

Supplementary Material 6

Evidence of effectiveness - Level 1 synthesis – Additional tables

Table 1: Characteristics of excluded studies.....	2
Table 2: Characteristics of ongoing studies	7
Table 3: Studies awaiting assessment for inclusion in Level 1 synthesis.....	10
Table 4: Risk of bias judgements for included systematic reviews, using ROBIS tool	11
Table 5: Risk of bias judgements for included RCTs, using Cochrane ROB1 tool	12
Table 6: Risk of bias judgements for cohort studies, using CASP tool for cohort Studies	14
Table 7: Outcomes reported in Included Studies	15
Table 8: Studies addressing questions relating to Level 1 of the pyramid	17
Table 9: Judgement of certainty in evidence and summary of findings relating to each research question.....	18

Table 1: Characteristics of excluded studies

STUDY	REASON FOR EXCLUSION
Systematic reviews judged to be at high/unclear risk of bias or to overlap with a more up-to-date or comprehensive systematic review (n=13)	
Ahmed 2012 ¹	Intervention addressed: Laxatives ROB assessment: High ROB Reason for exclusion: Not low ROB
Candy 2009 ²	Intervention addressed: Laxatives ROB assessment: High ROB Reason for exclusion: Not low ROB
Chen 2014 ³	Intervention addressed: Laxatives ROB assessment: Low ROB Reason for exclusion: superseded by more up to date / comprehensive review
Dziechciarz 2015 ⁴	Intervention addressed: Laxatives ROB assessment: Low ROB Reason for exclusion: superseded by more up to date / comprehensive review
Han 2017 ⁵	Intervention addressed: Fibre ROB assessment: Low ROB Reason for exclusion: Piccoli 2017 (see level 0) more comprehensive & up-to-date
Horn 2012 ⁶	Intervention addressed: Laxatives ROB assessment: High ROB Reason for exclusion: Not low ROB
Kateralis 2016 ⁷	Intervention addressed: Laxatives ROB assessment: Unclear ROB Reason for exclusion: Not low ROB
Lee-Robichaud 2010 ⁸	Intervention addressed: Laxatives ROB assessment: Low ROB Reason for exclusion: superseded by more up to date / comprehensive review
Minguez 2016 ⁹	Intervention addressed: Laxatives ROB assessment: High ROB Reason for exclusion: Not low ROB
Pijpers 2009 ¹⁰	Intervention addressed: Fibre / laxatives

	<p>ROB assessment: Low ROB Reason for exclusion: Superseded by Piccoli 2017 (see level 0) / Superseded by Gordon 2016 - More comprehensive, high quality and up to date</p>
Price 2001 ¹¹	<p>Intervention addressed: Laxatives ROB assessment: Low ROB Reason for exclusion: superseded by more up to date / comprehensive review</p>
Tabbers 2011b ¹²	<p>Intervention addressed: Non pharmacological ROB assessment: High ROB Reason for exclusion: Not low ROB</p>
Thomas 2013 ¹³	<p>Intervention addressed: Laxatives ROB assessment: Unclear ROB Reason for exclusion: Not low ROB</p>
Studies judged not to meet inclusion criteria (n=50)	
<p>Strisciuglio 2021 ¹⁴ EUCTR2015-005111-32-IT NCT02751411</p>	<p>Intervention is considered part of specialist / secondary care services. Study (now published) included in Level 2 synthesis. Linked to two clinical trial register entries.</p>
Aboumarzouk 2011 ¹⁵	<p>Systematic review of prokinetic agent (Cisapride). Cisapride has been withdrawn. Discussion with stakeholder group led to consensus that we should not update evidence relating to this intervention</p>
Acharyya 2018 ¹⁶	<p>Focus is laxatives</p>
Akca 2015 ¹⁷	<p>Focus is on mechanism of action of drugs</p>
<p>Akhavan 2019 IRCT20190722044310N ¹⁸</p>	<p>Aim: To compare Quchi point massage therapy with standard treatment in children with functional constipation Study moved to 'Complementary' synthesis.</p>
<p>Benninga 2005 ISRCTN99089299 ¹⁹</p>	<p>Study not conducted</p>
<p>Benninga 2006 ISRCTN71579145 ²⁰</p>	<p>Study not conducted</p>
Boles 2012 ²¹	<p>Focus is laxatives</p>
Borowitz 2002 ²²	<p>Intervention is considered part of specialist / secondary care services. Study included in Level 2 synthesis.</p>
Brazzelli 2011 ²³	<p>Aim: To summarise systematically evidence from all relevant randomised controlled trials on the effects of behavioural</p>

	(including biofeedback training) and cognitive therapies with or without other treatments for the management of children defaecation disorders. Moved to synthesis on psychosocial / behavioural interventions.
Campeotto 2020 ^{24, 25}	Aim: To estimate the frequency of functional gastrointestinal disorders (FGIDs) in infants aged up to 12 months according to the new ROME IV criteria defining these disorders, and to describe the management of FGIDs in France. This observational study does not explore effectiveness of interventions.
Carmo 2015 ²⁶	Colon transit study – not relevant
Chase 2011 ²⁷	Aim: The primary aim of this systematic review was to establish the efficacy of non-pharmacological, non-surgical and non-behavioural treatments of functional chronic constipation in children. A secondary aim was to identify any of nonpharmacological, non-surgical and non-behavioural treatments of functional chronic constipation, used either alone or in combination with pharmacological, surgical and behavioural interventions. The studies included in this review focussed on interventions that were alternative therapies, or interventions delivered by health professionals; therefore not relevant to this question/systematic review (included under other syntheses).
Clarke 2009a ²⁸	Intervention is considered part of specialist / secondary care services. Study considered for Level 2 synthesis (but excluded because it was already included in a systematic review included in Level 2 synthesis).
El-Shabrawi 2018 ²⁹	Cohort study, exploring combined programmes. Does not report any prioritised outcomes.
Evans 2007 ³⁰	Aim: To evaluate the efficacy and tolerability of tegaserod for the treatment of IBS and chronic constipation in adults and adolescents aged 12 years and above. No included trials had a population of children with constipation.
Feng 2014 NCT02255747 ³¹	Intervention is considered part of specialist / secondary care services. Study included in Level 2 synthesis.
Festekjian 2013 NCT01823848 ³²	Randomized control trial of the three types of pediatric enemas readily used in our ED to determine the best approach. Recruitment terminated due to insufficient staff. Unable to find published results.
Foster 2019 ³³	Describes a guideline which is no longer available
Freeman 2014 ³⁴	Aim: To synthesize the effects of behavioral treatment of fecal incontinence with constipation in children aged 4–18 years. Moved to synthesis on psychosocial / behavioural interventions.
Guest 2006 ³⁵	Focus is on disimpaction not treatment of constipation
Heemskerk 2018 ⁶⁵ NCT02961582	Intervention is considered part of specialist / secondary care services. Study moved to Level 3 synthesis.
Herguner 2012 ³⁶	Letter to the editor (not a study)
Kasiri 2019 ³⁷	Not a randomised study
Ladi Seyedian 2014 ³⁸	Aim: To combine functional pelvic floor muscle training exercises with Swiss ball exercises, with a behavioral urotherapy program, and compare treatment outcomes of this combination in the management of children with dysfunctional voiding. This study is focussed on urinary tract problems and urine voiding, and not constipation.
Mahon 2017 ³⁹	Aim: To estimate the cost of FGIDs and related signs and symptoms in infants to the third party payer and to parents.

	Focus is on cost and not on intervention effectiveness.
Maruit Madhale 2018 ⁴⁰ CTRI/2018/08/015415	Intervention is considered part of specialist / secondary care services. Study included in Level 2 synthesis.
Masnata 2017 ⁴¹	Cohort study, reported as abstract only, exploring combined programme. Does not report any prioritised outcomes. Mixed population of children with urinary tract symptoms.
McMaster Uni 2018 NCT03593252 ⁴²	Intervention is considered highly specialist. Study moved to Level 3 synthesis.
Molina 2018 ⁴³	Does not explore effectiveness of interventions.
Muddasani 2017 ⁴⁴	Not focussed on constipation
Nader 2016 ⁴⁵	Intervention is considered part of specialist / secondary care services. Study included in Level 2 synthesis.
Ntr4797 2014 ⁴⁶	Intervention is considered part of specialist / secondary care services. Study included in Level 2 synthesis (this is the protocol for Van Summeren 2020).
Orhan 2018 ⁴⁷	Intervention is considered part of specialist / secondary care services. Study included in Level 2 synthesis.
Ormarsson 2016 ⁴⁸	Intervention is considered part of specialist / secondary care services. Study included in Level 2 synthesis.
Ostaszkiwicz 2005B ⁴⁹	Aim: To evaluate the relationship between constipation or faecal impaction and urinary incontinence (UI) and other lower urinary tract symptoms (LUTS). Focus is on relationship between symptoms and not on intervention effectiveness.
Pare 2014 ⁵⁰	Aim: To review relevant research evidence from clinical studies investigating the efficacy and safety of commercially available pharmacological laxatives in Canada. Combines trials with adult and child populations, but does not present data for children separately.
Penuelas Calvo 2016 ⁵¹	Single case study
Prynn 2011 ⁵²	Not an intervention study
Satish Joshi 2019 CTRI/2019/06/019596 ⁵³	Intervention is considered part of specialist / secondary care services. Study included in Level 2 synthesis.
Silverman 2013 (abstract only) ⁵⁴	Aim: To evaluate the prevalence of fecal incontinence in children with functional constipation defined by Rome III criteria and to compare the current management practices for the two conditions. This study describes current treatment practices, but does not explore effectiveness of interventions.
Sood 2017 ⁵⁵	Aim: To identify gaps and unmet medical and educational needs in paediatric functional constipation. Overview of any intervention for constipation; not specifically focussed on evidence of effectiveness. (Abstract only)
Tabbers 2010 ⁵⁶	Aim: What are the effects of treatments for children with chronic constipation? What are the effects of treatments for

	clearing the bowel in children with faecal impaction? Focus is on specialist services; therefore not relevant to this question / systematic review.
Okumura 2018 ⁵⁷	Aim: To compare the efficacy of linaclotide with other medications for chronic constipation, including functional constipation, irritable bowel syndrome with constipation, and opioid-induced constipation, by conducting a systematic literature review and network meta-analysis. No clear if trials with children were included or not. Analysis does not present separate data focussed on children. (Poster)
Torres 2015 ⁵⁸	Not an intervention study
van der Plas 1996 ⁵⁹	Intervention is considered part of specialist / secondary care services. Study included in Level 2 synthesis.
Van Schaick, 2016	Summarises two studies which are already included
Van Summeren 2020 ⁶⁰	Intervention is considered part of specialist / secondary care services. Study included in Level 2 synthesis.
Van Summeren 2019 ⁶¹	Intervention is considered part of specialist / secondary care services. Study included in Level 2 synthesis (this is a duplicate of van Summeren 2020).
NCT04282551 ⁶²	Intervention is considered an everyday life intervention. Study included in Level 0 synthesis (as Belzer 2020).

Table 2: Characteristics of ongoing studies

Study	Aim	Study design	Anticipated completion date
Systematic reviews (n=1)			
Rezaie 2012 ⁶³	To assess the efficacy and safety of prucalopride for the treatment of chronic constipation.	Systematic review (Cochrane)	Unknown
RCTs (n=10)			
NCT04110145 (2019) ⁶⁴ This trial is also linked to a EudraCT Number: 2019-002126-75	To evaluate the dose response, safety, and efficacy of linaclotide when compared with placebo in pediatric participants, 2 to 5 years of age, with Functional Constipation.	RCT	Actual Study Completion Date: April 20, 2021. Results posted on the clinical trials website: 26/4/2022. No full publication found, so unable to conduct methodological assessment (leave as ongoing).
Kasiri 2015 IRCT2013120415 530N3 (2015) ⁶⁵	Comparison of two treatment regimens of powders and syrup of polyethylene glycol 40% in the treatment of chronic functional constipation in children under 15 years	RCT	Study on-going. No data is reported that is linked to this trial to date.
NCT04026113 ⁶⁶	To evaluate the safety, tolerability and efficacy of 12 weeks of linaclotide therapy in comparison with placebo in pediatric participants aged 6 to 17 years who fulfill modified Rome III Criteria for Child/Adolescent.	RCT	Estimated Study Completion Date: December 14, 2022
NCT04166058 ⁶⁷	Study of Oral Linaclotide Administered to Pediatric Participants With Functional Constipation (FC) or Irritable Bowel Syndrome With Constipation (IBS-C)	RCT	Estimated Study Completion Date: December 14, 2023
Emtyazi 2018 IRCT2018091004 0992N ⁶⁸	The Efficacy Of Rosa Damascena Mill On Children Constipation	RCT	Reported as completed. No publication found.
Jagadisian 2018 ⁶⁹	Trial of combination of polyethylene glycol with or without sodium picosulphate for treatment of constipation in children	RCT	Children 1-12 years who meet ROME IV criteria. Reported as completed 5/11/2019. No publication found.

Jordan-Ely 2016 ACTRN12616000 561482 ⁷⁰	Healthy Poos in ED - The efficacy of different sets of instructions for Polyethylene glycol and electrolytes administration for the treatment of constipation in children presenting to the emergency department	RCT	Targeting children aged 4-18 years who meet ROME III criteria Clinical trial entry reports this as currently recruiting.
NCT02961556 ⁷¹	General clinical study of AJG555 in Pediatric patients with Chronic Constipation	Non-RCT (Single arm primary study)	Reported as completed. No results reported on the clinical trials website: date of last clinical trial update is. 24/10/2017. No publication found.
NCT03120520 ⁷²	An Efficacy and Safety Study of Plecanatide in Adolescents 12 to <18 Years of Age with Chronic Idiopathic Constipation	RCT	Reported as completed. Results posted on the clinical trials website: 19/9/2019. Adolescents aged between 12-< 18 years Compared Plecanatide (various doses: 0.5mg, 1.0 mg, 1.5 mg) to Placebo control. No full publication found, so unable to conduct methodological assessment (leave as ongoing).
Weissman 2015 NCT02559570 ⁷³	A Safety and Efficacy Study of a Range of Linaclotide Doses Administered Orally to Children Ages 6-17 Years Who Fulfill Modified Rome III Criteria for Child/Adolescent Functional Constipation (FC)	RCT	Reported as completed. Results posted on the clinical trials website: 14/05/2019. Target: 173 children aged 6-17 years; Compared range of Linaclotide doses (9 ug or 18 ug; 18 ug or 36 ug; 36 ug or 72 ug; 145 µg) with placebo control. No full publication found, so unable to conduct methodological assessment (leave as ongoing).

Table 3: Studies awaiting assessment for inclusion in Level 1 synthesis

Study (n=3)	Reason still awaiting assessment
Borowitz 2005 ⁷⁴	Unable to access interlibrary loan
Kasiri 2019 (IRCT20190717044239N1) ⁷⁵	Unable to confirm study design: methods state “nonrandomised” and “randomised”.
TX152643 ⁷⁶	Refers to a study – unable to find.

Table 4: Risk of bias judgements for included systematic reviews, using ROBIS tool

	Domain 1: concerns regarding specification of study eligibility criteria	Domain 2: Concerns regarding methods used to identify and/or select studies	Domain 3: Concerns regarding methods used to collect data and appraise studies	Domain 4: Concerns regarding the synthesis and findings	Overall risk of bias in the review
Gordon 2016 ⁷⁷	LOW risk	LOW risk	LOW risk	LOW risk	LOW risk
Rachel 2020 ⁷⁸	UNCLEAR risk	LOW risk	UNCLEAR risk	LOW risk	LOW risk

Table 5: Risk of bias judgements for included RCTs, using Cochrane ROB1 tool

Study (n=13)	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Selective reporting (reporting bias)
Bekkali 2018 ⁷⁹	LOW risk	LOW risk	LOW risk	LOW risk	LOW risk
Benninga 2022 ⁸⁰ NCT02042183	LOW risk	LOW risk	LOW risk	LOW risk	LOW risk
Benninga 2022 ⁸⁰ NCT02138136	LOW risk	LOW risk	LOW risk	LOW risk	LOW risk
Cao 2018 ⁸¹	LOW risk	LOW risk	LOW risk	LOW risk	LOW risk
Esmailidooki 2016 ⁸²	LOW risk	UNCLEAR risk	HIGH risk	HIGH risk	UNCLEAR risk
Hashemi 2015 ⁸³	UNCLEAR risk	UNCLEAR risk	LOW risk	LOW risk	UNCLEAR risk
Imanieh 2019 ⁸⁴	UNCLEAR risk	UNCLEAR risk	UNCLEAR risk	HIGH risk	UNCLEAR risk
Jarzebicka 2019 ⁸⁵	LOW risk	LOW risk	HIGH risk	HIGH risk	UNCLEAR risk
Lomas Mevers 2020 ⁸⁶	LOW risk	LOW risk	HIGH risk	HIGH risk	UNCLEAR risk
Modin 2018 ⁸⁷	LOW risk	LOW risk	LOW risk	LOW risk	LOW risk
Pranoto 2016 ⁸⁸	LOW risk	UNCLEAR risk	HIGH risk	UNCLEAR risk	HIGH risk
Shatnawi 2019 ⁸⁹	UNCLEAR risk	UNCLEAR risk	UNCLEAR risk	UNCLEAR risk	HIGH risk

Torabi 2017 ⁹⁰	UNCLEAR risk	UNCLEAR risk	LOW risk	LOW risk	UNCLEAR risk
---------------------------	--------------	--------------	----------	----------	--------------

Table 6: Risk of bias judgements for cohort studies, using CASP tool for cohort Studies

Study (n=6)	Did the study address a clearly focused issue?	Was the cohort recruited in an acceptable way?	Was the exposure accurately measured to minimise bias?	Was the outcome accurately measured to minimise bias?	Have the authors identified all important confounding factors?	Have they taken account of the confounding factors in the design and/or analysis?	Was the follow up of subjects complete enough?	Was the follow up of subjects long enough?	Do you believe the results?	Can the results be applied to the population of interest?	OVERALL ASSESSMENT
Axelrod 2016 ⁹¹	No	Can't tell	Yes	Can't tell	Can't tell	No	Yes	Yes	Yes	Yes	Serious concerns
Farahmand 2015 ⁹²	Yes	Yes	Can't tell	Yes	Can't tell	Can't tell	Yes	Yes	Yes	Yes	Minor concerns
Hankinson 2018 ⁹³	Yes	Yes	Can't tell	No	Can't tell	Can't tell	No	Yes	Yes	Yes	Moderate concerns
Soares 2009 ⁹⁴	Yes	Can't tell	Can't tell	Can't tell	Can't tell	Can't tell	Yes	Yes	Yes	Yes	Moderate concerns
Jordan-Ely 2013 ⁹⁵	Can't tell	Can't tell	Can't tell	Can't tell	Can't tell	Can't tell	Can't tell	Can't tell	Can't tell	Can't tell	Serious concerns
Speridiao 2003 ⁹⁶	yes	Can't tell	Can't tell	Can't tell	Can't tell	Can't tell	No	Yes	Yes	Yes	Moderate concerns

Table 7: Outcomes reported in Included Studies

Study	Outcomes Addressed								
	Painful defecation	QOL	Frequency	Consistency	Side Effects	Faecal Incontinence	Abdominal pain	School Attendance	Other
Axelrod 2016 ⁹¹			x			x			Successful self-initiated bowel movements in the toilet
Bekkali 2018 ⁷⁹	x		x	x	x	x	x		Calculated a total sum score based on five constipation-related symptoms, dose range determination (based on number of sachets/day), proportion of subjects with treatment success defined as (defined as a defecation frequency >3 times per week and <1 episodes of faecal incontinence per week), defecation frequency, stool consistency (hard, normal, soft, or watery), duration of treatment (i.e., number of days from inclusion to the date of last intake of study medication) and safety evaluation.
Benninga 2022 ⁸⁰ (reports 2 studies)	x		x	x	x	x	x		Occurrence of spontaneous bowel movements (in or not in toilet), associated straining, treatment effectiveness, large diameter stools, retentive posturing. Safety evaluation.
Cao 2018 ⁸¹			x	x	x		x		Flatulence.
Esmaeilidooki 2016 ⁸²	x		x	x	x	x			Recovery rate defined as rate of 'total exited cases from the criteria of CFC in each arm', retentive posturing, safety and compliance.
Farahmand 2015 ⁹²	x		x	x		x			Overall improvement in constipation!; stool withholding
Hankinson 2015 ⁹³	x						x		Multidisciplinary Chronic Constipation Questionnaire; Pediatric Incontinence/Constipation Score
Hashemi 2015 ⁸³									Limited details available (English abstract only). Report treatment success rates but no description is available.
Imanieh 2019 ⁸⁴	x		x	x		x			Satisfactory outcome was defined as defecation > two times weekly, soft stool and no pain on defecation, no palpation of hard stool on abdominal examination, no faecal incontinence, not

Study	Outcomes Addressed								
	Painful defecation	QOL	Frequency	Consistency	Side Effects	Faecal Incontinence	Abdominal pain	School Attendance	Other
									palpating hard and large stool on rectal examination, and no blood in stool.
Jarzebicka 2019 ⁸⁵	x		x	x	x	x	x		Daily diary, lack of clinical improvement.
Jordan-Ely 2013 ⁹⁵			x	x		x			
Lomas Mevers 2020 ⁸⁶						x			Constipation improvement (CGI-I); fidelity measures
Modin 2018 ⁸⁷			x		x	x	x		Number of successfully treated children defined as the absence of any ROME III criteria (with or without use of medication), number of children who needed rescue medication, time on study medication, use of study medication, whether parents believed their children had received PEG or placebo as study medication. Safety evaluation.
Pranoto 2016 ⁸⁸			x						Recovery of constipation was defined as an increase in defecation to more than 3 times/ week. Recurrence of constipation defined to be defecation frequency returning to less than two times/week after a period of recovery.
Shatnawi 2019 ⁸⁹					x				Demographics, day of disimpaction, possible adverse events, parents/ child satisfaction, compliance and acceptability.
Soares 2009 ⁹⁴	x		x			x	x		Fear; colonic transit times.
Speridiao 2003 ⁹⁶	x		x			x			Difficulty evacuating; bleeding on evacuation; anthropometric data; dietary data
Torabi 2017 ⁹⁰	x		x	x		x	x		Rectal bleeding, treatment success defined as three or more painless defecations per week with a soft or normal consistency.

Table 8: Studies addressing questions relating to Level 1 of the pyramid

Main heading	Pharmacological		Lifestyle	Combined
Sub-heading	Laxatives		Physical exercise	Pharmacological + Lifestyle + Information + Psychosocial
Question addressed	<i>What are the effects of laxatives</i>	<i>What are the effects of laxatives plus domperidone?</i>	<i>What is the effect of physical exercise (focused on pelvic floor muscles)?</i>	<i>What is the effect of a combined pharmacological, diet and behavioural program?</i>
Systematic reviews (n=1)	<i>Gordon 2016</i> ⁷⁷ <i>Rachel 2020</i> ⁷⁸			
RCTs to be added to systematic review (n=10)	<i>Bekkali 2018</i> ⁷⁹ <i>Benninga 2022</i> ⁸⁰ , <i>Cao 2018</i> ⁸¹ , <i>Esmailidooki 2016</i> ⁸² , <i>Hashemi 2015</i> ⁸³ , <i>Jarzebicka 2019</i> ⁸⁵ , <i>Modin 2018</i> ⁸⁷ , <i>Pranoto 2016</i> ⁸⁸ , <i>Shatnawi 2019</i> ⁸⁹ , <i>Torabi 2017</i> ⁹⁰			
RCTs (n=3)		<i>Imanieh 2019</i> ⁸⁴		<i>Lomas Mevers 2020</i> ⁸⁶
Other primary studies (<i>Farahmand 2015</i> ⁹²	<i>Axelrod 2016</i> ⁹¹ <i>Hankinson 2018</i> ⁹³ <i>Soares 2009</i> ⁹⁴ <i>Jordan-Ely 2013</i> ^{95*} <i>Speridiao 2003</i> ⁹⁶

* - published abstract only. Red = high ROB (serious concerns), Amber = Moderate ROB (moderate concerns), Green = Low ROB (no or minor concerns), RCT=Randomized controlled trial.

Table 9: Judgement of certainty in evidence and summary of findings relating to each research question

Question	Studies	Limitations	Inconsistency	Indirectness	Imprecision	Publication bias	Judgement of certainty in evidence	Summary of findings	
What are the effects of laxatives?	Gordon 2016 ⁷⁷ , Modin 2018 ⁸⁷ Jarzebicka 2019 ⁸⁵ Shatnawi 2019 ⁸⁹ Torabi 2017 ⁹⁰ Bekkali 2018 ⁷⁹ Cao 2018 ⁸¹ Pranoto 2016 ⁸⁸ Hashemi 2015 ⁸³ Benninga 2022 ⁸⁰ Rachel 2020 ⁷⁸	See narrative synthesis for comparisons						Low – very low	
What are the effects of laxatives plus motilium?	<u>RCTs:</u> Imanieh 2019 ⁸⁴	Downgrade once as studies had high/unclear ROB; downgrade once as only 52	No downgrade – consistent findings (only one study)	No downgrade – single study focussed on children with cerebral palsy	Downgrade once – lack of results data presented	Downgrade once – unclear if all measured outcomes are reported.	VERY LOW	There is some limited evidence that the combination of PEG plus motilium may be more beneficial than PEG only in	

		participants						children with cerebral palsy. There is no presented data on side effects, but concerns have been reported for this drug in other populations. Note: MHRA advise against use of motilium in children under 16 years, due to serious side effects.
What is the effect of physical exercise (focused on pelvic floor muscles)?	Cohort study: Farahmand 2015 ⁹²	Downgrade once as only one study (44 participants-	No downgrade – consistent findings (only one study)	No downgrade	Downgrade once – lack of results data presented	No downgrade	LOW	There is low certainty that physical exercise (focussed on pelvic floor muscles) may improve overall symptoms, defecation frequency and stool consistency. Further research to investigate the effect of physical exercise is warranted.
What is the effect of a combined	Lomas Mevers 2020 ⁸⁶ Axelrod 2016	Downgrade once as all studies had	No downgrade – consistent findings across	Downgrade once – Some	Downgrade once – uncertainty	Downgrade once – unclear if all	VERY LOW	There is some very limited data which suggests

pharmacological, diet and behavioural program?	⁹¹ Hankinson 2015 ⁹³ , Soares 2009 ⁹⁴ , Jordan-Ely 2013 ⁹⁵ , Speridiao 2003 ⁹⁶	high/unclear ROB;	studies	differences in populations studies, and some information on participant inclusion is unclear	around methods of collecting data, and no prioritised outcomes from some studies	measured outcomes are reported.		that a combined pharmacological, dietary and behavioural program may have some benefits. We have very low certainty in this finding due to the quantity and quality of available studies.
---	---	-------------------	---------	--	--	---------------------------------	--	---

References

1. Ahmed MP, B.; Reynolds, T. Use of polyethylene glycol in children less than 3 years of age. *Journal of the College of Physicians and Surgeons Pakistan* 2012;**22**:267-8.
2. Candy D, Belsey J. Macrogol (polyethylene glycol) laxatives in children with functional constipation and faecal impaction: a systematic review. *Arch Dis Child* 2009;**94**:156-60. <http://dx.doi.org/10.1136/adc.2007.128769>
3. Chen SLC, S. R.; Deng, L.; Zhang, X. H.; Luo, T. D.; Peng, J. J.; Xu, J. B.; Li, W. F.; Chen, C. Q.; Ma, J. P.; He, Y. L. Efficacy and complications of polyethylene glycols for treatment of constipation in children: A meta-analysis. *Medicine (United States)* 2014;**93**:e65. <http://dx.doi.org/http://dx.doi.org/10.1097/MD.0000000000000065>
4. Dziechciarz P, Wojtyniak K, Horvath A, Szajewska H. Enema versus polyethylene glycol for the management of rectal faecal impaction in children with constipation - a systematic review of randomised controlled trials. *Prz Gastroenterol* 2015;**10**:234-8. <http://dx.doi.org/10.5114/pg.2015.52184>
5. Han YZ, L.; Liu, X. Q.; Zhao, Z. J.; Lv, L. X. Effect of glucomannan on functional constipation in children: a systematic review and meta-analysis of randomised controlled trials. *Asia Pacific journal of clinical nutrition* 2017;**26**:471-7. <http://dx.doi.org/http://dx.doi.org/10.6133/apjcn.032016.03>
6. Horn JRM, Maria Marzella; Johanson, John F. OTC polyethylene glycol 3350 and pharmacists' role in managing constipation. *Journal of the American Pharmacists Association : JAPhA* 2012;**52**:372-80. <http://dx.doi.org/https://dx.doi.org/10.1331/JAPhA.2012.10161>
7. Katelaris PC, N.; Naganathan, V.; Liu, K.; Gullotta, J. Polyethylene glycols with or without electrolytes for constipation in children: A network meta-analysis. *Journal of Paediatrics and Child Health* 2016;**52**:11. http://dx.doi.org/http://dx.doi.org/10.1111/jpc.13245_15
8. Lee-Robichaud H, Thomas K, Morgan J, Nelson RL. Lactulose versus Polyethylene Glycol for Chronic Constipation. *Cochrane Database Syst Rev* 2010; 10.1002/14651858.CD007570.pub2:CD007570. <http://dx.doi.org/10.1002/14651858.CD007570.pub2>
9. Minguez MLH, A.; Judez, J. Use of polyethylene glycol in functional constipation and fecal impaction. *Revista espanola de enfermedades digestivas : organo oficial de la Sociedad Espanola de Patologia Digestiva* 2016;**108**:790-806.
10. Pijpers MA, Tabbers MM, Benninga MA, Berger MY. Currently recommended treatments of childhood constipation are not evidence based: a systematic literature review on the effect of laxative treatment and dietary measures. *Arch Dis Child* 2009;**94**:117-31. <http://dx.doi.org/10.1136/adc.2007.127233>
11. Price KJ, Elliott TM. What is the role of stimulant laxatives in the management of childhood constipation and soiling? *Cochrane Database Syst Rev* 2001; 10.1002/14651858.CD002040:CD002040. <http://dx.doi.org/10.1002/14651858.CD002040>
12. Tabbers MM, Boluyt N, Berger MY, Benninga MA. Nonpharmacologic treatments for childhood constipation: Systematic review. *Pediatrics* 2011;**128**:753-61. <http://dx.doi.org/http://dx.doi.org/10.1542/peds.2011-0179>

13. Thomas KM, J.; Nelson, R.; Martin, N. Polyethylene glycol should be used in preference to lactulose in the treatment of chronic constipation. *United European Gastroenterology Journal* 2013;**1**:A546-A7. <http://dx.doi.org/http://dx.doi.org/10.1177/2050640613502900>
14. Strisciuglio C, Coppola V, Russo M, Tolone C, Marseglia GL, Verrotti A, *et al.* Promelaxin Microenemas Are Non-inferior to Oral Polyethylene Glycol for the Treatment of Functional Constipation in Young Children: A Randomized Clinical Trial. *Front Pediatr* 2021;**9**:753938. <http://dx.doi.org/10.3389/fped.2021.753938>
15. Aboumarzouk OM, Agarwal T, Antakia R, Shariff U, Nelson RL. Cisapride for intestinal constipation. *Cochrane Database Syst Rev* 2011;**1**:CD007780. <http://dx.doi.org/10.1002/14651858.CD007780.pub2>
16. Acharyya BA, S.; Bhattacharya, C. Comparative analysis of PEG +E with stimulant laxative versus PEG+E alone for disimpaction regimen-A study from a tertiary centre in Eastern India. *Journal of Pediatric Gastroenterology and Nutrition* 2018;**66**:330-1.
17. Akca OFY, S. The effectiveness of methylphenidate in the treatment of encopresis independent from attention-deficit hyperactivity disorder symptoms. *Psychiatry Investigation* 2015;**12**:150-1. <http://dx.doi.org/http://dx.doi.org/10.4306/pi.2015.12.1.150>
18. IRCT20190722044310N. *Effect of Elbow Massage on the treatment of Functional Constipation in Children*. 2019. URL: <http://www.who.int/trialsearch/Trial2.aspx?TrialID=IRCT20190722044310N1> (Accessed).
19. ISRCTN99089299. *The effect of additional use of enemas versus the standard treatment of chronic constipation in children*. ISRCTN Registry; 2005. URL: <https://doi.org/10.1186/ISRCTN99089299> (Accessed).
20. ISRCTN71579145. *Enema versus high doses of PEG 3350 in the treatment of rectal faecal impaction*. ISRCTN registry; 2006. URL: <https://doi.org/10.1186/ISRCTN71579145> (Accessed).
21. Boles EE, Gaines CL, Tillman EM. Comparison of Polyethylene Glycol-Electrolyte Solution vs Polyethylene Glycol-3350 for the Treatment of Fecal Impaction in Pediatric Patients. *J Pediatr Pharmacol Ther* 2015;**20**:210-6. <http://dx.doi.org/10.5863/1551-6776-20.3.210>
22. Borowitz SM, Cox DJ, Sutphen JL, Kovatchev B. Treatment of childhood encopresis: a randomized trial comparing three treatment protocols. *J Pediatr Gastroenterol Nutr* 2002;**34**:378-84. <http://dx.doi.org/10.1097/00005176-200204000-00012>
23. Brazzelli MG, P. V.; Cody, J. D.; Tappin, D. Behavioural and cognitive interventions with or without other treatments for the management of faecal incontinence in children. *Cochrane database of systematic reviews (Online)* 2011;**12**:CD002240.
24. Campeotto FH, V.; Maigret, P. Prevalence and management of functional gastrointestinal disorders in French infants-the Rome study in France. *Journal of Pediatric Gastroenterology and Nutrition* 2019;**68**:394. <http://dx.doi.org/http://dx.doi.org/10.1097/MPG.0000000000002403>
25. Campeotto F, Barbaza MO, Hospital V. Functional Gastrointestinal Disorders in Outpatients Aged up to 12 Months: A French Non-Interventional Study. *Int J Environ Res Public Health* 2020;**17**. <http://dx.doi.org/10.3390/ijerph17114031>
26. Carmo RLMLO, R. P. M.; Ribeiro, A. E. A.; Lima, M. C. L.; Amorim, B. J.; Ribeiro, A. F.; Ramos, C. D.; Bustorff-Silva, J. M.; Lomazi, E. A. Colonic transit in children and adolescents with chronic constipation. *Jornal de Pediatria* 2015;**91**:386-91. <http://dx.doi.org/http://dx.doi.org/10.1016/j.jped.2014.10.007>
27. Chase JS, Nora. A systematic review of the efficacy of non-pharmacological, non-surgical and non-behavioural treatments of functional chronic constipation in children. *Australian & New Zealand Continence Journal* 2011;**17**:40-50.

28. Clarke MC, Chase JW, Gibb S, Hutson JM, Southwell BR. Improvement of quality of life in children with slow transit constipation after treatment with transcutaneous electrical stimulation. *J Pediatr Surg* 2009;**44**:1268-72; discussion 72. <http://dx.doi.org/10.1016/j.jpedsurg.2009.02.031>
29. El-Shabrawi M, Hanafi HM, Abdelgawad M, Hassanin F, Mahfouze AAA, Khalil AFM, *et al.* High-resolution anorectal manometry in children with functional constipation: a single-centre experience before and after treatment. *Prz Gastroenterol* 2018;**13**:305-12. <http://dx.doi.org/10.5114/pg.2018.79810>
30. Evans BW, Clark WK, Moore DJ, Whorwell PJ. Tegaserod for the treatment of irritable bowel syndrome and chronic constipation. *Cochrane Database Syst Rev* 2007; 10.1002/14651858.CD003960.pub3:CD003960. <http://dx.doi.org/10.1002/14651858.CD003960.pub3>
31. NCT02255747. *Anal Dilatation for Infants and Children With Constipation*. 2014. URL: <https://clinicaltrials.gov/show/NCT02255747> (Accessed).
32. NCT01823848. *A Trial of Three Types of Enemas Used to Treat Functional Constipation in Children*. 2013. URL: <https://clinicaltrials.gov/show/NCT01823848> (Accessed).
33. NHS GGC. *NHS GGC Pediatric Guidelines Constipation in Children*. Scotland; 2019. URL: <https://www.clinicalguidelines.scot.nhs.uk/ggc-paediatric-guidelines/ggc-guidelines/emergency-medicine/constipation-in-children/> (Accessed 10 June 2022).
34. Freeman KA, Riley A, Duke DC, Fu R. Systematic review and meta-analysis of behavioral interventions for fecal incontinence with constipation. *J Pediatr Psychol* 2014;**39**:887-902. <http://dx.doi.org/10.1093/jpepsy/jsu039>
35. Guest JF, Clegg JP. Modelling the costs and consequences of treating paediatric faecal impaction in Australia. *Curr Med Res Opin* 2006;**22**:107-19. <http://dx.doi.org/10.1185/030079905X65583>
36. Herguner S, Herguner A. Atomoxetine for encopresis in 2 children with attention-deficit/hyperactivity disorder. *J Clin Psychopharmacol* 2012;**32**:302-3. <http://dx.doi.org/10.1097/JCP.0b013e3182499aba>
37. Kasiri K-A. Comparison of polyethylene glycol powder and polyethylene glycol 40% syrup in treatment of chronic idiopathic constipation in pediatrics. *Journal of Pharmaceutical Research International* 2019;**28**:1-8. <http://dx.doi.org/10.9734/jpri/2019/v28i430211>
38. Ladi Seyedian SS, Sharifi-Rad L, Ebadi M, Kajbafzadeh AM. Combined functional pelvic floor muscle exercises with Swiss ball and urotherapy for management of dysfunctional voiding in children: a randomized clinical trial. *Eur J Pediatr* 2014;**173**:1347-53. <http://dx.doi.org/10.1007/s00431-014-2336-0>
39. Mahon J, Lifschitz C, Ludwig T, Thapar N, Glanville J, Miqdady M, *et al.* The costs of functional gastrointestinal disorders and related signs and symptoms in infants: a systematic literature review and cost calculation for England. *BMJ Open* 2017;**7**:e015594. <http://dx.doi.org/10.1136/bmjopen-2016-015594>
40. CTRI/2018/08/015415. EFFECT OF MATRIX RHYTHM THERAPY (MaRhyThe) IN LONG-STANDING CONSTIPATION IN CHILDREN. <http://www.who.int/trialssearch/Trial2.aspx?TrialID=CTRI/2018/08/015415> 2018.
41. Masnata GE, F.; Manca, V. Abstracts. *Neurourology and Urodynamics* 2017;**36**:S5-S87. <http://dx.doi.org/10.1002/nau.23302>

42. NCT03593252. *Bowel Preparation in Elective Pediatric Intestinal Surgery*. 2018. URL: <https://clinicaltrials.gov/show/NCT03593252> (Accessed).
43. Molina MAM, C. B. Are there antropometric differences in the follow-up of pediatric patients with functional constipation? *Journal of Pediatric Gastroenterology and Nutrition* 2018;**67**:S172-S3. <http://dx.doi.org/http://dx.doi.org/10.1097/MPG.0000000000002164>
44. Muddasani S, Moe A, Semmelrock C, Gilbert CL, Enemuo V, Chiou EH, *et al*. Physical Therapy for Fecal Incontinence in Children with Pelvic Floor Dyssynergia. *Journal of Pediatrics* 2017;**190**:74-8. <http://dx.doi.org/http://dx.doi.org/10.1016/j.jpeds.2017.06.074>
45. Nader EAZ, M.; Jais, J. P.; Rousselle, S.; Norsa, L.; Goulet, O.; Dupont, C.; Campeotto, F. World Congress of Pediatric Gastroenterology, Hepatology and Nutrition. *J Pediatr Gastroenterol Nutr* 2016;**63** Suppl 2:S1-S415. <http://dx.doi.org/10.1097/01.mpg.0000503536.79797.66>
46. NTR4797. Behandeling van Obstipatie bij Kinderen. <http://www.who.int/trialsearch/Trial2.aspx?TrialID=NTR4797> 2014.
47. Orhan C, Kaya Kara O, Kaya S, Akbayrak T, Kerem Gunel M, Baltaci G. The effects of connective tissue manipulation and Kinesio Taping on chronic constipation in children with cerebral palsy: a randomized controlled trial. *Disabil Rehabil* 2018;**40**:10-20. <http://dx.doi.org/10.1080/09638288.2016.1236412>
48. Ormarsson OT, Asgrimsdottir GM, Loftsson T, Stefansson E, Lund SH, Bjornsson ES. Free fatty acid suppositories are as effective as docusate sodium and sorbitol enemas in treating constipation in children. *Acta Paediatr* 2016;**105**:689-94. <http://dx.doi.org/10.1111/apa.13394>
49. Ostaszkiwicz J, Ski C, Hornby L. Does successful treatment of constipation or faecal impaction resolve lower urinary tract symptoms: a structured review of the literature. Systematic review. *Australian and New Zealand Continence Journal* 2005;**11**:70-88.
50. Pare PF, R. N. Systematic review of stimulant and nonstimulant laxatives for the treatment of functional constipation. *Canadian Journal of Gastroenterology and Hepatology* 2014;**28**:549-57. <http://dx.doi.org/http://dx.doi.org/10.1155/2014/631740>
51. Peñuelas Calvo I, Sevilla Llewellyn-Jones J, Poggio Lagares L, Cervesi C, Saren A, Gonzalez Moreno A. Encopresis: A medical and family approach. *European Psychiatry* 2020;**33**:S356-S7. <http://dx.doi.org/10.1016/j.eurpsy.2016.01.1276>
52. Pryn P. Childhood constipation. *Practice Nurse* 2011;**41**:11-6.
53. CTRI/2019/06/01959. Effectiveness of physical therapy on constipation in children with neurodevelopmental disorders. <http://www.who.int/trialsearch/Trial2.aspx?TrialID=CTRI/2019/06/019596> 2019.
54. Silverman AHM, S. M.; Di Lorenzo, C.; Nurko, S.; Sanghavi, R. M.; Ponnambalam, A.; Simpson, P.; Gorges, C.; Sood, M. R. Current presentation and management of childhood constipation. *Gastroenterology* 2013;**144**:S397.
55. Sood ML, P.; Perez, M. C. Unmet Needs in Pediatric Functional Constipation. *Clinical Pediatrics* 2018;**57**:1489-95. <http://dx.doi.org/http://dx.doi.org/10.1177/0009922818774343>
56. Tabbers MM, Boluyt N, Berger MY, Benninga MA. Constipation in children. *BMJ Clin Evid* 2010;**2010**.
57. Okumura H, Tang W, Iwasaki K, Shoji S, Odaka T, Nakajima A. PGI8: Systematic literature review and indirect treatment comparison of linaclotide versus other oral constipation treatments in patients with chronic constipation. International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Europe; 10-14 November 2018; Barcelona, Spain, abstract no. 3372.

58. Torres MRFDM, M. D. C. B.; Purcino, F. A. C.; Maia, J. C.; Aliani, N. A.; Rocha, H. C. Knowledge and Practices of Pediatricians Regarding Functional Constipation in the State of Minas Gerais, Brazil. *Journal of Pediatric Gastroenterology and Nutrition* 2015;**61**:74-9. <http://dx.doi.org/http://dx.doi.org/10.1097/MPG.0000000000000768>
59. van der Plas RN, Benninga MA, Buller HA, Bossuyt PM, Akkermans LM, Redekop WK, *et al.* Biofeedback training in treatment of childhood constipation: a randomised controlled study. *Lancet* 1996;**348**:776-80. [http://dx.doi.org/10.1016/s0140-6736\(96\)03206-0](http://dx.doi.org/10.1016/s0140-6736(96)03206-0)
60. van Summeren J, Holtman GA, Kollen BJ, Lisman-van Leeuwen Y, van Ulsen-Rust AHC, Tabbers MM, *et al.* Physiotherapy for Children with Functional Constipation: A Pragmatic Randomized Controlled Trial in Primary Care. *J Pediatr* 2020;**216**:25-31 e2. <http://dx.doi.org/10.1016/j.jpeds.2019.09.048>
61. Van Summeren J, Holtman GA, Lisman-Van Leeuwen Y, Van Ulsen-Rust AHC, Vermeulen KM, Tabbers MM, *et al.* Cost-effectiveness of physiotherapy in childhood functional constipation: A pragmatic randomized controlled trial in primary care. *Journal of Pediatric Gastroenterology and Nutrition* 2019;**68**:451.
62. NCT04282551. The inside study: Oligosaccharides versus placebo in functional constipation (Inside). <https://wwwclinicaltrials.gov/ct2/show/NCT04282551> 2020.
63. Rezaie A, Cheng EJ, Jijon HB, Kumar S, Storr M. Prucalopride for the treatment of chronic constipation. *Cochrane Database of Systematic Reviews* 2012; 10.1002/14651858.Cd009636. <http://dx.doi.org/10.1002/14651858.Cd009636>
64. NCT04110145. *Linaclotide Safety and Efficacy in 2 to 5-Year-Old Participants With Functional Constipation*. 2019. URL: <https://clinicaltrials.gov/show/NCT04110145> (Accessed).
65. IRCT2013120415530N3. Comparison of two treatment regimens of powders and syrup of polyethylene glycol 40% in the treatment of chronic functional constipation in children under 15 years. <http://wwwwhoint/trialsearch/Trial2.aspx?TrialID=IRCT2013120415530N3> 2015.
66. NCT04026113. *Linaclotide Safety and Efficacy, Functional Constipation, in Pediatric Participants 6 to 17 Years of Age*. 2019. URL: <https://clinicaltrials.gov/show/NCT04026113> (Accessed).
67. NCT04166058. *Long-term Safety of Linaclotide in Pediatric Participants With FC or IBS-C*. 2019. URL: <https://clinicaltrials.gov/show/NCT04166058> (Accessed).
68. IRCT20180910040992N1. The Efficacy Of Rosa Damascena Mill On Children Constipation. <http://wwwwhoint/trialsearch/Trial2.aspx?TrialID=IRCT20180910040992N1> 2018.
69. CTRI/2018/01/011262. *Trial of combination of polyethylene glycol with or without sodium picosulphate for treatment of constipation in children*. 2018).
70. Actrn. Healthy Poos in ED - The efficacy of different sets of instructions for Polyethylene glycol and electrolytes administration for the treatment of constipation in children presenting to the emergency department. <http://wwwwhoint/trialsearch/Trial2.aspx?TrialID=ACTRN12616000561482> 2016.
71. NCT02961556. *General Clinical Study of AJG555 in Pediatric Patients With Chronic Constipation*. 2016. URL: <https://clinicaltrials.gov/show/NCT02961556> (Accessed).

72. NCT03120520. *An Efficacy and Safety Study of Plecanatide in Adolescents 12 to <18 Years of Age With Chronic Idiopathic Constipation*. 2017. URL: <https://clinicaltrials.gov/show/NCT03120520> (Accessed).
73. NCT02559570. *A Safety and Efficacy Study of a Range of Linaclotide Doses Administered Orally to Children Ages 6-17 Years Who Fulfill Modified Rome III Criteria for Child/Adolescent Functional Constipation (FC)*. 2015. URL: <https://clinicaltrials.gov/show/NCT02559570> (Accessed).
74. Borowitz SM, Cox DJ, Kovatchev B, Ritterband LM, Sheen J, Sutphen J. Treatment of childhood constipation by primary care physicians: efficacy and predictors of outcome. *Pediatrics* 2005;**115**:873-7. <http://dx.doi.org/10.1542/peds.2004-0537>
75. IRCT20190717044239N1. *The effect of polyethylene glycol and lactulose in children with constipation*. 2019).
76. TX152643. *Adolescent Constipation*. US: Centerwatch; 2021. URL: <https://www.centerwatch.com/clinical-trials/listings/152643/adolescent-constipation-2/> (Accessed).
77. Gordon M, MacDonald JK, Parker CE, Akobeng AK, Thomas AG. Osmotic and stimulant laxatives for the management of childhood constipation. *Cochrane Database Syst Rev* 2016;**2016**:CD009118. <http://dx.doi.org/10.1002/14651858.CD009118.pub3>
78. Rachel H, Griffith AF, Teague WJ, Hutson JM, Gibb S, Goldfeld S, *et al*. Polyethylene Glycol Dosing for Constipation in Children Younger Than 24 Months: A Systematic Review. *J Pediatr Gastroenterol Nutr* 2020;**71**:171-5. <http://dx.doi.org/10.1097/MPG.0000000000002786>
79. Bekkali NLH, Hoekman DR, Liem O, Bongers MEJ, van Wijk MP, Zegers B, *et al*. Polyethylene Glycol 3350 With Electrolytes Versus Polyethylene Glycol 4000 for Constipation: A Randomized, Controlled Trial. *J Pediatr Gastroenterol Nutr* 2018;**66**:10-5. <http://dx.doi.org/10.1097/MPG.0000000000001726>
80. Benninga MA, Hussain SZ, Sood MR, Nurko S, Hyman P, Clifford RA, *et al*. Lubiprostone for Pediatric Functional Constipation: Randomized, Controlled, Double-Blind Study With Long-term Extension. *Clin Gastroenterol Hepatol* 2022;**20**:602-10 e5. <http://dx.doi.org/10.1016/j.cgh.2021.04.005>
81. Cao Y, Liu SM. Lactulose for the treatment of Chinese children with chronic constipation: A randomized controlled trial. *Medicine (Baltimore)* 2018;**97**:e13794. <http://dx.doi.org/10.1097/MD.00000000000013794>
82. Esmailidooki MR, Mozaffarpur SA, Mirzapour M, Shirafkan H, Kamalinejad M, Bijani A. Comparison Between the Cassia Fistula's Emulsion With Polyethylene Glycol (PEG4000) in the Pediatric Functional Constipation: A Randomized Clinical Trial. *Iran Red Crescent Med J* 2016;**18**:e33998. <http://dx.doi.org/10.5812/ircmj.33998>
83. Hashemi M, Javaheri J, Habibi M, Chaijan PY, Naziri M. Comparing the effect of probiotics and polyethylene glycol in treatment of childhood constipation. *Journal of Arak University of Medical Sciences* 2015;**18**:78-85.
84. Imanieh MH, Golpayegan MR, Sedighi M, Ahmadi K, Aghaie A, Dehghani SM, *et al*. Comparison of three therapeutic interventions for chronic constipation in paediatric patients with cerebral palsy: a randomised clinical trial. *Prz Gastroenterol* 2019;**14**:292-7. <http://dx.doi.org/10.5114/pg.2019.84872>

85. Jarzebicka D, Sieczkowska-Golub J, Kierkus J, Czubkowski P, Kowalczyk-Kryston M, Pelc M, *et al.* PEG 3350 Versus Lactulose for Treatment of Functional Constipation in Children: Randomized Study. *J Pediatr Gastroenterol Nutr* 2019;**68**:318-24. <http://dx.doi.org/10.1097/MPG.0000000000002192>
86. Lomas Mevers J, Call NA, Gerencser KR, Scheithauer M, Miller SJ, Muething C, *et al.* A Pilot Randomized Clinical Trial of a Multidisciplinary Intervention for Encopresis in Children with Autism Spectrum Disorder. *J Autism Dev Disord* 2020;**50**:757-65. <http://dx.doi.org/10.1007/s10803-019-04305-5>
87. Modin L, Walsted AM, Dalby K, Jakobsen MS. Polyethylene Glycol Maintenance Treatment for Childhood Functional Constipation: A Randomized, Placebo-controlled Trial. *J Pediatr Gastroenterol Nutr* 2018;**67**:732-7. <http://dx.doi.org/10.1097/MPG.0000000000002070>
88. Pranoto WJ, Supriatmo MD, Sinuhaji AB. Oral versus rectal laxatives for functional constipation in children. *Paediatrica Indonesiana* 2016;**56**:162-6.
89. Shatnawi MS, Alrwalah MM, Ghanma AM, Alqura'an ML, Zreiqat EN, Alzu'bi MM. Lactulose versus polyethylene glycol for disimpaction therapy in constipated children, a randomized controlled study. *Sudan J Paediatr* 2019;**19**:31-6. <http://dx.doi.org/10.24911/SJP.106-1546805996>
90. Torabi Z, Amiraslani S, Diaz D, Ahmadiafshar A, Eftekhari K. Comparison of Paraffin versus Polyethylene Glycol (PEG) in children with chronic functional constipation. *International Journal of Pediatrics* 2017;**5**:5843-50.
91. Axelrod MI, Tornehl M, Fontanini-Axelrod A. Co-occurring autism and intellectual disability: A treatment for encopresis using a behavioral intervention plus laxative across settings. *Clinical Practice in Pediatric Psychology* 2016;**4**:1-10. <http://dx.doi.org/10.1037/cpp0000131>
92. Farahmand F, Abedi A, Esmaeili-Dooki MR, Jalilian R, Tabari SM. Pelvic Floor Muscle Exercise for Paediatric Functional Constipation. *J Clin Diagn Res* 2015;**9**:SC16-7. <http://dx.doi.org/10.7860/JCDR/2015/12726.6036>
93. Hankinson JC, Borden L, Allen T, Santo Domingo L, Oliva-Hemker M, Mathews T, *et al.* Outcomes of combined medical and behavioral treatments for constipation within a specialty outpatient clinic. *Clinical Practice in Pediatric Psychology* 2018;**6**:31-41. <http://dx.doi.org/10.1037/cpp0000202>
94. Soares AC, Tahan S, Morais MB. Effects of conventional treatment of chronic functional constipation on total and segmental colonic and orocecal transit times. *J Pediatr (Rio J)* 2009;**85**:322-8. <http://dx.doi.org/10.2223/JPED.1912>
95. Jordan-Ely JD, K.; Hutson, J. M.; Southwell, B. R. MOTIVATE-How to ensure compliance for large volume polyethylene glycol (PEG) for chronic constipation. *Journal of Gastroenterology and Hepatology* 2013;**28**:130. <http://dx.doi.org/http://dx.doi.org/10.1111/jgh.12365-8>
96. Speridiao PG, Tahan S, Fagundes-Neto U, Morais MB. Dietary fiber, energy intake and nutritional status during the treatment of children with chronic constipation. *Braz J Med Biol Res* 2003;**36**:753-9. <http://dx.doi.org/10.1590/s0100-879x2003000600011>