

The Role of Biofeedback in Pelvic Floor Dysfunction

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Overview

➤ Pelvic Floor Dysfunction

- » Definition
- » Investigation
- » Management

➤ Biofeedback

- » Definition
- » Application
- » Treatment & Outcomes

Pelvic Floor Disorders

➤ Functional:

➤ Dyssynergic Defaecation

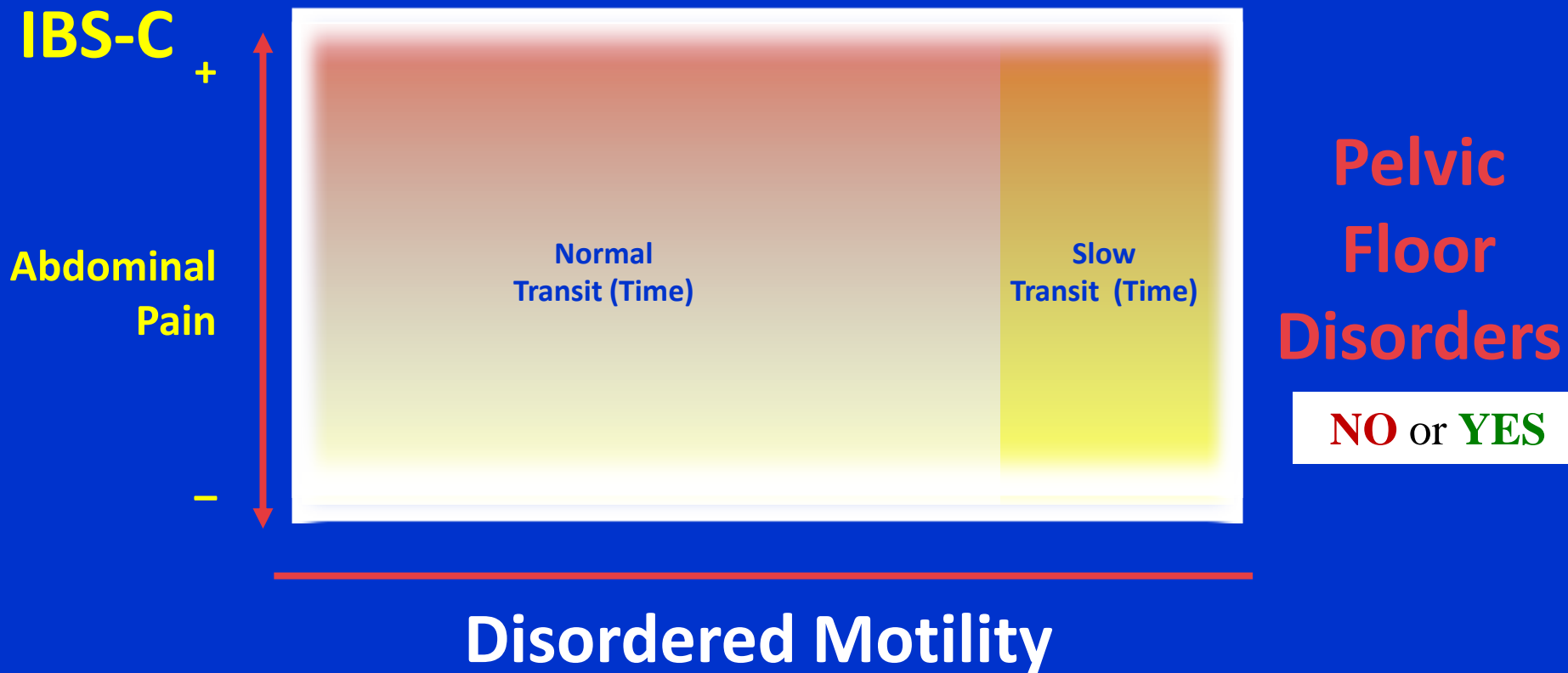
Anismus, Functional Obstructive Defaecation
Obstructive Defaecation Syndrome

➤ Structural:

➤ Rectocele

➤ Enterocoele

Three overlapping types of Pelvic Floor disorders

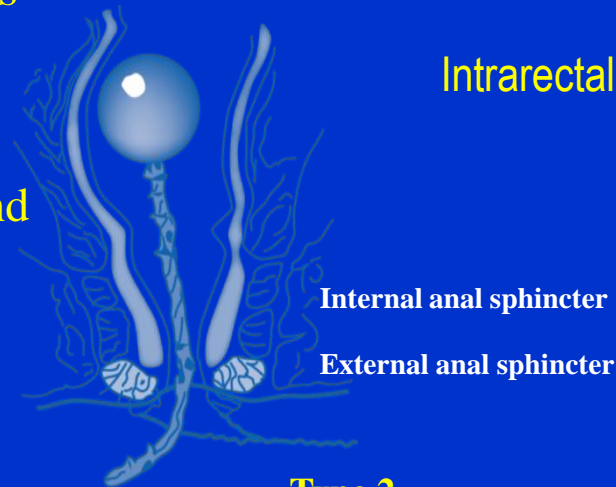


Assessment of Dyssynergia

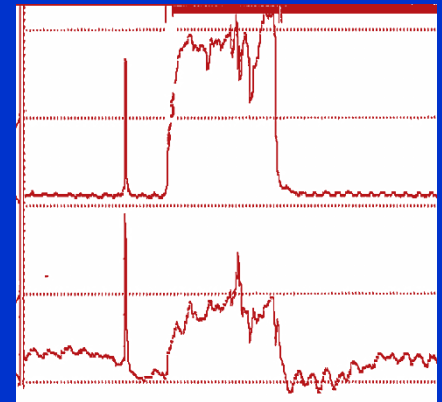
Anorectal Physiology

Three types of abnormal patterns

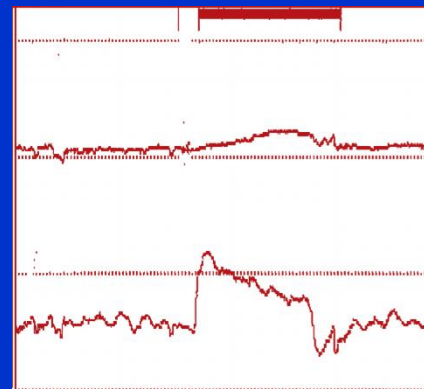
- Type 1
Adequate intrarectal pressure and propulsion with inappropriate sphincter contraction
- Type 2
Inadequate pressure (≤ 45 mmHg) or propulsion with inappropriate sphincter contraction
- Type 3
Adequate pressure with minimal (≤ 20 %) sphincter relaxation



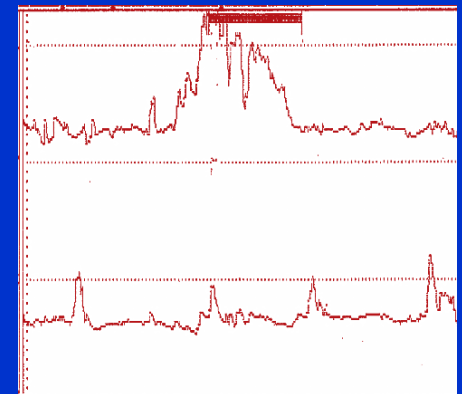
Type 1



Type 2



Type 3

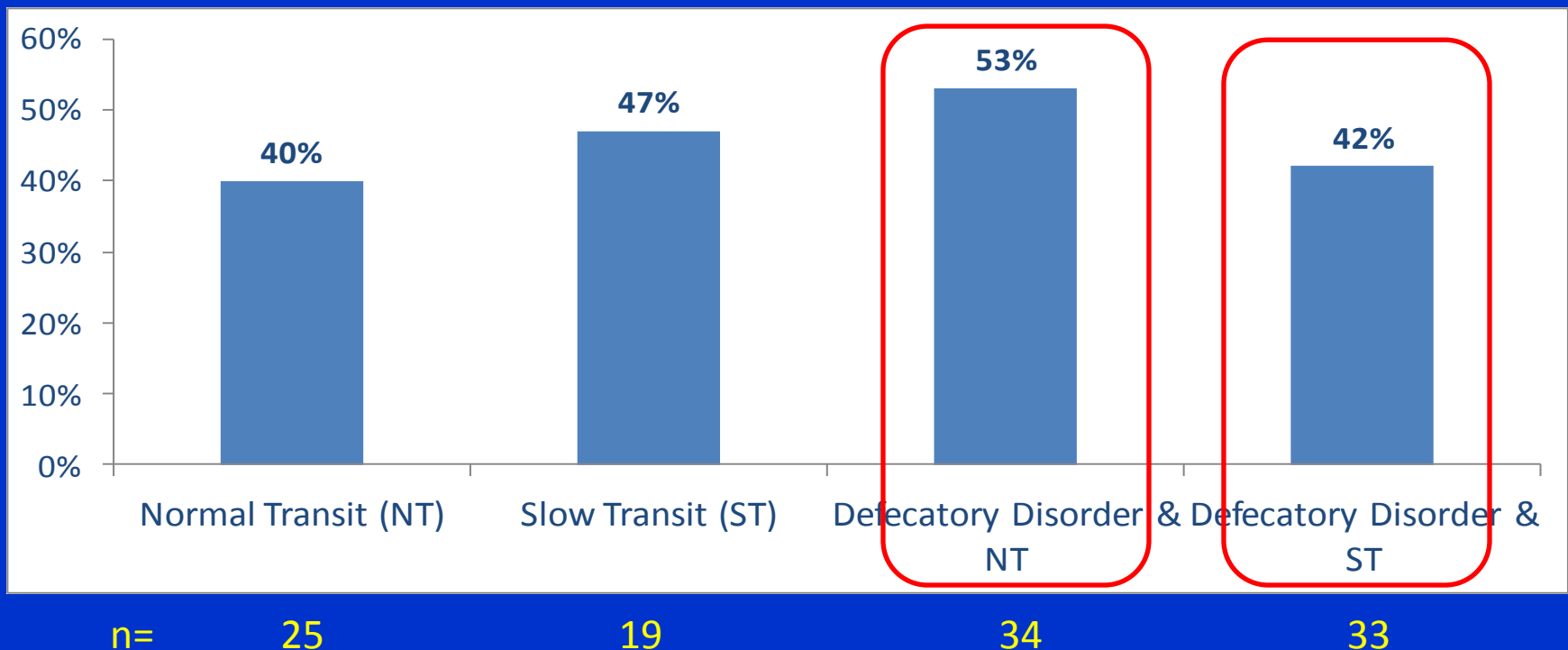


Typical measurements for
dyssynergic defaecation²

Colonic function

Motor dysfunction in normal & slow transit

Percent of subjects with colonic motor disturbances* by constipation subtype



*Subject was considered to have a motor disturbance if measured values were less than 10th percentile value for controls
Colonic motor disturbances included fasting and postprandial colonic tone and compliance.

Dyssynergic defaecation

symptom pattern

- **Constipation symptoms¹⁻⁴**
 - Bloating and discomfort
 - Hard stools
 - Infrequent urge
 - Straining
 - Feeling of incomplete evacuation
 - **Rectal digitation**
 - Vaginal digitation
 - *Abdominal pain*
- **Response to laxatives, diet²**
 - **Suppositories** often successful,
 - **High fibre or bran can worsen symptoms**
- **Patient history⁵**
 - Much more common in women
 - Can be any age, and not necessarily related to parity
- **Physical Exam**
 - **Contraction of puborectalis**

Triggers

Physical

- Surgery
- Postoperative pain
- Childbirth / pregnancy
- Trauma / injury
- **Abuse**

Emotional / psychological

- **Stress**
- Depression
- **Abuse**

Behavioural

- **Urge avoidance**
- **Eating behaviour**
- **Anorexia / bulimia**

Urge avoidance

- 78% of women admitted they have avoided going to the toilet at work
- Voluntary prolonged suppression of defaecation can induce changes in colonic function,
 - Slowing of gut transit
 - Dyssynergic defaecation

*Online market research conducted by Pure Profile on behalf of Continence Foundation of Australia: survey conducted among a nationally representative sample of women (n=1002) aged ≥18 years.

Referral letter – Miss X

Dear Colleague,

Thanks for seeing this 24 year old patient who came under our care following a 14 year history of constipation. She reported never having a normal bowel habit, and feels that this has become much worse during the last year.

On one occasion, the GP saw her with fairly severe rectal and anal pain associated with defaecation and diagnosed anal fissure.

She has an unremarkable past medical and family history.

She has not responded to laxative treatment or dietary modifications.

GP

Our consultation – Miss X

- Constipation
 - BO X 1/wk with fibre supplementation & laxatives (macrogol and docusate)
 - Bloating & discomfort
 - Straining
 - Incomplete evacuation
 - **Digitation (rectal only)**
- Physical examination
 - PR:
 - Faecally loaded rectum
 - No FIA or peri-anal disease
 - **Puborectalis contraction on attempted defaecation**

Specialist Investigations

- Transit Studies

 - Colonic Transit Study

- Anorectal Physiology

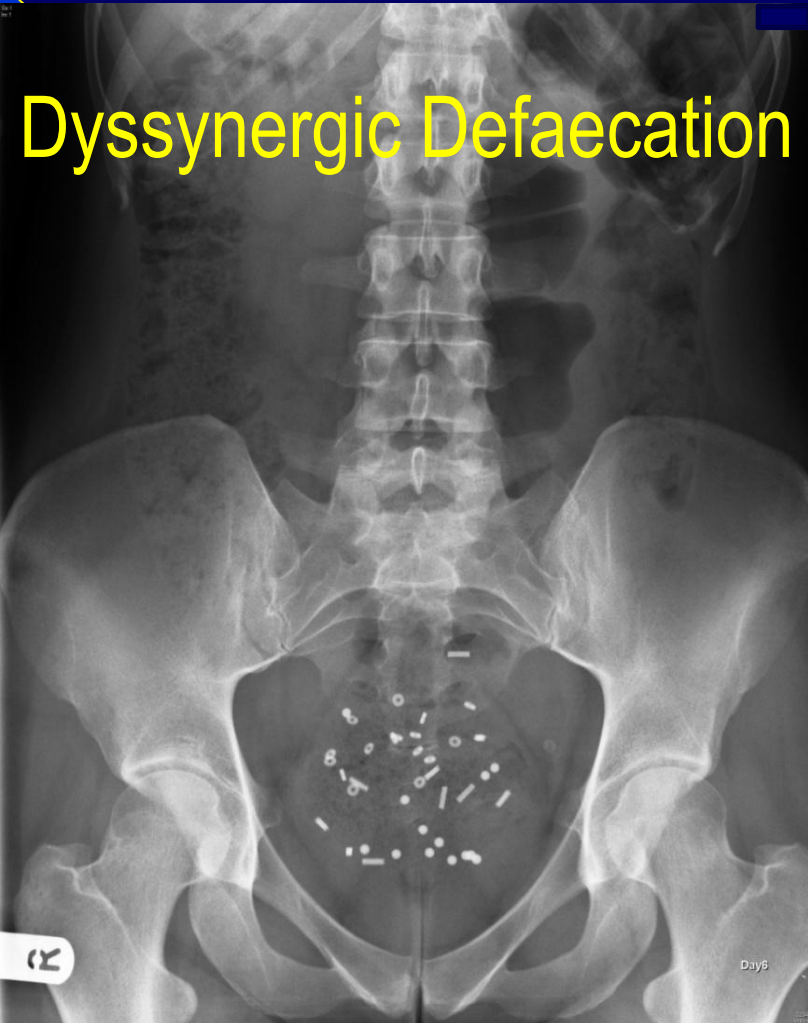
 - Anorectal Manometry

 - Balloon Expulsion Test

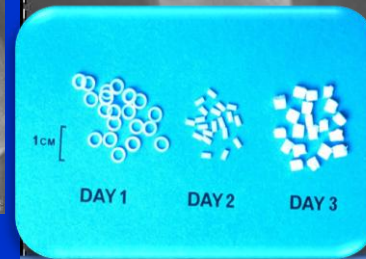
 - Neurophysiology Tests

Radiological Colonic Transit Studies

Dyssynergic Defaecation

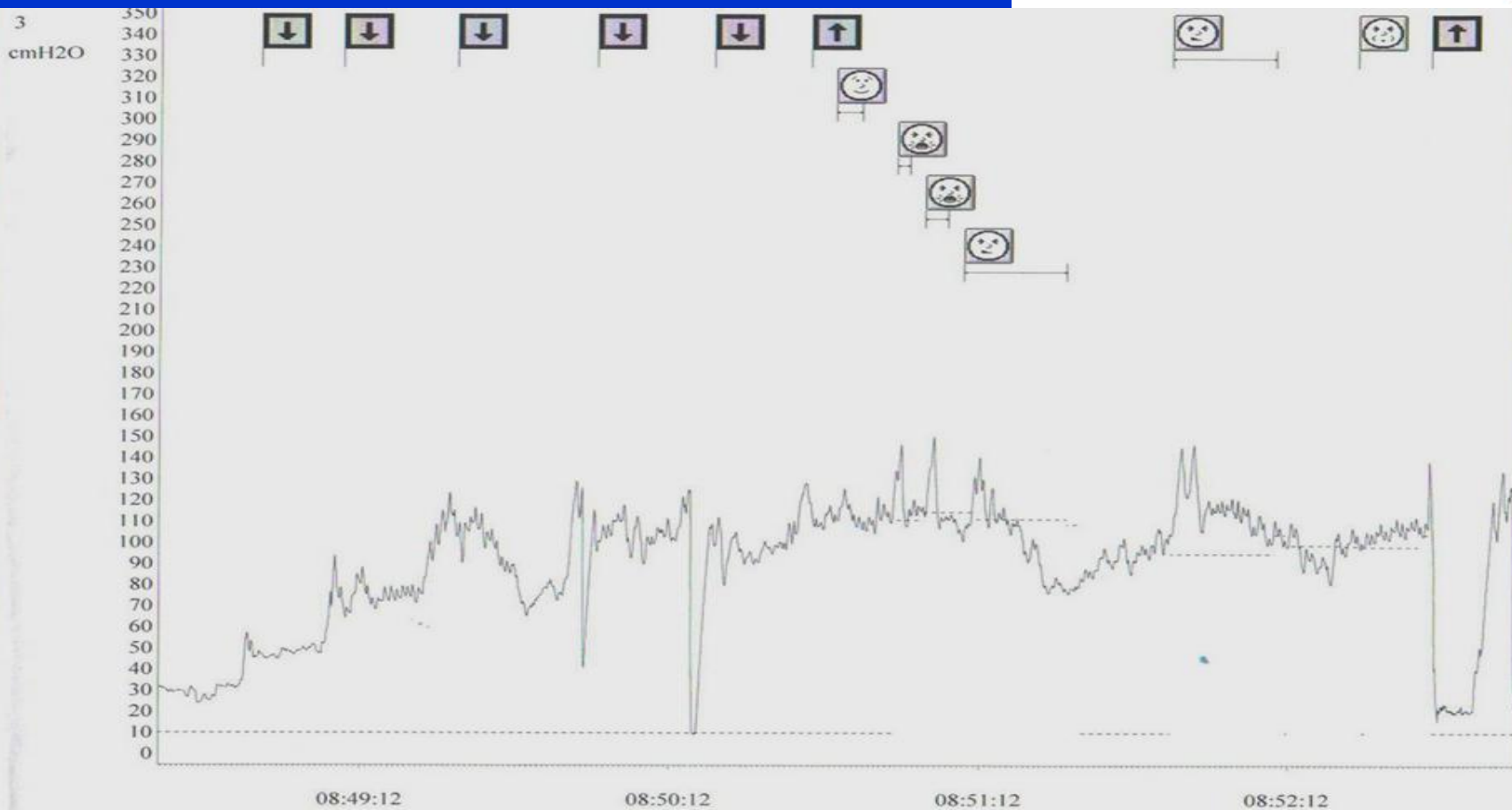
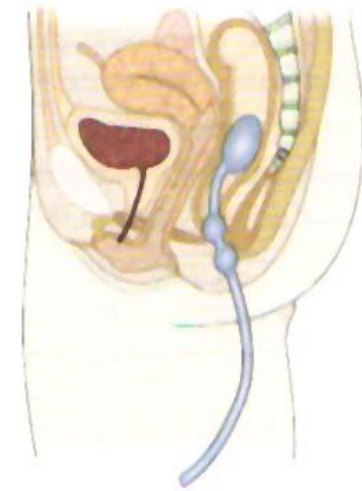


Slow Transit



Anorectal Manometry Pressure Profile

- *Anal pressures at rest: 85cmH2O*
 - *on Squeezing: 47cmH2O*
 - *on coughing: 72cmH2O*
 - *on straining: 30cmH2O*
 - *Index: 64%*
- Rectal balloon expelled with difficulty*

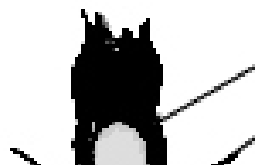


Dyssynergic Defaecation

Dyssynergic defecation

Normal

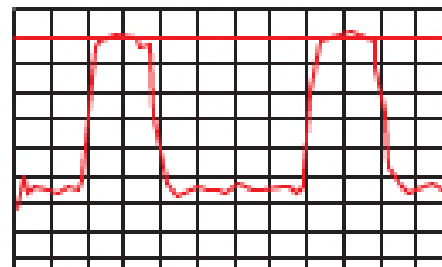
Dyssynergia



20 mmHG [

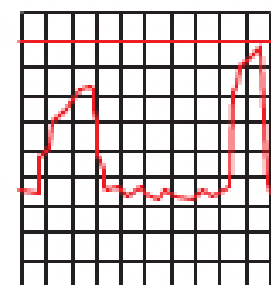
Control

5 sec



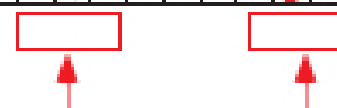
Patient

5 sec

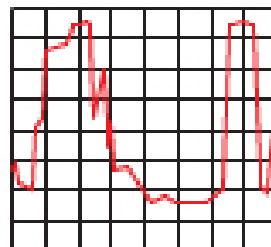


Rectal balloon expelled with difficulty

sphincter

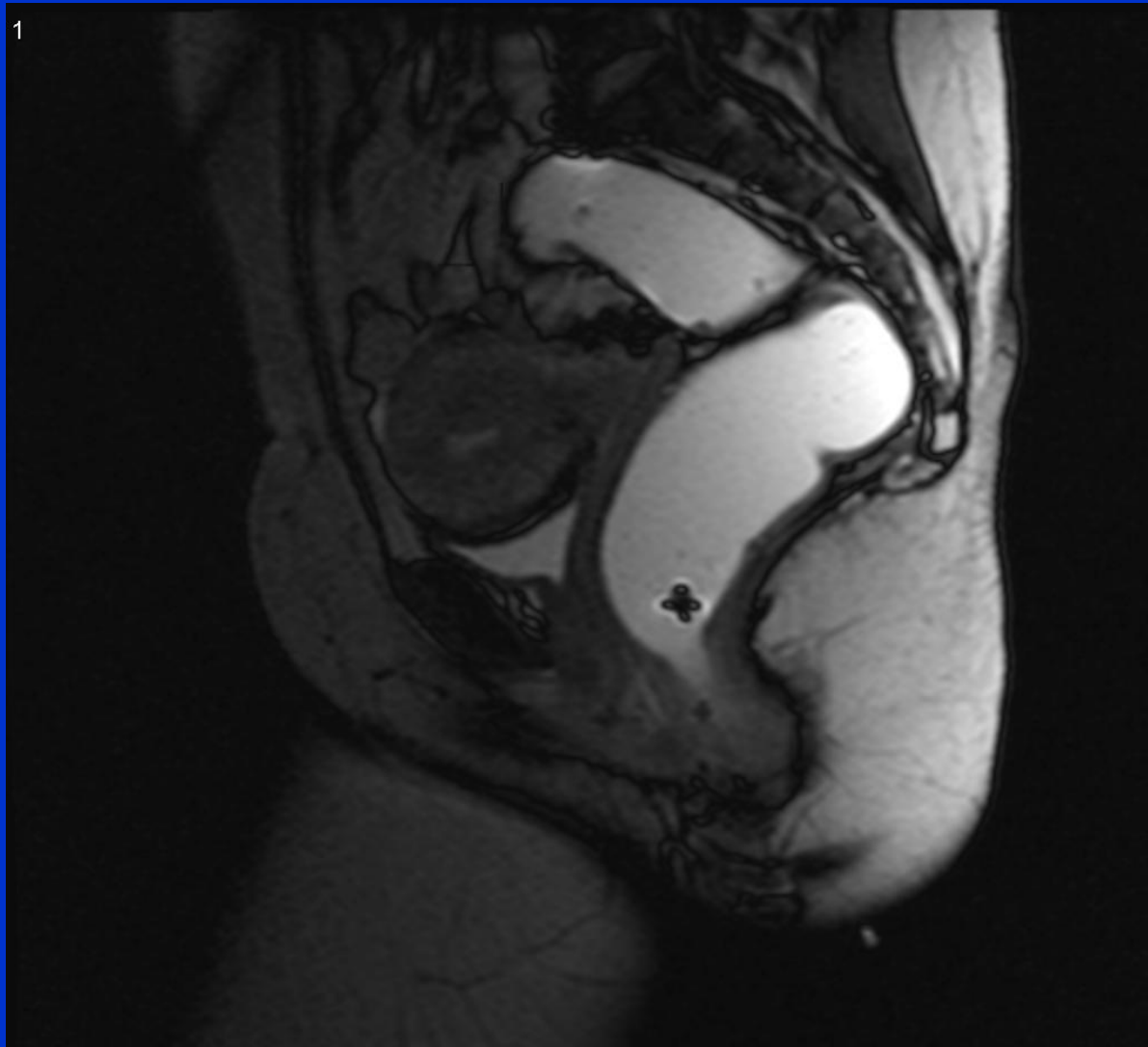


Expulsion



Expulsion

Dyssynergic defaecation



Management

- 1st Phase

- » Patient's Education
- » Identify & Rx underlying cause

- 2nd Phase

- » Regulate bowel habit
 - » Simple measures: dietary
 - » eliminating certain medications
 - » **Specialist medications**

Patient's Education

Medical History



bowel habits, diet, medication

Management

- 1st Phase
 - » Patient's Education
 - » Identify & Rx underlying cause
- 2nd Phase
 - » Regulate bowel habit
 - » Simple measures: dietary
 - » eliminating certain medications
- 3rd Phase
 - » Behavioural modalities
 - » **Biofeedback**

Biofeedback

- Any feedback regarding our biological state
 - may be considered biofeedback
- Biofeedback training involves
 - Monitoring a physiological phenomenon
 - Presentation of that information to
 - the person being monitored, along with
 - a **motivational intent** to alter that phenomenon

Biofeedback

- **Biofeedback** is
the process of becoming aware of **physiological** functions,
with a goal of being able to manipulate them at will.
- **Processes that can be controlled include**

DIY CBT



brainwaves

muscle tone

skin conductance

heart rate

pain perception

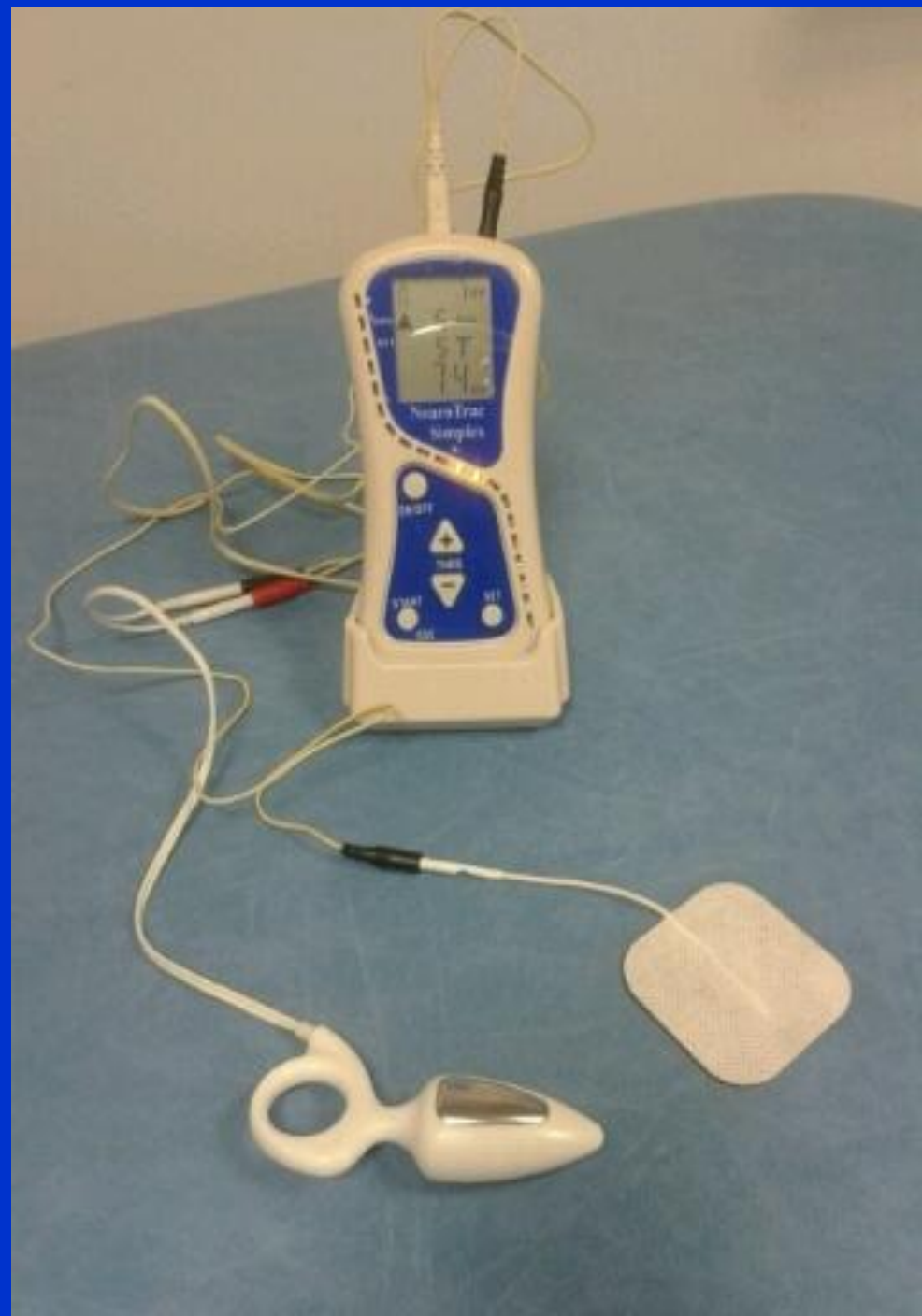
Biofeedback in Anorectal Dysfunction

- Re-educating the PF muscles
 - to relax rather than contract inappropriately during defaecation straining
- **Such techniques as**
 - Anal EMG & ARM - monitor external sphincter activity
 - By watching recordings of EMG activity or pressure responses patients may modify inappropriate responses
- **Short- and long-term improvement has been shown in up to 80% of patients using biofeedback**

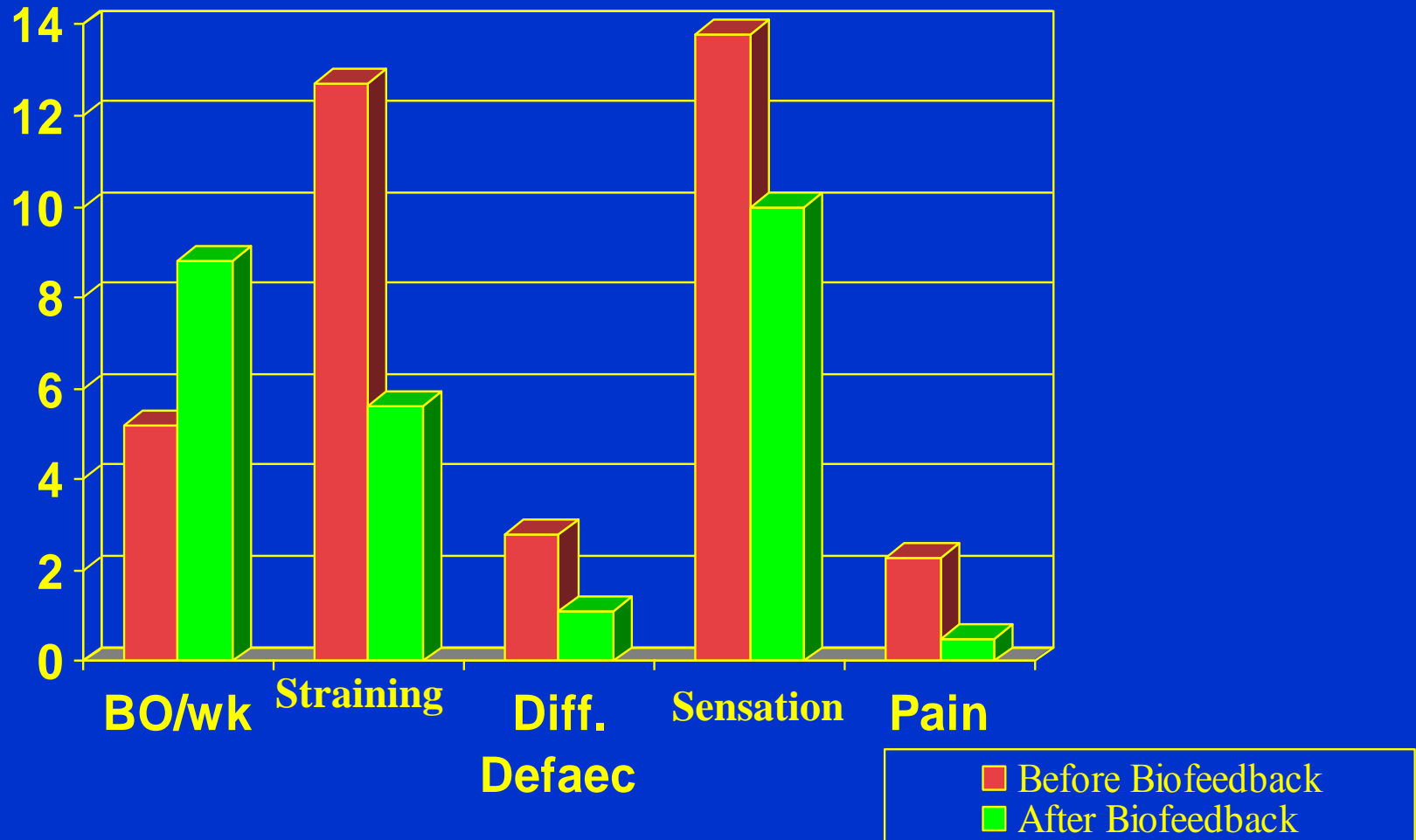
Biofeedback

EMG PF

- **EMG probe is placed in the anus sensing electrode on the skin.**
- **Device with visual/sound display**
- **patient aware of inappropriate anal muscle function**
- **patient improves coordination of the anal muscles**
 - **improves bowel movements**
 - **improves rectal sensation**



Dyssynergic Defaecation-Biofeedback



Biofeedback

➤ Improvement anorectal function

➤ Afferent limbs

➤ Improvement rectal sensation

➤ Efferent limbs

➤ Improve

➤ Give a man a treatment and you help him for a day.
Teach him how to treat himself and you help him for a lifetime”

➤ Defecation reflex

➤ Higher cortical centres

➤ Biofeedback as self-regulatory treatment

GIU - WGH

- Combined Rx – majority of patients

- **EMG Domiciliary Biofeedback**

- 70% improvement (30% complete resolution)
- 40% incomplete resolution - ‘struggled’
- 20% failed Rx
- 10% unable to comply

- **Hospital Based biofeedback**

Conclusions - Biofeedback

- Physiological approach to disorders
 - Imbalances in human physiology
 - May cause and/or exacerbate chronic medical conditions
 - Understanding and effecting changes
 - To aid healthier physiological functions

➤ Motivation

➤ Expertise

➤ Acumen

Summary

- Identify characterise Pelvic floor Dysfunction
 - Heterogeneous condition
 - ± Slow Transit or IBS
- Identify Triggers
 - Eating Disorders
 - Psychological Trauma
 - Sexual or other abuse
- Limited evidence for traditional Rx options
- Need for targeted treatment strategies
 - **Biofeedback**

➤ Panacea?

- Motivation

- Expertise

- Acumen

- Cost

- Tertiary C

- Accessibility

Thank you