcome presented in number (%).

	Total <i>n</i> = 60	BNS <i>n</i> = 43	BNR <i>n</i> = 17	Difference between BNS and BNR
<b>Gender</b>				
Female	35 (58%)	31 (72%)	4 (23.5%)	
Male	25 (42%)	12 (28%)	13 (77.5%)	<i>P</i> < 0.001 <sup>a</sup>
<b>Continence outcome</b>				
Dry rate < 1 yr follow-up	23 (38%)	15 (35%)	8 (47%)	<i>P</i> = 0.382 <sup>a</sup>
Dry rate > 1 yr follow-up	46 (77%)	33 (77%)	13 (77%)	<i>P</i> = 0.982 <sup>a</sup>

BNS, bladder neck sling; BNR, bladder neck reconstruction.

<sup>a</sup> Chi-squared test.

### Concomitant surgery

Continent catheterizable channel	58 (96.7%)	41 (95.3%)	17 (100%)	<i>P</i> = 0.366 <sup>a</sup>
Bladder augmentation	48 (80.0%)	33 (76.7%)	15 (88.2%)	<i>P</i> = 0.316 <sup>a</sup>
Ureteral reimplantation	5 (8.3%)	3 (7.0%)	2 (11.8%)	<i>P</i> = 0.545 <sup>a</sup>

42% re-interventies  
Levenslange follow up

# Chirurgie bij incontinentie



Vele opties

Pre / postop: geen “gewone” urotherapie

Verwachtingen?

> Bespreek casus met kinderuroloog

anatomisch

blaashalsinsufficiëntie

bulk blaashals

sling

Burch suspensie

artificiële sfincter

blaashalsplastiek