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- Use a hardwired Internet connection
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- Call 866-782-9924 (M-F, 8 AM-8 PM ET)
- Email customerservice@OccupationalTherapy.com

An Introduction to Pediatric Bladder and Bowel Disorders, Part 2

Tiffany Ellsworth Lee, MA, OTR, BCB-PMD, PRPC

Learning Outcomes

1. Describe who is an appropriate candidate for behavioral and biofeedback intervention related to elimination disorders.
2. List at least three diagnoses that are appropriate to refer to a clinician trained in this treatment technique.
3. Explain what biofeedback is and how it is used in elimination disorders.
4. Describe at least three treatment strategies for bedwetting.

Overview of Presentation

- Bowel Disorders
- Behavioral Therapy
- Treatment Options
- Case Studies
- Resources and Practical Tips

BOWEL CONTROL

Constipation and Urinary Symptoms

- 234 children – chronic constipation
  - 29% daytime incontinence
  - 34% nighttime incontinence
  - 11% UTIs / 16% VUR
  - Bowel Treatment program with disimpaction and maintenance
  - Results:
    - 52% constipation relieved
    - 89% daytime dryness
    - 63% nighttime dryness
    - no UTIs

(Loening-Baucke, Peds 1997)

Constipation and Urinary Symptoms continued

- In a recent study of 73 children who received treatment for defecatory dysfunction (treatment not listed), 95% had resolution of symptoms.
- 68% of these children also had urinary incontinence. 50% of these children with UI had a reduction in the urinary incontinence just from treatment for the defecatory dysfunction. (Borch, Hagstroem, Bower et al) 2013

Constipation

- All children with bladder complaints have constipation until proven otherwise.
- Studies have shown that patients with voiding dysfunction have decreased sensation and increased tolerance to large volumes of stool in the colon.

Constipation

- Parents are not aware of how infrequently their children are having bowel movements, and are unaware of the stool consistency.
- Contraction of the external urinary sphincter causes contraction of the external anal sphincter.

Constipation

- Defined as "unsatisfactory defecation with infrequent, difficult passage of hard, dry stool, or both" according to the American College of Gastroenterology
- < 3 bowel movements /week for at least 2 consecutive weeks
- Dyschezia-painful defecation

Constipation continued

- Etiology can be multi-factorial, but in a "normal" child can be from painful defecation
- Other:
  - ⇩ water
  - ⇩ fiber
  - ⇩ activity/playtime

Constipation continued

- Mild dehydration is a risk for constipation
- Persistent stool in the rectum increases colonization of bacteria
- Increases the risk of UTIs in girls

Constipation continued

- Becomes chronic
- Creates fecal retention
- Leads to stool withholding
- Encopresis

Transit Time

- Normal transit time in children is 48 hours
- Normal transit time in adults is 24-100 hours

Encopresis

- Caused by constipation
- Reflexive withholding of stool by various psychological, physiological, or neurological disorders
- More common in boys than girls by a factor of 6:1

Encopresis continued

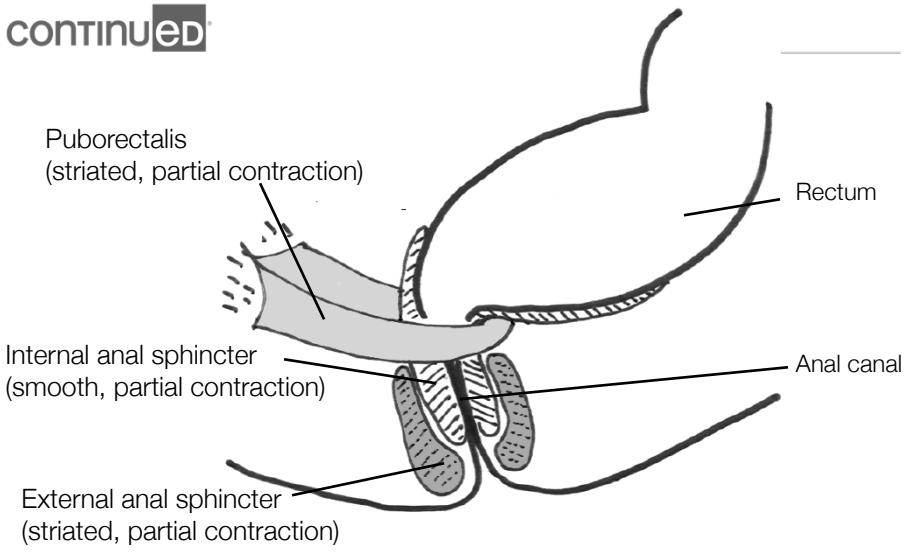
- If stool remains in the colon too long, the feces becomes hard as the water is removed from the colon.
- Painful for the child to expel
- Child avoids moving bowels for fear of anticipated pain.
- Rectal anal inhibitory response can result (anismus-dyssynergic defecation)

Encopresis continued

- Hardened stool builds and stretches the colon, and sensation associated with moving bowels is lost (megacolon).
- Softer stool leaks around hard stool creating diarrhea.
- Child typically has no sensation of episode
- Reduced rectal compliance

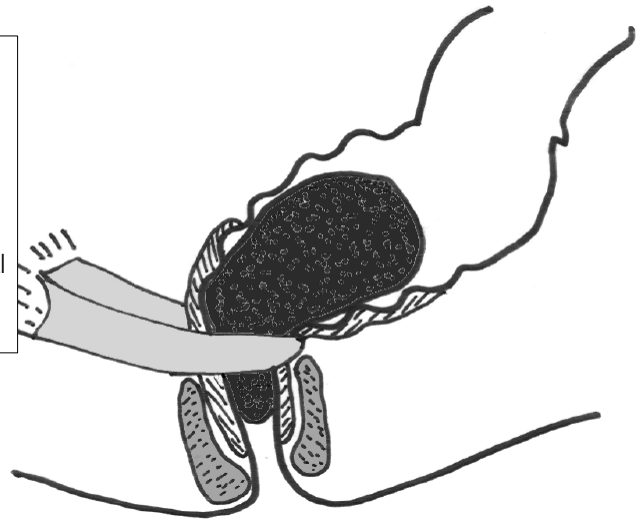
Childhood Fecal Incontinence

- Over the age 4 with leakage
- Encopresis
- Overflow incontinence
  - shyness at school, sluggish colon, decongestants, painful fissures
- Pain-vicious cycle
- Paradoxical diarrhea-relaxed IAS and EAS, impaired sensation
- Megacolon and megarectum
- The Poo in You – You Tube video



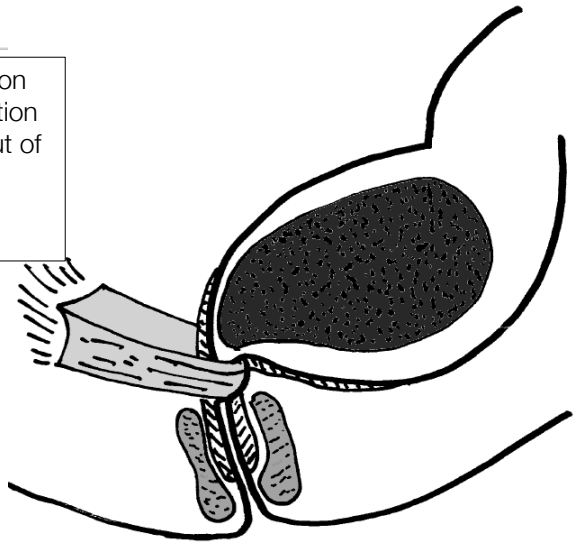
Puborectalis and Sphincters at Rest

- Rectum contraction
- IAS relaxation
- EAS relaxation
- Stool enters anal canal



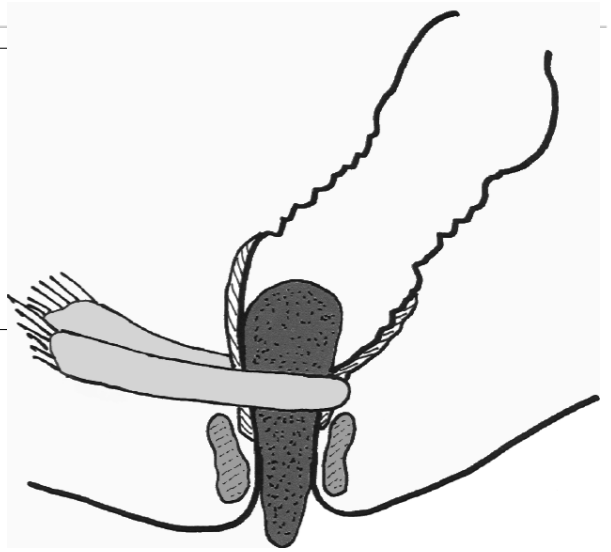
Defecation Reflex

- Puborectalis contraction
- External anal contraction
- Movement of stool out of anal canal
- Accommodation of rectum



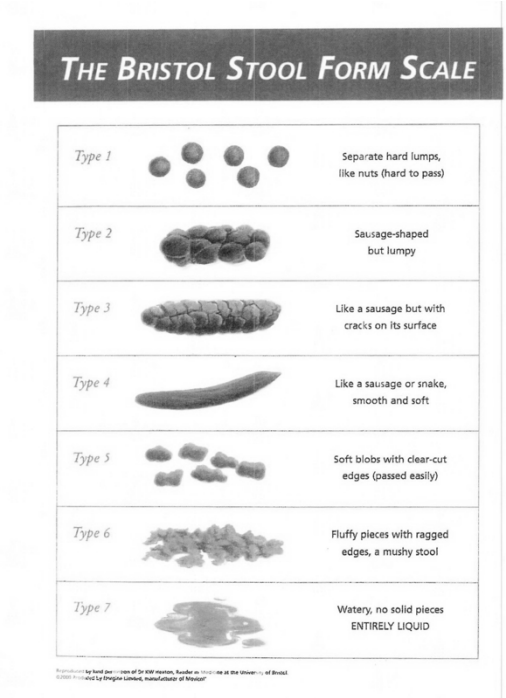
Inhibition of Defecation

- Rectum contracts
- IAS relaxation
- Puborectalis relaxation
- EAS relaxation



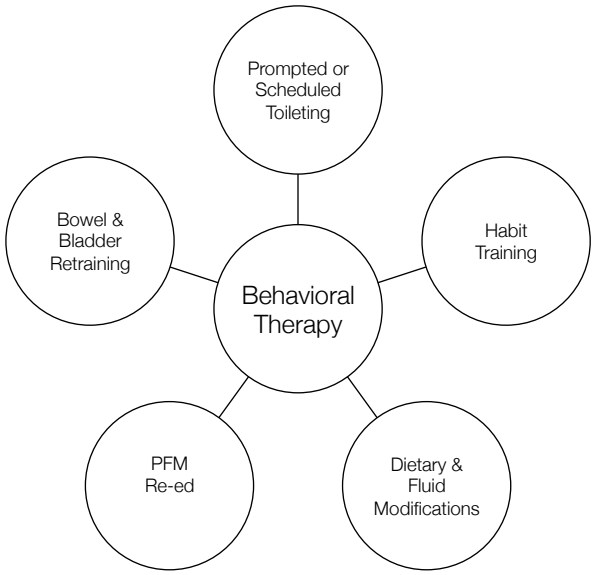
Defecation

Bristol Stool Scale



BIOFEEDBACK AND BEHAVIOR MODIFICATION AS TREATMENT

Behavioral Therapy



Who is an appropriate candidate for treatment?

- A child who is willing to participate in treatment.
- A child who can follow simple instructions.
- A family willing to participate in treatment and make sure the child adheres (at least somewhat) to the toileting and medication schedule.

Behavioral Therapy

- Diet, Fluid and Lifestyle Modification
- Pelvic Floor Muscle Exercises
- Biofeedback
- Bowel and Bladder Retraining
- Home Program/Patient and Family Education
- Bowel and Bladder Diaries
- Toileting Posture
- Timer, Pager or Watch with Timing Intervals

Elimination Diary

- How many times do you urinate every day?
- Do you use the bathroom at school?
- How wet are you during the day?
- Do you do the potty dance?
- How often do you have a bowel movement?
- When do you have a bowel movement?
- Describe your bowel movements.
- Do you soil your underwear?

Dietary History

- What does child eat in a typical day and when:
- Breakfast
- Mid morning snack
- Lunch
- Mid afternoon snack
- Dinner
- Before bed snack

Fluid Intake History

- What does child drink, and when in a typical day?
- With each meal
- Between meals
- At school
- After school
- During sports
- After dinner
- Before bed

Schedule

- Review child's daily schedule from the time the child gets up, to the time the child goes to sleep:
- When does child void?
- When does child move bowels?
- Use with dietary and fluid diary to get complete picture of the day

Toilet Schedule

- Use a toilet schedule to prevent incontinence and help teach “mindful awareness” of body function
- Timed voiding
- Watch with multiple timers
- Coach/Teacher
- Parent
- Class schedule
- After school program
- Home schedule

Treatment goals

- Make goals attainable – don’t overwhelm
- Baby steps
- Celebrate accomplishments

Commitment

- Establish relationship with child and family
- Establish boundaries with child and family
  - (no arguing about toileting)
- Establish goals with patient
- Ask patient and family to commit
- Sign a contract if indicated

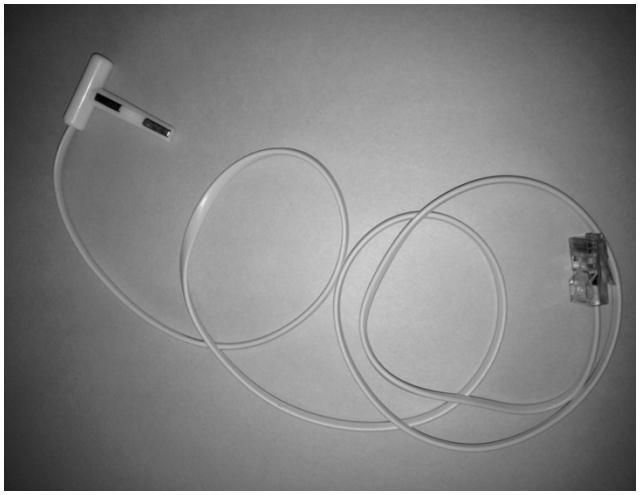
Traffic Light Analogy

- Ask the child who is driving home today
- Ask the child what the driver is supposed to do at a red light
- What happens if the driver ignores the red light?
- See the importance of obeying a signal? (like the need to empty bladder)
- Ask the child what happens if she/he ignores the signal

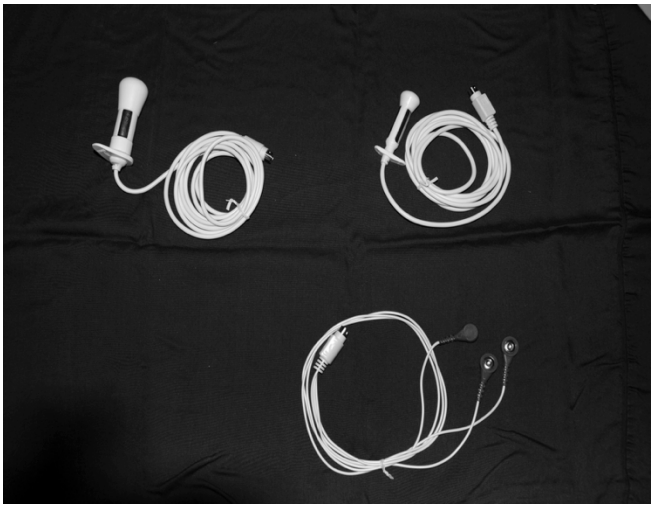
Biofeedback

- Small electrical signal monitored with electromyography (EMG)
- Information about an unconscious process is presented visually on computer screen
- Immediate knowledge of muscles becomes available to teach patient how to alter the physiologic process

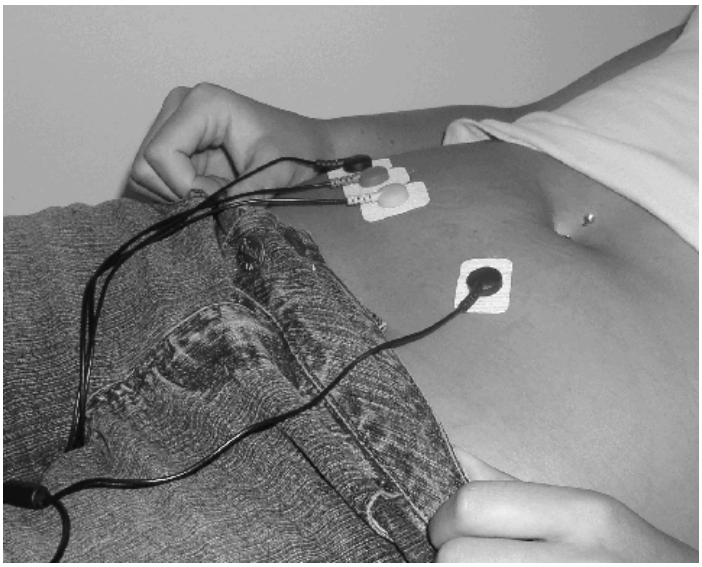
MEP Probe



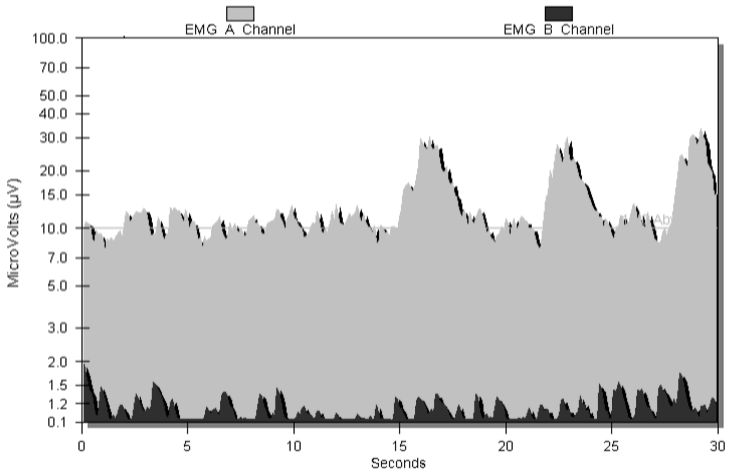
Vaginal, Rectal, Surface Electrodes



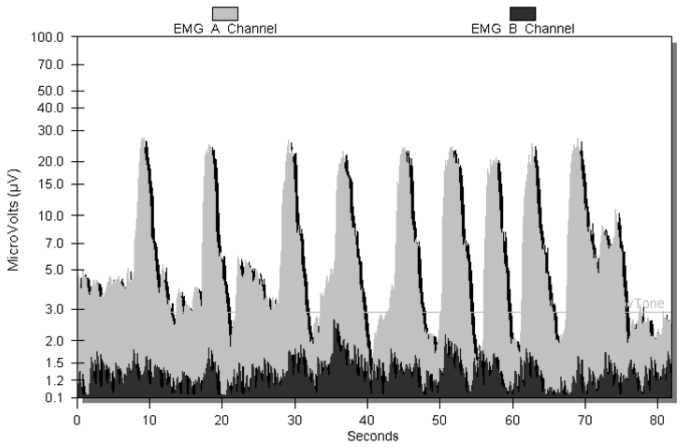
Abdominal EMG Placement-Many placements used



Pre treatment



Post treatment



Behavioral Therapy and Biofeedback Treatment

- Education regarding voiding and bowel function
- Elimination education:
  - Increase fluids
  - Timed voiding, voiding strategies
  - Bowel program
  - Hygiene
  - Biofeedback: helps children identify and relax appropriate muscles for elimination
  - Monitoring 2 channels is critical to success

Biofeedback Treatment continued

- Down-play incidents
- Provide positive incentives
- Child needs to learn responsibility for self care
- Should be a primary treatment in children with voiding dysfunction
- Parents tend to downplay constipation or are unaware of child's bowel patterns

Treatment Impact

- Strengthen appropriate muscles
- Inhibit uninhibited contractions
- Learn how to relax pelvic floor
- Neuroplasticity
- Reset coordinated function (CNS/local)
- Educate/treat

Treatment Strategies

- Monitor muscles and teach during active voiding
- Teach isolation and relaxation without voiding
- Teach muscle coordination for proper elimination
- Teach proper toilet posture
- Make it fun for the child!
- Teach to the level of the child, not the parent

Indications for Biofeedback

- Abnormal flow pattern
- EMG activity during voiding
- Significant PVR
- Inability to initiate flow in absence of urgency
- Poor bladder emptying (UTI)
- Retraining after surgery/trauma

Pediatric Biofeedback

- Case study reports improved continence following intervention with biofeedback for pelvic floor muscle dysfunction in a five year old child.
- Surface EMG biofeedback perineal electrodes used during treatment sessions to provide visualization of muscle.

"Biofeedback-Assisted Muscle Training for Pelvic Floor Dysfunction to Address Pediatric Incontinence: A Case Report". Gibbs, K., Kenyon, L., Journal of Women's Health Physical Therapy, January 2018: 17-22.

Lifestyle Interventions

- Fluid and Diet Modification
- Prevention
- Weight Loss
- Exercise
- Relaxation/Yoga
- Nocturia Management
- Facilitate Voiding and Bladder Emptying
- Treat the Constipation

Lifestyle Modifications

- Bowel habit regulation
- Regular and predictable
- Adequate fiber
- Avoid straining
- Adequate fluid and exercise
- Regular time
- Heed the call – listen to your body!
- Avoid constipation

Toilet Posture

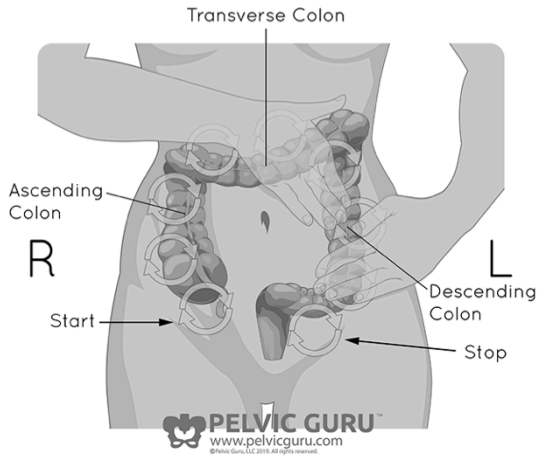
Fluid and Diet Modification

- Eliminate or reduce bowel or bladder irritants
- Modify timing and amount of fluid intake
- Modify bowel habits

Common Bladder and Bowel Irritants

- Caffeine
- Chocolate
- Citrus Products
- Artificial Sweeteners and colors
- Spicy food
- Tomato products
- Vitamins B, C
- Soda
- Milk or dairy products
- Sugar

Abdominal Massage



I Love You Abdominal Massage

I L U

Fluid and Diet Modification

- Eliminate or reduce bowel or bladder irritants
- Modify timing and amount of fluid intake
- Modify bowel habits as needed

Hydrate!

- One ounce of fluid per 2 lbs.. of body weight.
- Child weighs 60 lbs.: should drink 30 ounces.

Benefits of drinking water

- Urinary diuresis greatly reduces count of infected urine
- Optimal functioning of our body requires a good hydration level
- Water fills the bladder efficiently, giving the child “reason to void”

Success!

- Urinate often
- Drink lots of water
- Move your bowels daily
- Be aware of when your body tells you it is time to empty
- Don't argue with your parents if they tell you it is time to use the toilet.

Diet and Lifestyle Modification

- Bowel Habit Regulation
- Goal: Regular and predictable
  - Adequate Fiber (20-25 grams a day)
  - Avoid straining
  - Fluids and Exercise
  - Regular time
  - Heed the Urge
  - Avoid constipation
  - Take fiber supplements/laxatives as prescribed by physician

CASE STUDIES

Dylan

- Nine year old girl. Lives with mother. Parents divorced. Experiences urinary frequency and incontinence.
- Moves bowels 2-3 times a week. Type I to IV Bristol Stool Scale.
- Mother is getting counseling for herself for anger management. Dylan's urinary incontinence makes mother really angry, and this interferes with mother/daughter relationship.
- Dylan wets pants several times a day.
- Teachers won't let her use toilet at every request, as they feel this is behavioral and disruptive to class. They think Dylan uses toileting as excuse not to do work.

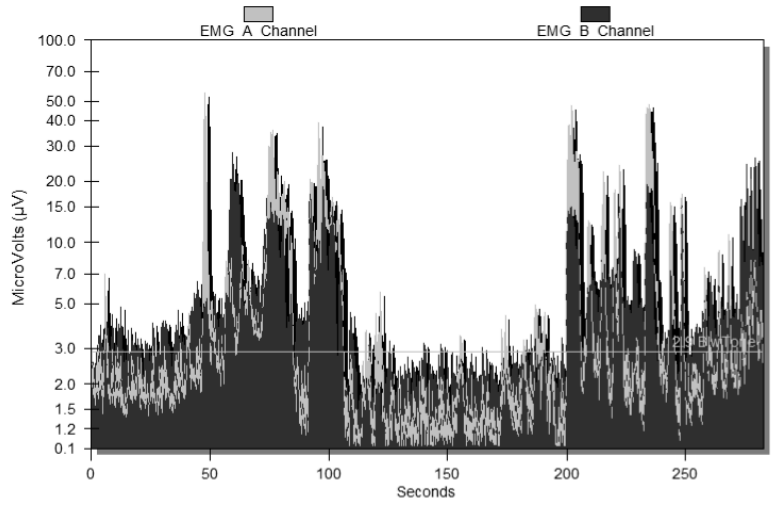
Dylan - continued

- Detailed history with bowel and bladder diary requested. Discussed anatomy, good fiber, use of fluids. "The poop drives the pee."
- Biofeedback to teach Dylan what muscles do, and why and how they are the gatekeeper to elimination.
- Proper toileting posture and adequate time on toilet
- Electrical stimulation for OAB symptoms

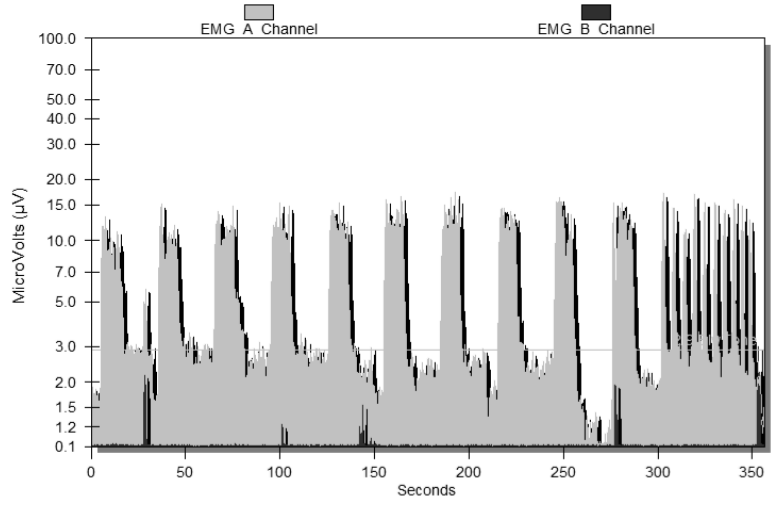
Dylan - Results

- No symptoms
- No problems with toileting at school
- Mother and daughter in counseling
- Both happy and getting along
- Thrilled with the progress
- 10 visits

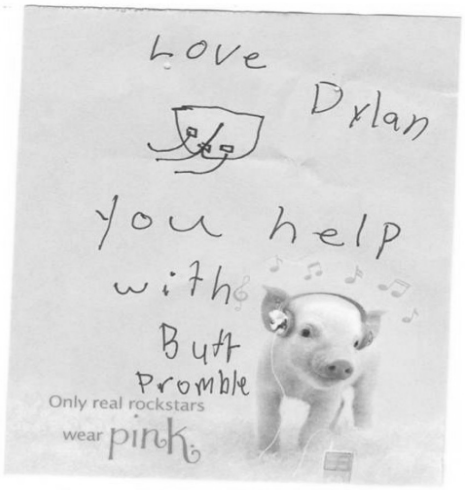
Pre treatment



Post treatment



Dylan's picture



Nick

- Fifteen year old boy, lives with father and his new wife. Nick doesn't get along with the new wife.
- H/O ADHD. He was on Adderall, but Nick took himself off the drug stating he wanted to learn how to control things without the use of the drug.
- Doing well in school, although some motivational issues according to his father.

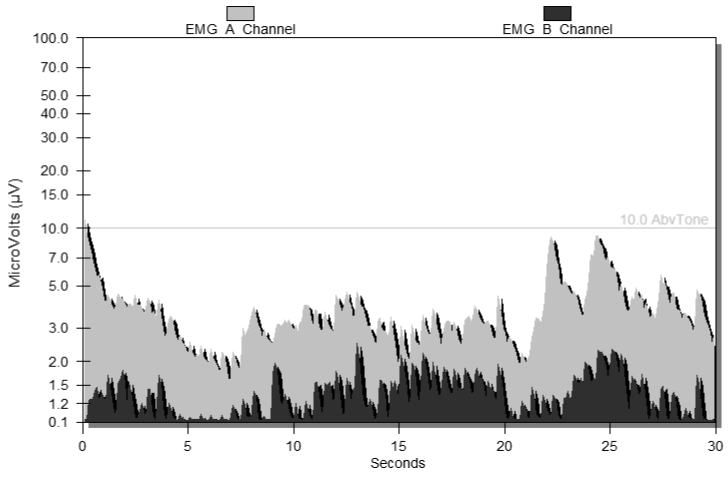
Nick - continued

- Referred by pediatric gastroenterologist because of encopresis.
- Now taking Miralax but still experiencing incontinence.
- Unaware of muscles or when he gets his call to stool. Unaware of when he has his accidents.
- Faithful with his bowel diary. Interested in the anatomy and learning about his body.

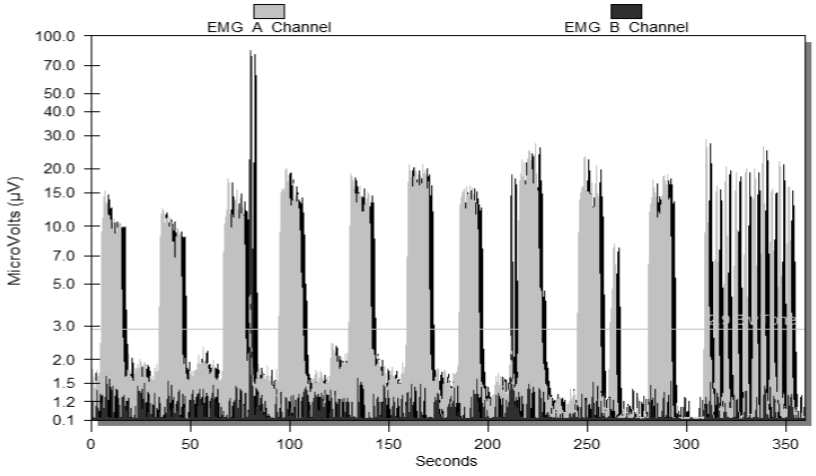
Nick - continued

- Nine visits later he knew he would need to move his bowels right after school, and again around 8PM. No longer using Miralax, but taking gummy fiber and eating healthy meals.
- Father and stepmother had trouble with his learning style: always came up with chore ideas when it was time for him to use the toilet. If he was distracted with their "tasks" he had an accident. Sometimes it is more about teaching the parents!

Pre-treatment



Post treatment



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Resources for Training and Certification

- Biofeedback Training & Incontinence Solutions
  - Telephone 1-512-557-6310 or www.pelvicfloorbiofeedback.com
  - hosts a 3 day course annually in April and September which fulfills didactic and practicum requirements for certification
- Biofeedback Certification International Alliance
  - Telephone 1-866-908-8713 or www.bcia.org
  - Offers certification in pelvic floor muscle dysfunction biofeedback

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How to Get BCIA Board Certified

- Must be licensed as a nurse, PA, MD, OT, PT, or NP
- COTAs and PTAs may be a board-certified technician
- 28 hours of didactic education
- 18 hours of mentoring
- Written certification exam
- Recertified every 3 years with 36 accredited + 20 elective hours of CE in pelvic muscle dysfunction

Favorite Resources

- The M.O.P. Book: Anthology Edition: A Guide to the Only Proven Way to STOP Bedwetting and Accidents 2nd Edition, 2018 by Steve Hodges, MD
- Jane and the Giant Poop by Suzanne Schlosberg and Steve Hodges MD
- It's No Accident: Breakthrough Solutions To Your Child's Wetting, Constipation, Utis, And Other Potty Problems Paperback – 2012 by Steve J. Hodges and Suzanne Schlosberg
- Don't Cry, Stay Dry: Bedwetting Causes Explained and Natural Treatments for Kids to Try Paperback – 2019 by Jeanice Mitchell and Sheri Wall
- The Poo in You – You Tube video
- www.bedwettingstore.com

Resources & Professional Organizations

- National Association For Continence (NAFC) www.nafc.org
- International Continence Society (ICS) www.icsoffice.org
- Society of Urologic Nurses and Associates (SUNA) www.suna.org
- American Urologic Association (AUA) www.auanet.org
- The Simon Foundation for Continence www.simonfoundation.org
- Biofeedback Certification International Alliance (BCIA) www.bcia.org
- International Foundation for Functional Gastrointestinal Disorders (IFFGD) www.iffgd.org
- National Kidney and Urologic Diseases Information Clearinghouse http://kidney.niddk.nih.gov/
- Biofeedback Foundation of Europe (BFE) www.bfe.org

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Contact Information

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