Pelvic Floor Dysfunction:
Workup and Management of Dyssynergic Defecation

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Disclosure

I have no financial disclosure or conflicts of interest with the presented material in this presentation
Constipation

- Economic and Social impact
  - Utilization of healthcare resources
  - Missed school or work
  - Psychological distress, Abuse and impact on quality of life
  - Sexual abuse reported in 22-48%
  - Physical abuse reported by 31-74% of constipated patients

Schiller LR. Aliment Pharmacol Ther 2001
Leroi et al. Dig Dis Sci 1995
Dyssnergic Defecation: What diagnostic tests are available?

- Digital rectal examination
- Anorectal manometry (ARM)
- Balloon expulsion test (BET)
- Electromyography of the pelvic floor (EMG)
- Barium defecography and MRI of the pelvic floor
1. Inspection
2. Perianal sensation and anocutaneous reflex
   - Normal, impaired, absent
3. Digital maneuvers: mass, tenderness, stool
   - Squeeze x 2
   - Bearing down x 2
     • Push effort, sphincter relaxation, perineal descent

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**Table 1. Components of the Technique and Expected Findings With a Detailed DRE**

<table>
<thead>
<tr>
<th>Examination component</th>
<th>Technique</th>
<th>Findings and grading of response(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection of the anus and surrounding tissue</td>
<td>Place patient in the left lateral position with hips flexed to 90°; inspect perineum under good light</td>
<td>Skin excoriation, skin tags, anal fissure, scabs, or hemorrhoids</td>
</tr>
</tbody>
</table>
| Testing of perineal sensation and the anocutaneous reflex | Stroke the skin around the anus in a centripetal fashion, in all 4 quadrants, by using a stick with a cotton bud | Normal: brisk contraction of the perianal skin, the anoderm, and the external anal sphincter
   Impaired: no response with the soft cotton bud, but anal contractile response seen with the opposite (wooden) end
   Absent: no response with either end |
| Digital palpation and maneuvers to assess anorectal function | Slowly advance a lubricated and gloved index finger into the rectum and feel the mucosa and surrounding muscle, bone, uterus, prostate, and pelvic structures | Tenderness, mass, stricture, or stool, and the consistency of the stool |
| Digital palpation | Assess strength of resting sphincter tone | Normal, weak (decreased), or increased |
| Squeeze maneuver | Ask the patient to squeeze and hold as long as possible (up to 30 seconds) | Normal, weak (decreased), or increased |
| Pushing and bearing-down maneuver | In addition to the finger in the rectum, place a hand over the patient’s abdomen to assess the push effort; ask the patient to push and bear down as if to defecate | Push effort: normal, weak (decreased), excessive
   Anal relaxation: normal, impaired, paradoxical contraction
   Perineal descent: normal, excessive, absent |
DRE: Inspection

- Skin condition
- Perianal abscess / fistula
- Skin tags
- Anal fissure
- Hemorrhoid disease
DRE: Neurologic Examination

1. Inspection
2. Perianal sensation and anocutaneous reflex
   - Normal, impaired, absent
3. Digital maneuvers: mass, tenderness, stool
   - Squeeze x 2
   - Bearing down x 2
     • Push effort, sphincter relaxation, perineal descent

Stroke the skin around the anus in a centripetal fashion, in all 4 quadrants, by using a stick with a cotton bud

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Rao et al. Clinical Gastro and Hepatology 2010
1. Inspection
2. Perianal sensation and anocutaneous reflex
   - Normal, impaired, absent
3. **Digital maneuvers: mass, tenderness, stool**
   - Squeeze x 2
   - Bearing down x 2
     • Push effort, sphincter relaxation, perineal descent
The presence of any 2 of the following findings was used to clinically diagnose dyssynergia:

- Inability to contract the abdominal muscles
- Inability to relax the anal sphincter
- A paradoxical contraction of the anal sphincter
- Absence of perineal descent
Digital Rectal Examination Is a Useful Tool for Identifying Patients With Dyssynergia

KASAYA TANTIPHLACHIVA, PRIYANKA RAO, ASHOK ATTALURI, and SATISH S. C. RAO
Division of Gastroenterology and Hepatology, University of Iowa Carver College of Medicine, Iowa City, Iowa

Table 2. Performance Characteristics of DRE in the Diagnosis of Dyssynergia in Patients With Chronic Constipation

<table>
<thead>
<tr>
<th></th>
<th>Estimated value</th>
<th>Lower limit</th>
<th>Upper limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>0.75</td>
<td>0.68</td>
<td>0.81</td>
</tr>
<tr>
<td>Specificity</td>
<td>0.87</td>
<td>0.68</td>
<td>0.96</td>
</tr>
</tbody>
</table>

For any particular positive test result, the probability that it is:
- True positive: 0.97, 0.92, 0.9
- False positive: 0.03, 0.01, 0.08
• Constipation and fecal incontinence are common symptoms and can severely impact patients and the quality of life.

• When first line conservative treatment such as stool softeners, laxatives, bulking agents and fiber fails, anorectal physiology testing is advocated to guide diagnosis and treatment.

• In particular, ARM and the rectal balloon expulsion test (BET) are an integral part of the work up of these patients.
Anorectal manometry: Indications

Indications:
- Constipation
- Fecal incontinence

Relative Indications:
- Functional anorectal pain
- Preoperative assessment of anorectal function
- Assessment of anorectal function in patients after obstetric injury to inform treatment decisions concerning future mode of delivery.

Rao et al. Advances in the evaluation of anorectal function. Gastro and Hepatology 2018
Anorectal Manometry for Constipation

- In constipation, ARM and BET are instrumental in identifying patients with dyssynergia
- Guiding biofeedback therapy
- Compared to other physiology testing (Barium def or MR def), ARM and BET are more readily available, less costly and have been correlated with treatment outcomes

Rao et al. Advances in the evaluation of anorectal function. Gastro and Hepatology 2018
Evolution of Anorectal manometry

- Prior to 2007: ARM was performed with non-high resolution, water perfused or solid state catheters
  - 3 or 6 unidirectional sensors
- Since 2007: high-resolution anorectal manometry (HR-ARM) and high definition anorectal manometry (HD-ARM) catheters are increasingly used in clinical practice
  - Contain several closely spaced circumferential sensor elements along the longitudinal axis
  - Medtronic (Given imaging)
  - Sandhill
  - Medical Measurement systems MMS (Laborie)
Catheter design

- A: HR catheter by Medtronic
- B: HR catheter by Sandhill Scientific
- C: HR catheter by Laborie
- D: HD catheter by Medtronic
HR-ARM/HD-ARM verse non-high resolution ARM catheters

<table>
<thead>
<tr>
<th></th>
<th>HR-ARM and HD-ARM</th>
<th>Non-HRM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of sensors</td>
<td>Closely spaced more sensors</td>
<td>Fewer sensors at wider intervals</td>
</tr>
<tr>
<td>Display</td>
<td>Color contour and line plot</td>
<td>Line plot</td>
</tr>
<tr>
<td>Techniques</td>
<td>Stationary examination</td>
<td>Pull-through examination</td>
</tr>
<tr>
<td>Preparation</td>
<td>Easy</td>
<td>More time consuming</td>
</tr>
<tr>
<td>Spatiotemporal resolution</td>
<td>Good</td>
<td>Limited</td>
</tr>
<tr>
<td>Cost</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Catheter durability</td>
<td>Limited</td>
<td>Excellent</td>
</tr>
<tr>
<td>Lifespan</td>
<td>Limited</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

HR-ARM, high-resolution anorectal manometry; HD-ARM, high-definition anorectal manometry.
Anorectal Manometry

**Expert Consensus Document**

Advances in the evaluation of anorectal function

Emma V. Carrington¹ *, S. Mark Scott¹, Adil Bharucha³, François Mion¹, Jose M. Remes-Troche⁴, Allison Malcolm⁵, Henriette Heinrich¹, Mark Fox⁶ ⁷ and Satish S. Rao⁸; on behalf of the International Anorectal Physiology Working Group and the International Working Group for Disorders of Gastrointestinal Motility and Function

Figure 1 | Standardized protocol for high-resolution anorectal manometry. RAIR, rectoanal inhibitory reflex.
ARM: Patient position

- Traditionally ARM has been performed in a left lateral (LL) position

Push in left lateral position

Push on commode

Wu et al Neurogastroenterol motil. 2017
ARM involves the following:

- Measuring rectal pressure to determine whether there is adequate rectal propulsive force during simulated defecation.
- Measuring anal canal pressures to assess contraction vs relaxation of the pelvic floor muscles.
- These 2 mechanisms may be assessed separately or may be integrated into:
  - Anorectal gradient (computer generated).
  - Defecation index (manually calculated).

ARM

- Involves measuring the following:
  - Rectal pressure to determine whether there is adequate rectal propulsive force during simulated defection
  - Anal canal pressures to assess contraction vs relaxation of the pelvic floor muscles
- These 2 mechanisms can be assessed separately or can be integrated
  - Anorectal gradient and Defecation index
    - **Anorectal gradient** = Rectal pressure – anal canal pressure (positive difference is normal)
      - Utility remains unclear b/c there is considerable overlap b/w asymptomatic subjects and patients with DD’s
      - The correlation b/w the rectoanal gradient and BET is relatively weak
    - **Defecation index** = Ratio of rectal pressure / anal canal pressure (a value to >1.0 is normal)

Push(attempted defecation)
- Residual Anal Pressure(abs. ref.)(mmHg) 73.7
- Percent anal relaxation(%) 30
- Intrarectal pressure(mmHg) 85.5
- Rectoanal pressure differential(mmHg) 11.8

\[
\text{DI} = \frac{85.5}{73.7} = 1.16
\]

Assessment of Dyssynergic Defecation

- Dyssynergia should be assessed in the seated position
- Ideally with a distended balloon in the rectum
- RA gradient as assessed by software is inaccurate for dyssynergia - overestimates
- DI is a better measure for evaluating dyssynergia, and requires manual calculation
Diagnostic accuracy study of anorectal manometry for diagnosis of dyssynergic defecation

Ugo Grossi,1 Emma V Carrington,1 Adil E Bharucha,2 Emma J Horrocks,1 S Mark Scott,1 Charles H Knowles1

Table 5 Prevalence of dyssynergic defecation in healthy volunteers (HV) and patients with constipation (FC) based on manometric criteria

<table>
<thead>
<tr>
<th>Authors, year</th>
<th>HV/FC</th>
<th>HV</th>
<th>FC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnes and Lennard-Jones, 1988</td>
<td>15/31</td>
<td>20</td>
<td>97</td>
</tr>
<tr>
<td>Kerrigan et al, 1989</td>
<td>29/16</td>
<td>12</td>
<td>73</td>
</tr>
<tr>
<td>Wald et al, 1990</td>
<td>12/36</td>
<td>8</td>
<td>31</td>
</tr>
<tr>
<td>Roberts et al, 1992</td>
<td>20/71</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>Merkel et al, 1993</td>
<td>17/18</td>
<td>12</td>
<td>50</td>
</tr>
<tr>
<td>Voderholzer et al, 1997</td>
<td>18/102</td>
<td>22</td>
<td>41</td>
</tr>
<tr>
<td>Rao et al, 1998</td>
<td>25/35</td>
<td>20</td>
<td>51</td>
</tr>
<tr>
<td>Ratnaweera et al, 2013</td>
<td>62/295</td>
<td>82</td>
<td>92</td>
</tr>
<tr>
<td>Present study</td>
<td>85/85</td>
<td>80</td>
<td>87</td>
</tr>
</tbody>
</table>

* Different criteria were used for diagnosis: paradoxical sphincter contraction or failed anal relaxation, inability to raise intrarectal pressure, negative rectoanal gradient, during simulated evacuation. In one study, the diagnosis was based on the combination of electromyographic recruitment (>50%), evidence of an adequate intrarectal pressure on straining (>50 cmH2O) and defective evacuation (either quantitatively or in terms of prolonged straining).
Balloon expulsion test

• BET is a test of simulated evacuation in which a balloon – tipped catheter is lubricated and inserted into the rectum.
• It is then filled with water or air (typically 50 ml)
  • sometimes with a volume required to produce a sustained sensation of urgency to defecate.
• The time required for the patient to evacuate the balloon in privacy is measured
• BET has high specificity for dyssynergia
• A BET of >2 minutes is definitely abnormal.
Sensitivity and specificity of BET for DD

- Studies have suggested an upper limit of normal for BET between 30 seconds and 2 minutes.
- The major caveats:
  - Different methodology
  - Different balloon equipment
  - Different patient populations.

### Table 1. Sensitivity and specificity of balloon evacuation test for dyssynergia as defined by ARM

<table>
<thead>
<tr>
<th>Study</th>
<th>DD definition</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raza and Bielefeldt (23)</td>
<td>ARM</td>
<td>68</td>
<td>91</td>
</tr>
<tr>
<td>Minguez et al. (20)</td>
<td>ARM + defecography</td>
<td>88</td>
<td>89</td>
</tr>
<tr>
<td>Chiarioni et al. (36)</td>
<td>ARM</td>
<td>94</td>
<td>75</td>
</tr>
<tr>
<td>Chiarioni et al. (25)</td>
<td>ARM</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

ARM, anorectal manometry; DD, defecatory disorder.
Dyssynergic Defecation

• The occurrence of this pattern alone on ARM should not be considered as diagnostic of dyssynergic defecation.
• Can not make the diagnosis of DD on the basis of a single abnormal test b/c none of them are sufficiently specific.
  • Confidence in the diagnosis is increased if there is a combination of a clinical history of chronic constipation and 2 abnormal tests, i.e.,
    • Impaired ability to evacuate a 50 mL water filled balloon or abnormal defecography AND
    • Evidence from pelvic floor EMG or ARM that the patient is unable to relax pelvic floor muscles or increase rectal pressure during simulated defecation.

Discrepancies between Dyssynergic Patterns and Symptoms

• Some clinical conditions result in discrepancies b/w dyssynergia and the symptoms of DD:
  • a subset of patients presenting with fecal incontinence (FI) have paradoxical contractions of their pelvic floor muscles during evacuation but normal BET; these individuals may have learned to cope with the threat of FI by contracting pelvic muscles when there is any threat of FI when there is any sensation of increased pressure in the rectum.
  • Conversely, pts with structural causes for obstructed defecation such as rectal prolapse may be unable to evacuate a balloon even though their pelvic floor muscles relax appropriately during simulated defecation.
Barium defecography

- Barium contrast mixed with Metamucil or another thickening agent into the rectum
- Lateral images of the anorectum during pelvic floor contraction, and before, during, and after attempted defecation
- The angle b/w the axis of the rectum and of the anal canal provides an indirect measure of whether the PRM relaxes or contracts
- Additional information is obtained on structural causes of outlet dysfunction including rectal prolapse, rectocele, and enterocele
- Previously was considered as the gold standard for diagnosis of DD, has been largely replaced by the BET and ARM
  - Simpler to perform BET and ARM
  - Defecography is often not interpreted by established criteria
  - Defecography involves radiation

Figure 5 | Representative barium defecography images. a | A significant rectocele; the left panel shows a lateral view of the rectum at rest, opacified by barium neostool with the anal canal closed (arrow). The right panel clearly demonstrates a large retaining rectocele at end evacuation (extent of anterior bulging highlighted by dashed line).

b | Obstructing full-thickness intussusception; the left panel shows a lateral view of the rectum at rest, with the anal canal closed (arrow). The right panel shows an image at mid-evacuation with clear invagination of the mid-rectum (between arrows) secondary to a full-thickness rectal intussusception; this is causing occlusion of the distal rectal lumen with retention of neostool proximal to this.
MR defecography

- Alternative to barium defecography
- Perform similar maneuvers
- Quantify prolapse in all 3 pelvic floor compartments (anterior, middle, posterior)

Advantages
- Better resolution of soft tissue surrounding the rectum and anal canal, including the bladder, uterus, and small intestine during dynamic imaging
- Improved ability to visualize anal sphincter and levator ani muscles
- Lack of radiation

Rao et al. Advances in the evaluation of anorectal function. Gastro and Hepatology 2018
Diagnosing Dyssynergic Defecation

• 3 criteria:
  • A clinical hx of chronic or recurrent symptoms of constipation
  • ARM showing dyssynergia
  • BET showing the inability to evacuate a 50-mL balloon

Box 1. Proposed Diagnostic Criteria for Dyssynergic Defecation

- Patients must satisfy the diagnostic criteria for functional constipation and/or constipation-predominant IBS.
- Patients must demonstrate dyssynergic pattern during repeated attempts to defecate.
  A dyssynergic pattern of defecation (Types I-IV) is defined as a paradoxical increase in anal sphincter pressure (anal contraction), or less than 20% relaxation of the resting anal sphincter pressure, or inadequate propulsive forces observed with manometry, imaging or electromyographic recordings
- Patients must satisfy one or more of the following criteria:
  - Inability to expel an artificial stool (50 mL water-filled balloon) within 1-2 minutes.
  - Inability to evacuate or ≥ 50% retention of barium during defecography.

*Some laboratories use a prolonged colonic transit time, ie, greater than 5 markers (≥ 20% marker retention) on a plain abdominal radiography taken 120 hours after ingestion of one radio-opaque marker capsule containing 24 radio-opaque markers.
How to treat Dyssynergic Defecation

- General measures
  - Diet, exercise, fluids and habit training
  - Laxatives / pro kinetics
- Specific treatment
  - Biofeedback
  - Botox injections: 3 studies in adults and have not shown benefit
  - Cognitive behavioral therapy: has not been proven effective
  - Surgery
    - Myectomy - 30% improvement
    - Colostomy
Treatment of Dyssynergic Defecation

- **Standard treatment**
  - Avoid constipating medications
  - Adequate fluid intake
  - Regular exercise
  - Titration of laxatives
  - Capitalize on mechanisms that stimulate the colon
    - After waking and after a meal
    - Avoid postponing defecation as the urge subsides after a few minutes and may not return for hours
  - Timed toilet training
  - Effective straining methods

Patcharatrakul T, Rao SSC. Gut & Liver 2017
Biofeedback Therapy

Three phases of therapy:

1. Patient evaluation/education
2. Active phase of therapy (6 sessions)
3. Reinforcement (3 sessions)

Box 2. Biofeedback Therapy for Dyssynergic Defecation Protocol

- Phase I: Evaluation/education
  - Symptom assessment (visual analog scale), stool diary
  - Explain physiology of defecation and pathophysiology of dys- synergetic defecation
  - Diaphragmatic breathing exercises
  - Timed toilet training
- Phase II: Active phase of biofeedback therapy
  - Visual/auditory/verbal feedback techniques
  - Duration of 30-60 minutes each in 1-2 weeks apart for 4-6 sessions
  - Home devices
- Phase III: Reinforcement
  - At 6th weeks, 3rd, 6th, and 12th months
Biofeedback equipment

- Solid state manometry probe
- Electromyography probe
- Simulated balloon
- Home biofeedback training device
Home training devices

• Largely use an EMG home trainer or silicon probe device attached to a handheld monitor.

• Prospective RCT that employed home trainers demonstrated that home training was as effective as office based training.
Home-based versus office-based biofeedback therapy for constipation with dyssynergic defecation: a randomised controlled trial

Satish S C Rao, Jessica A Valestin, Xuelian Xiang, Shaheen Hamdy, Catherine S Bradley, M Bridget Zimmerman

300 patients screened for eligibility

200 excluded
151 did not meet inclusion criteria
49 declined to participate

100 enrolled

50 randomly assigned to home-based biofeedback therapy
12 withdrawn from the study
2 pregnancy
6 lost to follow-up
1 admitted to hospital (diabetic complications)
2 transportation difficulties
1 unable to use home device
38 completed treatment
50 included in ITT analysis
38 included in per-protocol analysis

50 randomly assigned to office-based biofeedback therapy
5 withdrawn from the study
1 pregnancy
2 lost to follow-up
1 admitted to hospital (leg fracture)
1 transportation difficulties
45 completed treatment
50 included in ITT analysis
45 included in per-protocol analysis
### Home-based versus office-based biofeedback therapy for constipation with dyssynergic defecation: a randomised controlled trial

Satish C Rao, Jessica A Valentin, Xuelian Xiang, Shaheen Hamdy, Catherine S Bradley, M Bridget Zimmerman

<table>
<thead>
<tr>
<th></th>
<th>Home-based biofeedback therapy group (n=50)</th>
<th>Office-based biofeedback therapy group (n=50)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of CSBM per week</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>0.68 (0.17)</td>
<td>1.20 (0.29)</td>
</tr>
<tr>
<td>After treatment</td>
<td>3.34 (0.37)</td>
<td>4.74 (0.57)</td>
</tr>
<tr>
<td><strong>Dyssynergia (%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>50 (100%)</td>
<td>50 (100%)</td>
</tr>
<tr>
<td>After treatment</td>
<td>14 (28%)§</td>
<td>10 (20%)§</td>
</tr>
<tr>
<td><strong>Responder</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After treatment</td>
<td>34 (68%)</td>
<td>35 (70%)</td>
</tr>
</tbody>
</table>
Biofeedback – Phase II Active Treatment

Goals of therapy

• Teach Diaphragmatic breathing exercise
• Teach anal sphincter and pelvic floor relaxation
• Improve rectal sensation
• Eliminate sensory delay
• Improve recto-anal coordination
## Biofeedback

### Table 2. Biofeedback treatment of DD in adults

<table>
<thead>
<tr>
<th>Study</th>
<th>Inclusion criteria</th>
<th>Sample size</th>
<th>Comparator</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koutsomanis et al. (40)</td>
<td>Adults with functional constipation</td>
<td>60</td>
<td>Balloon defecation training</td>
<td>No difference</td>
</tr>
<tr>
<td>Chiarioni et al. (9)</td>
<td>Adults with DD</td>
<td>109</td>
<td>PEG laxative</td>
<td>Biofeedback superior</td>
</tr>
<tr>
<td>Heymen et al. (11)</td>
<td>Adults with DD</td>
<td>84</td>
<td>Diazepam (10mg), placebo pills</td>
<td>Biofeedback superior to diazepam and placebo</td>
</tr>
<tr>
<td>Rao et al. (10)</td>
<td>Adults with DD</td>
<td>77</td>
<td>Sham feedback, medical management</td>
<td>Biofeedback superior to both</td>
</tr>
<tr>
<td>Simon and Bueno (37)</td>
<td>Elderly with functional constipation</td>
<td>30</td>
<td>Education</td>
<td>Biofeedback superior</td>
</tr>
<tr>
<td>Faried et al. (41)</td>
<td>Adults with DD</td>
<td>48</td>
<td>Botulinum A</td>
<td>No difference</td>
</tr>
<tr>
<td>Faried et al. (42)</td>
<td>Adults with DD</td>
<td>60</td>
<td>Botulinum A or surgery (division of puborectalis)</td>
<td>Surgery superior</td>
</tr>
<tr>
<td>Rao et al. (38)</td>
<td>Adults with DD</td>
<td>26</td>
<td>Usual medical care</td>
<td>Biofeedback superior</td>
</tr>
<tr>
<td>Pourmomeny et al. (39)</td>
<td>Adults with DD</td>
<td>65</td>
<td>Balloon defecation training</td>
<td>Biofeedback superior</td>
</tr>
</tbody>
</table>

DD, defecatory disorder; PEG, polyethylene glycol.
Biofeedback Therapy - RCTs

• Biofeedback vs PEG 14.6 g for dyssynergia
  • Chiarioni et al, Gastroenterology 2006; 130: 657-64
• Biofeedback vs Diazepam for dyssynergia
  • Heyman et al, Dis Col Rectum 2007
• Biofeedback vs Sham Therapy vs Standard Therapy
  • Rao et al CGH 2007
• Biofeedback vs Standard Therapy – one year outcome
  • Rao et al Am J Gastroenterol 2010
• Home vs Office biofeedback Therapy – Efficacy and cost effectiveness

Evidence Level: Type 1; Recommendation Grade A
## EBM – Biofeedback Therapy

<table>
<thead>
<tr>
<th>Condition</th>
<th>Level</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyssnergic defecation</td>
<td>I</td>
<td>A</td>
</tr>
<tr>
<td>Fecal incontinence</td>
<td>II</td>
<td>B</td>
</tr>
<tr>
<td>Levator Ani Syndrome</td>
<td>II</td>
<td>B</td>
</tr>
<tr>
<td>Solitary rectal ulcer syndrome</td>
<td>III</td>
<td>C</td>
</tr>
<tr>
<td>Children with functional constipation</td>
<td>I</td>
<td>D</td>
</tr>
</tbody>
</table>

Take Home Points

• Detailed history, physical and DRE
• Dyssynergic Defecation
  • Common but often missed clinically
  • HRM-ARM and BET are sensitive tests and should be used appropriately for accurate diagnosis
  • Biofeedback is the preferred treatment
  • Future: Home biofeedback