

PELVIC FLOOR PHYSICAL THERAPY AND BIOFEEDBACK FOR GI DISORDERS

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IU Health
Physical
Therapy

OBJECTIVES

- To deliver an explanation of biofeedback and provide a sample description of biofeedback to patients
- To discuss current use of biofeedback within the realm of pelvic floor rehabilitation
- To present current research regarding the use of biofeedback to treat various pelvic floor dysfunctions affecting the GI system
- To demonstrate examples of biofeedback as a physical therapy intervention
- To present a new method of biofeedback using rehabilitative ultrasound imaging

WHAT IS BIOFEEDBACK?



- Equipment that assists an individual in gaining control of natural body functions
- Provides monitoring of a muscle and returns meaningful information to the patient

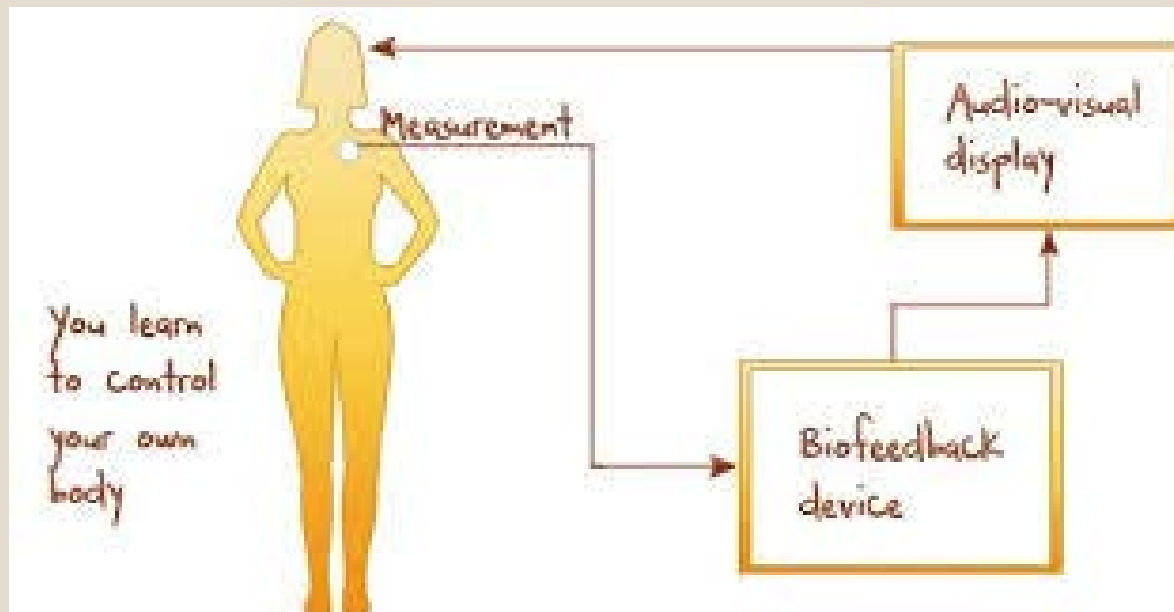
WHAT SHOULD PATIENTS KNOW?

- Biofeedback measures your muscles response to your brains instructions.
- An evaluation will entail either surface electrodes or an internal sensor, which allows the therapist to evaluate the pelvic floor muscle coordination.
- After an evaluation a specific treatment plan will be designed to meet the patient's needs.
- Patients will be asked to carry out a home exercise program utilizing the skills and exercises practiced during the physical therapy session.

BIOFEEDBACK IN PELVIC FLOOR PHYSICAL THERAPY



- Biofeedback
 - “Up” Training
 - “Down” Training
- Biofeedback/Neuromuscular Re-Education
 - Verbal Cues
 - Tactile Cues



BIOFEEDBACK IN PELVIC FLOOR PHYSICAL THERAPY



Biofeedback is always combined with other interventions:

■ Manual Therapy

- Internal pelvic floor muscle stretching
- External muscle release
- Joint mobilization
- Scar issue mobilization
- Colonic Massage and Visceral mobilization
- Pelvic Asymmetry corrections

■ Therapeutic exercises

- Stretching/Strengthening muscles that originate or insert to pelvis
- Lumbopelvic Stabilization
- Functional Progression
- Patient Home Exercise Program, including possible home biofeedback unit
- Muscle energy Techniques
- Motor Pattern Training

■ Patient Education



BIOFEEDBACK THERAPY FOR PELVIC PAIN



THE ROLE OF BIOFEEDBACK AND SOFT TISSUE MOBILIZATION IN THE TREATMENT OF DYSPAREUNIA¹

- A systematic review with the primary purpose to determine whether soft tissue mobilization or biofeedback would be a more effective treatment in the management of dyspareunia.
- 4 chosen articles for homogeneity and were evaluated by the PEDro Scale (Physiotherapy Evidence Database) and classified according to the Oxford Centre for Evidence Based Medicine.
- In all four studies, biofeedback and soft tissue mobilization significantly improved outcomes, including pain and sexual functioning, relating to pelvic pain and dyspareunia.
- All studies included in the systematic review included home programs with treatment session in the interventions. Frequencies and durations varied.

BIOFEEDBACK THERAPY FOR FECAL INCONTINENCE



LONG-TERM OUTCOME AND OBJECTIVE CHANGES OF ANORECTAL FUNCTION AFTER BIOFEEDBACK THERAPY FOR FAECAL INCONTINENCE²

- 105 patients with faecal incontinence that had previously been unresponsive to medical treatment.
- Biweekly physical therapy sessions for pelvic muscle strengthening exercises, biofeedback, sensory-motor coordination training. Reinforcement sessions at 3, 6, and 12 months.
- Anorectal manometry, saline continence test, stool diaries, and bowel satisfaction scores were used to assess improvement.

LONG-TERM OUTCOME AND OBJECTIVE CHANGES OF ANORECTAL FUNCTION AFTER BIOFEEDBACK THERAPY FOR FAECAL INCONTINENCE²

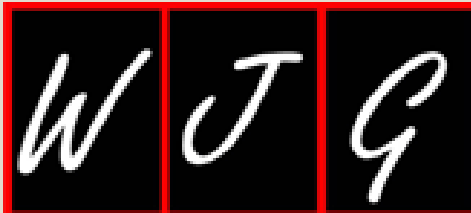
- At the 1 year follow up 63% reported no episodes of incontinence.
- Decreased stool frequency, episodes of incontinence ($P < .001$)
- Increased bowel satisfaction score, anal resting and squeeze pressures, squeeze duration and ability to retain saline. ($P < .001$)
- Sensory thresholds decreased ($P < .001$)

BIOFEEDBACK THERAPY FOR CONSTIPATION AND DYSSYNERGIC DEFECATION



Chiarioni G. Chronic proctalgia and chronic pelvic pain syndromes: New etiologic insights and treatment options³

- A second systematic review addressed the pathophysiology, diagnostic evaluation, and treatment of chronic proctalgia, coccygodynia, pudendal neuralgia, and chronic pelvic pain.
- “ Biofeedback to treat dyssynergic defecation was an effective treatment for the subset of patients with chronic proctalgia who reported tenderness when traction was applied to the levator ani muscles during a digital rectal exam.”



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. BIOFEEDBACK-GUIDED PELVIC FLOOR EXERCISE THERAPY FOR OBSTRUCTIVE DEFECATION: AN EFFECTIVE ALTERNATIVE⁴

- The purpose of this study was to compare biofeedback guided pelvic floor exercise therapy (BFT) with the use of oral polyethylene glycol (PEG).
- 88 subjects with obstructive defecation were divided into two groups
 - Diagnoses confirmed by general medical examination, anorectal testing, and biochemical techniques
 - 44 subjects in the BFT group received 5 weeks of biofeedback training combined with a home exercise program.
 - 44 subjects in the PEG group received 17 grams of the laxative orally, 3 times a day for 14 days

BIOFEEDBACK-GUIDED PELVIC FLOOR EXERCISE THERAPY FOR OBSTRUCTIVE DEFECATION: AN EFFECTIVE ALTERNATIVE⁴

Symptoms at 6 month follow up	PEG Group Individuals	BFT Group Individuals	P value (P<.05)
Difficult evacuation	24	11	0.0046*
Hard Stools	21	7	0.0014*
Need for Digitation	20	3	0.0000*
Sensation of incomplete emptying	14	10	0.3374
Laxative dependence	28	10	0.0001*
Perianal pain at defecation	18	9	0.0375*
Satisfaction	9	35	0.0010*

ABDOMINAL SYMPTOMS ARE COMMON AND BENEFIT FROM BIOFEEDBACK THERAPY IN PATIENTS AND DYSSYNERGIC DEFECATION⁵

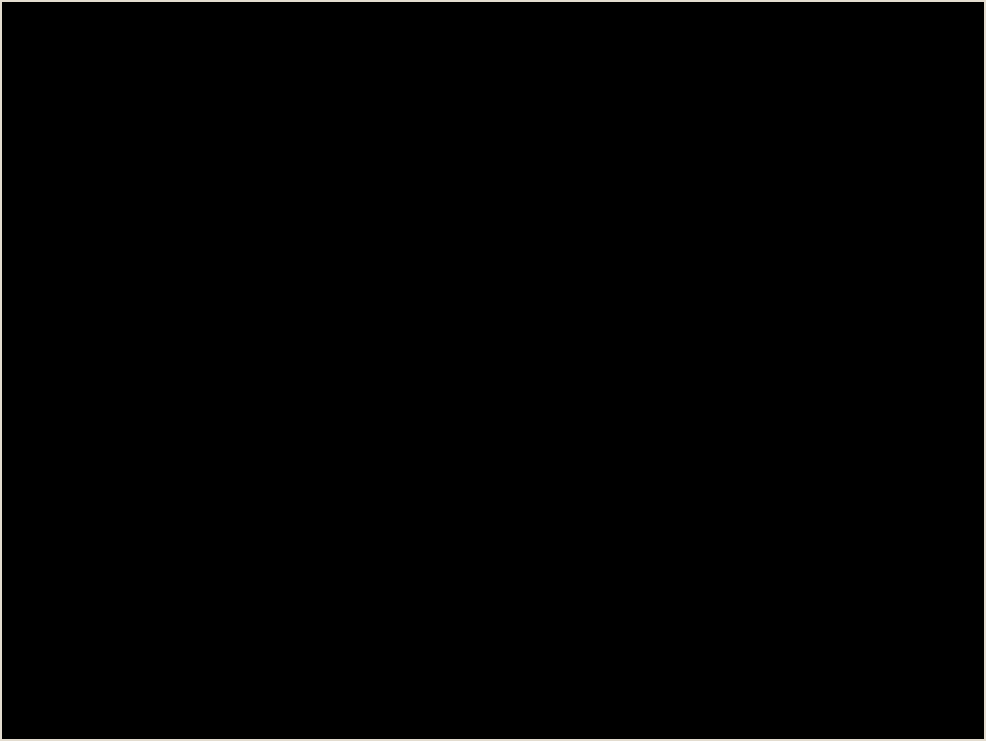
- **Abdominal pain, discomfort, and bloating often accompany patients managing dyssynergic defecation.**
- **Biofeedback therapy is the most effective treatment for DD and use real time visual or auditory feedback cues to correct maladaptive behaviors involving the abdominal wall, puborectalis, and anal sphincter.**
- **Rectal sensory balloon training can be a helpful addition to improve rectal sensory abnormalities that coexists in some patients with dyssynergia.**

PERSONAL ASSESSMENT OF CONSTIPATION SYMPTOM QUESTIONNAIRE RESULTS BEFORE AND AFTER TREATMENT⁵

Symptom	% Improvement	P-Value
Abdominal Discomfort	33.7	<.001
Abdominal Pain	29.9	<.001
Abdominal Bloating	42.8	<.001
Abdominal cramps	32.5	<.001
Painful Bowel Movements	33.7	.001
Rectal Burning	26	<.001
Rectal Bleeding	14.3	.008
Incomplete BM's	48	<.001
Hard Bowel Movements	28.6	<.001
Small Bowel Movements	35	<.001
Strain During BM's	45.4	<.001
"False Alarms"	51.9	<.001

BIOFEEDBACK THERAPY VIDEO SESSION





Biofeedback
Session
Example

A NEW TYPE OF BIOFEEDBACK



REHABILITATIVE ULTRASOUND

- Physical therapists use Ultrasound imaging for rehabilitative purposes.
- It is not in our practice act to make medical diagnoses.



REHABILITATIVE ULTRASOUND IMAGING

- Defined as “A procedure used by physical therapists to evaluate muscle and related soft tissue morphology and function during exercise and physical tasks. It is used to assist in the application of therapeutic interventions aimed to improve neuromuscular function.”

MUSCLES COMMONLY IMAGED

- Patient Supine:

- Pelvic floor (Viewed via the abdomen or perineum)
- Abdominal Wall (Midline and Lateral views)

- Patient Prone

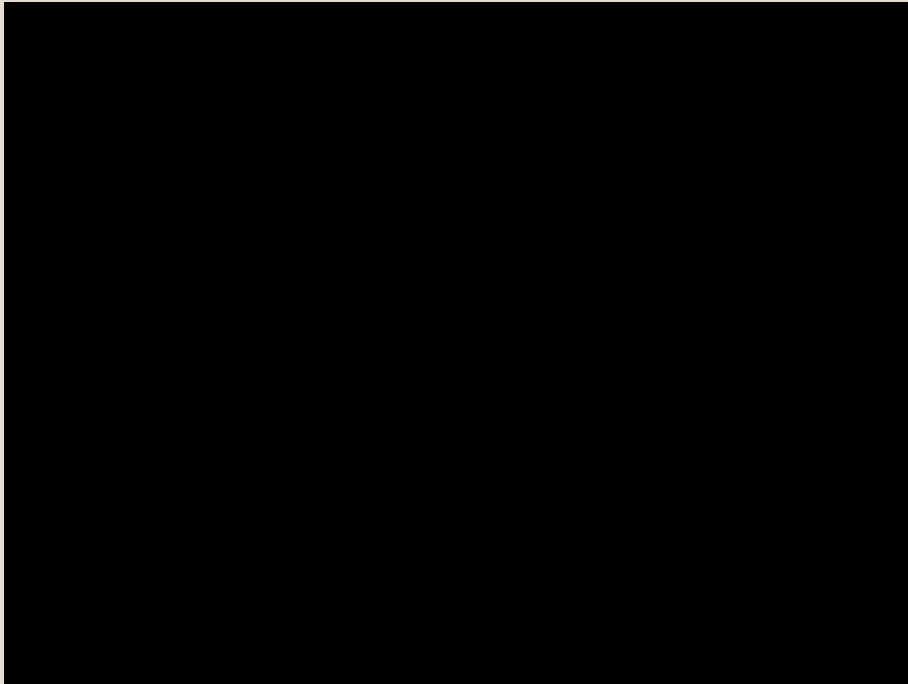
- Spinal Muscles

- Multifidus
- Paraspinals
- Quadratus Lumborum
- Psoas

ULTRASOUND AS BIOFEEDBACK

- The patient is benefiting as they are visualizing their muscles, not a graph.
- Functional progression is still used for “up training”, “down training”, and proprioceptive training.
- No Lift
 - Weak PFM
 - Hypertonic PFM
 - Khorasani et al, 2012 compared pelvic floor muscle mobility in med with and without chronic pelvic pain and found significant differences in elevation of the bladder base.
- View quality of relaxation and contraction
 - Speed, symmetry, degree of lift and drop

PELVIC FLOOR MUSCLE CONTRACTION

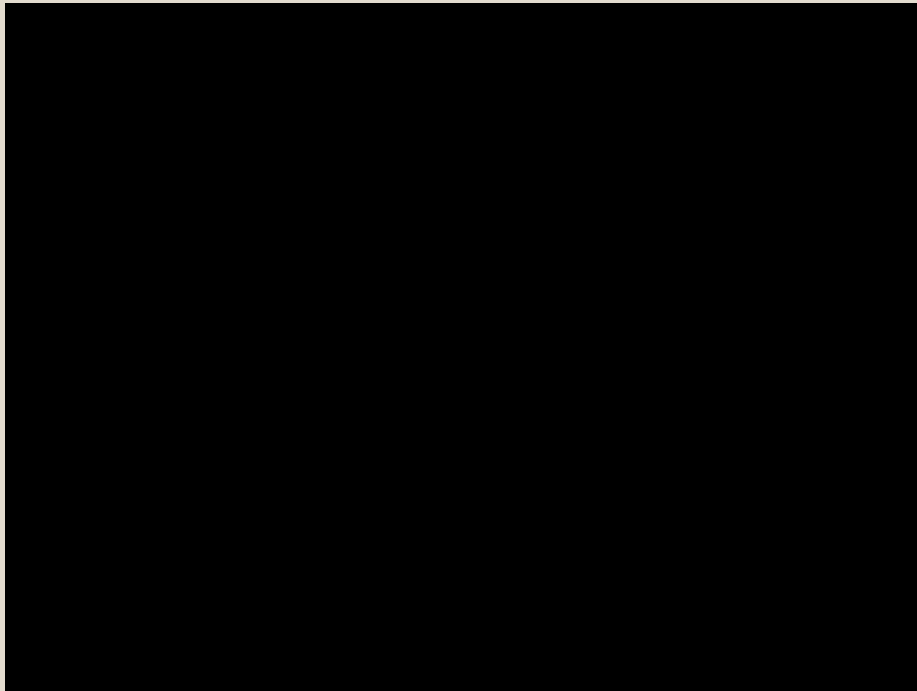


- Bladder wall lifts in cephalic and ventral direction
- Anorectal angle left in cephalic and ventral direction
- Urethra displaced towards pubic symphysis

VALSALVA

- Bladder wall is pulled in caudal and dorsal direction
- Anorectal angle shifts in a caudal and dorsal direction
- No pressure on urethra towards pubic symphysis

BULGE OR ECCENTRIC CONTRACTION



- Bladder demonstrates slight descent
- No compression demonstrated on bladder walls
- Pelvic floor moves further in caudal direction
- Anorectal angle shifts in a caudal direction

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