



Constipation

The majority of children and adults experience constipation at some time in their lives. Treating constipation can be as easy as increasing water intake, fibre and exercise. However, for a significant proportion of children and adults, constipation can be extremely difficult to treat. Autism Spectrum Disorder have a higher prevalence of constipation.

There are many possible causes of constipation in children and adults. There may be a genetic predisposition to constipation. Constipation can be divided into two categories: functional and organic. The table to the right lists some of the organic causes of constipation. Functional causes may be due to a combination of issues, and include: dehydration, abnormal gut bacteria, food sensitivity, inadequate fibre and some medications. Constipation may be due to psychological or behavioural issues involving stool withholding, especially in children to avoid the pain of passing stool.

Encopresis is the passing of small amounts of stool, often referred to as "sneaky poo" or soiling, rather than a normal volume of stool. An individual may be constipated, yet pass loose stools. This

Anatomical causes	<ul style="list-style-type: none"> • Imperforate anus • Anal stenosis • Spinal cord abnormalities
Gastrointestinal causes	<ul style="list-style-type: none"> • Hirschsprung's disease • Anal malformations • Intestinal neuronal dysplasia
Endocrine and metabolic causes	<ul style="list-style-type: none"> • Hypoparathyroidism • Diabetes mellitus • Hypokalaemia • Hypercalcaemia • Intoxication with vit. D • Gluten enteropathy
Drugs	<ul style="list-style-type: none"> • Opiates • Anticholinergics • Antidepressants • Antiepileptics
Others	<ul style="list-style-type: none"> • Anorexia nervosa • Sexual abuse • Scleroderma • Lupus erythematosus • Cystic fibrosis • Myo-, neuropathy

condition is sometimes referred to as **over-spill syndrome**, results in stool being forced past the compacted faecal matter (faecal impaction) and loose or watery stool is passed.

Testing

Abdominal (KUB) X-ray - is the easiest imaging test to perform to assess the degree of faecal impaction in the bowels. Occasionally there may not be good correlation between results of the abdominal X-ray and clinical symptoms. For this reason some doctors prefer to perform an abdominal ultrasound.

Comprehensive Digestive Stool Analysis - can identify abnormal gut flora, poor pancreatic function, immune activation or parasites as the cause of the constipation.

Allergy Testing - Allergy testing can detect sensitivities to specific foods that may be a problem.

Specific food eliminations and challenges can detect issues with dairy, gluten or other foods.



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John Pietryka
 Biomedical Naturopath
 55 Marianne Way
 MT WAVERLEY 3149
www.allnaturaladvantage.com.au
 Phone: (03) 8802 7687
 E-mail: pietryka@optusnet.com.au

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Constipation in children

Constipation is among the most common complaints in children and is associated poor quality of life. Chronic stool holding by toddlers is usually related with a history of painful defecation (most often between 18 months and 36 months of age). At that time young children learn voluntary control through the process of toilet/potty training, and the passage of large, hard stools that are painfully may frighten them. Other important risk factors include the following: chronic constipation during infancy, prematurity, improper psychological development, family history (genetic), lowered muscle tone, male sex (especially in early infancy and at pre-school age), cow's milk intolerance, inadequate nutrition (diet poor in fibre, rich in fats and sugars, sweet drinks), low level of physical activity, and, finally, psychological and behavioural factors.

The psychological-emotional background of constipation is usually associated with fears and phobias due to changes in surroundings and routine. Common examples are starting/changing nursery, toilet/potty training, family problems, or, in extreme situations, sexual abuse. There is also a group of children ignoring the urge to have a bowel movement because their attention is focused on other "extremely interesting activities". This sets up a vicious cycle as the retained stool hard-

Children who are constipated often adopt unusual positions. For example, toddlers arch their back, stand on their tiptoes, and wriggle or fidget, or they may squat, hiding in a corner. Additional non-specific symptoms may be present, such as abdominal distension, excessive postprandial fullness, loss of appetite, encopresis, blood and mucus in the stool, nausea, vomiting, and abnormally slow weight gain. There is also a very strong link between constipation and anxiety in children.

In children that are constipated, parent's consistently report a worsening in their child's prior to a bowel motion, and that they are much more settled after having a bowel motion.

Treatment

Treatment depends on the length of time constipation has been an issue, the severity of the constipation, whether there is faecal impaction and whether stretching of the bowel and/or the rectum has occurred. In severe cases treatment may need to continue for up to a year or more.

The Basics

- Fibre rich foods: fibre stimulates gastrointestinal motility, softens stools by absorbing moisture. Best results are obtained when fibre-rich foods are consumed at approximately the same time every day. Fibre should be introduced gradually to avoid discomfort. Fibre requirement can be calculated as $\text{age} + 5 = \text{number of grams of fibre/day}$.
- Increase fluid intake:
 - ◇ Children with body weight 1–10 kg = 100 ml/kg
 - ◇ Children with body weight 11–20 kg = 1000 ml + 50 ml/kg for every kg over 10 kg weight
 - ◇ For body weight above 20 kg = 1500 ml + 20 ml for every kilogram above 20 kg weight.
- Milk should be limited as well as well as fruit juices
- Avoidance of foods high in fat and sugar, fast foods, fried foods, and sweet drinks (especially carbonated beverages). Decrease intake of white bread, potatoes, rice, and fruits that may cause constipation (bananas, boiled and grated apple). Increased intake of whole grains, fruits, and vegetables known to treat constipation (pears, broccoli, apples in pieces, carrots, beans, pineapple, kiwi fruit).
- Increase healthy and regular physical activity including daily outdoor exercise, and reduced screen time with electronic devices (TV, computer, ipad) to a maximum of 2 h/day.
- Specific probiotics that promote colonic transit time: Lactobacillus casei, Escherichia coli, and others
- Probiotic rich foods: fermented vegetables, sauerkraut, kefir, probiotic yoghurt

Constipation in Autism Spectrum Disorder (ASD) Children

Constipation can be a serious issue for ASD children, compounded by the fact that many are non-verbal and unable to communicate that they are uncomfortable or in pain. See the section on Gastrointestinal Disorders in ASD Children for signs or symptoms that your child may be constipated. Treating severely constipated ASD children may require initial treatment with a laxative like polyethylene glycol (Movicol) or lactulose followed by a magnesium based laxative, like Oxypowder. Some children need to be evacuated with enemas to remove the faecal matter that has accumulated otherwise there is the possibility of bowel obstruction.

Additional Treatments for Constipation

- * **Vitamin C** - to bowel tolerance can be used as a bowel flush. Additional benefits are that it also boosts the immune system, aids detoxification and acts as an antioxidant
- * **Taurine** - to help increase bile flow
- * **Carnitine** - if there is mitochondrial dysfunction
- * **Herbal medicine** - herbs that stimulate digestion and increase bile flow are useful. Herbs that support the liver are warranted due to the toxic burden on the liver from by-products in the constipated bowel. Laxative herbs should only be used in children under supervision of an experienced practitioner. Herbs such as dandelion root, chamomile, gentian, and liquorice have been traditionally used
- * **Aloe vera** - can be useful to soften the stool and sooth the gut lining
- * **Homeopathic** remedies can be useful in promoting bowel function

Other considerations not often considered

Food hypersensitivity and its relationship is slowly being accepted by the medical community. The link to cow's milk and constipation has been accepted, however not to other foods. This study reports the relationship between refractory chronic constipation and food allergy in children. ***Patients with an IgE-mediated food allergy showed a significantly longer total colonic transit time than patients without food allergy.*** The study also reported "...chronic constipation in four women aged between 30 and 52 years. In all cases there was no response to dietary fibre supplements plus several laxative treatments (milk of magnesia or/and lactulose or/and polyethylene glycol). However, on an oligoantigenic diet, bowel habits normalized in these patients and a double-blind placebo-controlled food challenge triggered the reappearance of constipation. ***The foods which caused the constipation were:*** cow's milk (four cases), wheat (four cases), egg (four cases), tomato (three cases), beef (three cases), cocoa (three cases), soy (three cases), oranges (two cases), goat milk (two cases), fish (one case), legumes (one case), peas (one case), cauliflower (one case), beans (one case). The constipation reappeared 1- 4 days after the reintroduction of these foods into the diet."

Chronic Constipation and Food Hypersensitivity - An Intriguing Relationship. **A. Carroccio; G. Iacono** . Aliment Pharmacol Ther. 2006;24(9):1295-1304.

Fructose intolerance, more commonly associated with abdominal pain and loose stool, can be a cause of constipation.

Fructose intolerance/malabsorption and recurrent abdominal pain in children. Escobar MA Jr, Lustig D, et al. J Pediatr Gastroenterol Nutr. 2014 Apr;58(4):498-501.

Children with encopresis have a higher prevalence of **small intestinal bowel overgrowth (SIBO)**, elevated basal methane levels, and higher methane production. Methane production was associated with more severe colonic impaction as well as reduced colonic transit time.

Bacterial overgrowth and methane production in children with encopresis. Leiby A, Mehta D, Gopalareddy V, Jackson-Walker S, Horvath K. J Pediatr. 2010 May;156(5):766-70, 770.

Breath methane positivity is more common and higher in patients with objectively proven delayed transit constipation. Lee KM, Paik CN, Chung WC, Yang JM, Choi MG. Eur J Gastroenterol Hepatol. 2013 Jun;25(6):726-32.