

<u>Authors , Date, Reference</u>	<u>Title</u>	<u>Design</u>	<u>Measures</u>	<u>Main Findings</u>	<u>Limitations</u>
<b>CONSTIPATION</b>					
<b>Authors , Date, Reference</b>	<b>Title</b>	<b>Design</b>	<b>Measures</b>	<b>Main Findings</b>	<b>Limitations</b>
Mosiello, G. et. al. 2017. Journal of Pediatric Gastroenterology and Nutrition 64, 3: 343-352	Consensus review of best practice of transanal irrigation in children	consensus document.	Literature review and round table discussions	Patient selection, a tailored approach, supervised training, and sustained follow-up are key to optimize outcomes with TAI	Predominantly retrospective cohort studies
Koppen, I. et. al. 2016. Journal of pediatric urology 12, 1: 56-64	Management of functional nonretentive fecal incontinence in children: Recommendations from the International Children's Continence Society	Review and Consensus	n/a	Approximately 20% of children with fecal incontinence may have FNRFI. Functional nonretentive fecal incontinence is a frustrating, long-lasting functional defecation disorder. Nurses, given their regular contact with families in different settings, are suitably placed to detect constipation early and can play a vital role in successful management of the condition. following guidelines from the National Institute for Health and Care Excellence (2010)	Excellent review
Schuster B. et. al. 2016. British journal of nursing (Mark Allen Publishing) 25, 22: 1231-1242	Childhood constipation: recognition, management and the role of the nurse	Review	n/a		Useful basic review of nursing practice

Madani, S. et. al. 2016. Pediatric Annals 45, 5: e189-e196	Constipation in children: A practical review	Review		Discuss epidemiology, causes, evaluation, and management of children with functional constipation.	Details not easily available
Rajindrajith, S. et. al. 2016. World Journal of Gastroenterology 22, 30: 6864-6875	Childhood constipation as an emerging public health problem	Review	n/a Review of the literature regarding the role of allergic diseases in children with Functional Constipation and Irritable Bowel Syndrome	Highlights the potential public health impact of FC and suggests concentrating on modifiable risk factors rather than high cost investigations and therapies	Interesting perspective
Caffarelli, C. et. al. 2016. Iranian Journal of Pediatrics 26, 6:	Allergy in children with functional constipation and irritable bowel syndrome	Systematic review		Potential association between allergies and constipation (and other GI problems)	Wide ranging, but not entirely conclusive findings
Modin, L. et. al. 2016. Journal of pediatric gastroenterology and nutrition 62, 4: 594-9	Follow-up in Childhood Functional Constipation: A Randomized, Controlled Clinical Trial	Randomized controlled trial	Number of successfully treated children after 3, 6, and 12 months.	Improved self-management behavior caused by access to self-motivated Web-based information induced faster short-term recovery	Well conducted RCT
Mallon, D. et. al. 2015. Pediatrics 135, 5: e1300-7	Shared care: a quality improvement initiative to optimize primary care management of constipation	Retrospective review	Rates of referral	Shared care may have a role in management of constipation	Retrospective review of electronic medical records
Aranda-López, R. et. al. 2016. Revista Mexicana de Pediatría 83, 6: 181-186	Risk factors and treatment response in children with functional constipation	Observational, descriptive prospective study	To estimate the prevalence of factors associated with functional	86[%] of patients with functional constipation had inadequate intake of water and had no definite schedule defecation	Uncontrolled case series

constipation and treatment response

Heron, J . et. al. 2018 . BMJ Paediatrics Open 2018;2:e000230. doi:10.1136/ bmjpo-2017-000230 , :	Early childhood risk factors for constipation and soiling at school age: an observational cohort study	Large cohort study	Latent class analysis of constipation and soiling.	Constipation alone was the most prevalent pattern in this cohort. Treatment for hard stools in early childhood is needed to prevent chronic constipation at school age. Constipation with soiling was less common than soiling alone. Psychosocial problems in early childhood are risk factors for constipation and soiling at school age	Well conducted prospective cohort study
Joinson C, Grzeda M, et. al.. Eur Child Adolesc Psychiatry. 2019 Feb;28(2):203-210.	Psychosocial risks for constipation and soiling in primary school children.	Large cohort study	Questionnaire		Well conducted prospective cohort study
Benninga, M . et. al. 2016. Archives of disease in childhood. Education and practice edition 101, 4: 187-93	How to use a plain abdominal radiograph in children with functional defecation disorders	Systematic review	n/a	abdominal radiography and attempted scoring of such radiographs should be abandoned when assessing constipation in children	good review with clear conclusions
Tambucci, R. et. al. 2018. Journal of Pediatric Gastroenterology and Nutrition 66, 4: e89-e98	Diagnostic Tests in Pediatric Constipation	Review	n/a	The the majority of children with constipation do not require any diagnostic testing, reserving them for refractory cases	Good review
Doniger, S. et. al. 2018. Pediatric Emergency Care 34, 3: 154-159	Measuring the Transrectal Diameter on Point-of-Care Ultrasound to Diagnose Constipation in Children	Prospective cohort study	Transverse rectal diameter on ultrasound compared with Rome III	In pediatric patients with abdominal pain, there is a strong correlation of an enlarged TRD with constipation	Comparability of constipated and unconstipated groups unclear

			classification for constipation		
Cushing, C. . et. al. 2018. Journal of Pediatric Surgery 53, 6: 1148-1153	Initial development and validation of a fecal incontinence-specific quality of life measure	Prospective observational.	Reliability was established using internal consistency statistics and test–retest reliability at baseline and 2-week follow-up.	The CINCY-FIS is a reliable and valid assessment of pediatric fecal incontinence-specific quality of life and parenting stress.	Validation of a useful tool
Hatori, R. et. al. 2017. Pediatrics international : official journal of the Japan Pediatric Society 59, 4: 462-466	Fecal retention in childhood: Evaluation on ultrasonography	Case control series	Ultrasound measurement of rectal diameter at several points	Ultrasound rectal diameter measurement can be used to detect fecal retention in - children Children with Functional Constipation differ from children with Functional Non-Retentive Faecal Incontinence and controls with respect to patterns of cerebral activation and deactivation during rectal distension	Well controlled study
Mugie, S.M. et. al. 2018. Neurogastroenterology and Motility 30, 3:	Brain processing of rectal sensation in adolescents with functional defecation disorders and healthy controls	Case-control study	Functional MRI Comparison of a Bladder Bowel Dyysfunction questionnaire with a stool burden Ultrasound scoring tool.		Well conducted study with 10 to 15 patients in each group
Mason, M. et. al. 2015. Journal of pediatric urology 11, 3: 146.e1-4	Diagnosis of constipation does not correlate with trans-abdominal ultrasound of rectal distention	Cohort study		Ultrasound examination did not correlate with patient reported symptoms.	only 39% of consecutive patients completed both assessments

Howarth, L. & Sullivan P. 2016. Paediatrics and Child Health (United Kingdom) 26, 10: 415-422	Management of chronic constipation in children	Review		Review of diagnosis, investigation, pharmacological and non-pharmacological management of chronic constipation in children	Excellent review
Chen, S-L. et. al. 2014. Medicine (United States) 93, 16: e65	Efficacy and complications of polyethylene glycols for treatment of constipation in children: A meta-analysis	Meta-analysis	Number of stool passages/wk and stool consistency.	PEG-based laxatives are effective and safe for chronic constipation and for resolving fecal impaction in children.	Excellent review
Gordon, M. et. al. 2016. Cochrane Database of Systematic Reviews 2016, 8:	Osmotic and stimulant laxatives for the management of childhood constipation	Systematic review	n/a	PEG preparations may be superior to placebo, lactulose and milk of magnesia for childhood constipation. Polyethylene glycol constitutes the most efficacious osmotic laxatives (more than lactulose) and are the first-line treatment for functional constipation in the short and long-term.	Quality of the evidence for the was low, and high risk of bias
Modin, L. et. al. 2016. Acta Paediatrica, International Journal of Paediatrics 105, 6: e269-e274	Use of polyethylene glycol in functional constipation and fecal impaction	Systematic review	n/a		Good systematic review
Phatak, UP; Pashankar, DS. 2014. Clinical pediatrics 53, 10: 927-32	Role of polyethylene glycol in childhood constipation	Review	n/a	Recent studies report the efficacy and safety of PEG therapy for childhood constipation.	Good general review
Diederer, K. et. al. 2015. Expert Opinion on Pharmacotherapy 16, 3: 407-416	Efficacy and safety of prucalopride in adults and children with chronic constipation	Systematic review	Evidence relating to safety, toxicity, pharmacokinetics, pharmacodynamics,	Prucalopride may have a role in treating childhood constipation	More research required on the effect of prucalopride in children

Koppen, I. et. al. 2016. Expert review of gastroenterology & hepatology 10, 1: 141-155	Childhood constipation: finally something is moving!		n/a	update on non-pharmacological interventions and other novel diagnostic and therapeutic tools related to childhood constipation.	Journal not easily available
Vilanova-Sanchez, A. et. al. 2018. Journal of Pediatric Surgery 53, 4: 722-727	Are Senna based laxatives safe when used as long term treatment for constipation in children?	Systematic review	To assess the side effects of long-term use of senna in children	Senna in high doses can rarely cause dermatitis, but literature review revealed no evidence of tolerance	Good review
Bekkali, N. et. al. 2018. Journal of Pediatric Gastroenterology and Nutrition 66, 1: 10-15	Polyethylene glycol 3350 with electrolytes versus polyethylene glycol 4000 for constipation: A randomized, controlled trial Response and recurrence rate after treatment with polyethylene glycol versus polyethylene glycol plus lactulose in children with chronic functional constipation: A randomized controlled trial	Double blind trial	Change in Constipation score at start and 52 weeks	similar efficacy and safety of these agents.	well conducted
Ala, S. et. al. 2015. Journal of Comprehensive Pediatrics 6, 2:	Chronic functional constipation: A randomized controlled trial	Randomized controlled trial	Symptoms using Rome III criteria	Lower recurrence rate of constipation with PEG and lactulose combination therapy over PEG alone.	Good RCT
Treepongkaruna, S. et. al. 2014. BMC Pediatrics 14, 1:	A randomised, double-blind study of polyethylene glycol 4000 and lactulose in the treatment of constipation in children	randomised, double-blind study	stool frequency during the fourth week of treatment.	PEG 4000 has superior efficacy to lactulose for the treatment of chronic constipation in young children and is well tolerated	Excellent RCT
Ha, EK. et. al. 2017. Journal of Korean medical science 32, 1: 102-107	Therapeutic Response for Functional Abdominal Pain in Children with Occult Constipation: Laxatives versus Prokinetic Drugs	Open prospective study with randomization of a sub-group	The Faces Pain Scale-Revised (FPS-R) to measure pain intensity.	Laxatives have a role in treating functional abdominal pain when associated with occult constipation	Nature of laxatives used is unclear

Steiner, S. et. al. 2014. Journal of pediatric gastroenterology and nutrition 58, 5: 598-602	Chronic functional constipation in children: adherence and factors associated with drug treatment	Prospective and longitudinal study	Adherence to treatment at one and six months	The adherence rate to laxative treatment was 38% in the first month and 30% in the sixth month combining PEG + E sachets and Sodium Picosulphate drops successfully and safely disimpacted a cohort of children with acute/chronic constipation presenting to a suburban continence clinic.	Uncontrolled case series
Jordan-Ely, J. et. al. 2015. Journal of Paediatrics and Child Health 51, 12: 1195-1198	Disimpaction of children with severe constipation in 3-4 days in a suburban clinic using polyethylene glycol with electrolytes and sodium picosulphate	Uncontrolled cohort study	Diary	Lubiprostone was efficacious and well tolerated in children and adolescents with functional constipation	No control or comparison group
Hyman, P. et. al. 2014. Journal of pediatric gastroenterology and nutrition 58, 3: 283-91	Lubiprostone for the treatment of functional constipation in children	Prospective, multicenter, open-label, study	Safety and effectiveness of treatment	greater prevalence of GI symptoms among children with ASD compared with control children	Good prospective study
McElhanon, Barbara O.; McCracken, Courtney; Karpen, Saul; Sharp, William G. et. al. 2014. Pediatrics 133, 5: 872-883	Gastrointestinal symptoms in autism spectrum disorder: A meta-analysis	Meta-analysis	Gastrointestinal symptoms in children with autism	Evidence supports behavioral treatments for fecal incontinence with constipation in children, Consistent use of established diagnostic criteria, along with use of behaviors identified through this review, lay a foundation for more effective interventions.	High methodological variability in studies Well conducted systematic review, but lack of high quality trials
Freeman, K. et. al. 2014. Journal of pediatric psychology 39, 8: 887-902	Systematic review and meta-analysis of behavioral interventions for fecal incontinence with constipation	Systematic review	Effects of behavioral treatment		
Beaudry-Bellefeuille, I. et. al. 2017. The Permanente journal 21, :	Defecation-Specific Behavior in Children with Functional Defecation Issues: A Systematic Review	Systematic review	n/a		Journal not easily available

Philips, E. et. al. 2015. Journal of pediatric gastroenterology and nutrition 61, 4: 384-92	Stressful Life Events in Children With Functional Defecation Disorders Conventional treatment of functional constipation has a positive impact on the behavioural difficulties in children with and without faecal incontinence	Systematic review	Prevalance of stressful life events	The prevalence of stressful life events, including (sexual) abuse is significantly higher in children with functional defecation disorders compared with healthy children	A good review that concludes that more studies are clearly needed.
Mínguez, M. et. al. 2016. Revista Espanola de Enfermedades Digestivas 108, 12: 790-806		Case series	Questionnaire at inclusion and 12-month follow-up. Parental attitudes were assessed by Parental Attitude Research Instrument (A-PARI). Symptoms of constipation in the child were assessed by a standardised interview.	conventional treatment of FC had a positive impact on behavioural difficulties in constipated children with and without faecal incontinence.	uncontrolled study
van Dijk, M. et. al. 2015. Archives of disease in childhood 100, 4: 329-33	Parental child-rearing attitudes are associated with functional constipation in childhood	Cross-sectional data of 133 constipated children and their parents	Assessment of Functional Defaecation Disorders using the Rome III anda Child Behavior Checklist to assess ADHD	Parental child-rearing attitudes are associated with functional constipation in children.	No control data
Kuizenga-Wessel, S . et. al. 2018. Journal of Pediatric Gastroenterology and Nutrition 66, : 244-249	Attention Deficit Hyperactivity Disorder and Functional Defecation Disorders in Children	A cross-sectional cohort study	ROME III criteria and symptoms of ASD by two validated questionnaires;	Association of functional constipation with ADHD Children with FDD and ASD completed toilet training both for stools and urine during daytime at a significantly later age than children with FDD only and controls.	Well designed observational study
Peeters, B . et. al. 2016. Research in Autism Spectrum Disorders 26, : 91-98	Toilet training in children with a functional defecation disorder and concomitant symptoms of autism spectrum disorder	Case controlled study			Well conducted with over 70 patients in each group

Beaudry-Bellefeuille, I. et. al. 2017. The American journal of occupational therapy : official publication of the American Occupational Therapy Association 71, 5: p1-7105220020	Examining Sensory Overresponsiveness in Preschool Children With Retentive Fecal Incontinence	Case-control study	Assessment of sensory over-responsiveness (SOR) and retentive faecal incontinence (RFI) A questionnaire based on the ROME III criteria for diagnosing functional gastrointestinal disorders. Medical records were reviewed to collect information about age, gender, height, weight, body mass index (BMI), ethnicity and chronic medical conditions.	Children with RFI (n = 16) showed significantly more behaviors related to SOR compared with typically developing children	Difficult to access full article
Phatak, U.P.; Pashankar, D.S. 2014. International journal of obesity (2005) 38, 10: 1324-1327	Prevalence of functional gastrointestinal disorders in obese and overweight children	Case-control study		There is some evidence of an association between functional gastrointestinal disorders, including constipation, and obesity	Some data gained from chart review
Joinson, C. et. al. 2018 a. European Child and Adolescent Psychiatry , : 1-8 Date: 05.2018 DOI: 10.1007/s00787-018-1162-8	Psychosocial risks for constipation and soiling in primary school children	Large cohort study	Questionnaire	Psychosocial problems in early childhood are risk factors for constipation and soiling at school age. A significant proportion of children with constipation are suffering from psychological maladjustment.	well conducted study
Ranasinghe, N. et. al. 2017. Archives of disease in childhood 102, 3: 268-273	Psychological maladjustment and quality of life in adolescents with constipation	Cross-sectional survey	Questionnaires		A good study of 1697 adolescents

Seidenfaden, S. et. al. 2018. Acta Paediatrica, International Journal of Paediatrics 107, 1: 151-155	Physical activity may decrease the likelihood of children developing constipation	Case-control study	Online questionnaire to parents about their children's lifestyle and constipation	Physical activity may affect the likelihood of developing constipation in older children. Children with functional constipation may develop unhealthy eating behavior, which in turn increases the risk of functional gastrointestinal disease.	Well conducted controlled study
Tharner, A. et. al. 2015. Journal of Pediatrics 166, 1: 91-96.e1	Bidirectional associations between fussy eating and functional constipation in preschool children	Large cohort study of 4823 children	Eating Behavior Questionnaire, and ROME II and III criteria at age 2, 3, 4, and 6 years		66% response rate, but conducted study Concluded that better-designed studies, with larger and more diverse patient populations followed for longer time periods, are needed
Lu, M-L. et. al. 2015. International Journal of Colorectal Disease 30, 5: 697-702	Electrical stimulation therapy for slow transit constipation in children: A systematic review	Systematic review	n/a	moderate support for the effectiveness of electrical stimulation therapy in slow transit constipation in children.	
Hutson, J. et. al. 2015. Pediatric surgery international 31, 5: 445-51	Transabdominal electrical stimulation (TES) for the treatment of slow-transit constipation (STC)	Review	Response of slow transit constipation to TES	Transcutaneous electrical stimulation (TES) is effective in treating children with Slow Transit Constipation, with long-lasting effects	The need for an RCT is acknowledged
Lu, PL.. 2017. Seminars in Colon and Rectal Surgery 28, 4: 185-188	Sacral neuromodulation for constipation and fecal incontinence in children	Systematic review	To assess the role of sacral neuromodulation in children with bowel disorders	growing evidence that sacral neuromodulation can be effective in the treatment of children with both constipation and fecal incontinence refractory to conventional treatment	Further research needed because of high complication rate

Sharifi-Rad, L. et. al. 2018. American Journal of Gastroenterology 113, 2: 295-302	Effects of interferential electrical stimulation plus pelvic floor muscles exercises on functional constipation in children: A randomized clinical trial	Single-center, double-blind randomized clinical trial study	diary, QoL, constipation score before, and 6 months later	interferential (IF) electrical stimulation and pelvic floor muscle (PFM) exercises significantly boosts the effects of treatment of functional constipation	Well controlled study
Yik, Yi. et. al. 2017. Neuromodulation , :	Home-Based Transabdominal Interferential Electrical Stimulation for Six Months Improves Paediatric Slow Transit Constipation (STC)	Case series	Bowel diaries and completed PEDSQLCore QOL (4.0) questionnaires before and at end of treatment	Transcutaneous electrical stimulation (TES) is effective in treating children with Slow Transit Constipation, with long-lasting effects	Uncontrolled case series
van der Wilt, A. et. al. 2016. International Journal of Colorectal Disease 31, 8: 1459-1466	Sacral neuromodulation in children and adolescents with chronic constipation refractory to conservative treatment	case series	defecation frequency abdominal pain and quality of life	SNM is a therapeutic option for children with chronic constipation. Benefits that appear to be sustained over prolonged period of time.	Uncontrolled but follow-up for over 1 year
van Engelenburg-van Lonkhuyzen, ML et. al. 2017. Gastroenterology 152, 1: 82-91	Effectiveness of Pelvic Physiotherapy in Children With Functional Constipation Compared With Standard Medical Care	Multicenter randomized controlled	Absence of Functional Constipation, according to Rome III criteria Frequency of defecation, overall improvement of constipation, stool withholding, painful defecation and stool consistency were measured at the final week of the intervention compared to baseline.	Pelvic Physiotherapy should be considered as a treatment option for constipation in children 5–16 years old	Well conducted RCT
Farahmand, F. et. al. 2015. Journal of Clinical and Diagnostic Research 9, 6: SC16-SC17	Pelvic Floor Muscle Exercise for Paediatric Functional Constipation	Case series		Pelvic floor muscle exercise is an effective non-pharmacologic treatment for Paediatric FC.	Uncontrolled study

Muddasani, S. et. al. 2017. Journal of Pediatrics 190, : 74-78	Physical Therapy for Fecal Incontinence in Children with Pelvic Floor Dyssynergia	Retrospective chart review	Symptoms and pelvic floor muscle function	Pelvic floor PT is effective in the majority of children with fecal incontinence related to PFD.	Uncontrolled case series
Siminas, S; Losty, P. 2015. Annals of surgery 262, 6: 925-33	Current Surgical Management of Pediatric Idiopathic Constipation: A Systematic Review of Published Studies	Systematic Review		Surgical management and outcome(s) for pediatric IC are based on low-quality evidence. Antegrade enemas are a successful therapeutic option in children with severe constipation and/or fecal incontinence. With the advent of cecostomy buttons, patient compliance and the overall cosmetic appearance have improved.	Good systematic review
Arya, S. et. al. 2016. American Journal of Therapeutics 23, 6: e1867-e1875	Constipation and outcomes of cecostomy	Literature review from 1997 to 2012	Assessment of continence, patients' physical activity, healthcare utilization, and general well-being		Lack of RCTs
Zar-Kessler, C. et. al. 2018. Journal of Pediatric Surgery 53, 4: 693-697	Botulinum toxin injection for childhood constipation is safe and can be effective regardless of anal sphincter dynamics	Chart review of 164 children	symptoms, anorectal manometry and response to treatment	Botulinum toxin injection for childhood constipation is safe and can be effective regardless of anal sphincter dynamics	Retrospective and no controls
Peeraully, MR. . et. al. 2014. European Journal of Pediatric Surgery 24, 1: 113-116	Experience of the MACE procedure at a regional pediatric surgical unit: A 15-year retrospective review	Case series	continence scale described by Malone,	Success rate (combining full and partial outcomes) of 92.5% for MACE	Retrospective study, varying diagnoses and no controls
Koppen, I. et. al. 2017. Journal of Pediatric Gastroenterology and Nutrition 64, 2: 225-229	Transanal Irrigation in the Treatment of Children with Intractable Functional Constipation	Cross-sectional survey study of parents	Questionnaire	Transanal irrigation may be effective in the treatment of children with FC and renders a high parental satisfaction	74% response rate

Pacilli, M. al. 2014. Journal of Pediatric Surgery 49, 2: 269-272	Use of Peristeen® transanal colonic irrigation for bowel management in children: A single-center experience	Retrospective study of 23 children with a variety of underlying diagnoses	Therapeutic effectiveness, satisfaction, side effects and laxative usage To assess the effect(s) of fiber-containing foods and/or supplements on digestive health outcomes in children	Majority (83%) of children achieve social fecal continence or a significant improvement with occasional soiling. This was accompanied by high parental satisfaction	Retrospective study with a median follow-up of 2 years (0.7 to 3.4)
Korczak, R. et. al. 2017. Nutrition Reviews 75, 4: 241-259	Dietary fiber and digestive health in children	Systematic review		Most of the evidence in children shows beneficial effects of partially various forms of fibre health outcomes; however, the existing evidence is not conclusive	Lack of well designed intervention trials
Huang, R. Hu, J. 2017. Frontiers in Cellular and Infection Microbiology 7, APR:	Positive effect of probiotics on constipation in children: A systematic review and meta-analysis of six randomized controlled trials	Systematic review of RCTS	n/a	Probiotics increase stool frequency and have beneficial effects in Asian children.	Better quality, less heterogeneous studies needed
Koppen, I. et. al. 2016. Journal of pediatric gastroenterology and nutrition 63 Suppl 1, : S27-35	Is There A Role for Pre-, Pro- and Synbiotics in the Treatment of Functional Constipation in Children? A Systematic Review	Systematic review	n/a	There is insufficient evidence to recommend pre-, pro- or synbiotics in the treatment of children with functional constipation.	Excellent review
Wojtyniak, K; Szajewska, H. 2017. European Journal of Pediatrics 176, 9: 1155-1162	Systematic review: probiotics for functional constipation in children	Systematic review	Efficacy of probiotics in the treatment of constipation Effects of fibre and probiotics for children with chronic constipation.	Probiotics are ineffective for the management of functional constipation in children	A thorough review
Tabbers, M; Benninga, M. 2015. BMJ clinical evidence 2015, :	Constipation in children: fibre and probiotics	Systematic review		Insufficient evidence for use of probiotics or that increased fibre is better than lactulose	Excellent review

Piccoli de Mello, P. et. al. 2018. Jornal de Pediatria , :	Use of fibers in childhood constipation treatment: systematic review with meta-analysis	Systematic review with meta-analysis	To assess the evidence on the use of fiber for constipation treatment in pediatric patients	Adequate fiber intake should only be recommended for functional constipation, and fiber supplementation should not be prescribed This study showed that dry cupping of the abdominal wall, as a traditional manipulative therapy, can be as effective as standard laxative therapy in children with functional constipation.	Concludes that there is a scarcity of qualified studies to evaluate fiber supplementation
Shahamat, M. et. al. 2016. African journal of traditional, complementary, and alternative medicines : AJTCAM 13, 4: 22-28	Dry cupping in children with functional constipation:a randomized open label clinical trial	open label randomized controlled clinical trial	Rome III criteria for constipation	Identifies a cheap and available medication which can be applied as a safe alternative to conventional PEG in the management of pediatric chronic functional constipation.	Interesting even if not relevant to the UK
Nimrouzi, M. et. al. 2015. Iranian Journal of Pediatrics 25, 2:	Flixweed vs. polyethylene glycol in the treatment of childhood functional constipation: A randomized clinical trial	randomized controlled trial			Interesting, if not immediately relevant RCT

## CHILDREN with DISABILITY

Authors , Date, Reference	Title	Design	Measures	Main Findings	Limitations
von Gontard, A. et. al. 2016. a. Neurourology and urodynamics 35, 2: 304-6	Do we manage incontinence in children and adults with special needs adequately? ICI-RS 2014	Review and consensus	Expert discussion during the ICI-RS meeting in 2014.	Assessment and treatment of incontinence should be offered routinely to all those with special needs. A systematic literature search suggests that interventions that incorporate the use of urine alarms are promising in the treatment of daytime enuresis for children with	Good review covering full range of people with special need.
Levato, L. et. al. 2016. Research in Developmental Disabilities 53-54, : 232-241	Use of urine alarms in toilet training children with intellectual and developmental disabilities: A review	Review	n/a		Useful review

				intellectual and developmental disabilities (IDD).	
Rogers J, Patricolo M et. al. . Nursing Times 110, 43: 22-24	Addressing incontinence in children with disabilities	Review		All children with bladder and/ or bowel problems should have equal access to bladder and bowel services regardless of any associated learning or physical disability	Good review
Powers MK et. al. 2015. 194,3: 783-787,	Trends in Toilet Training and Voiding Habits among Children with Down Syndrome	Case-control study	Parent centred questionnaire	Children with Down syndrome can experience marked delay in toilet training and are more likely to suffer incontinence afterward Incontinence in Down Syndrome is mainly present in young children and increases in older adults. Behavioral comorbidity is associated with incontinence only in adults with Down Syndrome. Screening and treatment of incontinence in individuals with Down Syndrome is recommended	The control group was slightly younger, but results valid
Niemczyk, J. et. al. a. 2017. Neurourology and Urodynamics 36, 6: 1550-1556	Incontinence in persons with Down Syndrome	Cross-sectional study	Questionnaires to parents/care givers relating to continence and behaviour To assess subtypes of incontinence and psychological problems in children with FXS	Boys with FXS have a higher risk for physical disabilities, psychological disorders and incontinence than healthy boys.	Cross sectional study recruiting patients from a parental support group, no controls
Niemczyk, J. et. al. 2016. European Journal of Pediatrics 175, 10: 1325-1334	Detailed assessment of incontinence in boys with fragile-X-syndrome in a home setting	Case-control series		A significant proportion of children with NS are affected by incontinence, but it does not persist into adulthood.	Good case control study A survey of children and adults with Noonan's syndrome
Niemczyk, J. et. al. 2015.c. Journal of Pediatric Urology 11, : 201.e1-201.e5	Incontinence in persons with Noonan Syndrome	Cross-sectional study	Behavioural and continence questionnaires		



## ENURESIS (NOCTURNAL)

Authors , Date, Reference	Title	Design	Measures	Main Findings	Limitations
Bayne, A. et. al. 2014. Pediatrics in Review 35, 8: 327-335	Nocturnal enuresis: An approach to assessment and treatment	Systematic review	n/a	Several clear recommendations The mainstay of treatment is urotherapy with information and psychoeducation . Alarm therapy and the use of desmopressin have been shown to be effective in randomized trials.	Journal not easily available
Kuwertz-Bröking, E; von Gontard, A. 2018. Pediatric Nephrology 33, : 1145-1154	Clinical management of nocturnal enuresis	Review			A different emphasis than other similar reviews
Cederblad, M. et. al. 2015. Journal of Pediatric Urology 11, : 153.e1-153.e5	No effect of basic bladder advice in enuresis: A randomized controlled trial	Prospective, randomized, and controlled.	Enuresis frequency	Bladder advice does not help enuresis	Well conducted RCT
Fagundes SL et. al. . Pediatric Nephrology 32, : 843-851	Monosymptomatic nocturnal enuresis in pediatric patients: multidisciplinary assessment and effects of therapeutic interventions	Prospective randomized study	therapeutic response	The three therapeutic modalities were effective in managing MNE with low relapse rates; the alarm group showed the highest dropout rate	Good randomized study
Grzeda, M. et. al. 2017.b. BMJ open 7, : e016749	Examining the effectiveness of parental strategies to overcome bedwetting: an observational cohort study	Large prospective cohort study	Risk of bedwetting at 6.5 years	Common parental strategies (including lifting and fluid restriction) used in 7½-year-olds are not effective in reducing the risk of bedwetting at 9½ years	Large prospective cohort study

Hofmeester, I. et. al. 2017. Neurourology and Urodynamics 36, : 463-468	Reference values for frequency volume chart and uroflowmetry parameters in adolescent and adult enuresis patients	Retrospective cohort study of patients aged 11 to 42 years	Full range of Frequency Volume Chart and Uroflowmetry parameters	Useful reference tables from age 11 years Male gender, developmental delay, for example, delayed social skills and maternal history of wetting were associated with an increase in the odds of bedwetting at 4 to 9 years	All patients with enuresis at least once every 2 weeks
Sullivan, S. et. al. 2015. Journal of developmental and behavioral pediatrics : JDBP 36, : 724-733	Factors Predicting Atypical Development of Nighttime Bladder Control	Large cohort study	Longitudinal latent class analysis of bedwetting		Part of a large high quality cohort study
Sa CA et al . Journal of Urology 195, 4 part 2: 1227-1230	Increased risk of physical punishment among enuretic children with family history of enuresis	Case series,	Questionnaire	Brazilian paper indicating high risk of punishment for enuresis	Uncontrolled Brazilian study
Nevés, Tryggve. 2017. International Journal of Urology 24, : 174-182	Pathogenesis of enuresis: Towards a new understanding	Review and expert opinion	n/a	a new model of enuresis pathogenesis is presented,	Very interesting review and hypothesis
Wright, A. 2016. Paediatrics and Child Health (United Kingdom) 26, 8: 353-359	Childhood enuresis	Structured review	n/a	Review of pathophysiology and treatment  Enuresis is often underestimated in terms of the suffering it causes children and their families, and there are efficacious therapies	Excellent review
Haid, B; Tekgül, S.. 2017. European urology focus 3, 2-3: 198-206	Primary and Secondary Enuresis: Pathophysiology, Diagnosis, and Treatment	Systematic review	n/a		good review

Dossche, L. et. al. 2016. European Journal of Pediatrics 175, : 747-754	The pathophysiology of monosymptomatic nocturnal enuresis with special emphasis on the circadian rhythm of renal physiology	Systematic review	Renal aspects of nocturnal polyuria	Diminished circadian rhythm of sodium excretion and glomerular filtration in contrast to children without nocturnal polyuria	Good review of this topic
Dossche, L. et. al. 2016. Journal of Urology 195, : 162-167	Circadian Rhythm of Glomerular Filtration and Solute Handling Related to Nocturnal Enuresis	Retrospective chart review with NMNE children as controls	14-day diary for nocturnal enuresis and diuresis, and 24-hour concentration profile	the subgroup with enuresis and nocturnal polyuria has a diminished circadian rhythm of nocturnal diuresis, sodium excretion and glomerular filtration in contrast	Good review of a large number of patients with well collected data
Korzeniecka-Kozerska, A. et. al. 2015. Irish journal of medical science 184, : 899-905	Urinary calcium excretion in children with monosymptomatic enuresis	case-control study	Urinary calcium excretion Maximal voided volume (MVV), nocturnal bladder capacity (NBC) and estimated nocturnal bladder capacity (eNBC)	Statistically significant differences between children with MNE in Ca(2+) in urine sample and 24-h collection and Ca/creat. ratio	Hypercalciuria in MNE group was diagnosed in 18/83 (21.69%).
Borg, B. et. al. 2018. Journal of Pediatric Urology 14, : 160.e1-160.e6	Evidence of reduced bladder capacity during nighttime in children with monosymptomatic nocturnal enuresis	Cohort study	Day/night ratios of plasma copeptin and urinary aquaporin 2 treatment	Children with normal maximal voided volume by day may wet even though night time urine production is less than MVV	Further insight into pathogenesis of enuresis
Hara, T. et. al. 2017. Journal of Urology 198, : 921-927	Evaluation of Urinary Aquaporin 2 and Plasma Copeptin as Biomarkers of Effectiveness of Desmopressin Acetate for the Treatment of Monosymptomatic Nocturnal Enuresis	Prospective comparison of responders with non-responders		Urinary aquaporin 2 appears to be a biomarker of desmopressin treatment effectiveness during therapy, while plasma copeptin levels before treatment are predictive of desmopressin response	An interesting insight into the physiology of desmopressin response

Hofmeester, I. et. al. 2016. <i>Neurourology and urodynamics</i> 35, : 1006-1010	Predictors for a positive outcome of adapted clinical dry bed training in adolescents and adults with enuresis	Retrospective cohort study in 907 consecutive patients	Predictors of response at 6 months	Predictors for successful treatment response after six weeks are: gender and initial degree of enuresis only.	The authors say that other non-identified factors may also be important in predicting outcome.
Hamed, H. et. al. 2015. <i>Egyptian Journal of Neurology, Psychiatry and Neurosurgery</i> 52, : 258-263	Polysomnography and antidiuretic hormone secretion pattern in children with primary nocturnal enuresis Increased renal concentrating ability after long-term oral desmopressin lyophilisate treatment contributes to continued success for monosymptomatic nocturnal enuresis	Case-control study	A single overnight polysomnography and assessment of ADH levels at 9-11 a.m. and 9-11 p.m.	Primary NE is associated with disturbed sleep architecture. Most NE children have a reversed pattern of ADH secretion.  Patients receiving long-term oral desmopressin lyophilisate treatment develop increased nocturnal renal concentrating ability, which results in sustained dryness even after treatment cessation.	Interesting controlled study  Lack of true control group makes interpretation or results difficult.
Ikeda, H. et. al. 2017. <i>International Journal of Urology</i> 24, : 698-702	Assessment of serum level of corticotropin-releasing factor in primary nocturnal enuresis	Case-control study	Morning urine osmolality	Corticotropin-releasing factor was deficient in our enuretic children	Good controlled study
Motawie, A. et. al. 2017. <i>Journal of Pediatric Urology</i> 13, : 46.e1-46.e5	Assessment of serum level of corticotropin-releasing factor in primary nocturnal enuresis	case-control study	Serum CRF levels in the morning and evening	Corticotropin-releasing factor was deficient in our enuretic children	Good controlled study
Yüce, Ö. a et. al. 2016. <i>Renal Failure</i> 38, : 899-905	Abnormal circadian blood pressure regulation in children with nocturnal enuresis	Case-control study	Daytime and night-time blood pressure	Subtle abnormalities of circadian BP regulation in enuretic children	Well controlled study
Pavione RP. et. al. 2016. <i>Journal of pediatric urology</i> 12, : 216.e1-6	Children with nocturnal enuresis have posture and balance disorders	Controlled prospective study	Balance and sensory integration.	Children with nocturnal enuresis have posture and balance disorders	Unclear whether patients with ADHD may have influenced results,

Oguz, U. et. al. 2015. Urologia Internationalis 94, : 459-463	The time of spontaneous resolution of Monosymptomatic Nocturnal Enuresis (MNE) is familial	Cross sectional study	Questionnaire to parents and children	The age of spontaneous resolution of MNE is familial	Retrospective questionnaire
Yu, B. et. al. 2017. Human Brain Mapping 38, : 2532-2539	Noninvasive imaging of brain oxygen metabolism in children with primary nocturnal enuresis during natural sleep	Case control study	Cerebral metabolic rate of oxygen (CMRO 2 ), cerebral blood flow (CBF), Type and severity of incontinence, number of visits, and effect of all treatments from a prospective clinical database	Noninvasive imaging of brain oxygen metabolism in children with primary nocturnal enuresis during natural sleep different from controls Mono-symptomatic nocturnal enuresis (MNE) and non-MNE are two distinct disease entities with different optimal treatments and showed that the latter patients are more difficult and time-consuming to manage.	Well conducted study into pathophysiology of NE
Rittig, N. et. al. . Neurourology and Urodynamics 33:475–481 (2014) , :	Outcome of a Standardized Approach to Childhood Urinary Symptoms—Long-Term Follow-Up of 720 Patient	Consecutive cohort	Voided volumes measured for more than 48 hours were recorded in the frequency volume chart (FVC).	When an accurate first morning voided volume cannot be obtained, as in patients with nocturnal enuresis, calculating MVVDT×1.25 allows estimation of the bladder capacity	Good long-term follow-up study
Cho, W Y. et. al. 2018. Investigative and Clinical Urology 59, : 194-199	Can recording only the day-time voided volumes predict bladder capacity?	Cross sectional study			Useful data from healthy children
Chua, M. et. al. 2016. Pediatrics 138, :	Desmopressin withdrawal strategy for pediatric enuresis: A meta-analysis	Meta-analysis	Relapse-free rate	Structured withdrawal of desmopressin results in better relapse-free rates	Only 4 RCTs qualified for inclusion
Dalrymple, R; Wacogne, I D. . 2017. Archives of Disease in Childhood , :	Gradual withdrawal of desmopressin in patients with enuresis leads to fewer relapses than an abrupt withdrawal	Meta-analysis	Frequency of wetting 1 month after withdrawal from desmopressin	Gradual withdrawal of desmopressin leads to fewer relapses.	Meta-analysis of 4 RCTs

Ferrara, P. et. al. 2018. Biomedical and Pharmacology Journal 11, : 171-177	Oral Desmopressin Lyophilisate Formulation (MELT): Efficacy and safety in children and adults	Systematic review	n/a	The MELT formulation of desmopressin guarantee the same response of other formulations with a lower doses and a lowest number of side effects.	Useful review
Yu, J. et. al. 2017. Experimental and Therapeutic Medicine 14, : 2875-2884	Desmopressin plus anticholinergic agent in the treatment of nocturnal enuresis: A meta-analysis	Meta-analysis	Clinical efficacy and safety of combination therapy	Combination therapy comprising desmopressin and anticholinergic agent is more effective with equivalent safety for children with NE. Tricyclics reduce the number of wet nights during treatment, but do not have a sustained effect. Alarm therapy has better short- and long-term outcomes. Tricyclics combined with anticholinergics may be more effective monotherapy.	Good met-analysis of 8 studies
Caldwell, P. et. al. 2016. Cochrane Database of Systematic Reviews 2016, :	Tricyclic and related drugs for nocturnal enuresis in children Combined Dietary Recommendations, Desmopressin, and Behavioral Interventions May Be Effective First-Line Treatment in Resolution of Enuresis	Systematic review	Effects of tricyclic and related drugs compared with other interventions		A detailed review of the use of tricyclics
Ferrara, P. et. al. 2015. Urology journal 12, : 2228-32	Combined Dietary Recommendations, Desmopressin, and Behavioral Interventions May Be Effective First-Line Treatment in Resolution of Enuresis	Randomized controlled trial	Response and relapse rates	Combined dietary recommendations and dDAVP is better than dDAVP alone	Interesting RCT but details not available
Lundmark, E. et. al. 2016. Journal of Pediatric Urology 12, : 397.e1-397.e5	Reboxetine in therapy-resistant enuresis: A randomized placebo-controlled study	Randomized placebo-controlled study with a double-blind cross-over design	Frequency of enuresis	Reboxetine in monotherapy or in combination with desmopressin is better than placebo.	Good RCT, but conclude that the Reboxetine dosage may be too low

Kamperis, K. et. al. 2017. Pediatric Nephrology 32, : 627-633	Combination treatment of nocturnal enuresis with desmopressin and indomethacin	Randomized single-arm crossover placebo-controlled study	Nocturnal urine output and number of dry nights	The addition of indomethacin to desmopressin significantly reduced nocturnal urine output but there was no statistically significant reduction in enuresis frequency.	Good RCT
Van Herzeele, C. et. al. 2015.a. Journal of pediatric urology 11, : 200.e1-8	Predictive parameters of response to desmopressin in primary nocturnal enuresis	Prospective, open-label, multinational, phase-IV study	Frequency volume charts	Desmopressin response rates are higher in children with greater age, limited number of wet nights a week and nocturnal polyuria.	Secondary analysis of an original study designed for another purpose.
Ohtomo, Y. et. al. 2015. Pediatrics international : official journal of the Japan Pediatric Society 57, : 656-8	Gradual tapering of desmopressin leads to better outcome in nocturnal enuresis	Randomized controlled trial	Relapse rate (>2 nights/month) 12 weeks after stopping treatment	Gradual tapering of ODM therapy in MNE patients leads to better outcome	good RCT
Sharifiaghdas, F. et. al. 2016. Urology 93, : 170-4	Primary Monosymptomatic Nocturnal Enuresis: Monotherapy vs Combination Therapy	Retrospective chart review		Supports the efficacy of combination therapy with desmopressin melt plus oral tolterodine over monotherapy	Unclear how the two groups were chosen
Schroeder, M. et. al. 2018. European Journal of Pediatrics 177, : 389-394	Desmopressin use in pediatric nocturnal enuresis patients: is there a sex difference in prescription patterns?	Cross sectional study	Desmopressin prescription patterns in the Danish pediatric population	Desmopressin dosage are consistent with a greater sensitivity to desmopressin in girls than boys (i.e. girls respond to lower dosage).	Observational study but with data on 40,000 children

Berkenwald, A. et. al. 2016. Journal of pediatric urology 12, : 220.e1-6	Evaluating use of higher dose oxybutynin in combination with desmopressin for refractory nocturnal enuresis	Retrospective chart review	Response of enuresis	Escalating dose oxybutynin with desmopressin is safe and effective	Retrospective case series but useful information regarding (lack of) side effects
Perrin, N. et. al. 2015. Primary health care research & development 16, : 21-31	The efficacy of alarm therapy versus desmopressin therapy in the treatment of primary monosymptomatic nocturnal enuresis: a systematic review	Systematic review	Outcome of trial of alarm v. desmopressin	Desmopressin has a higher relapse rate. Alarms have higher drop-out rates and families need more support	Good review of RCTs
Caldwell, P. et. al. . Arch Dis Child 2016;101:326–331 , :	A randomised controlled trial of a code-word alarm	Randomized controlled trial	Primary outcome: the proportion who achieved a full response (14 consecutive dry nights) by 16 weeks. S	the code-word alarm increased waking, no difference in full response rates was demonstrated between the two alarms.	Good RCT
Kosilov, K. et. al. 2018 a. Journal of Pediatric Urology , :	The optimal duration of alarm therapy use in children with primary monosymptomatic nocturnal enuresis	Prospective randomized controlled trial	Frequency of enuresis	The effective duration of alarm intervention is likely to be 16–20 weeks of an uninterrupted	Good RCT
Kosilov, K. et. al. 2015 b. Journal of pediatric urology 11, : 261.e1-5	Night diuresis stimulation increases efficiency of alarm intervention	Randomized controlled trial	Number of episodes of enuresis, number of episodes of self-awakening	Increased fluid intake improved the efficiency of alarm therapy	Good RCT

Kosilov, K. et. al. 2016. Journal of Nepal Paediatric Society 36, : 8-13	Additional use of alarm systems in wakefulness in the treatment of mono-symptomatic nocturnal enuresis Comparison of long-term efficacy of desmopressin lyophilisate and enuretic alarm for monosymptomatic enuresis and assessment of predictive factors for success: A randomized prospective trial	Randomized controlled trial	Frequency of enuresis	Usage of alarm systems in patient's wakefulness in addition to standard treatment regimen was improved the efficiency of Alarm	Journal not easily available
Önol, F. et. al. 2015. Journal of Urology 193, : 655-661		Randomized controlled trial	Success rates at 6 and 12 months	Alarms have higher attrition rates therefore worse results on intention to treat	Good RCT
Kosilov, K. et. al. 2015 a. Journal of Nepal Paediatric Society 35, : 49-56	Sensibility of children of different age groups to alarm intervention for enuresis	Cohort study	Comparison of effectiveness of alarm treatment in various age groups	Alarms work better in 10-12 yr old than 7-9yr old	Journal not easily available
Kosilov, K. et. al. 2018 b. Journal of Nepal Paediatric Society 37, : 213-219	Combination of alarm-intervention and reboxetine in therapy-resistant enuresis Enuresis Management in Children: Retrospective Clinical Audit of 2861 Cases Treated with Practitioner-Assisted Bell-and-Pad Alarm	Controlled trial with 3 treatment arms Chart review of 2861 children in several GP practices	Frequency of enuresis Time taken for children with to be dry for 14 consecutive night and relapse rates	Combined treatment of therapy-resistant enuresis with use of Alarm Intervention and Reboxetine works Slightly higher success with alarms in 2ry than 1ry enuresis	Journal not easily available Retrospective case series, but impressive numbers
Apos, E. et. al. 2017. Journal of Pediatrics , :					
Hyuga, T. et. al. 2017. Urology 105, : 153-156	Evaluation of the Effectiveness of a Short-term Treatment and Repeat Treatment of Nocturnal Enuresis Using an Enuresis Alarm	Cohort study with non-responders divided into 2 groups	Frequency of enuresis	Suspending and then repeating this treatment after an appropriate interval is effective for patients who do not respond to the initial course of treatment.	Unclear how the groups were chosen and whether prospective

Van Herzeele, C; Vande Walle, J. 2016. Pediatric Nephrology 31, : 689-692	Incontinence and psychological problems in children: a common central nervous pathway?	Editorial		High comorbidity between enuresis, sleep, and (neuro)psychological functioning is probably attributable to a common pathogenetic pathway, emphasizing the importance of a multidisciplinary approach High adherence is associated with high therapy success of enuresis Increasing adherence is time-consuming. . Recommend use of a minimal psychological screening tool	Succinct summary with interesting conclusion
Van Herzeele, C. et. al. 2015. Journal of pediatric urology 11, : 308-13	Challenging factors for enuresis treatment: Psychological problems and non-adherence Desmopressin (melt) therapy in children with monosymptomatic nocturnal enuresis and nocturnal polyuria results in improved neuropsychological functioning and sleep	Systematic Review	Adherence and response rates		Interesting review of psychological issues
Van Herzeele, C. et. al. 2016. Pediatric Nephrology 31, : 1477-1484	Open-label, prospective phase IV study	Open-label, prospective phase IV study	Effect of treatment on sleep and (neuro)psychological functioning	Sleep and (neuro)psychological functioning were significantly ameliorated by treatment of enuresis	Comparison of pre and post treatment, no normal controls
Tai, T. et. al. 2015. Acta Paediatrica, International Journal of Paediatrics 104, : e466-e472	Parents have different perceptions of bed-wetting than children from six to 15 years of age	case series		Parental attitudes and perceptions towards bed-wetting were different from their children's.	uncontrolled
Zhang, K. et. al. 2015. Pediatric Research 78, : 422-429	Task positive and default mode networks during a working memory in children with primary monosymptomatic nocturnal enuresis and healthy controls	Case-control study	Function magnetic resonance imaging (fMRI)	PMNE children showed different brain responses to task on functional MRI compared to non NME children	Interesting well controlled study

Joinson, C. et. al. 2016 c. Journal of pediatric psychology 41, : 1002-1010	Stressful Events in Early Childhood and Developmental Trajectories of Bedwetting at School Age	Prospective cohort study	Maternal questionnaire completed at 3 time points before their child was 4 years old	Continence is a developmental outcome that is associated with high levels of stress in the family	Well conducted cohort study
Gulisano, M. et. al. 2017. Journal of Pediatric Urology 13, : 36.e1-36.e6	Importance of neuropsychiatric evaluation in children with primary monosymptomatic enuresis	Case control series	Prevalence of neuropsychiatric comorbidities in children affected by Nocturnal Enuresis Dysfunctional Voiding Scoring System and Bristol scores before and after treatment for Nocturnal Enuresis	Association between enuresis and obsessive compulsive disorder as well as tic disorder. Significant effect of enuresis on psychosocial development.	Well conducted case controlled series
Kovacevic, L. et. al. 2018. Journal of Pediatric Urology 14, 1: 47.e1-47.e6	Children with nocturnal enuresis and attention deficit hyperactivity disorder: A separate entity?	Case control series		In children with primary NE, the presence of ADHD was associated with more severe NE, voiding symptoms and constipation	A well conducted study comparing children with NE (controls) and NE plus ADHD)
Vasconcelos, M. et. al. 2017. Journal of developmental and behavioral pediatrics : JDBP 38, : 736-742	Early Behavioral Risks of Childhood and Adolescent Daytime Urinary Incontinence and Nocturnal Enuresis	Cohort study	Behavioural questionnaire Questionnaires at 24, 38 and 42 months and presence of bedwetting at school age	Temperament and internal/externalizing symptoms may be risk factors for school-age and adolescent urinary incontinence. The presence of difficult temperament and behaviour problems in early childhood might help to identify children who will continue to experience bedwetting at school age	Large cohort study similar to ALSPAC
Joinson, C. et. al. 2016 b. European child & adolescent psychiatry 25, : 519-28	Early childhood psychological factors and risk for bedwetting at school age in a UK cohort	Prospective cohort study			Well conducted cohort study
Ring JJ et al et. al. . Acta Paediatrica 106, : 806-811	Nocturnal enuresis impaired quality of children's life and friendships	Cross-sectional study	Incontinence and quality of life questionnaires	Children with nocturnal enuresis had impaired self-esteem, and their impaired QoL affected their relationships with friends.	Study assessing validity of questionnaire, no controls

Chua, M. et. al. 2017. Urology 106, : 183-187	Neurostimulation Therapy for Pediatric Primary Enuresis: A Meta-analysis	Systematic literature search and meta-analysis	Level of response of enuresis to, and safety of, neurostimulation	Current evidence suggests that neurostimulation therapy is efficacious and safe for the treatment of PPE (meta analysis)	A good meta-analysis of RCTs
Brittner, M. et. al. 2016. Current problems in pediatric and adolescent health care 46, : 179-83	Acupuncture in Pediatrics Transcutaneous Electrical Nerve Stimulation in Children with Monosymptomatic Nocturnal Enuresis: A Randomized, Double-Blind, Placebo Controlled Study	Systematic review	Resolution of enuresis 1 year after surgery	Acupuncture is efficacious in comparison to placebo acupuncture	Little relevant research
Jørgensen, C. et. al. 2017. Journal of Urology 198, : 687-693		Randomized controlled trial	Number of wet nights, nocturnal urine production, maximum voided volume , voiding frequency	No anti-enuretic effect of transcutaneous electrical nerve stimulation in children with monosymptomatic nocturnal enuresis	Interesting RCT
Kajbafzadeh, A-M. et. al. 2015. Pediatric nephrology (Berlin, Germany) 30, 7: 1139-45	Efficacy of transcutaneous interferential electrical stimulation in treatment of children with primary nocturnal enuresis: a randomized clinical trial	Randomized controlled clinical trial	Number of wet nights per week	Efficacy of transcutaneous interferential electrical stimulation in treatment of children with primary nocturnal enuresis	Good RCT with one year follow-up results
Mohamed, A. et. al. 2016. International Journal of PharmTech Research 9, : 81-85	Percutaneous electrical stimulation for management of monosympatomatic nocturnal enuresis	Case series	Bladder diary	Percutaneous electrical stimulation therapy has got clear effect in treatment of monosympatomatic nocturnal enuresis.	Lack of controlled trials, the overall quality of the evidence reviewed and the
Lehmann, K. et. al. 2018. Journal of Pediatric Urology 14, : 53.e1-53.e8	The role of adenotonsillectomy in the treatment of primary nocturnal enuresis in children: A systematic review	Systematic review,	Resolution of PNE following surgery	T&A resulted in improvement of nocturnal enuresis in more than 60% of patients, with complete resolution rates in excess of 50%.	

					heterogeneity between included studies
Zaffanello, M. et. al. 2017. Swiss medical weekly 147, : w14400	Obstructive sleep-disordered breathing, enuresis and combined disorders in children: chance or related association?	Systematic review	Outcome of treatment for obstructive sleep-disordered breathing	Resolution of enuresis after medical or surgical treatment for obstructive sleep-disordered breathing	Many studies were uncontrolled or retrospective
Bazargani, F. et. al. 2016. The Angle orthodontist 86, : 481-6	Rapid maxillary expansion in therapy-resistant enuretic children: An orthodontic perspective	Case series	Resolution of enuresis 1 year after surgery	Rapid Maxillary Expansion has a curative effect in some children with NE	Uncontrolled case series
Dahan, P. et. al. 2016. Journal of Urology 195, : 1221-1226	Association between Asthma and Primary Nocturnal Enuresis in Children	Cross-sectional study	Interview with a structured questionnaire	There is an association between asthma and enuresis	A useful study of a large population of children aged 6 to 14
Park, S. et. al. 2016. Laryngoscope 126, : 1241-1245	Impact of adenotonsillectomy on nocturnal enuresis in children with sleep-disordered breathing: A prospective study	Case series	Presence of enuresis	Strong association between NE and SDB, and adenotonsillectomy can markedly improve enuresis in the majority of children with NE and SDB.	No controls
Azevedo S. et. al. 2016. European Journal of Paediatric Neurology 20, : 282-285	Sleep disturbances associated with sleep enuresis: A questionnaire study	Case-control study	Questionnaire using Sleep Disturbance Scale for Children (SDSC)	Enuretic children showed sleep disturbances consistent with the parental perception of a more deep sleep and a high arousal threshold.	Well controlled study

Kovacevic, L. et. al. 2015. Urology 86, : 158-61	Adenotonsillectomy Normalizes Hormones and Urinary Electrolytes in Children With Nocturnal Enuresis and Sleep-Disordered Breathing	Prospective case-control study	Concentrations of urinary electrolytes and plasma ADH	NE is associated with altered ADH and BNP levels in children with SDB. T&A led to normalization of ADH and BNP (brain natriuretic peptide)	Good study including post treatment data
Ozkaya, E. et. al. 2016. Italian Journal of Pediatrics 42, :	Enuresis Nocturna in children with asthma: Prevalence and associated risk factors	Cross-sectional case-control study	Skin prick tests , total IgE, and blood eosinophil count and semi-structured interviews	Prevalence of enuresis in children with asthma was higher than in same age controls	Well controlled and large study
Tsai, J-D. et. al. 2017. Pediatric Nephrology 32, : 2293-2301	Association between allergic disease, sleep-disordered breathing, and childhood nocturnal enuresis: a population-based case-control study	Large case-control study	Prevalence of enuresis, allergic diseases and sleep disordered breathing	Allergic diseases and Sleep Disordered Breathing are associated with increased odds of childhood NE	Very large study using a national database
Dhondt K. et al . Acta Paediatrica 103, : e268-e272	Sleep fragmentation and increased periodic limb movements are more common in children with nocturnal enuresis	Case control series	One overnight video-polysomnography	Children with enuresis displayed more periodic limb movements and sleep fragmentation than controls	Good case control study
Lv, Z-T. et. al. 2015. Evidence-based Complementary and Alternative Medicine 2015, :	Efficacy of Acupuncture in Children with Nocturnal Enuresis: A Systematic Review and Meta-Analysis of Randomized Controlled Trials	Systematic review	n/a	Cautiously suggest that acupuncture therapy could improve the clinical efficacy. H	Rigorous high quality RCTs are urgently needed.
Kiddoo, D . 2015. BMJ clinical evidence 2015, :	Nocturnal enuresis: non-pharmacological treatments	Systematic review,	Effects of non-pharmacological interventions for enuresis	Evidence of effectiveness and safety of acupuncture, dry bed training, enuresis alarm, and hypnotherapy.	Good quality review

Saettini, F. et. al. 2016. European Journal of Integrative Medicine 8, : 89-97	Acupuncture for the treatment of pediatric nocturnal enuresis: A systematic review and a meta-analysis of randomized and non-randomized studies	Meta-analysis	Comparison of acupuncture with conventional treatment or placebo.	Acupuncture seems to be an effective option for the treatment of nocturnal enuresis, but no statistically significant differences emerged across non-randomized and randomized studies..	The type of acupuncture was the main source of heterogeneity and further large randomized trials are required
Ahmadipour, S. et. al. 2017. Journal of Medical and Biomedical Sciences 6, : 23-29	Phytotherapy for children's nocturnal enuresis	Review	Phytotherapy for children's nocturnal enuresis Evaluation before and after 3 months of the study to record the efficacy of therapy, side effects and bladder capacity, and 3 months of follow-up after cessation of treatment by bladder diary	Some traditional medicinal plants may be effective in nocturnal enuresis	Unable to access journal and lack of RCTs
Alsharnoubi, J. et. al. 2017. Lasers in Medical Science 32, : 95-99	Nocturnal enuresis in children between laser acupuncture and medical treatment: a comparative study	Randomized controlled trial		Laser acupuncture is noninvasive, painless tool, with no side effects and lower recurrence rate	Good trial comparing treatment with laser acupuncture, desmopressin and both modalities.
Ma, Y. et. al. 2017. Pediatrics international : official journal of the Japan Pediatric Society 59, : 1183-1188	Effect of traditional Chinese and Western medicine on nocturnal enuresis in children and indicators of treatment success: Randomized controlled trial	Randomized controlled trial	Complete response of nocturnal enuresis to treatment	Combined traditional Chinese and Western treatment in children with NE is effective and has a low relapse rate	Interesting RCT though the traditional remedy may not be easily available!
Rahmani, E. et. al. 2018. Journal of Pediatric Urology 14, : 257.e1-257.e6	Effect of vitamin D and omega-3 on nocturnal enuresis of 7–15-year-old children	Randomized, placebo-controlled,	To measure the effects of vitamin D, omega-3 supplements, and	Vitamin D and omega-3 could reduce the number of wet nights among 7–15-year-old children	Well conducted RCT

double-blind  
trial  
their combination  
on nocturnal  
enuresis among 7–  
15-year-old children

Ebiloglu, T. et. al. 2016.  
Neurourology and  
Urodynamics 35, : 58-61

The biofeedback treatment  
for non-monosymptomatic  
enuresis nocturna

Case series

Retrospective chart  
review

Biofeedback therapy is an  
effective treatment option for  
the enuresis component of non-  
monosymptomatic enuresis

Retrospective,  
uncontrolled case  
series

## LOWER URINARY TRACT SYMPTOMS (LUTS)

Authors , Date, Reference	Title	Design	Measures	Main Findings	Limitations
Chang, S-J. et. al. 2017. Neurourology and Urodynamics 36, : 43-50	Treatment of daytime urinary incontinence: A standardization document from the International Children's Continenence Society	Review and consensus	n/a	Guidelines on applicability of non-pharmacological, pharmacological and other therapiees are provided	Excellent guideline
Chase, J. et. al. 2018. Journal of Pediatric Urology 14, : 98-107	Diagnostic scores, questionnaires, quality of life, and outcome measures in pediatric continence: A review of available tools from the International Children's Continenence Society	Systematic review and consensus	n/a	A variety of useful tools for the assessment and measurement of bladder and bowel dysfunction and quality of life and behavioral comorbidities are presented	Valuable review
Wagg AS et. al. . PloS on 9, 8p: e104129; <a href="https://doi-org.rsm.idm.oclc.org/10.1371/journal.pone.0104129">https://doi-org.rsm.idm.oclc.org/10.1371/journal.pone.0104129</a>	Developing an internationally-applicable system services specification for continence care: Systematic review, evidence synthesis and expert consensus	Systematic Review,and consensus	Semi-structured interviews with clinicians, patients, patient-representatives and policy experts	Services should be integrated across primary and secondary care	A detailed and useful review to assist design of services
Vivier, P-H. et. al. 2018. Pediatric Radiology 48, 2: 291-303	Standardization of pediatric urological terms: a multidisciplinary European glossary	Expert consensus		Provides an exensive glossary of terms	Good reference paper
Bauer, S. et. al. 2015. Neurourology and urodynamics 34, 7: 640-7	International Children's Continenence Society standardization report on urodynamic studies of the lower urinary tract in children	Systematic review and consensus	n/a	Adaptations specific to children must be made to urodynamic techniques to achieve accurate and reproducible results.	Essential consensus document

Palmer, Lane S. 2016. Urology 92, : 87-94	Evaluation and Targeted Therapy of Voiding Dysfunction in Children The standardization of terminology of lower urinary tract function in children and adolescents: Update report from the standardization committee of the International Children's Continence Society	Review	n/a	The future of the scope of understanding and managing voiding disorders in children is bright	good general review
Austin, P. et. al. 2016. Neurourology and urodynamics 35, 4: 471-81	Standardization of terminology of lower urinary tract function in children and adolescents: Update report from the standardization committee of the International Children's Continence Society	Review and consensus	n/a	Standardization of terminology	Essential consensus document
Kanematsu, A. 2016. International Neurourology Journal 20, : 105-111	Translational research for pediatric lower urinary tract dysfunction	systematic review	n/a	Translational studies for paediatric LUTD may be extended to adult bladder disease, or to application of precision medicine for diseased children.	Good review of research
Logan, B; Blais, S. 2017. Journal of Pediatric Urology 13, : 430-435	Giggle incontinence: Evolution of concept and treatment	systematic review		Unclear whether this is of urologic or neurologic origin	good review
Joinson, C . 2016 a. Nursing times 112, 20: 15-16	Childhood incontinence: risk factors and impact	Review			Good review
Schäfer, S. et. al. 2017. European Child and Adolescent Psychiatry , : 1-16	Standard urotherapy as first-line intervention for daytime incontinence: a meta-analysis	meta-analysis,	n/a	Urotherapy is an effective intervention for treating DUI in children and adolescents. Of 100 patients in 1 year, approximately 56 patients remit after being treated , while only 15 out of 100 remit spontaneously	Good meta-analysis

Myint, M. et. al. 2016. Journal of pediatric urology 12, : 112.e1-6	Mobile phone applications in management of enuresis: The good, the bad, and the unreliable!	Survey of available Apps	Apps were rated by a paediatric urology consultant, fellow, registrar, and resident medical officer using standardised criteria	Bladder diary apps can eliminate disadvantages of pen-and-paper diaries in the management of enuresis. Currently, apps available vary in quality	Interesting and well conducted
Glassberg, K. Combs, A. 2014. Current Bladder Dysfunction Reports 9, 4: 389-400	Lower Urinary Tract Dysfunction in Childhood: What's Really Wrong with These Children?				Journal not easily available
Arlen, A M. et. al. 2017.a. Current Urology Reports 18, 2:	Dysfunctional Voiders— Medication Versus Urotherapy?	Review	An overview of literature on dysfunctional voiding	Conservative measures including an aggressive bowel regimen and timed voiding are the mainstays of treatment. Pharmacotherapy plays an ancillary role	Good wide ranging review
Dean, E. 2017. Nursing children and young people 29, 4: 11 von Gontard, A. et. al. 2017.a. Journal of wound, ostomy, and continence nursing : official publication of The Wound, Ostomy and Continence Nurses Society 44, 2: 181-187	Childhood continence  Psychological and Physical Environmental Factors in the Development of Incontinence in Adults and Children: A Comprehensive Review	Review  Review	  n/a	General review of management of childhood in UK  Environmental factors influence the development of incontinence in children and adults. Biological factors, environment, and intervening variables need to be explored.	Relevant information for clinicians  Interesting review

Brownrigg, N. et. al. 2017. Journal of pediatric urology 13, 4: 374.e1-374.e8	The impact of a bladder training video versus standard urotherapy on quality of life of children with bladder and bowel dysfunction: A randomized controlled trial	Randomized controlled trial	Pediatric Incontinence Quality-of-Life questionnaire at the baseline and 3-month follow-up	Bladder training video (BTV) is non-inferior to standard urotherapy (SU)	Good 'non-inferior' study
Brownrigg, N. et. al. 2015. The Journal of urology 193, 4: 1347-52	A pilot randomized controlled trial evaluating the effectiveness of group vs individual urotherapy in decreasing symptoms associated with bladder-bowel dysfunction	Randomized controlled trial	Questionnaires	No difference in group vs individual urotherapy in decreasing symptoms associated with bladder-bowel dysfunction,	useful RCT
Braga L et.al Journal of Urology 197: 877	Bladder Training Video versus Standard Urotherapy for Bladder and Bowel Dysfunction: A Noninferiority Randomized, Controlled Trial	Randomized controlled trial	Vancouver questionnaire	Bladder training video was not inferior to standard urotherapy in reducing bladder/bowel symptoms in children 5 to 10 years old.	Good but not blinded study
Martins, G. et. al. 2016. Journal of pediatric urology 12, 2: 109.e1-6	Non-biological determinants of paediatric bladder bowel dysfunction: A pilot study	A pilot, prospective, observational study	Questionnaires on dysfunctional voiding, and lifestyle Demographics, symptoms, concomitant diagnoses, imaging, management, and treatment evaluated.	Interventions aimed at decreasing BBD severity, or preventing its onset in school-aged children, should focus on the environment surrounding them,	Lack of controls makes interpretation difficult
Arlen, A. et. al. 2014. Urology 84, 3: 685-688	Phantom urinary incontinence in children with bladder-bowel dysfunction	Case series		Children presenting with the sensation of wetness because of presumed urinary incontinence when they are actually completely dry. "phantom urinary incontinence"	Uncontrolled series but highlights a little recognised problem

Niemczyk, J. et. al. 2018. Neurourology and Urodynamics , :37.7: 2209-2219. (Sep 2018)	Psychometric properties of the "parental questionnaire: Enuresis/urinary incontinence" (PQ-EnU)	Case series: comparison of 2 questionnaires Prospective continuation of a previously reported follow-up study	To evaluate reliability and validity of the PQ-EnUParental Questionnaire: Enuresis/Urinary Incontinence Medication, voiding, drinking, pelvic floor tone, uroflowmetry, and incontinence 2 years after voiding school	The PQ-EnU is a valid and reliable parental questionnaire to measure incontinence, bladder/bowel symptoms, and behavioral problems in children	Comparison with Child behaviour checklist
Van Den Broeck, C. et. al. 2016. Journal of Pediatric Urology 12, : 37.e1-37.e6	Prospective evaluation of the long-term effects of clinical voiding reeducation or voiding school for lower urinary tract conditions in children			Close individual, long-term follow-up after clinical voiding reeducation in children is recommended in order to timely detect and prevent potential relapse.	Uncontrolled case series giving useful follow-up data
Law, E. et. al. 2016. Journal of developmental and behavioral pediatrics : JDBP 37, 3: 223-230	Toilet School for Children with Failure to Toilet Train: Comparing a Group Therapy Model with Individual Treatment	Case control study	Number of toileting benchmarks achieved	For children with failure to toilet train, group treatment involving both the child and the family results in greater improvement in toileting outcomes than individual treatment	Well conducted study
Hodges, S. et. al. 2014. Research and Reports in Urology 6: 127	The association of age of toilet training and dysfunctional voiding	Case-control series	Symptoms Residual and bladder wall thickness on ultrasound and uroflowmetry and the season in which the EDOUF started	Initiation of toilet training prior to 24 months and later than 36 months of age were associated with dysfunctional voiding. EDOUF - extraordinary daytime only urinary frequency - is generally associated with normal non-invasive urodynamic patterns. The sole recommendation is to postpone micturition for a maximum of 3 h or until the micturition postponement became stressful	Journal not easily available
Marzuillo, P. et. al. 2018. Journal of Pediatric Urology 14, 2: 177.e1-177.e6	Extraordinary daytime only urinary frequency in childhood: Prevalence, diagnosis, and management	Retrospective case series			Uncontrolled case series, but highlights an unusual problem

Franco, Israel . 2016. Nature Reviews Urology 13, 9: 520-532	Overactive bladder in children	Review	n/a	The outlook of children with OAB seems to be improving, with a greater understanding of the pathophysiology of this syndrome	Good wide ranging review
Kakizaki, H. et. al. 2016. LUTS: Lower Urinary Tract Symptoms 8, : 75-85	Pathophysiological and Therapeutic Considerations for Non-Neurogenic Lower Urinary Tract Dysfunction in Children	Systematic review		Urotherapy and pharmacotherapy for non-neurogenic LUTD should help improve self-esteem and quality of life in affected children.	Good wide ranging review
Fazeli, MS et. al. 2016. b. Journal of Urology 195, 4: 1245-1249	Cardiac Autonomic Nervous System Activity in Children with Bladder and Bowel Dysfunction	case-control study	Heart rate variability, Assessed the impact of body mass index (BMI) on treatment outcomes of children	Compared to healthy controls children with bladder and bowel dysfunction show a different cardiac autonomic profile at rest and in response to voiding.	Well conducted controlled series
Arlen, A. et. al. 2017 b. Journal of Pediatric Urology 13, 5: 454.e1-454.e5	Role of body mass index in school-aged children with lower urinary tract dysfunction: Does weight classification predict treatment outcome?	Cohort study	presenting with LUT or bladder–bowel dysfunction (BBD).	Nearly one-third of school-aged children presenting with LUT or BBD were overweight or obese and less likely to respond	Useful comparison of children with norm and raised BMI
Sampaio, A. et. al. 2017. Journal of Pediatric Urology 13, 3: 269.e1-269.e6	Are lower urinary tract symptoms in children associated with urinary symptoms in their mothers?	A cross-sectional multicenter study	Children's DVSS scores and the mothers' ICIQ-OAB scores	Mothers with typical symptoms of overactive bladder are more likely to have a child with LUT dysfunction.	Good study with patients selected from the general public

Kajbafzadeh, A-M. et. al. 2014. European journal of pediatrics 173, 2: 197-201	Generalized joint hypermobility and voiding dysfunction in children: is there any relationship?	Case control study	GJH was evaluated in both groups using the Beighton score	Children with voiding dysfunction have significantly higher prevalence of General Joint Hypermobility compared to normal children	Useful controlled study Further studies needed to assess if it is a marker of response or severity
Fukui, S. et. al. 2017. Urology 103, : 214-217	Urinary Nerve Growth Factor Can Predict Therapeutic Efficacy in Children With Overactive Bladder	Case-control study	Urinary nerve growth factor and creatinine (NGF/Cr level)	Urinary NGF/Cr was significantly higher in the children with OAB than in the controls, and was significantly higher in the refractory group than in the improved group	
Wagner, C. et. al. 2015. Journal of Pediatric Urology 11, 4: 202-207	Obesity, overweight, and eating problems in children with incontinence The role of urinary nerve growth factor for the diagnosis and assessment of the	case-control study	Child behaviour and eating behaviour questionnaires	Overweight, obesity, behavioural and eating problems are associated with disorders of the gastrointestinal tract (FI and constipation), and to a lesser degree with those of the urinary tract (DUI and NE).	Detailed case control study
Ergin, G. et. al. 2016. Journal of Pediatric Urology 12, : 118.e1-118.e6	biofeedback success in children with dysfunctional voiding	Case-controlled study	mean uNGF/creatinine (Cr) level	Urinary Nerve Growth Factor uNGF levels were higher in children with Dysfunctional Voiding and decreased after biofeedback therapy	Well conducted study
Chang, S-J. et. al. 2015. Neurourology and urodynamics 34, : 123-7	Obese children at higher risk for having overactive bladder symptoms: a community-based study	Cross-sectional study	Questionnaire and Dysfunctional Voiding Symptom Score	Obese community children were at a higher risk of having OAB while not for MNE.	Random selection of a large number of children

Heron, J. et. al. 2017. BMJ open 7, : e014238	Trajectories of urinary incontinence in childhood and bladder and bowel symptoms in adolescence: prospective cohort study	Large cohort study	Self-reported bladder and bowel symptoms at 14 years	Children exhibiting persistent bedwetting with daytime wetting had the poorest outcomes in adolescence. Different trajectories of childhood UI are differentially associated with biopsychosocial factors. Increased understanding of factors associated with these different trajectories could help clinicians to identify children at risk of persistent incontinence.	Well conducted prospective cohort study
Joinson C, Grzeda M, et. al. Eur Child Adolesc Psychiatry. 2019 Jan;28(1):123-130.	A prospective cohort study of biopsychosocial factors associated with childhood urinary incontinence.	Large cohort study	Questionnaire		
Jackson, E C. . 2018. Current Treatment Options in Pediatrics 4, 2: 151-173	Urodynamics in the Pediatric Patient: When to Order, How to Interpret	Review	The role of urodynamics in lower urinary tract (LUT) dysfunction	Patterns of non-invasive urodynamics can be helpful in diagnosing and planning care for children with LUT dysfunction	Difficult to access full article
Clothier, J C.; Wright, A J. et. al. 2018. Pediatric Nephrology 33, : 381-394	Dysfunctional voiding: the importance of non-invasive urodynamics in diagnosis and treatment	Structured review	n/a	Urotherapy and non-invasive uroflowmetry, plus or minus surface pelvic floor EMG, provides the mainstay of treatment.	Good wide ranging review
Ambartsumyan, L. et. al. 2016. Neurogastroenterology and motility : the official journal of the European Gastrointestinal Motility Society 28, 6: 924-33	Simultaneous urodynamic and anorectal manometry studies in children: insights into the relationship between the lower gastrointestinal and lower urinary tracts	Cohort undergoing simultaneous studies	Simultaneous anorectal manometry and urodynamic and ultrasound	The Post Void Residual volume increased with Rectal Diameter. Stool in the rectum does not alter filling cystometric capacity but decreases the bladder's ability to empty	Useful information but not practical to include healthy children

Kitamura, A. et. al. 2014. Pediatrics International 56, 6: 902-908	Assessment of lower urinary tract function in children with Down syndrome	Case-control study	Ultrasound and uroflowmetry	Lower urinary tract symptoms and abnormal uroflowmetry findings, which can lead to further progressive renal and urinary disorders, are common in Down Syndrome children	Clearly presented study
Maternik, M.. et. al. 2016. Journal of Pediatric Urology 12, : 214.e1-214.e5	Evaluation of bladder capacity in children with lower urinary tract symptoms: Comparison of 48-hour frequency/volume charts and uroflowmetry measurements	Cohort study of children with different bladder dysfunction	Maximum bladder capacity (MBC) from 48-h F/V charts was compared with volumes calculated from uroflowmetry	For children with MNE, both 48-hour frequency/volume charts and triplicate urine flow measurement with PVR evaluation are reliable methods of maximum bladder capacity evaluation. For children with OAB or DV, both methods may be necessary	Well conducted and providing practical information
Faasse, M. et. al. 2015. Journal of Pediatric Urology 11, : 198.e1-198.e6	Uroflowmetry with pelvic floor electromyography: inter-rater agreement on diagnosis of pediatric non-neurogenic voiding disorders	Prospective comparison of clinical assessments	Six raters performed post hoc evaluation of 84 uroflow-EMG studies and associated clinical data	Uroflow-EMG has shown promise for improving clinical management of Non Neurogenic Voiding Disorders associated with pediatric LUT dysfunction. However, inter-rater agreement on NNVD diagnoses using current criteria is suboptimal.	Interesting study highlighting difficulties in interpretation of these studies
Fuyama, M. et. al. 2018. Pediatrics International 60, : 569-575	Clinical features of, and association of bladder ultrasound and uroflowmetry with, overactive bladder recovery period in children	Retrospective chart review	Ultrasound, flow rate and symptoms	The recovery period was significantly shorter in the group with bladder wall thickness $\geq 5$ mm and in children with a tower-shaped curve on uroflowmetry	Uncontrolled case series Small numbers, and the sample
Tarhan, H. et. al. 2016. Journal of pediatric urology 12, : 105.e1-4	C-reactive protein levels in girls with lower urinary tract symptoms	Case control series	Voiding diary, dysfunctional voiding scoring system (DVSS). Serum CRP levels	Serum CRP levels were significantly higher in the girls with daytime LUT conditions than in the control group. and urgency, and as urge incontinence scores increased.	consisting of only one gender and a specific age group.

Beksac, A.T. et. al. 2016. Journal of Pediatric Urology 12, 4: 215.e1-215.e8	Postvoidal residual urine is the most significant non-invasive diagnostic test to predict the treatment outcome in children with non-neurogenic lower urinary tract dysfunction	Retrospective cohort	Uroflowmetry, Ultrasound, PVR and Dysfunctional Voiding and Incontinence Symptom Scale	Increased PVR was the single tool that was associated with prognosis	Retrospective study of a cohort of patients
Padmapriya, B et al 2015 Journal of Medical Imaging and Health Informatics 5:79	A wearable low cost ultrasound based urinary bladder volume measurement with an alarm system	Report of new device	n/a	Potentially useful device d for uninterrupted monitoring of bladder volume in children and others	Journal not easily available Inappropriate diagnostic criteria for ASD and incontinence, selected samples, or lack of control groups
Niemczyk, J. et. al. b. 2017. European Child and Adolescent Psychiatry , : 1-15	Incontinence in autism spectrum disorder: a systematic review	Systematic review	Co-occurrence of nocturnal enuresis , daytime urinary incontinence , and fecal incontinence in ASD,	Associations of incontinence in ASD with psychopathological symptoms were found. Also ASD symptoms are found in incontinent children,	selected samples, or lack of control groups
von Gontard, A; Equit, M. 2015. a. European child & adolescent psychiatry 24, 2: 127-40	Comorbidity of ADHD and incontinence in children	Structured review	Assessed literature relating to continence and ADHD	Children with ADHD and NE, DUI and FI are more difficult to treat, show lower compliance and have less favourable treatment outcomes for incontinence	Thorough review of the topic
von Gontard, A. et. al. 2016. b. European child & adolescent psychiatry 25, : 809-20	Voiding postponement in children-a systematic review	Structured review	All papers relating to "voiding postponement"	Voiding Postponement Incontinence is a common disorder with many associated problems . Urotherapy and timed voiding are the main treatment approaches,	Detailed and well structured review

Fazeli, MS. et. al. 2015. a. Journal of Urology 193, : 274-280	Biofeedback for Nonneuropathic Daytime Voiding Disorders in Children: A Systematic Review and Meta-Analysis of Randomized Controlled Trials	Meta-analysis	Effects of biofeedback for nonneuropathic voiding disorders in children	Current evidence does not support the effectiveness of biofeedback in the management of children with nonneuropathic voiding disorders.	Interesting meta-analysis
Bonnett, K.M.. et. al. 2017. Journal of Pediatric Urology 13, : 391.e1-391.e6	The Iowa Voiding Improvement Partnership experience: Early observations with a collaborative pediatric uro-psychologic clinic	Retrospective case series	Pediatric Bladder and Bowel Dysfunction questionnaire at each visit.	Multidisciplinary uro-psychology clinic may unearth undiagnosed psychological issues, and improve bowel and bladder dysfunction	Uncontrolled case series
Anderson, B. et. al. 2014. Journal of Pediatric Urology 10, 6: 1216-1221	The prevalence of abnormal genital findings, vulvovaginitis, enuresis and encopresis in children who present with allegations of sexual abuse	Retrospective chart review of 1280	Interviews and physical examination	Prevalence of vulvovaginitis and enuresis were increased, and encopresis was decreased in children with allegations of sexual abuse	Relevant information for clinicians
Whale, K. et. al. 2017. BMJ open 7, 10: e015544	What does that mean?': a qualitative exploration of the primary and secondary clinical care experiences of young people with continence problems in the UK	Case series	In-depth semistructured qualitative interviews by Skype and telephone,	Relapses or treatment failure are common and can have a negative emotional impact and undermine beliefs in future treatment success.	No controls
Ching, C. et. al. 2015. Journal of Urology 193, 2: 650-654	Bullying and lower urinary tract symptoms: Why the pediatric urologist should care about school bullying	Case-control series	Questionnaires relating to bullying and LUTS	Some form of bullying, either as victim (urology group) or perpetrator (primary care group), was associated with increased lower urinary tract symptoms	Significant differences between initial control and study groups

Sjögren, J. et. al. 2017. International Urogynecology Journal 28, : 1677-1684	Toileting behavior and urinary tract symptoms among younger women	Cohort study	Quantitative descriptive design was used with two questionnaires	Toileting behavior was significantly correlated with LUTS : 34.2% reported urgency and 35.9% urine leakage at least sometimes or more often.	33% response rate so potential bias
von Gontard, A. et. al. 2016. c. Neurourology and Urodynamics 35, 8: 1000- 1005	Incontinence in children, adolescents and adults with Williams syndrome	Cross- sectional study	Questionnaires relating to continence and developmental behaviour	Screening, assessment and treatment of incontinence in individuals with WS is recommended.	Study includes children and adults so sheds light on the natural history
Fraga, L. et. al. 2017. Journal of Pediatric Urology 13, 4: 387.e1-387.e6	Obesity and lower urinary tract dysfunction in children and adolescents: Further research into new relationships	cross- sectional study of children	Dysfunctional Voiding Scoring System (DVSS) questionnaire,	Only the bladder-emptying symptoms of LUTD appear to be associated with obesity.	Random method of selection makes this relevant
Niemczyk, J. et. al. 2015 a. Journal of pediatric urology 11, 3: 141.e1-6	Incontinence in children with treated attention- deficit/hyperactivity disorder	case-control study	Behavioural and continence questionnaires	If children are treated for their ADHD, according to standard practice guidelines, incontinence rates are similar to those without ADHD.	Good case control study
Niemczyk, J. et. al. 2015.b European child & adolescent psychiatry 24, : 837-43	Prevalence of incontinence, attention deficit/hyperactivity disorder and oppositional defiant disorder in preschool children	Cross- sectional study	Behavioural and continence questionnaires to parents	Screening not only for ADHD but also for ODD should be implemented for all children with incontinence	Good cross sectional study of 1676 children at school entry

Grzeda, M. et. al. 2017.a. European child & adolescent psychiatry 26, : 649-658	Effects of urinary incontinence on psychosocial outcomes in adolescence	Large prospective cohort study	Association between continence problems and psychosocial problems in adolescence.	Adolescents with UI reported a range of psychosocial problems and clinicians should be aware that they might require support from psychological services.	Good cohort study with important findings
Zhao, P. et. al. 2015. The Journal of urology 193, : 1743-8	Bullying has a potential role in pediatric lower urinary tract symptoms	case-control study	Correlated a Peer Relations Questionnaire with voiding symptoms	Bullying is significantly associated with pediatric lower urinary tract symptoms and physical forms of bullying accompany worsened symptoms.	Well conducted study
von Gontard, A. et. al. 2015. b. Neurourology and urodynamics 34, : 763-8	Specific behavioral comorbidity in a large sample of children with functional incontinence: Report of 1,001 cases	Cohort study	Child behaviour questionnaire to parents of children attending outpatient clinic	Children with incontinence have high rates of comorbid behavioral symptoms- three to six times higher than norms	Large study of a cohort of children with incontinence
Joinson C. et. al. 2018 b. European Child & Adolescent Psychiatry <a href="https://doi.org/10.1007/s00787-018-1193-1">https://doi.org/10.1007/s00787-018-1193-1</a> , :	A prospective cohort study of biopsychosocial factors associated with childhood urinary incontinence	Large cohort study	Relationship between biosocial factors and continence trajectories	Different trajectories of childhood UI are differentially associated with biopsychosocial factors.	Well conducted and detailed study
Whale K et. al. 2018. British Journal of Health Psychology 23, 2 253-277:	Left behind and left out: the impact of the school environment on young people with continence problems	in-depth structured interviews		Disclosure of continence to teachers and friends was rare	Interesting insight into how continence affects children

Leone RM. et. al. 2014. Expert Opinion on Pharmacotherapy 15, 6: 873-887	Mirabegron in the treatment of overactive bladder	Review	Overview of relevant studies	Mirabegron is efficacious and safe in treating patients with OAB	Highlights lack of data in children
Newgreen, D. et. al.. 2017. a. European urology 71, 3: 483-490	Solifenacin in Children and Adolescents with Overactive Bladder: Results of a Phase 3 Randomised Clinical Trial	Randomized placebo controlled trial	Mean volume voided/micturition ; maximum volume voided, incontinence	Once-daily solifenacin oral suspension in children with OAB was superior to placebo for MVV (primary efficacy endpoint) and was well tolerated	Good RCT Uncontrolled case series, but results of laxative treatment justify the conclusion
Choi, Y J. et. al. 2017. Neurourology and Urodynamics 36, 2: 490-494	Treatment of fecal retention is important in the management of overactive bladder in children Single center experience with oxybutynin transdermal system (patch) for management of symptoms related to non- neuropathic overactive bladder in children: an attractive, well tolerated alternative form of administration	Case series	Bristol stool school and Leech (Xray) score for constipation	Investigation of fecal retention with the Leech scoring system and laxative treatment might be helpful in the management of OAB in children.	
Gleason, J. et. al. 2014. Journal of pediatric urology 10, 4: 753-7		Case series	Symptom response and side effects	97% reported good symptom response. The main side effect was skin irritation at TOP site (35%), leading to discontinuation in 20%.	Retrospective, uncontrolled case series  No controls, but patients unresponsive to other treatments
Franco, I. et. al. 2018. Journal of Pediatric Urology 14, : 58.e1-58.e5	Imipramine for refractory daytime incontinence in the pediatric population	Case series	Vancouver Symptom Score (VSS)	Two-thirds of children with refractory daytime incontinence experienced treatment response to imipramine,	

Fortin, A. et. al. 2017. Paediatrics and Child Health (Canada) 22, 5: 255-258	Adherence to antimuscarinics in children with overactive bladder	Case series	Comparison of self reported adherence and pharmacists' report of prescription renewals	Measured adherence to antimuscarinics in children with overactive bladder is higher than in adults but significantly lower than the self-reported adherence.	Patient selection open to bias
Morin, F. et. al. 2017. Journal of Urology 197, 4: 1158-1163	Dual Therapy for Refractory Overactive Bladder in Children: A Prospective Open- Label Study	Prospective case series in patients unresponsiv e to current treatment	Efficacy and safety Efficacy compared to previously used anticholinergic tolerability, safety, and satisfaction.	Add-on mirabegron appears to be a safe alternative for children with refractory overactive bladder. Dual therapy is well tolerated	No controls
Blais, A-S. et. al. 2016. European Urology 70, 1: 9- 13	Prospective Pilot Study of Mirabegron in Pediatric Patients with Overactive Bladder	prospective off-label study Open label extension of a 12-week double-		Mirabegron, a novel first-in-class therapy, appeared as a safe and effective alternative for children with idiopathic OAB refractory to antimuscarinics	Uncontrolled case series
Newgreen, D. et. al. 2017.b. Journal of Urology 198, 4: 928-936	Long-Term Safety and Efficacy of Solifenacin in Children and Adolescents with Overactive Bladder	blind, placebo controlled trial.	Adverse events , electrocardiogra m, bladder diary	Once-daily solifenacin oral suspension in children with OAB was superior to placebo for MVV (primary efficacy endpoint) and was well tolerated.	Good study of long-term use of solifenacin
Fernandez, N. et. al. 2017. Urology 110, : 201-207	Neurostimulation Therapy for Non-neurogenic Overactive Bladder in Children: A Meta- analysis	Meta- analysis	Response to treatment	Neurostimulation therapy may lead to partial improvement of non-neurogenic overactive bladder. Office-based neurostimulation seems more efficacious than self-administered neurostimulation	Good meta- analysis

Fuchs, M; Alpert, S . et. al. 2016. Current Bladder Dysfunction Reports 11, 3: 195-200	Sacral Neuromodulation for Bladder Dysfunction in Children: Indications, Results and Complications	Systematic review	n/a	Sacral neuromodulation is an effective intervention for refractory bowel and bladder dysfunction in the carefully selected child Most studies have observed not only an improvement in symptoms and quality of life in children undergoing SNM for non-neurogenic and neurogenic lower urinary tract dysfunction but also a much higher reoperative rate than in adults.	Useful review
Strine, A. et. al. 2015. Current Bladder Dysfunction Reports 10, 4: 332-337	Sacral Neuromodulation in Children	Review			Journal not easily available
Wright, A; Haddad, M. 2017. European journal of paediatric neurology : EJPN : official journal of the European Paediatric Neurology Society 21, 1: 67-74	Electroneurostimulation for the management of bladder bowel dysfunction in childhood	Structured review		Extensive review of mechanisms and efficacy	Good thorough review
Ebert, K ; Alpert, S. 2018. Current Treatment Options in Pediatrics 4, 1: 24-36	Sacral Neuromodulation: Improving Bladder and Bowel Dysfunction in Children	Structured review	n/a	Sacral NeuroModulation is an effective therapy for refractory BBD in the carefully selected child.	Good review
Ladi-Seyedian, S. et. al. 2018. Journal of Pediatric Surgery , :	Pelvic floor electrical stimulation and muscles training: a combined rehabilitative approach for management of non-neuropathic urinary incontinence in children	Randomized controlled trial	Assessment of incontinence	Combination of biofeedback therapy and transcutaneous IF electrical stimulation is a potential effective modality in treating non-neuropathic urinary incontinence in children	Good RCT

de Paula, L. et. al. 2017. Journal of pediatric urology 13, 3: 263.e1-263.e6	Parasacral transcutaneous electrical neural stimulation (PTENS) once a week for the treatment of overactive bladder in children: A randomized controlled trial	Prospective, randomized controlled trial	Voiding diary, visual analogue scale (VAS), Rome III diagnostic criteria, and the Bristol Scale.	PTENS performed in single weekly sessions is effective in treating the bladder for symptoms of urinary urgency and enuresis, and in the perception of those responsible for the children.	Good RCT
Boudaoud, N. et. al. 2015. Journal of Pediatric Urology 11, 3: 138.e1-138.e10	Management of refractory overactive bladder in children by transcutaneous posterior tibial nerve stimulation: A controlled study No immediate effect on urodynamic parameters during transcutaneous electrical nerve stimulation (TENS) in children with overactive bladder and daytime incontinence—A randomized, double-blind, placebo-controlled study	Randomized controlled trial with sham stimulation	Bladder diary and urodynamics	Urodynamics improvements in transcutaneous posterior tibial nerve stimulation group, but clinical results remained the same as controls.	Good RCT
Borch, L. et. al. 2017. Neurourology and Urodynamics 36, : 1788-1795	Transcutaneous parasacral electrical stimulation vs oxybutynin for the treatment of overactive bladder in children: A randomized clinical trial Transcutaneous Electrical Nerve Stimulation Combined with Oxybutynin is Superior to Monotherapy in Children with Urge Incontinence: A Randomized, Placebo Controlled Study	Double-blind, placebo-controlled study	Urodynamic parameters Dysfunctional voiding score (DVSS), voiding diary records, Rome III criteria and side effect frequency	There is no immediate objective effect of TENS on bladder activity assessed by natural fill urodynamics in children with OAB and DUI.	Good study with negative results
Quintiliano, F. et. al. 2015. Journal of Urology 193, 5: 1749-1753	Transcutaneous parasacral electrical stimulation vs oxybutynin for the treatment of overactive bladder in children: A randomized clinical trial Transcutaneous Electrical Nerve Stimulation Combined with Oxybutynin is Superior to Monotherapy in Children with Urge Incontinence: A Randomized, Placebo Controlled Study	Randomized controlled trial	Number of wet days weekly. Maximum voided volume over expected bladder capacity	Parasacral transcutaneous electrical stimulation was as effective as oxybutynin in reducing DVSS. Oxybutynin was more effective for decreasing voiding frequency Transcutaneous electrical nerve stimulation in combination with oxybutynin for childhood urge incontinence was superior to monotherapy consisting of transcutaneous electrical nerve stimulation or oxybutynin	Well controlled trial, but small numbers
Borch, L. et. al. 2017. Journal of Urology 198, 2: 430-435	Transcutaneous parasacral electrical stimulation vs oxybutynin for the treatment of overactive bladder in children: A randomized clinical trial Transcutaneous Electrical Nerve Stimulation Combined with Oxybutynin is Superior to Monotherapy in Children with Urge Incontinence: A Randomized, Placebo Controlled Study	Randomized placebo controlled trial	Number of wet days weekly. Maximum voided volume over expected bladder capacity	Parasacral transcutaneous electrical stimulation was as effective as oxybutynin in reducing DVSS. Oxybutynin was more effective for decreasing voiding frequency Transcutaneous electrical nerve stimulation in combination with oxybutynin for childhood urge incontinence was superior to monotherapy consisting of transcutaneous electrical nerve stimulation or oxybutynin	Well controlled trial, but small numbers

Kajbafzadeh, A-M. et. al. 2016. BJU International 117, : 793-800	Transcutaneous interferential electrical stimulation for the management of non-neuropathic underactive bladder in children: A randomised clinical trial	Randomized controlled trial	Symptom score	Combining transcutaneous interferential electrical stimulation (IFES) and urotherapy is a safe and effective therapy in the management of children with Under-Active Bladder	good study with 1 year follow-up
Dwyer, M. et. al. 2014. Urology 84, 4: 911-7	Sacral neuromodulation for the dysfunctional elimination syndrome: a 10-year single-center experience with 105 consecutive children	Case series	Symptom resolution	Sacral neuromodulation should be considered for children with refractory dysfunctional elimination syndrome , but the risk of reoperation is >50%.	Uncontrolled but over 2 year follow-up data
Hoffmann, A. et. al. 2018. Journal of Pediatric Urology 14, 1: 54.e1-54.e6	Predictors of outcome in children and adolescents with overactive bladder treated with parasacral transcutaneous electrical nerve stimulation	case series	Symptomatic improvement	Nocturnal enuresis was the only symptom associated with a poor outcome following parasacral TENS treatment in children with OAB	Uncontrolled series
Veiga, ML. et. al. 2016. Journal of Pediatric Urology 12, 5: 293.e1-293.e5	Parasacral transcutaneous electrical stimulation for overactive bladder in children: An assessment per session	case series	Presence of symptoms	The complete response rate progressively increases with the number of sessions, slowly until the 12th session and more rapidly after that.	uncontrolled
Mason, M. et. al. 2016. Journal of Urology 195, : 1239-1244	Prospective Evaluation of Sacral Neuromodulation in Children: Outcomes and Urodynamic Predictors of Success	Case series	Urodynamics and questionnaire	Sacral neuromodulation significantly improves quality of life and symptom severity in children with refractory bowel bladder dysfunction, but there is a high rate operative revision,	Uncontrolled series

Schober, M. et. al. 2015. Journal of Urology 194, 6: 1721-1726	Sacral nerve stimulation for pediatric lower urinary tract dysfunction: Development of a standardized pathway with objective urodynamic outcomes	Case series comparing pre and post treatment	Questionnaires and urodynamics	Sacral nerve stimulation for pediatric lower urinary tract dysfunction	Uncontrolled series
Zivkovic, V. et. al. 2017. Urology 102, : 207-212	Are Interferential Electrical Stimulation and Diaphragmatic Breathing Exercises Beneficial in Children With Bladder and Bowel Dysfunction?	Controlled, prospective clinical study	Diary, ultrasound and uroflowmetry with pelvic floor electromyography	Interferential current (IC) stimulation and diaphragmatic breathing exercises (DBEs) are beneficial in chronically constipated dysfunctional voiders.	Unclear if randomized and groups differ
Léon, P. et. al. 2014. Journal of Pediatric Surgery 49, 9: 1424-1428	Botulinum toxin injections in the management of non-neurogenic overactive bladders in children	Case series	Urodynamics before , at 6 weeks and 1 year post injections.	Intradetrusor Botulinum toxin injections are a potential therapeutic option for non-neurogenic detrusor overactivity in children resistant to the usual treatments.	No controls
Al Edwan, et. al. 2018. Journal of pediatric surgery ISSN: 0022-3468 Date: 05.2018 DOI:10.1016/j.jpedsurg.2018.05.012	Objective and subjective improvement in children with idiopathic detrusor overactivity after intravesical botulinum toxin injection: A preliminary report	Case series	Bladder diary	Evidence for the safety and efficacy of Intravesical botulinum toxin injection in children with refractory idiopathic OAB	Symptoms pre and 3 months post treatment were compared
van Engelenburg-van Lonkhuyzen, ML. et. al. 2016. Cochrane Database of Systematic Reviews 2016, 11:	Physiotherapy interventions for functional bladder and bowel dysfunctions in neurologically normal and otherwise healthy children	Systematic review		Physiotherapy interventions for functional bladder and bowel dysfunctions in neurologically normal and otherwise healthy children	Good review

Ladi Seyedian, S. et. al. 2014. European journal of pediatrics 173, 10: 1347-53	Combined functional pelvic floor muscle exercises with Swiss ball and urotherapy for management of dysfunctional voiding in children: a randomized clinical trial	Randomized controlled trial	Voiding and bowel diary, Uroflowmetry with pelvic floor surface electromyography (EMG)	Functional PFM exercises with Swiss ball combined with behavioral urotherapy was safe and effective, reducing the frequency of urinary incontinence, PVR, and the severity of constipation in children with DV.	Well conducted study
Bauer, S. et. al. 2018. Journal of Pediatric Urology , :	Pelvic floor laxity: A not so rare but unrecognized form of daytime urinary incontinence in peripubertal and adolescent girls	Retrospective case series	History, examination, BMI and Z-scores, urodynamics, management, and treatment response	Physically active, nulligravid girls with SUI can be efficaciously diagnosed on upright VCUG. They should be considered for non-surgical therapy but may require surgery	Uncontrolled case series, but highlights an unusual problem The authors acknowledge limited methodological quality of included trials. High-quality systematic reviews and Cochrane systematic reviews tend to yield neutral or negative results
Hu, X-Y. et. al. 2015. Acupuncture and Related Therapies 3, : 1-10	Effectiveness and safety of using acupoint Shui Gou (GV 26): A systematic review and meta-analysis of randomized controlled trials	Systematic review and meta-analysis	Effectiveness and adverse effects of a specific acupuncture point	The use of acupuncture point GV26 for may have a role in treating functional enuresis.	
Yang, C. et. al. 2015. Pediatric Research 78, : 112-119	Efficacy and safety of acupuncture in children: An overview of systematic reviews	Systematic review	To assess the evidence for the efficacy and safety of acupuncture for children	The efficacy of acupuncture for nocturnal enuresis, is promising	
Szajewska, H. 2016. Archives of Disease in Childhood 101, 4: 398-403	What are the indications for using probiotics in children?	Systematic review		Limited evidence available does not support the use of probiotics in the treatment of constipation in children.	Good general review, limited data on constipation

<p>Sharifi, H. et. al. 2017. Journal of evidence-based complementary &amp; alternative medicine 22, : 12-17</p>	<p>Topical use of Matricaria recutita L (Chamomile) Oil in the Treatment of Monosymptomatic Enuresis in Children: A Double-Blind Randomized Controlled Trial</p>	<p>Double-blind randomized placebo- controlled trial</p>	<p>Frequency of enuresis during 3 consecutive 2 week periods</p>	<p>The topical use of (chamomile) oil decreased the frequency of nocturnal or daytime incontinence</p>	<p>Daytime and night time "enuresis" are combined, but some benefit compared with placebo</p>
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## SERVICE PROVISION

Authors , Date, Reference	Title	Design	Measures	Main Findings	Limitations
Wilby N, Chiu B et. al. 2015. Community Practitioner 88, 11: 34-36	Preventing paediatric continence services going down the pan				Journal not easily available

## TOILET TRAINING

Authors , Date, Reference	Title	Design	Measures	Main Findings	Limitations
Warzak, W. et. al. 2016. Journal of developmental and behavioral pediatrics : JDBP 37, : 83-87	Advancing Continence in Typically Developing Children: Adapting the Procedures of Foxx and Azrin for Primary Care	Structured review	Experimental articles that evaluated intensive toilet training with typically developing children	Practice sits and positive reinforcement for voids in the toilet are commonplace, Fluid loading and differential consequences for being dry versus being wet and for voiding in the toilet also are suggested procedures,	Acknowledged that there is little research in this area
Niemczyk, J. et. al. 2014. Journal of Pediatric Gastroenterology and Nutrition 58, 3: 303-306	Toilet refusal syndrome in preschool children: Do different subtypes exist?	Retrospective case series	Child Behavior Checklist questionnaire	TRS occurs also in older preschool (and even school) children. At this later age, it is associated with constipation and behavioural disorders.	Uncontrolled case series