Practical Treatment / Management of Lower Bowel Dysfunction

EC39, 30 August 2011 14:00 - 17:00

Start	End	Topic	Speakers
14:00	14:05	Introduction	• Julia Herbert
14:05	14:30	Anatomy and pathophysiology of lower bowel dysfunction	• Christine Norton
14:30	14:50	Therapy and management for constipation / difficult defecation	• Patricia Evans
14:50	15:10	Therapy and management strategies for anal incontinence	• Julia Herbert
15:10	15:30	Post natal management	• Rona Mackenzie
15:30	16:00	Break	None
16:00	16:20	Dietary advice for lower bowel dysfunction	• Donna Bliss
16:20	16:40	Neurological bowel management, laxatives and irrigation	• Christine Norton
16:40	17:00	Discussion	All

Aims of course/workshop

To gain a greater understanding of the anatomy, physiology and patho-physiology of lower bowel dysfunction
To improve knowledge of the conservative management and treatment of lower bowel dysfunction.

Educational Objectives

This educational course will be delivered by clinicians working in the speciality of lower bowel dysfunction. The course content covers the pathophysiology and anatomy related to the lower bowel but also covers in more depth a range of conservative therapies that can be used to improve the quality of life of people who have lower bowel dysfunction; in particular anal incontinence and difficult defaecation or constipation. The course is intended to give clinicians, both new to the speciality or with some experience, ideas about extending their clinical practice. It is also an opportunity to raise the awareness of bowel dysfunction in a society that predominantly focuses on bladder dysfunction.
The course will be delivered in a lecture format with opportunity for delegates to submit questions during the course, concluding with a panel discussion.

Educational Course 39 : Practical treatment and management of Lower Bowel Dysfunction

We hope that you will find this workshop stimulating and that it will add to your clinical practice enabling you to address problems of Lower Bowel Dysfunction with your patients.

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Anatomy and Pathophysiology of Lower Bowel Dysfucntion

Christine Norton PhD MA RN

Background

Faecal incontinence (FI) may be defined as involuntary loss of stool that is a social or hygienic problem (1). Anal incontinence additionally involves inability to control passage of flatus. FI affects between 1-15% of adults to at least some extent (2-6), depending on the definition employed. FI is probably a significant limitation on quality of life for 0.5-1% of adults (2). Although FI increases in prevalence with advancing age and disability, it also affects large numbers of healthy adults in middle age. Somewhat surprisingly, in most large community studies the prevalence in men and women is similar, although women tend to have more severe and frequent symptoms, and certainly present more often for clinical care.

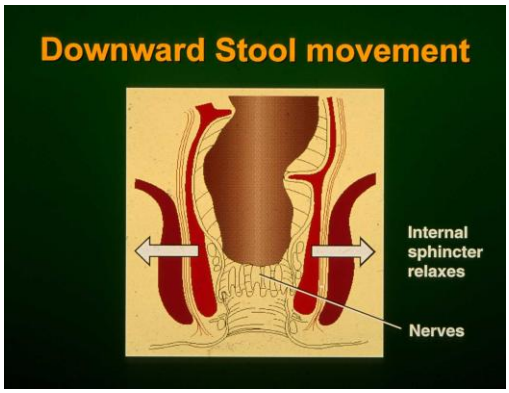
FI has an understandably profound impact on a patient's quality of life, leading to major social and psychological impact in many cases (7;8). As a stigmatised condition, it leads to embarrassment and shame, often combined with reluctance to

admit the problem and present for help from healthcare professionals. Some people lack a vocabulary with which to explain their symptoms, or assume that FI is an inevitable consequence of childbirth, diarrhoeal disease or anal surgery. The impact appears to be very individual, and some cope well, but others live in fear of being caught out in public and map all activities around the likely availability of easy access to toilet facilities (9). Increasing recognition of the importance of the patient perspective and impact on quality of life has led to recent efforts to develop standardised and validated tools to add this dimension to outcome measures for FI (10-12), in addition to the somewhat simplistic "scores" that presume that number of episodes equate to "severity" (13;14). Those patients with the most severe symptoms and impact on quality of life are the most likely to seek help (4).

Anatomy & Physiology

When stool enters the rectum the internal anal sphincter muscle automatically relaxes and opens up the top of the anal canal. This is normal and allows stool to enter the upper anal canal to be "sampled" by the very sensitive nerve cells in the upper anal canal (Figure 1). People with normal sensation can easily tell the difference between wind (gas, also called *flatus*), which can safely be passed if it is socially convenient without fear of soiling, *diarrhoea* (very loose or runny stools needing urgent attention and access to a toilet) and a normal stool. Most people just know what is in the rectum without really having to think about it.

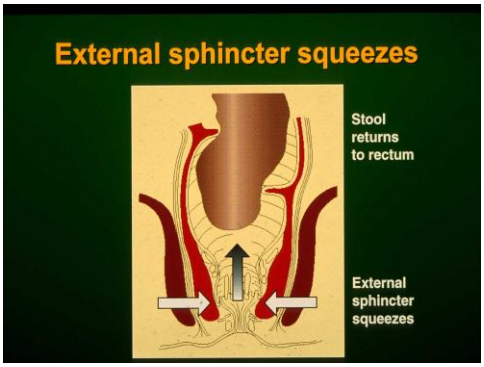
FIGURE 1 Internal sphincter relaxation when the rectum is full



Around the internal anal sphincter is the *external anal sphincter,* which is much thicker. This is the muscle around the anus that you can deliberately squeeze. Just like the muscles in the arm or leg, a person can decide when to use this muscle.
If a normal stool is sensed and it is not convenient to find a toilet at that moment, bowel emptying is delayed by squeezing the external anal sphincter. Squeezing the

external sphincter ensures that the stool is not simply expelled as soon as it enters the rectum, and in fact the stool is pushed back up out of the anal canal (Figure 2). For most people this is not a deliberate action - you should not need to think, “I must squeeze my anal sphincter muscles so that I do not have a bowel accident” - but this is actually what you do, subconsciously without really thinking about it.

FIGURE 2



This external sphincter squeeze does not need to last all the time until the toilet is found. Stool is pushed back into the rectum, and the rectum relaxes and so that the urge to empty the bowel is resisted and wears off.

For most people, an urge to empty the bowel is felt, but if the time and place are not right, it is possible to delay bowel emptying, and the feeling of needing to go wears off very soon. Most people can then forget about the bowel for a while, and some can put off bowel emptying almost indefinitely, but may get reminders that the bowel is full at intervals until it is emptied. Continually resisting the urge to empty the bowel or ignoring the *call to stool* can lead to constipation, as the longer the stools stay in the colon and rectum, the more fluid is absorbed and the harder the stools become.

Pathophysiology

FI is a symptom arising from diverse aetiologies, which often co-exist in the same individual. Typically, patients complain of urgency and urge incontinence, often indicating external sphincter weakness or damage (15), or passive soiling secondary to internal anal sphincter disruption or atrophy (16). Both symptoms can be present in the same individual. Stool consistency, bowel motility, sensation, completeness of evacuation and physical or mental abilities for self-care may each have an impact. The most common causes and contributing factors are summarised in Table 1.

It is this multiple pathology that often enables FI symptoms to be reversed by conservative means. Even in patients with sphincter trauma, there may well be an

element of residual function that can be improved, or other factors such as stool consistency, toilet habit, complete evacuation, psychological coping and toilet access can be optimised. In practice, although sphincter damage is commonly found when these patients are imaged, careful history will often reveal that the patient has not been symptomatic continuously following the trauma incident. Other factors have contributed to symptom development, and these can be modified.

Table 1: Aetiologies of faecal incontinence

External sphincter disruption and/or internal sphincter disruption	Obstetric injury, congenital anomaly, iatrogenic following colorectal surgery (such as haemorrhoidectomy or sphincterotomy), impalement injuries, idiopathic degeneration
Diarrhoea/loose stool	Inflammatory bowel disease, irritable bowel syndrome, gastrointestinal infections, dietary sensitivities (eg lactose or fructose intolerance, caffeine sensitivity, excess alcohol, artificial sugars), medications (eg oristat, antibiotics), celiac disease, anxiety, radiation enteropathy
Loss of sensation	Neurological disease or injury (e.g. spinal cord injury, spina bifida, multiple sclerosis, diabetic neuropathy)
Constipation or incomplete evacuation	Frailty, immobility, stool impaction, rectocele or pelvic floor dysfunction, neurological disease or injury, medications
Anorectal pathology	Rectal prolapse, 3rd degree hemorrhoids, anal fistula
Physical disabilities with toileting difficulties	Neurological disease or injury, frail elderly people, poor toileting facilities, lack of carer availability
Mental capacity to comply with social norms for toilet behaviour	Severe learning difficulties, confusion, advanced dementia
Idiopathic	Cause unknown

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Therapy and management for constipation / difficult defaecation

Patricia Evans Grad Dip Phys MCSP

Introduction

One of the most common digestive complaints is constipation and it has been estimated that £46 million is spent each year in England alone on laxatives (DH, 2000), but these tend to lose their effect over time. It is more common in women than men, and prevalence increases with age. Reported prevalence rates in the UK vary widely between studies, from 8.2% - 52% of women, and 39% of men (Pettigrew et al, 1997).

Definition

Constipation is a symptom-based disorder defined as “unsatisfactory defecation and is characterized by infrequent stools, difficult stool passage, or both. Difficult stool passage includes straining, a sense of difficulty passing stool, incomplete evacuation, hard / lumpy stools, prolonged time to stool or need for manual manoeuvres to pass stool” (American College of Gastroenterology Chronic Constipation Task Force, 2005). Stools could be dry and hard, and may be abnormally large, or small. It is a symptom, not a disease, reflecting either slowed colonic transit and/or impairment of rectal emptying (Emmanuel, 2004). Therefore it is a subjective report of an individual’s bowel function. In addition, there is a difference in what doctors and patients perceive as constipation. In view of the difficulty in defining constipation, an international committee has recommended a definition of chronic functional constipation, known as the Rome Criteria, which are now in their third edition (Longstreth et al, 2006) (Table 1).

Table 1: Rome III Criteria for Functional constipation

1. Must include 2 or more of the following:
    a. Straining during at least 25% of defecations
    b. Lumpy or hard stools in at least 25% of defecations
    c. Sensation of incomplete evacuation for at least 25% of defecations
    d. Sensation of anorectal obstruction / blockage for at least 25% of defecations
    e. Manual manoeuvres to facilitate at least 25% of defecations (e.g. digital evacuation, support of the pelvic floor)
    f. Fewer than 3 defecations per week
2. Loose stools are rarely present without the use of laxatives
3. There are insufficient criteria for the diagnosis of irritable bowel syndrome

* *Criteria fulfilled for at least 3 months with symptom onset at least 6 months prior to diagnosis.*

Based on the Rome criteria, constipation has been classified on the basis of stool frequency, consistency and difficulty of defecation. In most cases, there is no obvious physical or pathological cause; this known as idiopathic, functional constipation.

Normal expectations of bowel habit vary between individuals and cultures with a "normal" bowel habit varying from every day to three times per week (Epstein et al, 2009). Constipation can have structural, chemical or microbiological causes (Montague et al, 2005). A recent change in bowel habit can indicate organic cause indicating pathology which will require further investigation (Epstein et al, 2009). There is a need to rule out significant aetiology when the following "red flags" are apparent:

- change in bowel habit
- weight loss
- family history of bowel pathology
- nocturnal evacuation
- abdominal pain
- blood in stools
- bleeding per rectum
- tenesmus

(adapted from Epstein et al, 2009. Montague et al, 2005

Disorders of defaecation (rectosigmoid outlet delay) refer to anorectal dysfunction. In this instance there is prolonged defaecation and feelings of anal blockage requiring manual manoeuvres to aid in the passage of the stool. It can also be caused by painful anorectal diseases like anal fissures, or anorectal incoordination (Whitehead et al, 2009; Lembo & Cammillieri, 2003).

Ageing does not cause constipation as such, but the increasing prevalence of constipation in the elderly may reflect changes in mobility, diet, fluid intake and polypharmacy (Pettigrew et al, 1997).

Assessment of Constipation

History

History taking in the main will seek to establish a clear picture of the patient's symptoms, how they are affected by them, and what they understand by their constipation. History of dietary habits and fluid intake, as well as a complete list of prescribed and over-the-counter medication should be taken. A full medical, surgical, obstetric and psychological history is required and the assessment is then completed by asking about specific bowel symptoms including:

- Bowel frequency
- Longest bowels not opened
- Stool form/consistency (compare with the Bristol Stool Form Scale (Figure 1)
- Passing blood (on wiping/on stools/ in toilet)
- Mucus
- Straining
- Urge to defaecate (in abdomen/PR)
- Feeling of incomplete evacuation
- Digitation (PR/PV)

- Pain (in abdomen/in rectum; on defecation; relieved by defecation)
- Bloating
- Impact on daily life and relationships

A careful, detailed history and physical examination will exclude most secondary causes of constipation.

Physical Examination

The aim of a physical examination is primarily to detect any masses in the abdomen and the rectum. Assess the presence and degree of faecal loading by performing a digital rectal examination and assess if there is any faecal impaction or faecal incontinence. The rectal examination should also include the assessment of the anal sphincter muscle tone, abnormal perineal descent and/or ballooning during straining.

Treatment of constipation

Initial and Primary Care Management

Most cases of constipation are successfully treated within primary care with simple non-pharmacological measures. Medication with constipating side-effects should be reviewed and discontinued, if possible. Patient education is an essential part of treatment and an understanding of normal bowel function goes a long way towards dispelling patient-held myths and misconceptions of constipation. For instance, the assertion that it is normal to have a bowel movement from between three times a day to three times per week can be a revelation, and a release from the tyranny of daily bowel action.

Simple measures start with a trial of increased fibre, fluid intake, exercise and lifestyle changes. However there is little evidence that increasing dietary fibre is effective in the management of severely constipated patients and may induce symptoms such as abdominal distension and flatulence, particularly in those patients with a slow gut transit. In addition, there is no evidence that stool consistency and constipation can be affected by increasing fluid intake or exercise (Muller-Lissner et al, 2005), but if the patient is dehydrated then increasing fluid intake may help. Lifestyle changes around a toileting routine (Table 5) to instil good defaecatory habits may help. These may have been forgotten due to a frenetic pace of life which leaves little time for unhurried defaecation and in which the urge to defaecate is often ignored.

Table 5: Recommended Toileting Routine

- Regular attempt 20-30 minutes after breakfast (this will capitalise on the gastro-colic reflex and encourage defecation at a time when gut-motility is at its height)
- Unhurried defaecation, about 10 minutes, to ensure defaecation is complete
- Don't ignore the urge to defaecate
- People with limited mobility should have help to get to the toilet
- Supported seating if the person is unsteady on the toilet
- Adopt a good functional position for defecation (knees flexed and above hips – put feet up on a footstool if necessary to achieve this, lean forward with elbows resting on knees and relax)
- Adequate privacy

If there is little or no response within 2-3 weeks, then laxatives can be administered. (Malek, 2003). The lowest effective dose of a laxative should be used, and should be reduced as soon as symptoms begin to resolve. Treatment starts with a bulk-forming laxative. If stools remain hard then add or switch to an osmotic laxative. If stools are soft, but difficult to pass or defaecation is incomplete, then a stimulant laxative may be added. Patients should be advised that laxatives can be stopped once the stools become soft and easy to pass. In the elderly, faecal impaction is initially treated with manual evacuation. Should the stool be beyond the reach of the examining finger, then enemas are the next step.

Biofeedback

At the author's Hospital, biofeedback is a behavioural therapy that holistically incorporates symptom assessment, education, bowel retraining, muscle re-education and psychological support (Duncan et al, 2003). The aim of biofeedback therapy is for the patient to improve and take control of their bowel function without resorting to the use of laxatives (Collins & Burch, 2009). It seeks to normalise bowel function. This is achieved by relaying information about a normally subconscious physiological process to a patient in real time. The patient may learn to change this process, substituting previous behaviours with correct defaecatory patterns (Horton, 2004). The success rate of biofeedback therapy in the treatment of intractable constipation has been reported up to 80% in some studies (Chiarioni et al, 2005; Glia et al, 1997). Patients with underlying psychological conditions will find psychological counselling a helpful adjunct to biofeedback therapy. Biofeedback is normally carried out in a secondary or tertiary referral centre and is usually a nurse or therapist-led area of care.

Biofeedback usually consists of up to 4 appointments with a clinical specialist at approximately monthly intervals. Each session lasts between 30-60 minutes and patients are instructed in a series of previously described techniques (Horton, 2004) that have proven effectiveness (Chiotakakou-Faliakou et al, 1998) and efficacy (Emmanuel and Kamm, 2001). Patients may be asked to briefly lie on their right side facing the therapist. Whilst in this position a balloon will be inserted into the rectum and inflated with 50 mls of air to stimulate a sensation of needing to defecate. The patient is then asked to expel the balloon and if necessary will be taught how to push without straining or increasing anal sphincter activity (Emmanuel & Kamm, 2001). Patients are also taught to defecate by bracing the abdominal muscles, while relaxing the pelvic floor muscles. Patients who digitate to empty their rectum are asked to stop doing so and laxative use is discontinued. During these appointments the therapist will also advise the patient about diet and fluid intake, frequency and length of toilet visits, timing of bowel evacuations, seating and posture for defecation (Horton, 2004). Patients also receive education about normal gut function and discussion of possible psychological or social factors that may be influencing gut function will take place.

Surgery

Surgery for slow transit constipation should only be considered as a last resort when all other measures have failed. The preferred procedure is sub-total colectomy and ileorectal anastomosis. Long term success rates are poor, less than 50% (Kamm et al, 1988), with complications ranging from diarrhoea, faecal incontinence and recurrent obstruction to pelvic sepsis. Patient selection is paramount. Success is more likely in patients with slow transit constipation in the absence of recto-sigmoid outlet delay and psychological disorders.

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Therapy and management strategies for anal incontinence

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Anal incontinence is a condition which whilst not usually life threatening seriously affects the quality of life of sufferers. Having difficulty controlling wind or the need to open one's bowels is not a subject that is easy to talk about with family or friends; even when attending a hospital colorectal clinic some people are still unable to disclose that they are incontinent of faeces (Johanson & Lafferty 1995).

Anal incontinence is complex in its aetiology and may include: -

- damage to the anal sphincters levator ani and nerves during childbirth
- damage due to chronic constipation
- rectal prolapse and recto-vaginal prolapse
- diarrhoea due to inflammatory bowel disease
- anal surgery – anal stretch, haemorrhoidectomy, sphincterotomy
- faecal impaction with overflow
- congenital or iatrogenic sphincter damage

Before commencing conservative therapy it is essential that a thorough assessment is undertaken including a physical examination of the ano-rectum. It is important to assess the function of both the deep layers of the pelvic floor complex in particular the puborectalis as well as the internal (IAS) and external anal sphincter (EAS) and superficial pelvic floor muscles.
A weakened puborectalis will produce a loss of the ano-rectal angle, (which should normally be 90 degrees) and the protection of the 'flap-valve' that is created by its anterior pull against the ano-rectal junction.

Although commonly associated with difficult defaecation a female may experience faecal incontinence due incomplete emptying of the rectum caused by a posterior vaginal wall prolapse. If there is an associated weakness of the internal and external anal sphincter stool remaining at the ano-rectal junction may escape through the anus during the day causing passive soiling. It may be appropriate to assess a female patient vaginally to assess for posterior vaginal wall prolapse and to assess the integrity of the anterior pelvic floor muscles.

The ability to produce a voluntary contraction of the external anal sphincter and puborectalis should be noted along with the need to breath-hold or use inappropriate accessory muscles. It is suggested that the transverse abdominus (Sapsford 2002, Bø 2005) and the glutei (Peshers 2001) may work in association with the pelvic floor complex, however it is felt that in order to be effective in a training programme the exercises must be specific to the target muscle (Bø 2005).

The reaction of the external sphincter and puborectalis during raised intrabdominal pressure can be assessed by asking the patient to cough – the external sphincter and puborectalis should tighten in a reflex response to prevent stool being lost from the anus. The reaction of the puborectalis and EAS should also be tested during Valsalva (bearing down) as there may be a combined problem of difficult defaecation leading to incomplete emptying and associated sphincter weakness exposing the patient to incontinence. In some patients there will be a paradoxical contraction of the puborectalis and EAS the latter also known as an 'anismus'. Patients experiencing difficulty defaecating should also be examined for gross weakness of the pelvic floor muscles and perineal descent.

This physical assessment must then be linked to the person's description of 'their problem'. It is important to establish exactly what the person experiences when they have incontinence. The following questions may be helpful in identifying the probable type of ano–rectal dysfunction that is contributing to their incontinence and therefore may assist in deciding on the most appropriate therapy.

Loss of timing / Strength EAS & Puborectalis

- Do you loose stool on movement –eg. Bending lifting?
- Do you loose stool on coughing, sneezing?
- Do you experience urgency to defaecate – how long can you defer?
- Do you experience urge incontinence of faeces?
- Can you control wind?

Loss of resting tone IAS

- Are you aware of leakage? (passive leakage)
- Do you have difficulty wiping clean? (may also be due to skin tags, rectal prolapse or haemorrhoids)

Altered rectal sensation / compliance

- Can you discriminate between wind, loose stool and formed stool?
- Urgency
- Incomplete emptying (also suggestive of posterior vaginal wall prolapse/ rectal mucosal prolapse or paradoxical contraction)

Pelvic floor muscle exercises

Exercises targeting the whole pelvic floor or more specifically targeting the EAS have widely been used to treat faecal incontinence. Unfortunately as is the case with pelvic floor muscle exercises for urinary incontinence there is little consensus as to the optimum treatment regimen or length of training. The Cochrane review (Norton 2006) states that: -

> *The limited number of identified trials together with their methodological weaknesses do not allow a reliable assessment of the possible role of sphincter exercises and biofeedback therapy in the management of people with faecal incontinence.*
> *There is a suggestion that some elements of biofeedback therapy and sphincter exercises may have a therapeutic effect, but this is not certain. Larger well-designed trials are needed to enable safe conclusions.*

There is obviously a need for further research in this area, however in clinical practice teaching these exercises can help patients to improve or overcome their symptoms of faecal incontinence. Therefore, until such time as research determines the most effective treatment regimen the basic principles of muscle training should be adhered to. The patient must be able to identify and voluntarily contract either the external anal sphincter and / or the puborectalis. They must then be instructed in an exercise programme that exercises the muscles to fatigue in order to produce overload which is necessary to increase strength (Bø 1994).

Length of training
The Cochrane review of pelvic floor muscle exercises for urinary incontinence (2006) concluded that they were most effective in those patients who continued for at least 3 months. This time frame is slightly less but in keeping with the American College of Sports Medicine (1990) who recommend that in general, strength training for striated muscle fibres should be for at least 5 months and that there is a potential for further improvements after that time.

For patients who experience faecal incontinence during activity they need to be able to contract the EAS prior to exertion or rises in intra-abdominal pressure, so

practicing quick contractions as well as performing endurance training may be helpful.

Biofeedback
Biofeedback is commonly used to assist pelvic floor muscle training and can take many forms. The simplest is that of the patient palpating or touching the pelvic floor muscles to feel the contraction. Clinically a range of modalities may be used to give feedback to the patient on the activity of their muscles for example: -

- Manometric
- Electromyograhpy (EMG)
- Dynamic Ultrasound

Unfortunately the literature does not report favorably on the effectiveness of biofeedback for the treatment of faecal incontinence but this is probably largely due to the wide variation of methods used and exactly how the biofeedback is used to re-train function. This is frequently not reported in the literature and therefore it makes comparing trials difficult. Probably the earliest reports of the use of biofeedback to treat faecal incontinence is Engel and colleagues (1974), who describe the use of operant conditioning. The aim was for the patient to learn to enhance the presumed reflex contraction of the EAS in response to a reflex relaxation of the IAS when the rectum was filled (recto-anal inhibitory reflex - RAIR). It has however been suggested since that the EAS response is mostly a voluntary response, although usually this occurs at a subconscious level. (Whitehead 1981).

The clinical application of EMG biofeedback involves the use of either skin surface electrodes positioned close to the anus or an anal electrode positioned in the anal canal. It must be remembered that both these applications give a global picture of the electrical activity in the area and are not as specific as single needle EMG which is almost exclusively reserved for research purposes. Surface EMG can not isolate the individual activity of the EAS and does not give any indication of the activity of the smooth muscle of the IAS.
Anal manometry is thus probably better suited for feedback on the activity of the IAS and EAS. At rest it is expected that up to 80% of the closure pressure of the anus is produced by the IAS. Observing the reading on balloon manometry at rest reflects the activity of the IAS, a low reading is suggestive of weakness or damage. On most equipment this is measured in cmH_2O and the normal range is 60 - 80 cmH_2O. On voluntary contraction it would be expected to increase by 100% to a range of 120 - 160 cmH_2O reflective of the function of the EAS. Care is needed however, when using balloon manometry, to ensure that the patient is not breath holding or contracting the upper abdominals, as this will increase intra abdominal pressure and will cause a false reading on the manometry probe. The same may happen if the patient only contracts the gluteal muscles by clenching their buttocks not the EAS.

A double or triple balloon probe allows the biofeedback therapist to simulate rectal filling with air or water in a distal balloon, triggering the RAIR response and allowing the patient to re learn the subconscious contraction of the EAS which may be shown to them on a computer monitor. It is thought that this type of inhibition to rectal filling requires a sustained sub maximal contraction in excess of 10 seconds.
Allowing the patient to see that they can produce a volitional contraction that will control the urge to defaecate can be extremely powerful in them overcoming the anxiety associated with the fear of having an episode of faecal incontinence. Many report that even when they no longer experience episodes of incontinence the fear of one happening greatly affects their quality of life.

Neuromuscular Electrical Stimulation (NMES)
Electrical stimulation may be given to produce a contraction of the external anal sphincter, the superficial and deep pelvic floor muscles.

The Cochrane review (Hosker 2006) describes it being used in two main situations: to improve poorly functioning anal sphincters and to optimize gracilis neosphincters. The review suggests that it is administered in different ways, using many different stimulation parameters and is often used in conjunction with other therapies.

Treatment parameters may be selected to mimic those known to occur physiologically. The pelvic floor muscles are thought to respond to a range of between 5 – 50 Hz, the tonic fibres of the pelvic floor muscles responding to the lower frequencies and the phasic fibres responding to higher frequencies. Unfortunately there have been few randomized controlled trials and so there is little guidance in the literature as to the optimum frequency for faecal incontinence. Many view the use of NMES as an adjunct to other therapy and as such will choose higher frequencies such as 35 or 40 Hz in order to maximize the 'feel' of a contraction during stimulation phases and assist the re-education process.(Valancogne 2004).

The role of the therapist when using stimulation is to fully understand the various parameters such as pulse duration, duty cycle including ramping and intensity in order that adjustments may be made so that the patient does not find the process uncomfortable. For example a patient that is very sensitive to stimulation and finds it difficult to reach an intensity at a therapeutic level producing a motor contraction of the muscles because the sensation threshold is low, may find that by reducing the pulse duration to say 150μs from the normally used 250μs or 350μs may be sufficient to make the stimulation tolerable. It is important that the therapist observes that the stimulation reaches a sufficient intensity to produce an electrically induced contraction of the pelvic floor muscles; otherwise the stimulation may be ineffective.

Other treatments
It is without doubt that the conservative treatment of anal incontinence is multi factorial and often successful treatment is due to a combination of approaches. Other useful strategies are diet – in particular fibre modification. Some patients do not eat sufficient fibre resulting in a loose, sloppy stool which is more difficult to retain with weak muscles. They often benefit from increasing their dietary fibre intake and sometimes may need the addition of a bulking agent such as Ispaghula husk.

Other patients with a good fibre intake of 18 – 30g per day benefit from using a drug such as Loperamide which slows the action of the colon allowing the stool to become firmer. This is available in 2 mg tablets but for those patients who find this makes the stool too firm they can benefit from titrating the dose using a liquid preparation allowing them to take as little as .5mg. As with biofeedback, knowing that they have the ability to control the stool consistency increases their confidence of being able to socialize normally and has a huge impact on their quality of life.

Another device which may suit some patients is the Peristeen anal plug. This is a small polyurethane plug which can be inserted at ano-rectal junction using a lubricant (as you would a suppository). It is useful to try with a sample pack to see if the patient can tolerate the plug in situ. Some patients with normal or hypersensitive rectal sensation are unable to tolerate it. For those that can, it can be extremely useful allowing them to regain some of their social activities previously impossible because of their incontinence for example, to go to the gym, to go swimming, to go to a special family occasion.

For the more complex patient with either feacal incontinence or constipation difficulties, it may be worthwhile considering anal irrigation. This is a technique whereby the patient is able to irrigate the rectum and lower colon using a specially developed kit. Approximately 500 – 750 mls of warm water is infused into the lower bowel whilst the patient is sitting on the toilet. This enables the patient to fully empty the lower bowel and can give them a feeling of 'complete emptying' if they suffer from difficult defeacation or immense confidence that they are 'empty' and 'will not leak' if they have feacal incontinence.
The Peristeen anal irrigation kit is licensed for use on prescription in the United Kingdom (UK). Whilst anal irrigation has been used for a number of years this is probably one of the first kits available in the UK to have been specifically developed for the purpose rather than one adapted from another use.

Conclusion
There are a number of modalities that can benefit the patient with anal incontinence. The aetiology of anal incontinence may be complex and therefore a combination of treatments may be the best approach. Unfortunately this makes it difficult to evaluate treatment. For many anal incontinence is an even greater taboo than urinary incontinence but there is a growing interest in helping patients whose lives are affected and with that increasing interest hopefully more opportunities for further research to inform clinical practice.

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Conservative Management of Post-natal Anal Incontinence

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Obstetric anal sphincter injury is the major cause of anal incontinence in women and is estimated to affect 5% of women who have a vaginal delivery each year in the United Kingdom[1]. A study in the UK to establish the true prevalence of clinically recognised and occult injuries found that many injuries are under reported and miss classified. On re examination at the time of injury, the rate of sphincter injury increased from 11% to 24.5%[2]. The Royal College of Obstetricians & Gynaecologists published a patient guideline, *"A third- or fourth-degree tear during childbirth, Information for you"* in 2008 which quoted a rate of 9% [3.] As up to 59% of women have impaired bowel control following primary repair of anal sphincter defects[4], there must be many women with unrecognised injuries who have problems, but fail to present for treatment and advice due to embarrassment and shame.

The Royal College of Obstetricians & Gynaecologists, United Kingdom, Guideline No 29 Management of third and fourth degree perineal tears was updated in 2007.[5] The purpose of the guideline is to provide evidence-based guidance on the diagnosis, management and treatment of obstetric anal sphincter injury and makes recommendations on the following:

- Prediction and prevention
- Classification of perineal trauma
- Recognition of injury

- Method of repair
- Suture material
- Skill of operator
- Postoperative management
- Follow-up
- Counselling about subsequent delivery

The classification of tears:

- First degree**:** Injury to perineal skin only
- Second degree: injury to the perineum involving perineal muscles but not involving the anal sphincter.
- Third degree: injury to the perineum involving the anal sphincter complex (external and internal sphincters)
    - 3a: less than 50% of the external sphincter thickness torn.
    - 3b: more than 50% of the external sphincter thickness torn.
    - 3c: Internal anal sphincter torn.
- Fourth degree: injury to the perineum involving the anal sphincter complex (external and internal sphincters) and rectal mucosa.

The guidelines recommend that women sustaining sphincter injuries are offered a follow-up appointment at 6-12 weeks to be seen by a consultant obstetrician and gynaecologist, also these women should be offered physiotherapy and pelvic floor muscle exercises for 6-12 weeks after the repair. Many centres in the UK now have a dedicated perineal clinic in which these women are seen by a senior obstetrician, an experienced midwife or nurse. The purpose of the consultation is to inform and educate the woman, to identify any bowel control problems, provide treatment and advice to resolve the symptoms and to advise of the importance of planning the management of subsequent deliveries[6].

There is a risk that the obstetricians and midwives who deliver, repair and care for women who sustain trauma are not aware of the longer term outcome of the event, if there is no mechanism to feed-back the results. This risk can be reduced if the outcome of treatments by continence or physiotherapy services is shared with the obstetric team, midwives, general practitioner and woman. Clinical risk meetings facilitate the discussion of individual cases of concern and regular audits of hospital and community notes identifies any need for change in practice or education. This mechanism facilitates improvement in services and has the potential in the longer term to reduce the number of women presenting with symptoms requiring treatment[7].

Any explanation and information given to the woman at the time of delivery and repair to the anal sphincter is seldom retained. The provision of standardised written information with details pertinent to the service being provided, offers details and reassurance if given at the time of discharge from hospital[3.] When seen at the follow up appointment a detailed explanation of the nature of the injury and repair, also the normal function of the lower bowel and control mechanisms is provided, so that the woman is in a position to understand what is happening and seek any clarification she requires. A questionnaire sent with the appointment details allows for thought about the symptoms and questions that will be asked at the appointment and is shown to encourage women to disclose problems[8]. A standardised assessment form can be used to gather details of bladder, bowel and sexual function. Obstetric, medical and surgical history may identify risk factors. Past and present bowel habits, including frequency and consistency of stool, ability to delay defaecation, control of stool and flatus will identify the type of control problem or incontinence. All of these

details and information about how the woman manages her problems and the effect this has on her lifestyle and quality of life will give a baseline from which the practitioner and woman can work. Incorporating the St Mark's scoring system within the assessment process is a simple way of objectively assessing the severity of faecal incontinence. This correlates with the impact of bowel symptoms on patient's QoL, in a relatively young population with low severity of symptoms, when compared to the longer Manchester Health Questionnaire[9]. The scoring can be used to monitor progress/deterioration in symptoms when treating the women and for audit and teaching purposes with midwives and obstetricians.

Examination of the vagina, perineum and anus is performed to check for healing, scar tenderness, sphincter tone and presence of haemorrhoids, skin tags or faecal soiling, also observation of the anus for symmetry on voluntary contraction and reflex contraction on coughing. The pelvic floor muscles are assessed for symmetry, strength and endurance on slow contractions and speed and strength of fast contraction, as it may be necessary to improve the function of the pelvic floor muscles, especially puborectalis in order to increase the ano-rectal angle and enhance bowel control. Endosonography and manometry are not available in all hospitals, so cannot be routinely used to assess the degree of damage to the sphincter. Women with persistent problems should be referred to centres where this is available[10].

Conservative treatment and advice provides the potential for resolution or reduction of symptoms for many women. Care immediately post delivery includes antibiotics, analgesics and laxatives for 7–10 days to avoid the passage of hard or large stools that are painful and may disrupt the repair. The risk with routine laxatives is that the stools may be too soft and uncontrollable, leading to faecal incontinence. This can be avoided by providing a copy of the Bristol Stool chart and instructions to maintain type 3-4 stools, by adjustment to diet and titration of laxatives.

Urgency of stool resulting in a rush to the toilet and urge faecal incontinence indicates damage to the external anal sphincter. Passive faecal leakage and incontinence of flatus is associated with internal sphincter damage. Incontinence due to faecal impaction and overflow of faecal material is uncommon in this client group, but can occur in women with a history of constipation or fear of pain associated with the passage of stool following delivery, so must not be overlooked.

Emotional support is required by these women, as very few are aware, prior to delivery, of the risk of anal sphincter trauma or bowel control problems. The demands of a new baby and possibly other children make this a stressful time and unreliable bowel control increases anxiety. Many women have concerns about the long term effects on continence, sexual function and body image[11].

Advice is tailored to the symptoms and needs of the individual[12].

- Identify 'normal' bowel habits. Establish a regular bowel routine. Make time to respond to the sensation of needing to empty the bowel.
- Eat a balanced diet with regular meals. Have breakfast and take advantage of the gastro-colic response to initiate a bowel action in the morning whilst at home.
- Adjust the intake of fibre to achieve the consistency of stool that can be controlled. Identify any foods that cause loose stools or excessive wind. Sorbitol in low calorie foods, drinks and chewing gum may cause softer stools.

- Fluid intake > 2 litres, more if breast-feeding or in warm climates. Caffeine is a gut stimulant and may exacerbate urgency. It is found in coffee, tea, cola and some chocolate. A reduction may be beneficial.
- Positioning on the toilet for effective evacuation.
- Loperamide and codeine phosphate are constipation medication and can be taken in titrated doses. They both prolong the transit time and loperamide has the added benefit of reducing the amount of internal sphincter relaxation in response to rectal distension.
- Treatment for haemorrhoids.
- Moist wipes or moist cotton wool is more effective for cleaning if there are haemorrhoids or a funnel shaped anus.
- Pelvic floor muscle exercise programme to treat weakness and dysfunction following pregnancy and vaginal delivery. Visual or vaginal assessment is required to identify any incorrect action which may exacerbate problems. Any programme planned must meet the needs of the individual woman, as it cannot be assumed that all women will have the same needs[13&14].
- Anal sphincter exercise programme based on the same principles as pelvic floor muscle exercises, to include maximal, sub maximal and fast twitch contractions in order to increase muscle strength, endurance and speed of reaction.
- Computer assisted biofeedback and neuromuscular stimulation are treatments that may be provided by specialist continence advisors or continence physiotherapists for women with very weak muscle function.
- Resisting urgency – bowel habit training. A programme of gradually delaying bowel emptying, initially whilst sitting on the toilet and as control increases gradually move further away.
- Incontinence pads are designed to absorb urine and are not efficient in containing faeces. They do provide some protection against soiling of outer clothing and are worn by some women 'just in case'. Faecal material on the skin can cause soreness or excoriation, so skin care is required. Small amounts of passive leakage of stool or mucous can be managed with a panty liner held in place between the buttocks with a thong type of pant. A manufactured anal plug is available in the UK. This is placed in the rectum and prevents small volumes of passive leakage. The plug may be poorly tolerated by individuals with normal sensation, as they can feel it in place, but the method of educating the user of this aid can influence the acceptability. It can be of help in situations where it is essential that no leakage occurs

Norton et al at St Mark's Hospital, London, UK, have undertaken research in to the effectiveness of 'conservative' treatment provided for patients attending a specialist centre. An evaluation of a package of care found that two-thirds of patients were cured or improved in the short term. A subsequent controlled study comparing patients who received advice, teaching and information with those who also did exercises, had biofeedback and exercises or in addition a home exercise machine, found no significant difference between the groups[12]. A more recent study by Heymen et al found that biofeedback to be superior to pelvic floor muscle exercises alone in a group of patients for whom conservative medical management alone had failed.[15]

It is important that women who have sustained anal sphincter injury to inform their obstetrician or midwife in the event of a subsequent pregnancy and to say if they have any remaining bowel control problems. This will be taken in to consideration when planning the mode of their next delivery. Primary care nurses and Health Visitors who deal with public health issues are the people most likely to have contact with women who do not have another pregnancy. It is recognised that women are

reluctant to report symptoms or concerns, but when opportunities arise, sensitive questioning may elicit information. Advice may be given or referral on to their general practitioner or continence advisory service may be appropriate.

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Recommended Reading

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Web sites

www.perineum.net
www.rcog.org.uk

Dietary Advice for Lower Bowel Dysfunction
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Fecal incontinence and constipation are common disorders of lower bowel dysfunction. Fecal incontinence occurs in approximately 10% of community living individuals and 40% of nursing home residents (Shamliyan, Wyman, Bliss, Kane, & Wilt, 2007). The prevalence of constipation in the United States is estimated at 2% to 28% (Higgins & Johanson, 2004; Sonnenberg & Koch, 1989; Stewart et al., 1999) and 12.5% in nursing home residents (Robson, Kiely, & Lembo, 2000). Conservative management of these conditions often includes dietary modification.

Fecal Incontinence

Research about dietary interventions for fecal incontinence is in its early stages. Bliss, Fisher & Savik (2005) was among the first to document the use of diet modifications by community-living individuals to manage fecal incontinence and then subsequently described the nature of those modifications (Croswell, Bliss, & & Savik, 2010). Individuals with fecal incontinence not only change their diet intake but alter their preparation of foods and eating patterns in an attempt to alleviate their symptoms (Croswell et al., 2010). Some patients consume select foods with a therapeutic intent to prevent leakage of feces or firm the consistency of stools. As one-third of community-living individuals with fecal incontinence do not seek professional help from health care providers ((Bliss, Fischer, Savik, Avery, & Mark, 2004; Bliss et al., 2005; Johanson & Lafferty, 1996)), many individuals rely on these self-care approaches (Peden-McAlpine, Bliss, & Hill, 2008).

A survey of approximately 1,300 community-living elderly persons who visited a general health clinic revealed that 242 of them had fecal incontinence, and 25% of those changed their diet or avoided certain types of foods as part of their self-care for fecal incontinence (Bliss et al., 2004; Bliss et al., 2005). Women and men differed in the practices they used for managing fecal incontinence, and more than twice as many women as men changed their diet or skipped meals. Results of an interview of 188 community-living adults with fecal incontinence agreed with this finding. 40% of women avoided foods to reduce fecal incontinence while only 18% of men did ($p = .008$) (Croswell et al., 2010).

Community living adults in two different descriptive studies (Croswell et al., 2010; Hansen, Bliss, & Peden-McAlpine, 2006) identified similar types of foods that were perceived to worsen the severity of fecal incontinence; these foods were commonly avoided or their amounts restricted. The aggravating foods included fatty/greasy foods, spicy foods, ethnic dishes, dairy products, and raw vegetables common in salads. Cruciferous foods (e.g., nuts, popcorn) were avoided by some, and foods that produced gas (e.g., broccoli, beans) were restricted by those who leaked stool with flatus. In one study (Croswell et al., 2010), 11% of 188 subjects reported that caffeinated drinks (e.g., coffee, colas) and foods (e.g., chocolate) worsened fecal incontinence, and 4% reported that alcohol worsened fecal incontinence, but few (2% and 1% respectively) avoided these beverages. Although adverse effects of diet manipulation are a risk, Bliss et al. (2000) found no significant difference in the nutrient composition of persons with fecal incontinence compared to age and gender matched control subjects with normal gastrointestinal function. In addition to diet intake, perceptions about food effects influenced meal preparation. For example, in order to reduce dietary fat, which was thought to aggravate fecal incontinence by some individuals, foods were baked rather than fried. Others carefully selected spices and even changed spices in familiar recipes (Croswell et al., 2010).

Gender differences

Men and women differed in their perceptions about the effects of food on fecal incontinence (Croswell et al., 2010). More women than men perceived that fatty/greasy foods, fruits, and alcohol worsened their fecal incontinence. More than one-third of women ate foods to prevent or reduce fecal incontinence, which was twice as many as men who used food in this manner (18%). Examples of therapeutic foods were yogurt, high fiber breads and cereals, bananas, and apples. Self-selection of foods for reducing fecal incontinence was often based on recommendations for other gastrointestinal disorders such as lactose intolerance and inflammatory bowel syndrome (Croswell et al., 2010; Hansen et al., 2006).

Dietary Fiber

Results from a random, controlled pilot study showed that ingesting a soluble fiber supplement, containing either psyllium (7 g/d) or gum Arabic (25 g/d), was associated with a significant decrease in the percentage of incontinent stools compared to a placebo (Bliss et al., 2001). The placebo group had the greatest percentage of incontinent stools of loose/unformed or liquid consistency. Findings support previous reports that loose/liquid stool consistency exacerbates stool leakage (Read et al., 1979). The mechanism underlying the beneficial effect of dietary fiber is undetermined. The group taking psyllium fiber had the highest water-holding capacity of stool solid suggesting a role of unfermented fiber residue in feces. These findings are consistent with those of a study of experimentally induced fecal incontinence in which 9 to 30 g/d of psyllium increased the water-holding capacity of stool solids (Wenzl, Fine, Schiller, & Fordtran, 1995). Formation of a gel in stool water is another possible effect resulting that has been shown after psyllium ingestions (Marlett, Kajs, & Fischer, 2000). Highly fermentable fibers are postulated to promote colonic water absorption, regulate motility, and increase fecal bacterial mass. Our team is currently completing analyses of a clinical trial comparing the effectiveness of different dietary fibers selected according to their level of fermentation. Findings may also offer knowledge of the mechanism of fiber's effects in fecal incontinence. Dietary fiber with at least a moderate level of fermatability is part of the recommended conservative management of fecal incontinence especially when stools are loose or liquid (Norton, Thomas, Hill, & Guideline Development Group, 2007; Rudolph & Galandiuk, 2002; Whitehead, Wald, & Norton, 2001)but additional evidenced-based recommendations regarding the optimal type and amount are needed.

Eating Patterns

Community-living individuals with fecal incontinence engage in numerous eating pattern alterations as part of their self-care practices. Several eating pattern changes appear aimed at preventing a public "accident" and embarrassment, including not eating in public or eating smaller amounts, or eating small amounts of food considered to be "safe" (Hansen et al., 2006; Hansen et al., 2006; Peden-McAlpine et al., 2008). Skipping meals was a practice used more by women than men. The meal skipped could be the one immediately prior to going into public, or a couple meals starting on the evening before going out might be skipped.

Constipation

Individuals with constipation or normal bowel pattern described effects of certain foods on stool consistency. A survey of 200 healthy people, 122 patients with chronic constipation, and 766 patients with constipation-type irritable bowel syndrome showed that chocolate, bananas, and black tea firmed stools; prunes and coffee softened stools (Muller-Lissner, Kaatz, Brandt, Keller, & Layer, 2005). Diet strategies to treat constipation include ingestion of a dietary fiber supplement, high fiber foods, mixes of fiber-containing foods (e.g., power pudding, "natural laxative" mix), increased water intake, and herbal tea; fibers with bulking, osmotic, and stimulant properties have been used, alone of in combination with a pharmacological laxative or probiotic (Anti et al., 1998; Bekkali, Bongers, Van den Berg, Liem, & Benninga, 2007; Beverly & Travis, 2002; Chassagne et al., 2000; Hinrichs, Huseboe, Tang, & Titler, 2001; Howard, West, & Ossip-Klein, 2000; Muller-Lissner, Kamm, Scarpignato, & Wald, 2005; Robson et al., 2000; Sairanen, Piirainen, Nevala, & Korpela, 2007; Tramonte et al., 1997; Vickery, 1997). Unlike fecal incontinence, there are numerous investigations of the effects of different dietary fibers on constipation; however, two systematic reviews showed few studies have adequate power, rigorous designs, or controlled methods to support high quality, relaible recommendations about dietary fiber (Kenny & Skelly, 2001; Tramonte et al., 1997).

An increase in stool weight and bowel movement frequency with dietary fiber intake is a well-known effect in individuals with normal gastrointestinal function. Tramonte et al. (1997) concluded dietary fiber and bulk laxatives can increase stool frequency in constipation. Data were inconclusive about the superiority of one of these treatments. Dietary fiber is less effective for constipation when transit is slow or dyssynergia is present (Cheskin, Kamal, Crowell, Schuster, & Whitehead, 1995; Voderholzer et al., 1997). The American Gastroenterological Association (American College of Gastroenterology Chronic Constipation Task Force, 2005) and the Registered Nurses Association of Ontario, Canada, (Benton et al., 2005))support use of dietary fiber for constipation. Amounts of bran fiber ranging from 1 to 6 tablespoons once or twice per day, psyllium, 7 g once to three times per day, and methylcellulose, 2 g once to three times per day have been used in practice (Hinrichs et al., 2001; Krauss et al., 1996; Wong & Kadakia, 1999). There is a lack of evidence about the amount and type of fiber that is effective in managing constipation. In a review of myths and misconceptions about constipation, Muller-Lissner et al. (2005) concluded that a lack of fiber in a diet may be a contributory factor for constipation; therefore, some patients with mild constipation, particularly those whose diet is low in fiber, may experience more frequent bowel movements from bulking fibers.

Regarding fluid intake, Mueller-Lissner (Muller-Lissner, Kamm et al., 2005) concluded that the available evidence does not support that constipation can be treated solely with fluid intake except in the case of dehydration. The fluid intake of persons with constipation and healthy controls has been shown to be similar (Muller-Lissner, Kamm et al., 2005; Towers et al., 1994) suggesting that fluid was not a

deficiency to be remedied. Findings of about the positive effects of increased fluid on stool frequency in constipation are inconsistent. A conservative bowel regime for constipation includes a combination of approaches in which dietary fiber and adequate fluid can be part (Doughty, 2002; Whitehead et al., 2001).

Advice

When making diet recommendations for managing fecal incontinence and constipation, clinicians are advised to ask the patient about any self-adopted practices as they are common. It is also advisable to ascertain whether the patient plans to continue their own restrictions and practices in addition to those clinically recommended. In addition to a stool diary, asking the patient to complete a record of their diet and eating patterns for several days provides useful information to review.

For patients who leak loose or liquid stools, a supplement of fermentable dietary fiber may improve symptoms; for example, 7 g/d of psyllium has reduced leakage and been well tolerated (Bliss et al., 2001). Discussing patient-reported diet restrictions, such as fat/fatty foods, spicy foods, cruciferous foods, caffeine and alcohol, and some vegetables/fruits may elicit insight into strategies individuals have found successful and offer guidance to others. Consuming prunes and raisins may be helpful in stimulating rectal emptying. Individuals who leak stool during flatus may benefit from limiting gas producing foods. Reviewing eating patterns may also offer some situational strategies.

For constipation, dietary fiber influences stool frequency and consistency in healthy persons but its ability to achieve a therapeutic effect for constipation is less. As with fecal incontinence, individuals with constipation report that effects of food on stool consistency that require additional investigation. There is evidence to suggest that targeting dietary fiber use to certain types of constipation may promote its effectiveness. Because dietary fiber and fluid intake is often below recommended levels, achieving an intake of 25-30 g/d of dietary fiber and 1,500-2,000 ml/d of fluid/d may be a first step and can be followed with incremental amounts of bulking or osmotic supplements. Many diet modifications in use in practice lack an adequate evidence-base and additional research is encouraged.

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Neurological bowel management, laxatives and irrigation

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Neurological bowel management

Bowel symptoms are common in major neurological disease or injury. In multiple sclerosis (MS), constipation and/or faecal incontinence affects 39-73%, and there is a considerable overlap between the two symptoms (1). Bowel dysfunction is a significant consequence of spinal cord injury (SCI) resulting in faecal incontinence and severe constipation (2;3). These dysfunctions necessitate regular, frequent, often demanding programmes of management. Bowel management and associated problems have been increasingly recognised as important factors in post injury community reintegration and quality of life (4). New-onset faecal incontinence affects up to 56% of individuals acutely after stroke, 11% at 3 months, and up to 22% at 12 months (5;6). Constipation is recognised as a serious problem in clinical practice, affecting 60% of those in stroke rehabilitation wards. Faecal incontinence (FI) may develop months after acute stroke and can be transient, consistent with constipation overflow as one possible cause (7).

There is some understanding of the pathophysiology of bowel dysfunction in neurological disease. However, the evidence base for managing these symptoms is

almost non-existent, with not one published high quality trial found in the whole world literature (8). Hence, bowel management is largely empirical (9).

It must be emphasised that not all symptoms of people with neurological disease can be attributed directly to the disease and the person with MS may have co-existing other factors exacerbating their bowel symptoms, such as a childbirth injury to the anal sphincter. An unexplained change in bowel habit or rectal bleeding should always trigger suspicion of bowel pathology and relevant investigations. Bowel problems remain very difficult to talk about for most people and professionals must give adequate opportunity to discuss these matters.

In the absence of experimental evidence for management (10), management remains traditional, usually including a combination of diet, planned evacuation, medications, with or without digital stimulation and manual evacuation (11).

Drug management and laxatives

Drug treatment for FI aims to modify gut motility, increase sphincter pressures, or to achieve complete evacuation. The evidence base is very limited (12), and as most of the medication used is off patent, it does not seem likely that large new studies will be developed.

Loperamide ("Imodium") is seen as the drug of first choice in patients with FI associated with loose stool, urgency, or passive loss of soft/liquid stool (13). It has several potentially helpful modes of action, including reducing colonic motility and increasing colonic water re-absorption, thereby firming stool consistency, dampening the gastro-colic response, and raising anal sphincter pressures (14;15). Loperamide is well tolerated by the majority of patients, and is safe in doses up to 16mg daily, although many patients obtain benefit from 2-4mg daily or PRN. Onset of action is within 30-60 minutes, so it is useful on a PRN basis and most patients do not seem to need to escalate the dose over time. Patients with post-prandial urgency should take loperamide 30 minutes before eating. Those with early morning urgency can take a dose at night. Those who fear going out should take it before activities.

Constipation seems to be only common side-effect, which is intentional. If the capsule/tablet formulation of loperamide constipates too much, a liquid version can be used and very small doses titrated to individual needs (as low as ½ to 1mg). Codeine phosphate is an alternative if loperamide is not tolerated, but is associated with more side effects, the most troublesome of which is drowsiness, and development of tolerance and even dependence. Loperamide and codeine can be combined in severe diarrhoea, although obviously unexplained diarrhoea needs prior investigation. A few patients with FI that cannot be controlled in any other way will deliberately choose to take enough medication to stop all spontaneous bowel evacuation and then use suppositories or an enema to empty the bowel at their own convenience and a predictable time. The only study of this was in a nursing home setting (16), where success was good if compliance was achieved.

Other constipating drugs can have an incidental beneficial effect on FI, and as urinary and faecal incontinence so often co-exist, this can be harnessed, for instance drugs with anticholinergic effects may improve both conditions. Conversely, many drugs have an unintentional effect of loosening stool and modifying a drug regimen

can improve FI symptoms (e.g. oral diabetic medication, non-steroidal anti-inflammatories or antibiotics).
Patients with FI associated with incomplete evacuation may use a suppository or mini-enema to achieve more complete evacuation. Some of the bulking agents used for constipation may improve stool consistency and FI. There is a very limited evidence base for the selection of oral or rectal laxatives (17;18) and no real alternative to a trial and error approach with each individual patient.
A more recent approach is to attempt to modify anal sphincter activity pharmacologically. Phenylephrine raises internal anal sphincter pressure in healthy volunteers and is clinically useful in patients with anal leakage secondary to formation of an ileo-anal pouch, especially at night (19;20). However, its value in patients with impaired sphincter function may be less (21) and it has not yet reached the market. Other approaches are in development, and it is not known if drugs developed for the treatment of stress urinary incontinence might be helpful.

Rectal irrigation
Rectal irrigation with tap water has been found in a randomised controlled trial to improve bowel management, constipation and faecal incontinence in patients with problematic bowel management following spinal cord injury (22). This warrants further evaluation in other populations as uncontrolled case series report possible efficacy in FI (23-25).

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