



**Department of Rehabilitation Services
Physical Therapy**

Standard of Care: Anorectal Disorders

ICD 10 Codes:

Constipation (outlet dysfunction): K5902
Anal Spasm: K594
Constipation (NEC): K5900
Other Specified Diseases of Anus or Rectum: K6289
Fecal Incontinence (full): R159
Fecal Incontinence (incomplete emptying): R150
Fecal Incontinence (smearing): R151
Fecal Incontinence (fecal urgency): R152

Additional ICD-10 codes that may be used to address common coexisting impairments:

Pelvic muscle wasting: N8184
Rectocele: N816
Muscle spasm: M62838

Case Type / Diagnosis: dyssynergic defecation (outlet dysfunction); slow transit constipation, fecal incontinence, anorectal pain/Levator Ani Syndrome, proctalgia fugax

Anorectal disorders encompass multiple diagnoses including: dyssynergic defecation, fecal incontinence and levator ani syndrome, all of which are evaluated and treated in pelvic health physical therapy. The current Rome IV diagnostic criterion (released in May 2016), which is the standard for clinical practice and research for functional gastrointestinal disorders, recognizes several anorectal disorders, including: fecal incontinence, functional anorectal pain, and functional defecation disorders and functional constipation.¹ Please refer to the tables below for complete review of the Rome IV diagnostic criteria for each condition.^{1,2} Anorectal disorders are common and affect up to 25% of the adult and pediatric population, causing a significant negative impact on quality of life and a burden to health care.³

The exact definition of fecal incontinence and anal incontinence is important in differential diagnosis for the pelvic floor physical therapist. Fecal incontinence, (FI) as defined by Bharucha, is uncontrolled passage of fecal material recurring for less than or equal to 3 months and is not considered a medical problem before age four. FI is a common problem with prevalence ranging from 2-15% in community dwellers and as high as 50-70% of those in a nursing home. Prevalence is comparable or lower in men than women. Additional identified risk factors for FI include: age, diarrhea, and rectal urgency, as well as a variety of medical conditions.² However, leakage of flatus alone should not be characterized as FI. Anal incontinence is a term that refers to involuntary passage of flatus and or feces.

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Rome IV Diagnostic Criteria for Functional Fecal Incontinence^{1,2}
*Criteria fulfilled for the last 3 months
<ol style="list-style-type: none"> 1. Recurrent uncontrolled passage of fecal material in an individual with a developmental age of at least 4 years <ol style="list-style-type: none"> a. Stool leakage occurs at least twice in a 4-week period

Functional anorectal pain disorders, including proctalgia fugax and levator ani syndrome are determined based on the duration, frequency, and characteristic quality of pain. Other causes of anorectal pain must be excluded. The prevalence of anorectal pain in the US is estimated to be 6.6% and more common in women.²

Rome IV Diagnostic Criteria for Proctalgia Fugax^{1,2}
*For research purposes, criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis
<p>Must include all of the following:</p> <ol style="list-style-type: none"> 1. Recurrent episodes of pain localized to the rectum and unrelated to defecation 2. Episodes last from second to minutes, maximum duration of 30 minutes 3. No anorectal pain between episodes 4. Exclusion of other causes of rectal pain such as inflammatory bowel disease, intramuscular abscess and fissure, thrombosed hemorrhoids, prostatitis, coccygodynia, and major structural alterations of the pelvic floor

Rome IV Diagnostic Criteria for Levator Ani Syndrome^{1,2}
*For research purposes, criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis
<p>Must include all of the following:</p> <ol style="list-style-type: none"> 1. Chronic or recurrent rectal pain or aching 2. Episodes last 30 minutes or longer 3. Tenderness during traction on the puborectalis 4. Exclusion of other causes of rectal pain such as inflammatory bowel disease, intramuscular abscess and fissure, thrombosed hemorrhoids, prostatitis, coccygodynia, and major structural alterations of the pelvic floor

Rome IV Diagnostic Criteria for Unspecified Anorectal Pain¹
<ol style="list-style-type: none"> 1. Symptom criteria for levator ani syndrome but no tenderness during posterior traction on the puborectalis

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Per Rome IV, functional defecation disorders have two subcategories: dyssynergic defecation (DSD) and inadequate defecatory propulsion.¹ The difference being the former has adequate intra-rectal propulsion forces and the latter does not regardless of whether appropriate relaxation or inappropriate contraction occurs. Functional defecation disorders are characterized by paradoxical contraction or inadequate relaxation of the pelvic floor muscles during evacuation or inadequate propulsive forces during attempted defecation.

Dyssynergic defecation is failure of the pelvic floor muscles to relax, specifically the puborectalis, and the external anal sphincter when attempting to defecate. Patients with dyssynergy of the pelvic floor muscles may even contract these muscles further inhibiting defecation.^{4,5,6} Twenty- five to 50 percent of those with constipation have dyssynergic-type constipation.^{5,6} Of note however, two different research teams have found that more than 80% of healthy controls show evidence of paradoxical contraction or failure to relax the pelvic floor muscles with simulated defecation, calling into question current diagnostic criteria for DSD.¹

In order to have a functional defecation disorder, one needs to meet the definition of functional constipation or irritable bowel syndrome with constipation (IBS-C). Functional constipation is commonly classified as either slow transit of the colon, normal transit constipation or outlet delay constipation (aka. functional defecation disorders). According to the Rome IV diagnostic criteria listed below, constipation can be diagnosed even in patients with constipation-predominant or mixed IBS.¹ Along with the criteria shown below, it should also be noted that although the Rome IV criteria assist with defining and managing functional gastrointestinal disorders, there is overlap between categories and they are not all inclusive. A patient can present with one or more types of constipation as well as functional GI disorders. Some research suggests that there is considerable overlap of patients with DSD and slow transit constipation.⁸⁻¹⁰ Per Chiaroni, patients with DSD may have delayed whole gut transit and may exhibit an abnormal Sitzmark test result.¹⁰ Therefore, they may be diagnosed with slow transit constipation although a more thorough evaluation would find them to have DSD.

It should be noted that Rome IV defines functional constipation excluding constipation from secondary sources such as medications, anal cancer, hypercalcemia, hypothyroidism, anorectal disease or from obstructive lesions (examples are: rectocele, rectal prolapse, neoplasms or Hirschsprung's disease). Some would define these exclusions as secondary constipation; furthermore, the later obstructive lesions are sometimes referred to as obstructed defecation.^{1,2}

As previously stated, functional constipation (or primary constipation), is sometimes subdivided into different groups: slow transit/colonic inertia, normal transit constipation, and outlet delay constipation.¹¹ Slow transit constipation has delayed emptying of the proximal colon with less peristaltic contractions.⁴ About 13 % of those with primary chronic constipation exhibit reduced peristalsis. Normal transit constipation is when the feces passes through the colon at a normal pace and defecatory frequency is normal. However, patients complain of difficulty with evacuation and may perceive that their stools are hard even when the consistency may be normal; these patients may later be reclassified as having outlet delay.⁴ These subtypes of chronic constipation have no symptom based criteria that can effectively identify the difference between them, and they may coexist.¹² As noted, the terminology surrounding constipation can be very confusing.

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Rome IV Diagnostic Criteria for Functional Defecation Disorders²

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

1. The patient must satisfy diagnostic criteria for functional constipation and/or irritable bowel syndrome with constipation
2. During repeated attempts to defecate, there must be features of impaired evacuation, as demonstrated by 2 of the following 3 tests:
 - a. Abnormal balloon expulsion test
 - b. Abnormal anorectal evacuation pattern with manometry or anal surface EMG
 - c. Inadequate rectal evacuation by imaging

Rome IV Diagnostic Criteria for Dyssynergic Defecation²

Inappropriate contraction of the pelvic floor as measured with anal surface EMG or manometry with adequate propulsive forces during attempted defecation.

*These criteria are defined by age- and sex-appropriate normal values for technique

Rome IV Diagnostic Criteria for Inadequate Defecatory Propulsion²

Inadequate propulsive forces as measured with manometry with or without inappropriate contraction of the anal sphincter and/or pelvic floor muscles.

Rome IV Diagnostic Criteria for Functional Constipation¹

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

1. At least 2 or more of the following:
 - a. Straining during > 25% of defecations
 - b. Lumpy or hard stools (BSS 1-2) with > 25% of defecations
 - c. Sensation of incomplete evacuation > 25% of defecations
 - d. Sensation of anorectal obstruction/blockage for > 25% of defecations
 - e. Manual maneuvers to facilitate > 25% of defecations (e.g., digital evacuation, support of the pelvic floor)
 - f. Fewer than three defecations per week
2. Loose stools are rarely present without the use of laxatives

Constipation is a common disorder affecting anywhere from 4% of the US population to 27% of the North American population.⁴⁻⁶ Constipation is associated with significant costs, up to \$235 million dollars a year on direct costs, and has adverse effects on one's quality of life.^{9,11} On an annual basis, 0.4 days are lost due to constipation.¹³ Additionally, those with defecation difficulties showed significant impairments of the Health Survey Questionnaire.⁶ Even more noteworthy is the correlation between prepartum dyssynergic defecation and increased anal sphincter tears during childbirth. Marchand conducted a retrospective case control study on 549 primiparous women and found that anal sphincter tears were 2.94 times higher for those women with dyssynergic defecation.¹⁴ In this case, dyssynergic defecation could have further financial

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and health implications as anal sphincter tears are associated with an increased incidence of fecal and urinary incontinence.¹⁴

Constipation is more prevalent in women than men (the median being 2.2 times), in nonwhites than in white people (1.68 times), and in the elderly more than in younger adults.^{8,11} Risk factors for constipation include physical inactivity, low income, limited education, reduced caloric intake, increasing age, a history of sexual abuse and depression.^{8,11}

Indications for Treatment:

The primary indications for treatment in this patient population include:

- Decreased pelvic floor muscle coordination
- Decreased bowel movements/need for laxatives/enemas
- Sensation of incomplete bowel emptying
- Rectal pain with or without defecation
- Fecal smearing
- Fecal incontinence
- Impaired bowel habits

Some secondary indications can include:

- Flatulence incontinence
- Limited social activities due to symptoms
- Active hemorrhoids
- Anal fissures

Contraindications / Precautions for Treatment: ^{15, 16}

The following are common precautions which must be considered in the management of the patient with rectal dysfunction:

For rectal and vaginal exam

Precautions/Contraindications (with expressed written MD consent, exam can be performed):

- Immediately post-partum (up to 6-8 weeks)
- Immediately post-pelvic, post-rectal or post-vaginal surgery (up to 6-8 weeks)
- Immediately post-pelvic radiation treatment
- Pregnancy

Absolute Contraindications:

- Active infectious lesions (e.g. Herpes)
- Active infections of rectum, pelvis, vagina or bladder
- Absence of patient agreement or cognitive understanding of the procedure
- Absence of previous rectal or pelvic exam in pediatrics
- Inadequate training on the part of the physical therapist to perform exam

Additional Notes:

Menses is not a contraindication for management of the patient with rectal dysfunction. The therapist must use caution and monitor patient response with severe atrophic vaginitis, pelvic

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pain, history of sexual abuse. For either a rectal or vaginal exam, obtain consent and document consent, offer a second person in room, and maintain as much eye contact as possible.

Evaluation:

Medical History: Previous physical therapy interventions, rectal, pelvic, abdominal surgeries or history of cancer and cancer treatment, obstetric history, and other relevant neurological or musculoskeletal issues that may affect defecation such as hip or back surgery, pudendal nerve injury, multiple sclerosis, neuropathy.

History of Present Illness: Onset and course of current symptoms/diagnosis, detailed current bowel and bladder habits (see pelvic floor evaluation), sexual dysfunction, pelvic/rectal pain, diet, fluid/fiber intake. Issue bladder and bowel diary on first visit for an outcome survey (refer to Appendix 1), hemorrhoids, fissures, abdominal bloating or irritable bowel syndrome (IBS), Bristol Stool Chart for fecal consistency, previous treatments, diagnostic tests and work up, results, laxative and or enema use, and the next MD appointment to follow up on condition.

Some specialized tests may include: ^{3, 15, 18}

Colonic transit time: Using a radio-isotope material, this test determines the time it takes for a substance to enter the colon and move through it to be excreted.

Anorectal manometry: Using a balloon inserted into the rectum, this test measures resting and squeezing anal canal pressure, rectal sensation and rectal compliance.

Rectal balloon expulsion test: In this test the patient attempts to expel a water or air filled balloon in rectum.

Pudendal Nerve Terminal Motor Latency: Recording electrodes are used to stimulate the pudendal nerve to determine if pudendal neuropathy is present.

Endoanal Ultrasound: Is a test used to identify anal sphincter defects.

Defecography/Dynamic Proctography: Contrast material is placed in the patient's rectum and the patient is asked to squeeze, cough or expel the contrast material in order to examine anorectal anatomy and to determine if patient can relax their pelvic floor muscles to expel the contrast material.

Needle Electromyography of the External Anal Sphincter: This test is used to assess activity at rest, motor unit potential amplitude and duration, and recruitment which is a sensitive measure of denervation.

Dynamic Pelvic MRI: This is a test of visualization of sphincter and pelvic floor at rest, with contraction and with associated Valsalva movements.

Flexible Sigmoidoscopy: This endoscopic exam looks at the rectum and lower large intestine.

Colonoscopy: This is an exam of entire large intestine

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Plain abdominal radiograph: This test is used to determine the presence of stool in the colon

Social History: Social history can include the following items for consideration: the home environment, work environment, exercise habits, leisure activities, stressors, accessibility or limitation to a bathroom, support systems needed, patient's physical disability, need for home bedside commode or railing in bathroom, and the patient's goals and expectations.

Medications:

Medications that can affect current problems and contribute to constipation:¹⁷⁻¹⁹

Analgesics (opiates, NSAIDS, narcotics)

Anticholinergics (atropine agents, antidepressants, neuroleptics, antipsychotics, anti-parkinsonian drugs)

Anticonvulsants

Antihistamines

Antihypertensives

Chemotherapeutic agents

Diuretics

Metal Ions (antacids, calcium, iron, mercury, arsenic)

Muscle relaxants

Resins: such as bile binding resins cholestyramine, colestipol, welchol

Medications that can promote Fecal Incontinence:

Prolonged antibiotics as it can cause loose stools

Examination:

The examination is intended to capture the most commonly used assessment tools for this case type/diagnosis. It is not intended to be either inclusive or exclusive of assessment tools. Please refer to the Standards of Care for Urinary Incontinence and Female Chronic Pelvic Pain for detailed vaginal examination including: obtaining informed consent for evaluation, detailed abdominal exam, a more detailed sensory function of the lumbosacral dermatomes, PFM external and internal observation and palpation, and information of the Modified Oxford Scale.²⁰

Rectal PFM assessment should include the following¹⁵:

- External observation of the skin of the perineum, including anal triangle, buttock and thigh looking for discoloration, irritations, swelling, inflammation, active external hemorrhoids, lesions
- Observation of the perineal body mobility for recruitment, coordination and symmetry of the pelvic floor and sphincter activity, including voluntary and involuntary pelvic floor muscle contraction and relaxation. The absence of voluntary and or involuntary PFM relaxation may be associated with pain, constipation, and dyssynergia, whereas the absence of voluntary and or involuntary pelvic floor muscle contraction can be associated with fecal incontinence).²¹⁻²³
- Palpation of external rectal structures to assess for tenderness, tone, asymmetry, S3 sensation, spasm, scar mobility
- Reflex testing of the anal wink reflex to assess the hemorrhoidal branch of the pudendal nerve

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- Internal examination of the external anal sphincter (EAS) and deep pelvic diaphragm muscles to include: muscle bulk, symmetry, scars, pain, tone, MMT of the EAS and puborectalis using the Modified Oxford Scale ^{24,25} (see Urinary Incontinence Standard of Care) noting accessory muscle use, hold time, repetitions, quick contractions.)
 - Internal digital rectal examination has a 75% sensitivity and 85% specificity for detection of dyssynergia²

In addition to a rectal possibly a vaginal exam may be needed. The evaluation components should include the following:

Pain: Patient's perception of pain.

Palpation: hips, abdominals, lower back for trigger points

ROM: gross assessment of hips, pelvic, lumbar, sacral, coccyx area

Strength: grossly of lumbar spine, hips, lower extremities

Sensation: lumbosacral dermatomes

Posture/alignment: pelvic alignment and spinal alignment

Function: bladder and bowel functioning, vaginal or rectal penetration, general ability to perform ADLs including but not limited to: ability to ambulate to bathroom and toileting hygiene

Quality of Life Questionnaires:

Pelvic Floor Distress Inventory- short form ²⁰²⁶

Pelvic Floor Impact Questionnaire-short form ⁷²⁶

Constipation Scoring System²⁷

Patient Assessment of Constipation Quality of Life Questionnaire²⁸

Patient Assessment of Constipation Symptoms Questionnaire²⁹

Continence Grading Scale: A Symptom Index³⁰

Fecal Incontinence Severity Index (FISI) ^{31,32,32}

Fecal Incontinence Quality of Life Scale³¹

Birmingham Bowel and Urinary Symptom Questionnaire (BBUS-Q) ³³

The King's Health Questionnaire (KHQ) ³⁴

Surface Electromyography (sEMG): sEMG can be used to assess pelvic floor muscle activity; including: resting level of tension, muscle recruitment, stability of muscle contraction, muscle derecruitment, (the inability to derecruit muscles after a contraction) , poor recruitment with a contraction, increased recruitment while trying to elongate and open the pelvic diaphragm and EAS with simulated defecation. EMG has been shown to be valid as it measures the presence or absence of muscle activity.³⁵ Between-trial reliability ranges on the same day ranges from 0.58 to 0.98 however between-day reliability was poor. ³⁶ Surface EMG can be a helpful tool to promote improved voluntary awareness and control of pelvic floor muscles to promote improved symptoms of either constipation or fecal incontinence.³⁷

Assessment:

When working with patients with rectal dysfunction, the following goals are suggested in the following diagnostic categories:

- Fecal Incontinence: restored pelvic floor muscle coordination including voluntary pelvic floor muscle contraction to promote retaining stool and voluntary and involuntary relaxation to promote complete bowel emptying

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- Anal Pain: restored pelvic floor muscle coordination, including voluntary pelvic floor muscle contraction and relaxation and involuntary relaxation to promote reduced pain, including reduced pain with defecation
- Constipation: restored pelvic floor muscle coordination including complete pelvic floor muscle voluntary and involuntary relaxation to promote bowel emptying
- Assessment will assist with establishing appropriate diagnosis and need for skilled services including referral to other disciplines as indicated, especially as related to need for motility assistance (i.e.: laxatives, secretagogues, stool bulking agents, anti-diarrheal agents, etc)

Problem List: The following may be included but not limited to:

- Impaired voluntary and or involuntary pelvic floor muscles contraction and or relaxation
- Impaired PFM strength
- Impaired pain control
- Impaired use of PFM with Valsalva maneuvers
- Impaired defecation pattern
- Impaired toileting position
- Impaired bowel consistency
- Impaired fluid and fiber intake
- Impaired skin integrity
- Impaired knowledge of proper bowel and bladder habits

Prognosis:

The patient’s prognosis is dependent on the specific dysfunction that exists, whether anal pain, fecal incontinence, or constipation. It is expected that their symptoms are ameliorated and bowel function is improved within 8 weeks. Prognosis can be affected by:

- Extent of pathology
- Duration of symptoms
- Social or environmental barriers that may impact progression
- Psychological status

There is Level 1, Grade A strength of evidence for using biofeedback therapy for the short and long term treatment of constipation with dyssynergic defecation.³ Physical therapy and sEMG use for constipation have been shown to be successful in treating those patients with dyssynergic defecation for subjective measures such as scores on quality of life measurements, mean stool frequency, degree of straining, and decrease in laxative use.³⁸⁻⁴⁰ Biofeedback for dyssynergic defecation is shown to be superior to laxatives, sham feedback, standard therapy, placebo, and diazepam.⁴¹ Additionally, biofeedback therapy provided sustained improvement of bowel symptoms and anorectal function in constipated patients with dyssynergic defecation one year later, whereas standard therapy was largely ineffective.³⁸

Level II, Grade B evidence exists for use of biofeedback for treatment of FI.³ Biofeedback and PFME was superior to PFME alone in treatment of FI at 3 months and 12 months follow-up.⁴² Furthermore, PFM exercise with biofeedback and weekly in-clinic visits was successful in significantly improving FI and quality of life reports with results maintained 2 years later.⁴³

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Additionally, biofeedback has also been shown to be effective in patients with chronic anal pain and specifically, Levator Ani Syndrome, Level III, Grade C).³ In Abraham’s study (level B evidence), which was based on good, consistent scientific evidence, there was strong support of the use of physical therapy in the treatment of chronic pelvic pain.⁴⁴

Goals:

Goals should be individualized for each patient, taking into consideration any emotional responses the patient may have with treatment. Short term goals should be met in 4 weeks, and long term goals should be met by discharge. Below are examples of some goals:

- Patient’s pain will decrease to less than or equal to x/10 on verbal pain scale.
- Patient will have normal voluntary/involuntary pelvic floor muscles relaxation/contraction.
- Patient will be able to coordinate PFM for normal defecation patterns greater than ___percent of bowel movements.
- Patient will have improved their fluid and fiber intake to assist with bowel consistency to promote stool consistency to Bristol Stool Scale range 3, 4, and 5.
- Patient will demonstrate proper toileting techniques/positioning.
- Patient will demonstrate pelvic floor muscle relaxation of the anus with digital exam when asked to bear down as if defecating 8/10 trials.
- Patient will increase PFM strength by .5 to 1 MMT grade to promote 75% reduction in fecal incontinence.
- Patient will report at least 75% reduction in anal pain to promote pain free bowel movements.
- Patient will decrease fecal incontinence/smearing episodes to ___.
- Patient will demonstrate a reduction or maintain reading in rectal EMG resting level when asked to bear down as if defecating 8/10 trials.
- Patient will score less than 15 on Constipation Scoring System or Patient will score ___ points less on the Constipation Scoring System.

Treatment Planning / Interventions:

Established Pathway	<input type="checkbox"/> Yes, see attached.	<input checked="" type="checkbox"/> No
Established Protocol	<input type="checkbox"/> Yes, see attached.	<input checked="" type="checkbox"/> No

Note: This section is intended to capture the most commonly used interventions for this case type/diagnosis. It is not intended to be either inclusive or exclusive of appropriate interventions.

Manual Therapy

Manual therapy techniques can be used to initially facilitate patient identification of the pelvic floor muscles for PFM uptraining, downtraining, and coordination. Again, digital rectal exams have a 75% sensitivity and 87% specificity for detecting dyssynergia, highlighting the importance of manual assessment as an integral part of biofeedback.² Application of soft tissue mobilization of pelvic floor muscles and pelvic region scar tissue can be used to decrease pain, trigger points, elongate tissue and improve local blood flow (via internal rectal or vaginal or external perianal methods). The use of manual techniques rectally can exhibit a reduction in resting anal canal pressure for some patients with rectal pain.⁴⁵

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Soft tissue mobilization or joint mobilization of the abdomen, hips, pelvic area may also be needed to address tissue or joint restrictions that may contribute to dysfunctional defecation.

Refer to Female Chronic Pelvic Pain Standard of Care for further pain relief methods.²⁰

Abdominal/colonic massage has been shown to increase peristalsis, relieve flatulence, and promote positive psychological effects.⁴⁶ Abdominal massage of the ascending, transverse, and descending colon may be effective in regulating bowel movements and decreasing medication used for constipation through improvements of intestinal motility when performed on a daily basis. Start with the descending colon, then the transverse colon, and then ascending colon, moving proximal to distal with each segment.⁴⁷

PFM Reeducation, Strengthening, Postural Education:

Stronger PFMs may result in a stronger defecation urge.¹⁸ In addition, education regarding pelvic floor relaxation and coordination during toileting needs to be addressed in order to have a successful bowel movement (see below sEMG), and to promote improved bowel emptying for reduced symptoms of both constipation and fecal incontinence.

Once the patient is able to correctly relax the PFM, then uptraining or strengthening of the PFM can begin. Please refer to the Urinary Incontinence and Female Chronic Pelvic Pain Standards of Care²⁰ for more detailed information on strengthening (uptraining), PFM relaxation (downtraining), as well as postural influence on the PFMs as these will need to be addressed depending on patient's evaluation findings.

Modalities:

Surface EMG and or electrical stimulation rectally and or vaginally can be used for improved coordination, strength and/or relaxation of pelvic floor muscles and function of anal-sphincter muscles. Surface EMG preferably rectally (or vaginally) can be used in the clinic while the patient is on the commode for functional simulation of defecation (relaxing muscles and coordinating this relaxation with abdominal maneuvers as needed to enhance the entry of stool into the rectum as well as for expulsion in an upright, functional position.⁸

Although there are many forms of biofeedback (manual, visual, sEMG, manometry, rehabilitative ultrasonic imaging (RUSI), many studies use pressure EMG in their treatment protocols.³⁷ Systematic review of *uncontrolled* biofeedback studies for DSD reveals a 67 percent success rate improvement with physiologic outcomes and clinical outcomes compared with baseline; efficacy criteria included effective straining (PFM relaxation with defecation), number of bowel movements per day or week, number of days without laxatives and other patient symptoms.^{5, 48, 49}

More recently, there have been some randomized controlled trials that have also supported the effects of sEMG on DSD.⁴⁹⁻⁵¹ Chiarioni, in a randomized controlled trial, concluded that sEMG sessions are more effective than the laxative polyethylene glycol in treating DSD and benefits remained at the 2 year follow up.⁵⁰ Effectiveness was based on subjective reports, greater reductions in straining, feelings of incomplete evacuation, use of enemas/suppositories, and abdominal pain. Additionally, sEMG treated patients exhibiting paradoxical increases during defecation had decreased from 100% to 16.7% at 6 months and two years later. Furthermore, patients who reported major improvements had decrease anal canal pressure and pelvic sEMG

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when straining.⁵⁰

Rao, in two different studies, one randomized and controlled, used pressure EMG as biofeedback tool and found a decrease in anal residual pressure, an increase in rectal sensation, improved balloon expulsion test results and subjective report improvements with stool frequency, straining, laxative consumption and elimination of the need for digital disimpaction among other improvement in those patients with dyssynergic defecation.^{38, 39}

As previously mentioned, research suggests that there is considerable overlap of patients with DSD and slow transit constipation as symptoms sometimes overlap.^{9, 10} In a non randomized study, seventy one percent of patients with DSD with slow transit constipation reported improvements with increase in frequency of bowel movements, decrease laxative use and straining, and increased ability to defecate a water filled balloon.¹⁰ Those patients in the slow transit constipation only group did show decreased dyssynergy and improved rectal pressure with straining.

Chiarioni found that use of sEMG was more effective in treating patients with levator ani syndrome (which pathophysiology is similar to dyssynergic defecation) than massage or electrical stimulation.⁴⁵

Other modalities that can be used:

- Ultrasound, rehabilitative ultrasonic imaging (RUSI) electrical stimulation, pressure manometry, dilators, as needed for biofeedback, strengthening, pain relief, muscle relaxation etc.
- Heating pack use to assist with GI motility. Applying heat to the lower pelvis or PFMs may assist with PFM relaxation which in turn may assist with bowel movement stimulation.

Refer to the Procedure Rehabilitative Ultrasound Imaging of the Lumbopelvic Region Procedure for more information on real time ultrasound use for pelvic floor retraining and biofeedback.

Fecal Consistency/Transit Time:

Encourage fluid and increasing fiber intake (as per patient's physician) to help bulk stool if stool is loose (# 6 and 7 on the Bristol Stool Scale) and soften stool if stool is hard (#1 and 2 on the Bristol Stool Scale)^{8, 19, 46} Fiber use is recommended at 20 to 35 mg daily at minimum according to Lembo and Wolfe^{8, 19}. However, there appears to be a paucity of evidence-based research regarding appropriate amount of fluids per day.^{52, 53, 54}

Additionally, the therapist should assess compliance of the patient with any physician recommended or prescribed laxatives, secretagogues or anti-diarrheal medication as it relates to transit time to facilitate symptom improvement.

Evacuation Habits:

Patients should be encouraged to respond to a call to stool and not rush off the toilet, as well as not to delay a call to stool. If a patient experiences infrequent urges to defecate, it can be recommended to attempt to evacuate 30 minutes after meals at similar times each day, not straining excessively, sitting for 5-10 minutes, to try to use the gastrocolic reflex, without straining.¹⁸

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Defecation Mechanics:

Instruct in proper toileting position to assist with PFM relaxation: sit fully on toilet, lean forward, rest forearms on legs for support, feet supported with knees higher than hips, supported by a foot stool to simulate squatting position.^{18,55-57} The relaxation of the PFMs and adjacent hip and abdominal muscle groups was studied in 20 healthy volunteer girls, 6 and 10 years of age who were placed in three different postures with their legs supported and unsupported. EMG amplitudes from the PFMs and adductor muscles were significantly higher in postures with unsupported legs compared to postures with supported legs ($p<0.05$).⁵⁵

Instruct in how to facilitate anal opening and PFM involuntary relaxation during defecation, “feeling the PFM descend and open”, keeping the mouth open and jaw relaxed to facilitate PFM relaxation, using abdominals to generate additional abdominal force with exhalation (some patients may do better with inhalation, but this should be assessed patient to patient). If unsuccessful, repeat above series a few more times and if still unsuccessful avoid straining and get off toilet and try again later.¹⁸

Some patients may need manual support to perineum secondary to pain postpartum pain, perineal descent, or rectocele support.¹⁸

Other:

- Educate regarding physiology of defecation and digestion which may include education on the anorectal angle, gastrocolic, recto-anal inhibitory reflex (RAIR), accommodation and intrinsic defecation reflexes
- Incorporate deep breathing and relaxation techniques both with and without defecation
- Provide stretches and or strengthening of hips/abdomen for imbalances that may positively or negatively affect PFMs
- Communicate with the physician regarding PRN medications that are used for relief of constipation or FI especially when patient does not understand how to properly administer for best effectiveness and assist with management per physician instruction
- Educate patients regarding any current medication that can affect digestion/bowel movement and have them discuss further with their prescribing MD

Frequency & Duration:

1x/week for 8 weeks, other possibilities include: 2x a week for 4 weeks, 1x a week to every other week for 4-8 weeks

Patient / Family Education:

See above interventions

Recommendations and Referrals to Other Providers:

Other members of the health care team that are important to consider include: gastroenterologist, colorectal surgeon, obstetrician/gynecologist, primary care physician, pain management physician, urogynecologist, urologist, counselor/therapist, and nutritionist or dietician.

Reevaluation:

Standard Time Frame: 30 days or less as appropriate

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Other Possible Triggers include: a significant change in signs and symptoms, blood in stool, worsening symptoms, new onset FI, new onset constipation, or a new onset of pelvic or rectal pain

Discharge Planning:

Commonly Expected Outcomes at Discharge:

Patient should be able to demonstrate proper pelvic floor muscle coordination to promote complete rectal emptying and minimize FI and/or pain episodes, proper toileting position and habits, and be able to use appropriate techniques for normal defecation. Patient's pain, if any, should be lessened or nonexistent. Patient should have improved coordination of pelvic floor muscles.

Patient's Discharge Instructions:

Patient is to continue with newly obtained proper toileting habits, diet modifications, and PFM coordination as part of their daily life. If any of the previous symptoms resurface or there is regression of symptoms, suggest to the patient to re-evaluate compliance with the home exercise program. Patient should be able to self analyze why symptoms have returned and modify the existing program so that symptoms are alleviated. If patient is having difficulty with this, they can email or call the physical therapist or set up appointment for reevaluation or call their referring MD.

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Appendix 1

BRIGHAM HEALTH



BRIGHAM AND
WOMEN'S HOSPITAL

Keeping a Record of Bowel Function

The main purpose of this diary log is to document your bowel function. At first, the log is used as an evaluation tool. Later, it will be used to measure your progress. **Please complete a bowel log every day for 7 consecutive days and bring it with you to your next appointment.** Your log will be more accurate if you fill it out as you go through the day. Nighttime bowel movements can be filled in when you arise in the morning.

INSTRUCTIONS:

Column 1- Date

- Record the date in which you are logging your bowel movement events.

Column 2- Time of Day

- Fill in the exact time of each event.

Column 3- Was Urge Present?

- Was an urge/need to defecate felt prior to each bowel movement?
- Y-YES= Indicates an urge was felt prior to your bowel movement and then specify where you felt the sensation:
 - A= Abdominally or R=Rectally
- N-NO= Indicates an urge was NOT felt prior to your bowel movement

Column 4- Bristol Stool Score

- Describe the “type” of stool using the Bristol Stool Chart located in the right column.

Column 5- Sense of Completion

- Following your bowel movement was a sense of completion felt?
- C-Complete= Indicates that you felt a sense of total completion following your BM
- I-Incomplete= Indicates that you did NOT feel a sense of total completion and then specify where you felt this sensation:
 - A= Abdominally or R=Rectally

Column 6- Were Manual Techniques Required?

- Were any manual techniques required to facilitate defecation?
- E-External= Indicates that you were required to apply manual pressure on an external location (ie abdomen, perineum) to assist with bowel movement
- V-Vaginal= Indicates that you were required to apply intra-vaginal manual pressure
- A-Anal= Indicates that you were required to apply intra-anal manual pressure

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- N-No= Indicates NO manual techniques were required to assist with bowel movement

Column 7- Accidental Bowel Leakage

- Record if an accidental bowel leakage event occurs and indicate the amount and “type” of stool using the Bristol Stool Scale located on the right column
- R- Residue on underwear
- P- Partial movement
- C- Complete loss

Column 8- Medications Taken for Bowels

- Record any medications that were taken for bowels.

Column 9- Comments

- Record any comments of importance related to your bowels.

BOWEL DIARY

PATIENT NAME/DATE OF BIRTH : _____



DATE	TIME	WAS URGE PRESENT? Y=YES/ N=NO & Location: A=Abdominal or R=Rectal	BRISTOL STOOL SCORE (See key in right column)	SENSE OF COMPLETION C=Complete I=Incomplete & A=Abdominal or R=Rectal	MANUAL TECHNIQUES REQUIRED? N=NO E=External V= Intravaginal A=Intra-anal	ACCIDENTAL BOWEL LEAKAGE QUANTITY R, P, C & Bristol Stool Score	MEDICATIONS TAKEN FOR BOWELS Laxatives, Enemas, Stool Softeners, (Fiber, Anti-diarrhea, etc.)	COMMENTS	BRISTOL STOOL SCALE	
									Type 1: Separate hard lumps, (hard to pass)	Type 2: Sausage-shaped, but lumpy
Example 3/24/19	7 AM	Y- R	4	C	N		Benefiber in AM, imodium	Bad day, had dairy in AM.		
	11 AM	N				R- 7				
									Type 3: Like a sausage but with cracks on surface 	
									Type 4: Like a sausage or snake, smooth & soft 	
									Type 5: Soft blobs with clear-cut edges 	
									Type 6: Fluffy pieces w/ ragged edges, mushy stool 	
									Type 7: Water, no solid pieces, entirely liquid 	

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