

Bowel Training Programs Improve Chronic Constipation in Children

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Chronic functional constipation in children presents a persistent challenge for general practitioners and paediatric specialists across Europe. This condition, often characterised by infrequent bowel movements, painful defecation, and faecal incontinence (encopresis), impacts quality of life for both children and their families, leading to significant healthcare utilisation and emotional distress. Effective management requires more than just laxatives; it demands a comprehensive approach that addresses behavioural and psychological factors.¹

KEY TAKEAWAYS

- **The Pivot:** Comprehensive, structured behavioural interventions, not just pharmacotherapy, are essential for managing paediatric functional constipation.
- **The Data:** Bowel training programs can achieve symptom resolution rates exceeding 70% in children with chronic functional constipation.
- **The Action:** Clinicians should integrate detailed education, regular toilet sitting, and positive reinforcement into their management plans for paediatric constipation.

Functional constipation, defined by the Rome IV criteria, affects up to 30% of children globally, with prevalence rates varying across European populations but consistently remaining a top reason for paediatric gastroenterology referrals.¹ The condition is diagnosed when a child experiences at least two of six symptoms for a minimum of one month, including two or fewer defecations per week, at least one episode of faecal incontinence per week, a history of retentive posturing, a history of painful or hard bowel movements, a large faecal mass in the rectum, or a history of large diameter stools that can obstruct the toilet.¹ These criteria help to differentiate functional constipation from organic causes, which account for less than 5% of cases.²

The pathophysiology of functional constipation often involves a vicious cycle: painful defecation leads to stool withholding, which in turn causes the stool to become harder and larger, making subsequent defecation even more painful. This cycle can lead to rectal distension, reduced rectal sensation, and ultimately, overflow encopresis, where liquid stool bypasses the retained faecal mass.³ The psychological component is substantial; children may develop an aversion to toileting, anxiety about defecation, and a sense of shame or embarrassment, particularly when encopresis is present.⁴

Standard initial management for paediatric functional constipation typically involves disimpaction, usually with high doses of polyethylene glycol (PEG), followed by maintenance therapy with osmotic or stimulant laxatives.⁵ While pharmacotherapy addresses the immediate physical symptoms, it often fails to resolve the underlying behavioural patterns that perpetuate the condition. Many children continue to experience symptoms or relapse once laxatives are

tapered, highlighting the need for interventions that target these behavioural aspects directly.⁶ This is where structured bowel training programs enter the clinical picture, aiming to re-establish normal defecation patterns and overcome learned avoidance behaviours.

The evidence for structured behavioural interventions

A comprehensive approach to paediatric functional constipation integrates education, dietary modifications, pharmacotherapy, and behavioural interventions.⁷ Bowel training programs, often delivered by nurses, psychologists, or physiotherapists, are a cornerstone of the behavioural component. These programs typically involve several key elements: detailed education for both the child and parents about normal bowel function and the pathophysiology of constipation, regular scheduled toilet sitting, positive reinforcement for successful toileting, and strategies to manage withholding behaviours.⁸

One common structure for bowel training involves a daily routine of sitting on the toilet for 5-10 minutes after meals, typically breakfast and dinner, capitalizing on the gastrocolic reflex.⁹ During these sessions, children are encouraged to relax and attempt defecation, often with their feet supported to facilitate an optimal squatting position. The use of a reward system, such as sticker charts or small non-food incentives, reinforces compliance and reduces anxiety associated with toileting.¹⁰ Parents receive guidance on how to respond to accidents and withholding behaviours in a calm, supportive manner, avoiding punitive approaches that can exacerbate the problem.¹¹

Multiple studies have evaluated the efficacy of these structured programs. A meta-analysis of randomised controlled trials and observational studies, though limited by heterogeneity in intervention design, consistently demonstrated that behavioural interventions, when added to conventional medical management, significantly improve outcomes compared to medical management alone.¹² For instance, one trial involving 120 children (aged 4-12 years) with functional constipation and encopresis randomised participants to either PEG-based laxative therapy alone or PEG plus a 12-week nurse-led bowel training program.¹³ At 6-month follow-up, the group receiving bowel training plus laxatives achieved a significantly higher rate of complete symptom resolution, defined as three or more spontaneous bowel movements per week and no encopresis, compared to the laxative-only group (72% vs 45%; $P=.003$).¹³ The number needed to treat (NNT) for this combined intervention was approximately 4, meaning four children would need to undergo the bowel training program for one additional child to achieve symptom resolution compared to laxatives alone.¹³

Another study, focusing on children with chronic functional constipation refractory to initial laxative treatment, enrolled 80 participants into either a standard care group (optimised laxative regimen) or an intensive behavioural therapy group.¹⁴ The behavioural therapy included weekly sessions with a paediatric psychologist for 8 weeks, covering education, biofeedback training for pelvic floor muscle relaxation, and a structured toilet-sitting schedule.¹⁴ After 6 months, the behavioural therapy group showed a mean increase of 2.5 bowel movements per week (95% CI, 1.8-3.2) compared to a 0.8 increase in the standard care group (95% CI, 0.2-1.4; $P=.001$).¹⁴ Encopresis episodes also decreased more substantially in the behavioural therapy group, with a mean reduction of 4.1 episodes per week vs 1.2 episodes per week in the standard care group (P14).

The long-term efficacy of these programs is also a critical consideration. A 2-year follow-up study of children who completed a 6-month intensive behavioural intervention for functional constipation found that 60% maintained symptom resolution, defined as regular, pain-free bowel movements and no encopresis, without daily laxative use.¹⁵ This sustained improvement highlights the potential for these interventions to break the cycle of chronic constipation and reduce reliance

on long-term pharmacotherapy. Relapse rates, while present, were lower in children who consistently adhered to the behavioural strategies learned during the initial program.¹⁵

The mechanisms by which bowel training programs exert their effect are multifaceted. They directly address the learned behaviours of stool withholding and avoidance, re-establishing a regular defecation pattern.¹⁶ Education empowers both children and parents, reducing anxiety and increasing self-efficacy in managing the condition.¹⁷ For children with dyssynergic defecation, where there is paradoxical contraction of the external anal sphincter during attempted defecation, biofeedback therapy can be an invaluable adjunct.¹⁸ Biofeedback, often incorporated into more intensive behavioural programs, uses visual or auditory signals to help children learn to relax their pelvic floor muscles and coordinate abdominal pushing with sphincter relaxation.¹⁸ A systematic review of biofeedback for paediatric functional constipation reported a pooled success rate of 73% (95% CI, 65-80%) in achieving symptom improvement or resolution, though the quality of evidence varied across studies.¹⁹

But, the implementation of these programs faces practical challenges. Access to specialised paediatric psychologists, nurses, or physiotherapists trained in bowel training and biofeedback is not uniform across all healthcare settings, particularly in primary care.²⁰ The time commitment required from both families and clinicians can also be substantial, making widespread adoption difficult without adequate resources and reimbursement models.²¹ Furthermore, patient adherence to daily routines and behavioural strategies is crucial for success, and this can be particularly challenging in younger children or those with comorbid conditions such as ADHD or autism spectrum disorder.²²

The role of dietary fibre and fluid intake is often emphasised in conjunction with behavioural interventions. While fibre alone is rarely sufficient to resolve chronic constipation, adequate intake supports softer stool consistency, making defecation less painful.²³ Similarly, sufficient fluid intake prevents dehydration, which can contribute to harder stools.²⁴ These dietary components are typically integrated into the educational aspect of bowel training programs, reinforcing a holistic approach to bowel health. However, the primary driver of success in these programs appears to be the consistent application of behavioural strategies rather than dietary changes alone.²⁵

The open-label nature of most behavioural intervention studies is an obvious caveat. It is inherently difficult to blind participants or clinicians to whether they are receiving an active behavioural intervention. This lack of blinding introduces potential for performance and detection bias, where participants' or researchers' expectations might influence reported outcomes. Still, the objective measures of bowel movement frequency and encopresis episodes provide a more robust assessment than subjective symptom reports alone. The heterogeneity in program design, duration, and intensity across studies also makes direct comparisons and generalisations challenging. Future research needs to standardise intervention protocols to allow for more definitive conclusions on optimal program components and delivery methods. The trials were not powered to detect differences in specific subgroups, such as children with neurodevelopmental disorders or those from socioeconomically disadvantaged backgrounds, and that gap matters for tailoring interventions. Whether benefits extend to these broader groups remains unclear, necessitating further targeted research.

CLINICAL IMPLICATIONS

GPs and paediatricians should recognise that simply prescribing laxatives for chronic functional constipation in children is often insufficient. The evidence clearly indicates that structured behavioural interventions, particularly bowel training programs, are not merely an adjunct but a critical component for achieving sustained

symptom resolution. Ignoring the behavioural cycle perpetuates the problem, leading to prolonged laxative dependence and increased healthcare burden.

Integrating education about the gastrocolic reflex, scheduled toilet sitting, and positive reinforcement into routine practice can significantly improve outcomes. This requires a shift in clinical focus from solely pharmacological management to a more holistic, family-centred approach. While specialist referral for intensive biofeedback may be necessary for refractory cases, many core elements of bowel training can be initiated and supported in primary care settings with appropriate patient and parent education.

The investment in time for these programs pays dividends in long-term patient well-being and reduced healthcare costs associated with chronic constipation and encopresis. Pharmaceutical companies, while focused on drug development, should also consider supporting educational initiatives and resources that facilitate the implementation of these behavioural strategies. This would align with a comprehensive patient care model, rather than a purely product-centric one.

For children and their families, these programs offer a path to regaining control and confidence, moving beyond the daily anxiety and embarrassment associated with bowel dysfunction. It is about more than just moving stool; it is about restoring a sense of normalcy and dignity. Clinicians have a responsibility to equip families with all the tools available, not just the prescription pad.

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