

PT for The Bottom Line- Defecatory Disorders

Cindy Furey, PT
Comprehensive Therapy Services, Inc.



Disclosures

Owner of Comprehensive Therapy Services, Inc.



Physical Therapy Treatable Diagnoses

* Fecal Incontinence

- * Passive Anal
- * Urge Anal
- * Fecal Seepage
- * Flatal

* Dysenergia

* Incomplete Emptying

* Constipation

- * Idiopathic
- * Functional

* Pain

* Coccydynia

* Boating/Gas pain

* Scarring: radiation, surgical, trauma

* Fissures

* Hemorrhoids

* Proctalgia Fugax



Physical Therapy Overview

Fecal Incontinence

- * Diet-regularity, bulking
- * Regular use of prescribed medication/supplements
- * Scheduling
- * Toileting: skin care
- * Strength Training
- * Coordination Training
- * Sensitivity Training
- * Urge Suppression
- * Soft Tissue Manipulation for Scar
- * Calm Their Systems



Constipation

- * Diet- softening stool, hydration
- * Regular use of prescribed medication/supplements
- * Scheduling
- * Toileting: mechanics, Squatty Potty
- * Relaxation Training
- * Coordination Training
- * Sensitivity Training
- * Act on First Urge
- * Visceral Manipulation/Colon Massage
- * Rev Up Their Systems

Physical Exam

- * Posture: sit, stand, toilet
- * Musculoskeletal Screen: Lumbar, Sacroiliac, Hips
- * Abdominal: Skin, muscles, viscera
- * External Pelvic: Sensation, scars, tenderness, coordination
- * Internal Rectal: External Anal Sphincter (EAS), Internal Anal Sphincter (IAS), Puborectalis (PR), Coccygeus
- * Internal Vaginal: Urogenital Triangle (UGT), Levator Ani (LA)-Iliococcygeus, puborectalis, pubococcygeus, coccygeus

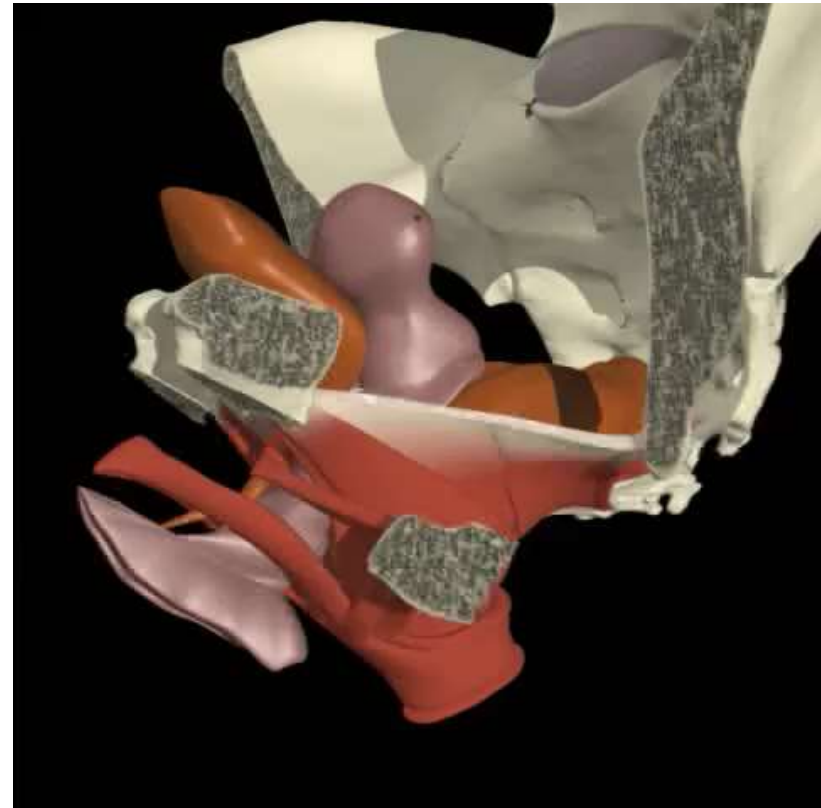
* Functional Strategies:

- * Moving
- * Breathing
- * Toileting



Detailed PFM Exam

- * UGT vs LA vs EAS
- * Vaginal vs Rectal
- * Lift vs Squeeze
- * Sustained vs Quick
- * Endurance
- * Contract vs Relax
- * Volitional vs Reflexive
- * Manual vs sEMG vs RTUS
- * Supine, Sidelying, Prone, Sit, Squat, or Standing



Anal and Rectal Function

Regular defecation is maintained by several factors:

1. Anal canal pressures-Assess and Retrain

- * Anal canal pressure > rectal pressure
- * Adequate sphincter pressure/strength important to control anal canal contents
- * Sphincters also need to relax when appropriate

2. Rectal sensation-Assess and Retrain

- * Sense small volumes
- * Sense consistency

3. Rectal capacity/compliance-Assess and Retrain

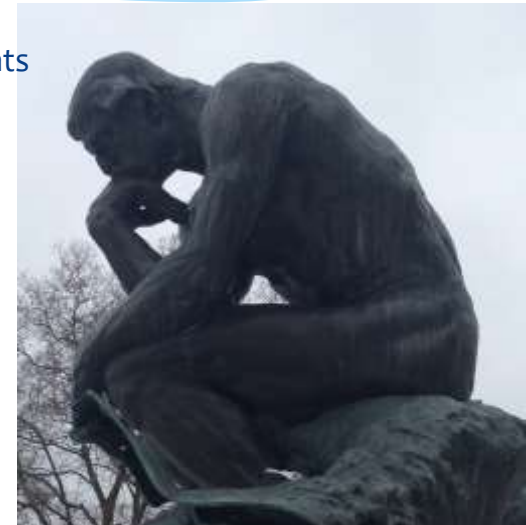
- * Ability of the anorectal canal to hold stool until defecation
- * Over compliance may lead to constipation or overflow FI.
- * Urgency sensation

4. Motility factors-Assess and guide through diet/hydration/medication

- * Rapid passage through the GI tract causes stools to be loose or watery
- * Diarrhea or loose stool is a strong risk factor for FI
- * Slow Motility can lead to dehydrated stool and constipation

5. Reflexes-Suppress or Capitalize on Reflexes

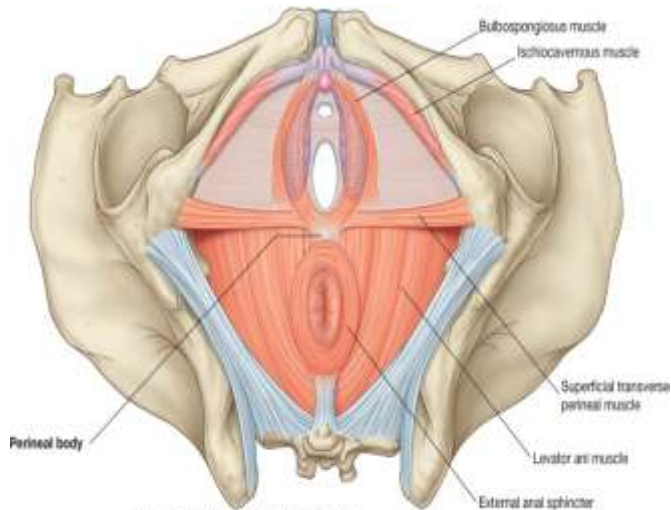
- * Gastrocolic Reflex
- * Sampling Response
- * Intrinsic Defecation Reflex
- * Rectoanal Inhibitory Reflex
- * Parasympathetic Defecation Reflex



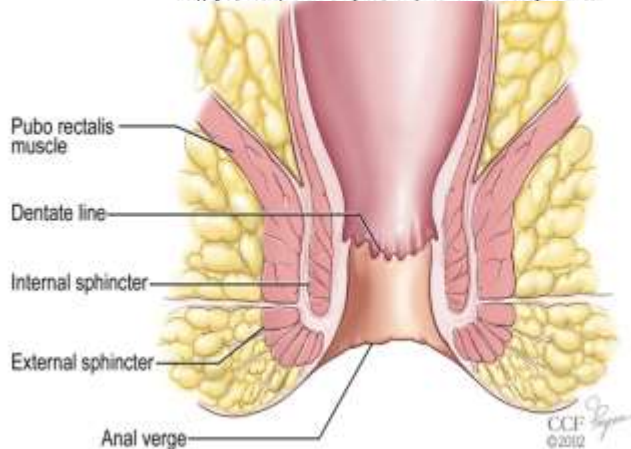
Taking a huge coffee poop is easily one of my top 10 favorite things about life.



Muscle Control & Coordination



Drake: Gray's Anatomy for Students, 2nd Edition.
Copyright © 2009 by Churchill Livingstone, an imprint of Elsevier Inc. All rights reserved.



CCF
© 2010

* Levator Ani: IC, PC, PR

- * Elevates Rectum and Anus
- * Posture
- * Support
- * Target for biofeedback: strength & relaxation training

* External Anal Sphincter (EAS)

- * External sphincter contraction/relaxation
- * Voluntary muscle control - skeletal muscle
- * Target for biofeedback strength & relaxation training

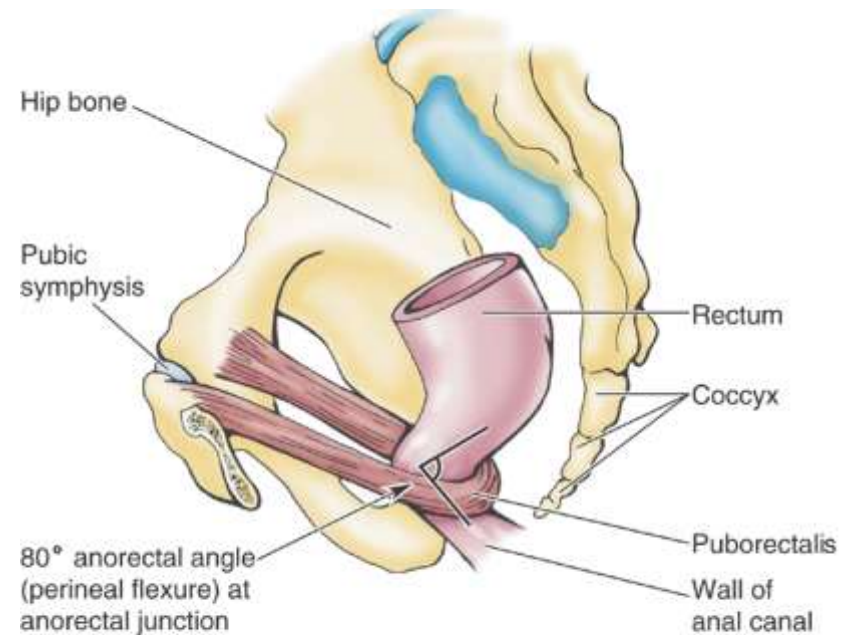
* Internal Anal Sphincter (IAS)

- * Passive barrier for incontinence
- * Involuntary muscle control – smooth muscle

Trouble or Peace Maker for EAS

* Puborectalis

- * Forms Anorectal Angle
- * Maintains Continuous Tone
- * Relaxes During Defecation
- * Overactive → Constipation → Overflow FI
- * Hypotonic or Weakness → FI



Medial view from left

COAS 82006 LWW

Educate and Regulate

- * Maintain a food/drink/supplement/medication diary
- * Hydration: ½ oz of fluid/lb. of body weight
- * Fiber: 25-35 grams/day (Sharati-2008 C, Butric-2017 FI)
- * Probiotics/Prebiotics (Kim-2015, Ohigashi S-2011, Dimidi-2014, Ford-2014,)
- * Bowel Irritants
 - * Caffeine, nicotine, alcohol, dairy, sweeteners, spicy, fatty
- * Gas producing foods
 - * Beans, garlic, onions, legumes, broccoli
- * Constipating Foods
 - * Gluten, dairy, red meat
- * Be aware of “Thickeners”
 - * Bananas, potatoes, rice, bread, peas, pasta (Brown-2006)



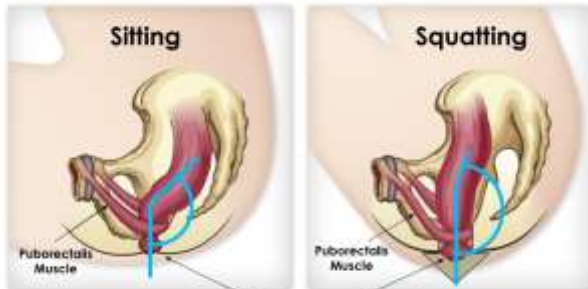
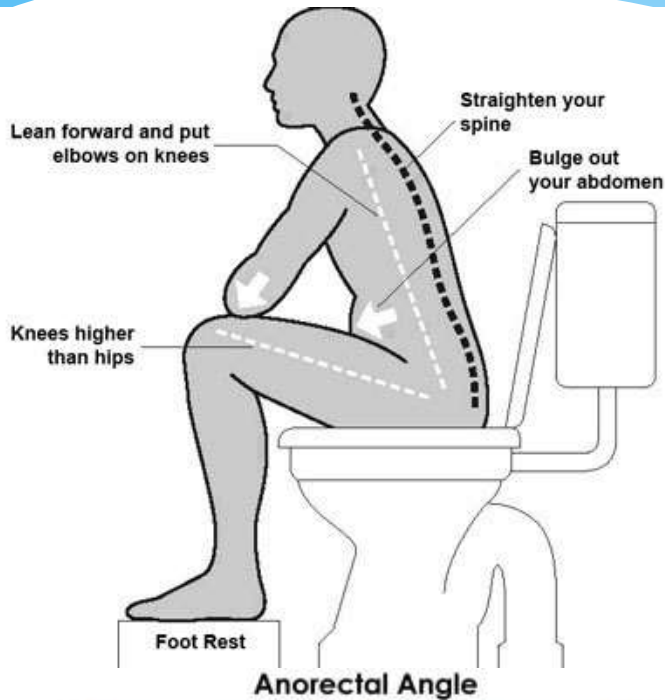
Medications/Supplements: The Rollercoaster

Educate on Use and Side Effects

- * Bulking agent-Fiber
 - * Psyllium-Konsyl, Metamucil
 - * Methylcellulose-Citrucel
- * Antidiarrheal: Loperamide, Diphenoxylate
- * Emollients: Docusate, Mineral Oil
- * Enemas: Water, Glycerin, Sodium Phosphate, Coffee, etc.
- * Stool Softeners: Miralax, Colace
- * Stimulants: Caffeine, Nicotine
- * Laxatives (CAUTION!): Bisacodyl, Senokot, Sena Tea
- * Supplements: CALM, Intestinal Movement Formula, etc.
- * Side Effects: Opioids, Anti-Depressants, etc.



Toileting Mechanics



Squatting is the only natural defecation posture

The Basics

- * Scheduling promotes regularity
- * Posture is important! (Rad-2002, Sakakibara-2010) Variations for rectocele.
- * Technique

Belly Big, Belly Hard

Bear Down and Blow as You Go

Manual Support of Perineum or
posterior wall for Rectocele

Avoid Straining

Avoid Sitting >5 minutes

Electrical Stimulation

Fecal Incontinence

- * PFM Exercises
 - * Prescription to ability
 - * Add 1 second/week
 - * 15 reps, 3X/day
 - * 30 seconds+ for EAS to activate Rectoanal Inhibitory Reflex (RAIR)
- * Electrical Stimulation:
 - * 12 hz or 50 hz (NMES)
 - * Rectal or Vaginal sensor

Constipation

- * Transcutaneous Electrical Nerve Stimulation (TENS) (Yang-2017)
- * Interferential Electrical Stimulation (IFC) (Moore-2018)
- * External electrodes placed on abdomen and lower back



Combined therapies with exercise & education work best.

Biofeedback

Biofeedback is the process of gaining greater awareness of many physiological functions primarily using instruments that provide information on the activity of those same systems, with a goal of being able to manipulate them at will.

-Wikipedia

Visual, auditory, tactile cues

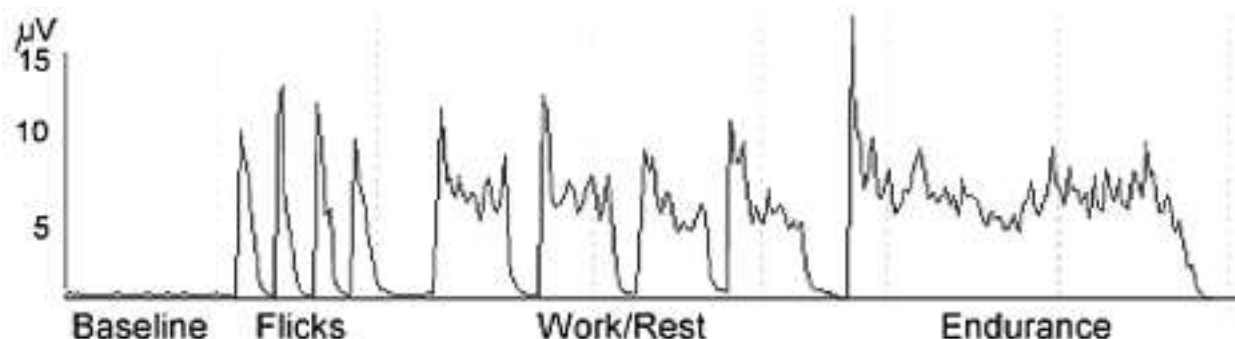
- **sEMG** (Nogueras-1992, Wexner-1992)
- **Rectal Balloon** (Rao-2005)
- **Real Time Ultrasound (RTUS)**
(Whittaker-2014)
- **(Anorectal Manometry)** (Rao-2005)



"Never Trust a Fart."
- Walter Cronkite

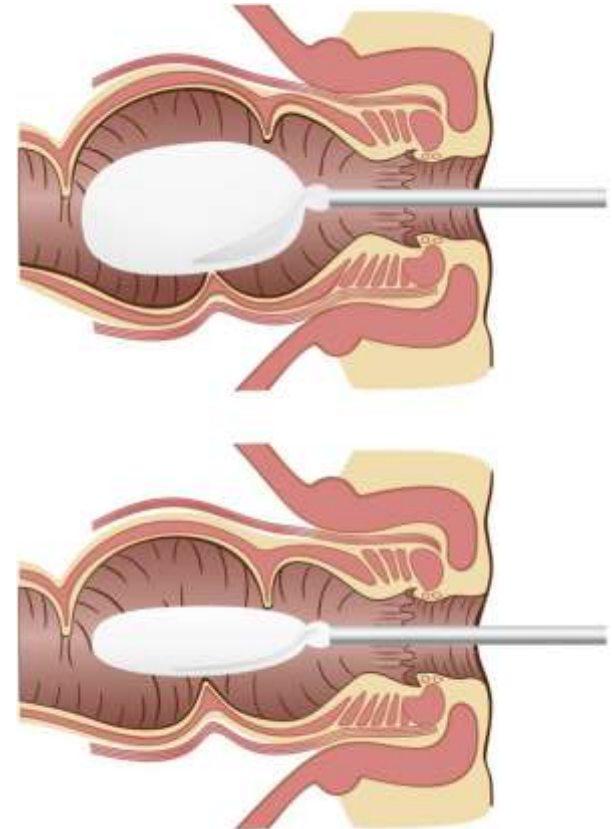
Surface Electromyography

- * Biofeedback-sEMG (Nogueras-1992, Wexner-1992, Enck-1993, Battaglia-2004)
 - * Goal of improved motor control for constipation
 - * Steady baseline to decrease overactivity
 - * Quick Flicks for sphincteric urge suppression for FI
 - * Work Rest for strength, endurance and coordination
 - * 30 Sec + for endurance to activate (RAIR)
 - * Substitution is biggest downfall
 - * Combined studies work best. (Sjodahl-2015)



Rectal Balloon Therapy

- * Train sensitivity in smaller increments:
 - * 20cc → 10cc
 - * Focus on first sense of awareness
 - * Hypervigilance
- * Train urge control in larger increments:
 - * 50cc → 150cc
 - * Focus on increasing normal urge vs. strong urge
 - * Max 250-400 cc
 - * Postponement and control
- * Train Expulsion Technique:
 - * 50 ml balloon



Real Time Ultrasound

Trans Abdominal



Trans Perineal



Rest → Contract → Relax → Bear Down

(Whittaker, 2007)

Real Time Ultrasound

Abdominal



Perineal



Rest

Contract

Valsalva

Colon Massage

- ◆ Clockwise Pressure-10 full cycles.
- ◆ Facilitates Peristalsis
- ◆ Decreases Colon Transit Time
- ◆ Increases BM Frequency
- ◆ Decrease Pain and Bloating
- ◆ Patient Instruction for 10 min/day

(Harrington-2006, Brown-2006, McCourt-2011, Sinclair-2011)

VIDEO

Diaphragmatic Breathing



- ◆ Multiple relationships exist between the trunk, pelvic floor & diaphragm as postural stabilizers. (Hodges, 2007)
- ◆ Intercostals & abdominals help diaphragm generate adequate pressure changes between the thoracic & abdominal cavities (Massery, 2017)
- ◆ Correct Posture/Stability
- ◆ Correct Mechanics/Mobility
- ◆ Coordinate with PFM (Zivkovic-2012)
- ◆ Internal Massage to Stimulate Peristalsis.
- ◆ Breathing Always Wins!- Mary Massery

Bend, Extend, Twist aka... Exercise



Totesyoga.com

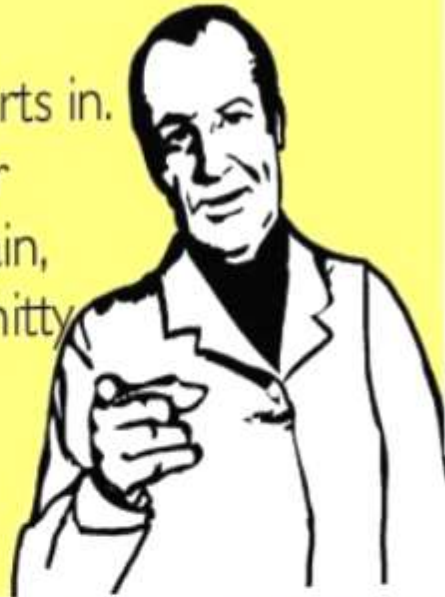
Mevofit.com

“Start by doing what’s necessary,
then do what’s possible;
and suddenly you are doing the
impossible.” –Megan Prybyl, PT, CMPT



THOUGHT FOR THE DAY

Never hold your farts in.
They travel up your
spine, into your brain,
and that's where shitty
ideas come from.



your  cards
someecards.com

joyreactor.com

Thanks to all the
MD's, PA's and NP's
who believe in me.

Thanks to my fellow
PT's, patients and
staff who make
continued learning
possible.

Thanks to my crazy
family who make
everything else
possible!

References

- * Battaglia E, Serra AM, Buonafede G, et al. Long term study on the effects of visual biofeedback and muscle training as a therapeutic modality in pelvic floor dysenergia and slow transit constipation. *Dis Colon Rectum*. 2004;47:90-95
- * BØ K, Sherburn M, Allen T. Transabdominal ultrasound measurement of pelvic floor muscle activity when activated directly or via a transversus abdominis muscle contraction. *Neurourol Urodyn*. 2003;22(6):582-8.
- * Butrick, C Update: new Management Approaches for Urogynecological Conditions, Lecture at Overland Park Regional Medical Center. Feb. 21, 2017.
- * Brown C Physiotherapy for anorectal disorders. In Carrier B, Feldt CM. *The Pelvic Floor*. New York: Thieme;2006.
- * Dimidi E, Christodoulides S, Fragkos KC, Scott SM, Whelan K. The effect of probiotics on functional constipation in adults: a systematic review and meta-analysis of randomized controlled trials. *Am J Clin Nutr*. 2014 Oct;100(4):1075-84.
- * Ford AC, Quigley EM, Lacy BE, Lembo AJ, Saito YA, Schiller LR, Soffer EE, Spiegel BM, Moayyedi P. Efficacy of prebiotics, probiotics, and synbiotics in irritable bowel syndrome and chronic idiopathic constipation: systematic review and meta-analysis. *Am J Gastroenterol*. 2014 Oct;109(10):1547-61; quiz 1546, 1562. Epub 2014 Jul 29.
- * Harrington KL, Haskvitz EM. Managing a patient's constipation with physical therapy. *Phys Ther*. 2006;86:1511-1519.
- * Heymen, S, Scarlett Y, Jones K, Ringel Y, Drossman D, Whitehead WE. Randomized controlled trial shows biofeedback to be superior to pelvic floor exercises for fecal incontinence. *Dis Colon Rectum*. 2009 Oct;52(10):1730-7.
- * Jeon SY, Jung HM. The effects of abdominal meridian massage on constipation among CVA patients. *Taehan Kanho Kakhoe*. CHI. 2005 Feb;35(1):135-42.
- * Kim SE, Choi SC, Park MI, Shin JE, et al. Change of fecal flora and effectiveness of the short term VSL#3 Probiotic treatment in patients with functional constipation. *J Neurogastroenterol Motil*. 2015;21(1), 111-120
- * Mahony RT, Malone PA, Nalty J, et al. Randomized clinical trial of intra-anal electromyographic biofeedback physiotherapy with intra-anal electromyographic biofeedback augmented with electrical stimulation of the anal sphincter in the early treatment of postpartum fecal incontinence. *Am J Obstet Gynecol*. 2004 Sep;191(3):885-90.
- * McCourt, D, Lowe-Strong A. Does Abdominal massage relieve constipation? *Nursing Times*. 2011 Mar29-Apr 4;107(12):20-2.
- * Moore, JS, Gibson, PR, Burgell RE. Neuromodulation via Interferential Electrical Stimulation as a Novel Therapy in Gastrointestinal Motility Disorders. *J Neurogastroenterol Motil*, 2018 Jan. 24(1):19-29.
- * Norton C, Chelfanagyagam S, Wilson-Barnett J, Redfern S, Kamm M. Randomized controlled trial of biofeedback for fecal incontinence. *Gastroenterology*. Nov 2003, Vol. 125, Issue 5, p1320-1329
- * Norton C, Cody JD. Biofeedback and/or sphincter exercises for the treatment of faecal incontinence in adults. *Cochrane Database Syst Rev*. 2012 Jul 11;(7):CD002111.

References

- * Nogueras J, Wexner S. Biofeedback for non-relaxing puborectalis syndrome. *Sem Colon Rectal Surg.* 1992;3(2):120-123
- * Pager CK, Solomon MJ, Rex J, Roberts RA. Long-Term Outcomes of Pelvic Floor Exercise and Biofeedback Treatment for Patients With Fecal Incontinence. *Diseases of the Colon & Rectum.* August 2002, Volume 45, Issue 8, pp 997-1003
- * Ohigashi S, Hoshino Y, Ohde S, Onodera H. Functional outcome, quality of life, and efficacy of probiotics in postoperative patients with colorectal cancer. *Surg Today.* 2011 Sep;41(9):1200-6.
- * Preece J. Introducing abdominal massage in palliative care for the relief of constipation. *Complement Ther Nurs Midwifery.* 2002;5:101-105.
- * Rad S. Impact of ethnic habits on defecographic measurements. *Arch Iranian Med.* 2002;5 (2): 115-117
- * Rao SS, Ozturk R, Laine L. Clinical utility of diagnostic tests for constipation in adults: a systematic review. *Am J Gastroenterolo* 2005; 100(7):1605-1615.
- * Rao SS. Constipation: evaluation and treatment of colonic and anorectal motility disorders. *Gastroenerol Clin North Am.* 2007 36(3);687-711.
- * Rao SS. Dyssynergic defecation and biofeedback therapy. *Gastroenterol Clin North Am.* 2008 Sep;37(3):569-586.
- * Sakakibara R, Tsunoyama K, Hosoi H, Takahashi O, Sugiyama M, Kishi M, Ogawa E, Terada H, Uchiyama T, Yamanishi T. Influence of body position on defecation in humans. LUTS 2010 2, 16-21 *Low Urin Tract Symptoms.* 2010 Apr;2(1):16-21.
- * Shafik A, El Sibai O, Shafik IA, Shafik AA. Stress, urge, and mixed types of partial fecal incontinence: pathogenesis, clinical presentation, and treatment. *Am Surg.* 2007 Jan;73(1):6-9.
- * Sinclair, M. The use of abdominal massage to treat chronic constipation. *J Bdywrk Mvmt Ther.* 2011 Oct; Vol 15, Issue 4; 436-445.
- * Sikirov D. Comparison of straining during defecation in three positions: results and implications for human health. *Dig Dis Sci.* 2003 Jul;48(7):1201-5.
- * Sjudahl J, Walter SA, Johansson E, Ingemansson A, Ryn A-K, Hallbook O. Combination therapy with biofeedback, loperamide and stool-bulking agents is effective for the treatment of fecal incontinence in women—a randomized controlled trial. *Scan J of Gastroenterolo.* 2015 Aug;50(8):965-974.
- * Vonthein, R, Heimerl T, Schwandner T, Ziegler A. Electrical stimulation and biofeedback for the treatment of fecal incontinence: a systematic review. *Int J Colorectal Dis.* 2013 Nov;28(11):1567-77.
- * Wexner S, et al. Prospective assessment of biofeedback for the treatment of paradoxical puborectalis contraction. *Dis Colon Rectum.* 1992;35(2)145-149.
- * Whittaker, JL, Thompson, JA, Teyhen, DS, Hodges P. Clinical Commentary: Rehabilitative Ultrasound Imaging of Pelvic Floor Muscle Function. *J Orthop Sports Phys Ther* 2007;37(8):487-498.
- * Yang Y, Yim J, Choi W, Lee S. Improving slow-transit constipation with transcutaneous electrical stimulation in women: A randomized, comparative study. *J Women & Health* 2017 Apr;57(4):494-507.
- * Zivkovic V, Lazovic M, Vlajkovic M, Slavkovic A, Dimitrijevic L, Stankovic I, Vacic N. Diaphragmatic breathing exercises and pelvic floor retraining in children with dysfunctional voiding. *Eur J Phys Rehabil Med.* 2012 Sep;48(3):413-21.

References

- * www.womenshealthapta.org
- * www.hermanwallace.com
- * www.pfdn-rti.org
- * www.medspira.com
- * www.incontrolmedical.com
- * www.niddk.nih.gov
- * www.gastro.org/public/constipation.html
- * www.squattypotty.com
- * www.sonosite.com

- * Massery M. If You Can't Breathe, You Can't Function. Course notes-June, 2017
- * Clinton S. The Ultimate Bowel Course. Course notes-January, 2018.