



# Hypnosis and the GI Tract

CLINICAL WORKSHOP  
LEVEL 1

January 31, February 1, February 28, and March 1, 2026

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DISCLAIMER:  
*THIS STUFF IS REALLY  
HARD TO STUDY.*

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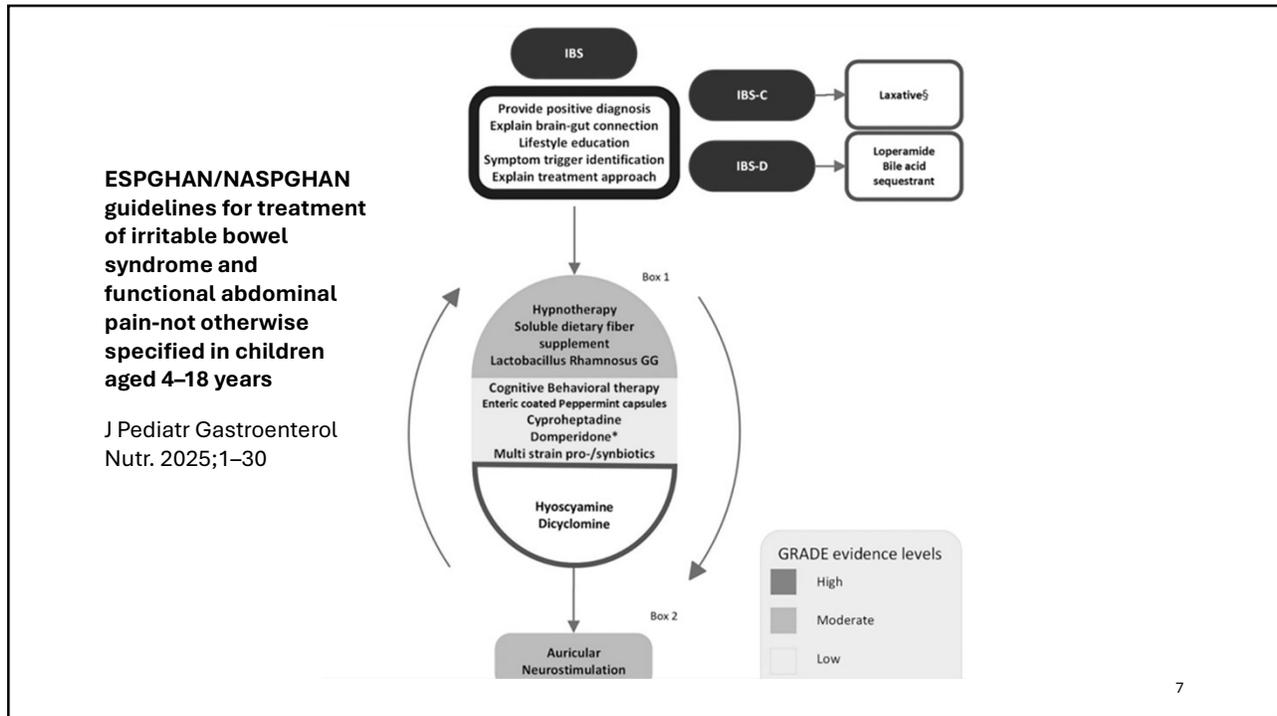
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## **Learning Objectives**

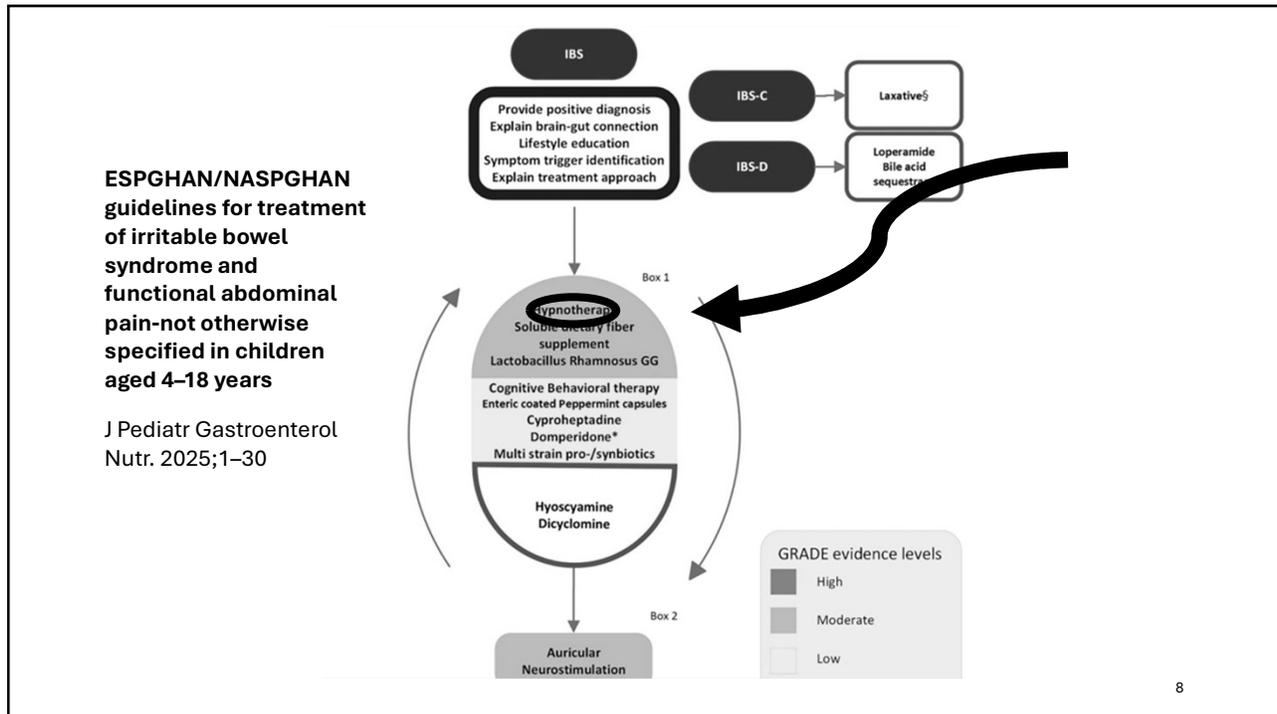
At the conclusion of this session the participant will be able to:

- Describe how hypnosis change gastrointestinal physiology
- Describe results of at least one clinical trial of hypnosis for chronic abdominal pain in children

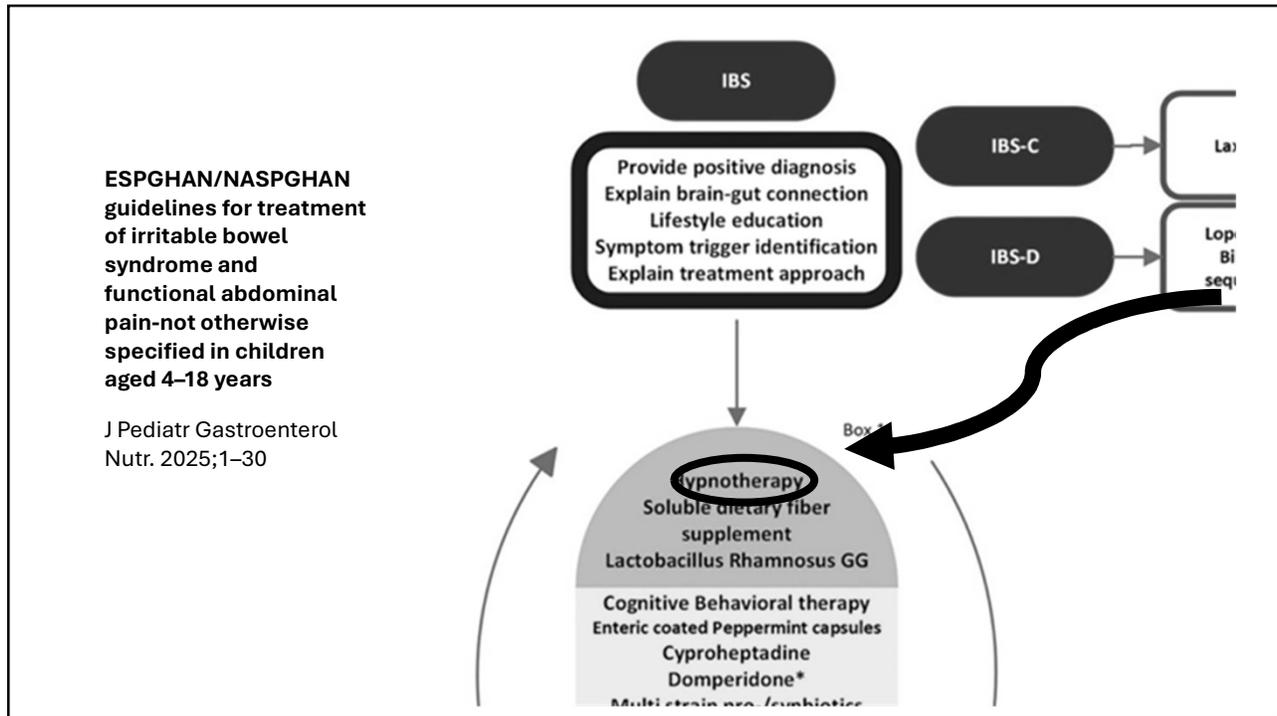
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Gut-directed hypnotherapy:  
What is the evidence?

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## See References 26-33 in ESPGHAN/NASPGHAN guidelines

Groen J, Gordon M, Chogle A, et al. ESPGHAN/NASPGHAN guidelines for treatment of irritable bowel syndrome and functional abdominal pain-not otherwise specified in children aged 4–18 years. *J Pediatr Gastroenterol Nutr.* 2025;1-30.

OPEN ACCESS

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Vlieger et al. *Am J Gastroenterol* 2012; 107:627–631; doi: 10.1038/ajg.2011.487.

nature publishing group

ORIGINAL CONTRIBUTIONS 627

### Long-Term Follow-Up of Gut-Directed Hypnotherapy vs. Standard Care in Children With Functional Abdominal Pain or Irritable Bowel Syndrome

Arine M. Vlieger, MD, PhD<sup>1</sup>, Juliette M.T.M. Rutten, MD<sup>2</sup>, Anita M.A.P. Govers, MD<sup>1</sup>, Carla Frankenhuis<sup>2</sup> and Marc A. Benninga, MD, PhD<sup>2</sup>

PEDIATRICS

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Original study:

Vlieger et al. Gastroenterol 2007; 133:1430-1436

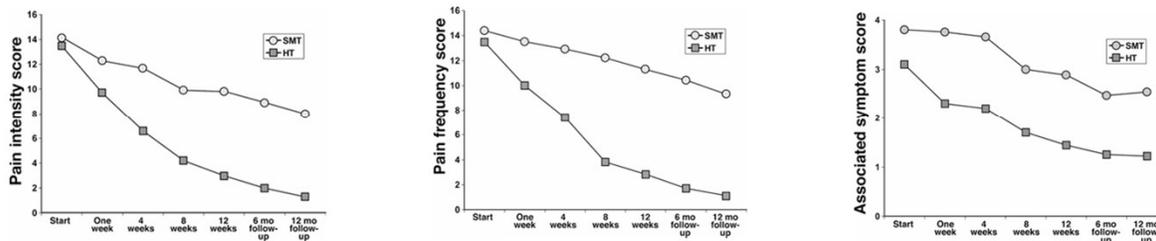
52 children with FAP or IBS

27 treated with HT: 6 sessions over about 3 months

25 treated with standard medical treatment plus supportive therapy

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Significant improvements in pain intensity, pain frequency, and associated symptoms score



14

End of treatment:

59% HT vs 12% SMT in clinical remission ( $p < 0.001$ )

1 year follow-up:

85% HT vs 25% SMT in clinical remission ( $p < 0.001$ )

**Table 2.** Percentage of Patients in Clinical Remission

	After therapy		At 6 mo follow-up		At 1 y follow-up	
	SMT group (n = 25)	HT group (n = 27)	SMT group (n = 24)	HT group (n = 27)	SMT group (n = 24)	HT group (n = 27)
No effect	56%	15%	66%	7%	46%	4%
Improved	32%	26%	17%	22%	29%	11%
Clinical remission	12%	59%	17%	71%	25%	85%

$P < .001$  between the treatment groups at all end points.

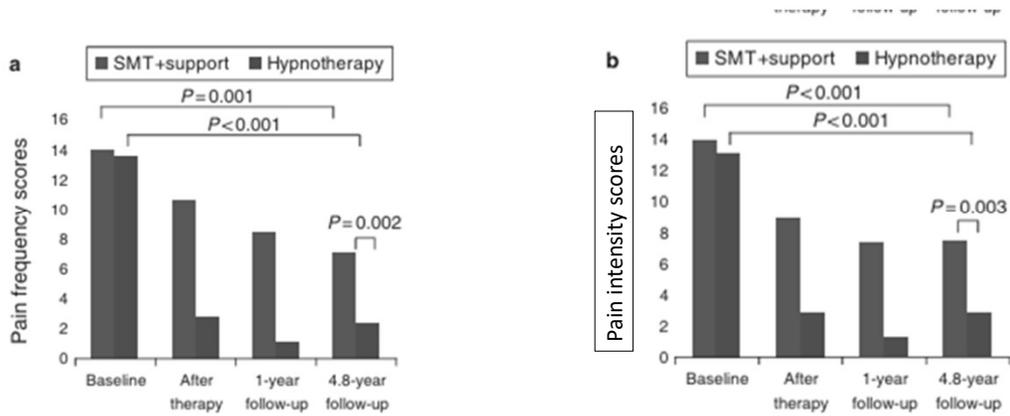
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## Follow up study

- 27/27 HT patients and 22/25 SMT patients participated
- Mean duration of follow-up: 4.8 years

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No significant further change in pain scores in either group:  
 “HT remained highly superior”



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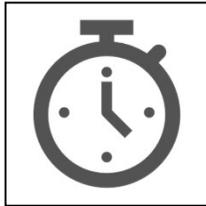
WHY?

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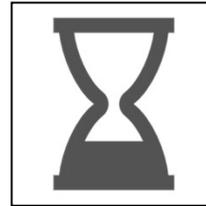
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## Physiologic Effects of Hypnosis on the GI Tract



Immediate



Long-term

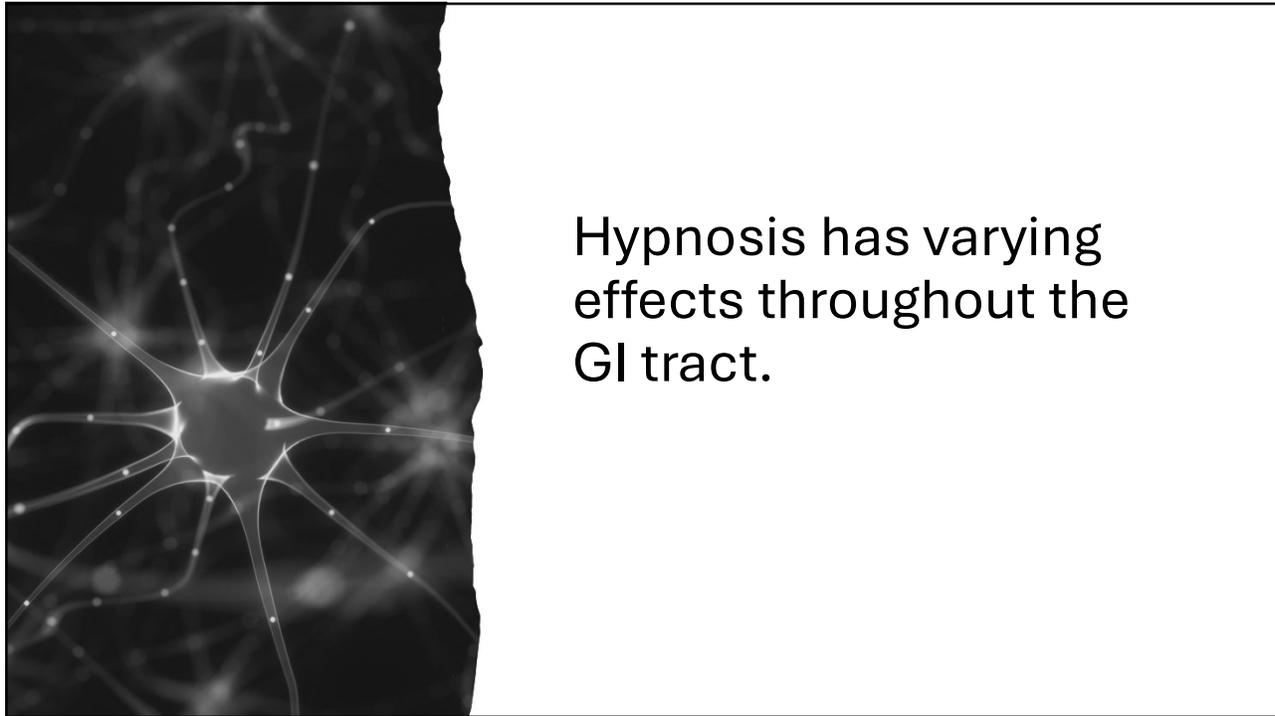
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“The GI tract  
has a lot of  
personality.”



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## SHORT TERM GI EFFECTS OF HYPNOSIS

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## FUNCTIONAL DYSPEPSIA

- 15 adults with functional dyspepsia
- 11 controls without GI complaints
- 60g of 'macaroni alla bolognese' with 70g of meat sauce and then 50g of ham, 50g of soft fatty cheese, one roll and 250mL of water

Chiarioni G, Vantini I, De Iorio F, Benini L. Prokinetic effect of gut-oriented hypnosis on gastric emptying. *Aliment Pharmacol Ther.* 2006 Apr 15;23(8):1241-9. doi: 10.1111/j.1365-2036.2006.02881.x. PMID: 16611286

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## STUDY PROTOCOL: HYPNOSIS IN FUNCTIONAL DYSPEPSIA

- On 3 different days, 1 week apart: basal study, cisapride test, hypnosis
- Serial ultrasound measurements to calculate gastric emptying time
- Subjective measures of fullness and discomfort
- 90-minute session of hypnosis
- Additional session using "so-called New-Age music" among control group

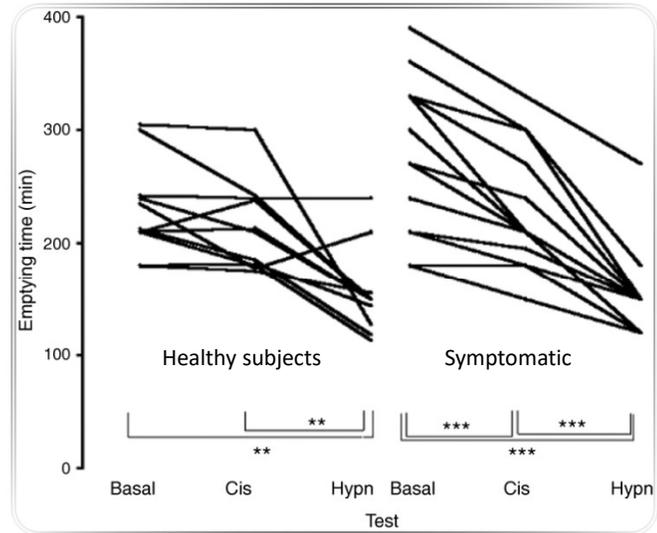
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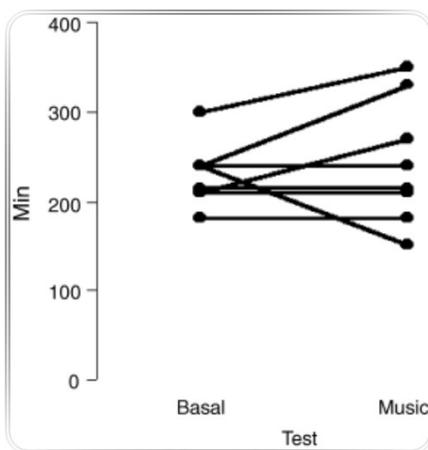
### Hypnosis decreases gastric emptying time

- even more than cisapride
- even in those without dyspepsia

Aliment Pharmacol Ther, Volume: 23, Issue: 8, Pages: 1241-1249, First published: 30 March 2006, DOI: (10.1111/j.1365-2036.2006.02881.x)



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“So Called New-age Music”

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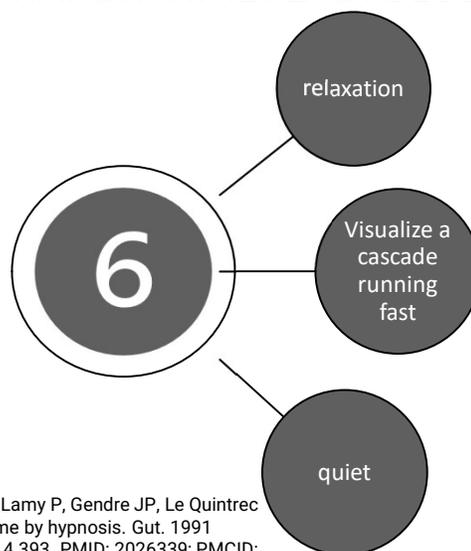
## Hypnosis led to decreased discomfort

Table 3. Rates of discomfort in healthy subjects and in patients with dyspepsia during the three different studies

	0'	30'	60'	90'	120'	150'
Healthy controls						
Basal	0 ± 0.0	0 ± 0.0	0 ± 0.0	0 ± 0.0	0 ± 0.0	0 ± 0.0
Cisapride	0 ± 0.0	0.09 ± .08	0 ± 0.0	0 ± 0.0	0 ± 0.0	0 ± 0.0
Hypnosis	0 ± 0.0	0 ± 0.0	-	-	0 ± 0.0	0 ± 0.0
Significance*	N.S.	N.S.			N.S.	N.S.
Dyspepsia patients						
Basal	1.0 ± 0.6	2.0 ± 0.7	2.2 ± 0.8	2.4 ± 0.8	2.3 ± 0.8	1.7 ± 0.6
Cisapride	0.7 ± 0.3	2.1 ± 0.5	1.7 ± 0.4	1.8 ± 0.5	1.3 ± 0.4	1.4 ± 0.4
Hypnosis	0.9 ± 0.3	1.7 ± 0.4	-	-	0.1 ± 0.1	0.1 ± 0.1
Significance*	N.S.	N.S.			0.03	<0.001

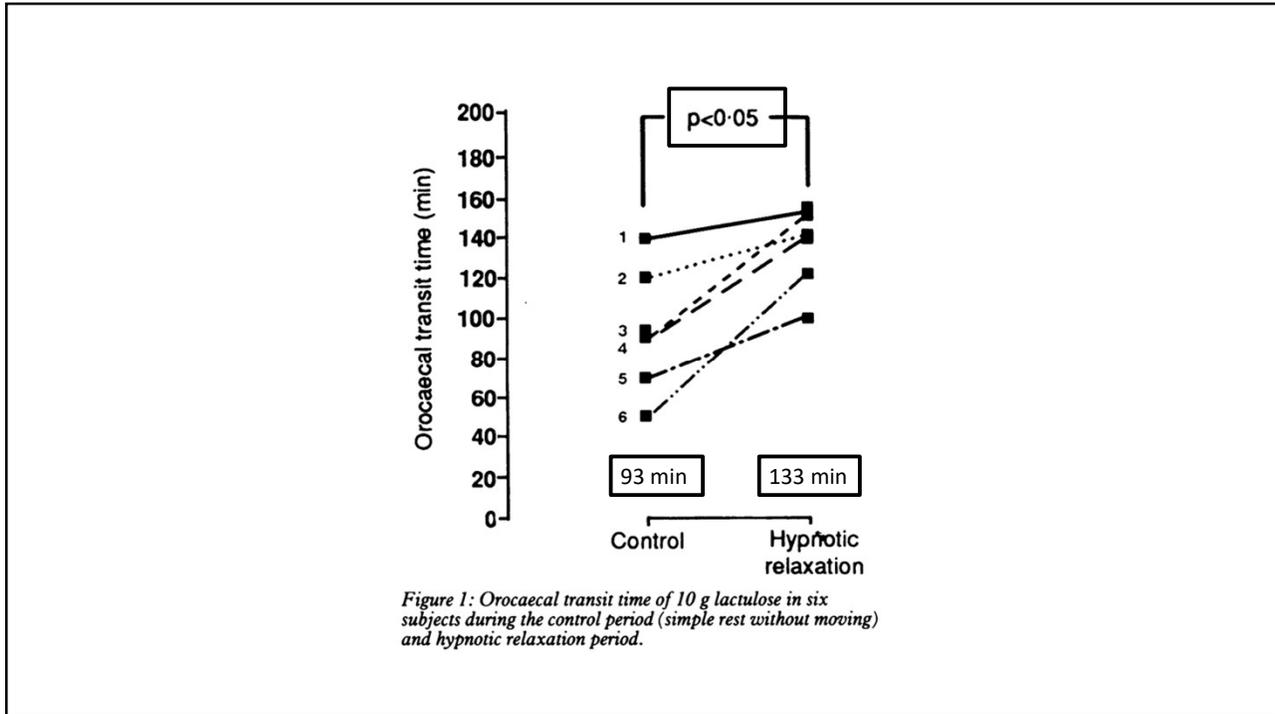
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## OROCECAL TRANSIT TIME: LACTULOSE BREATH TESTING

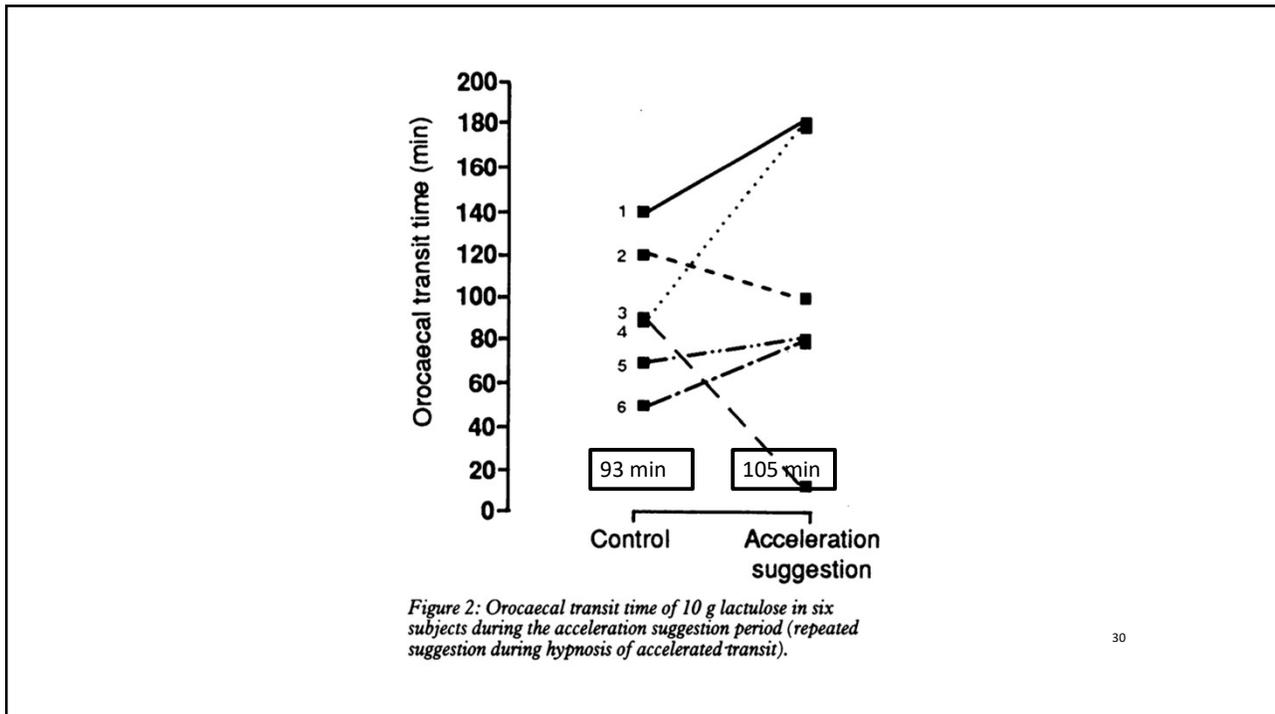


Beaugerie L, Burger AJ, Cadranet JF, Lamy P, Gendre JP, Le Quintrec Y. Modulation of oro-caecal transit time by hypnosis. Gut. 1991 Apr;32(4):393-4. doi: 10.1136/gut.32.4.393. PMID: 2026339; PMCID: PMC1379077

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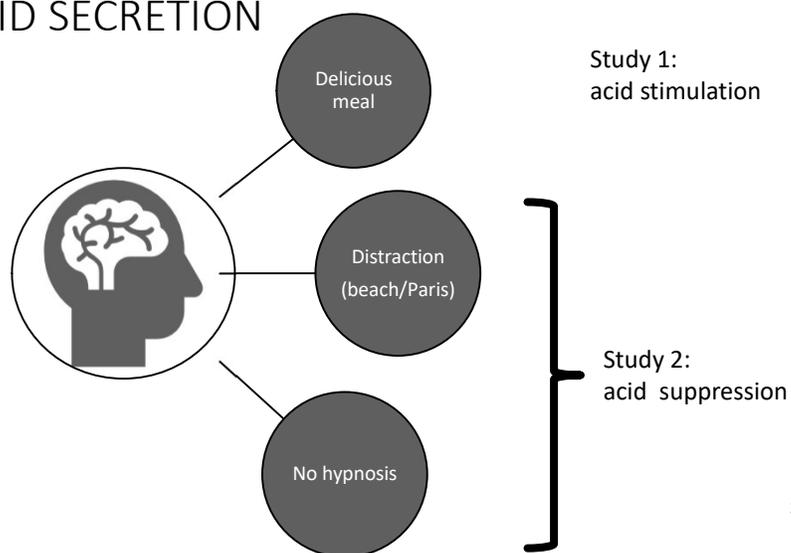
## Modulation of gastric acid secretion

- 32 healthy adults pre-screened for high hypnotizability
- Gastric contents collected every 15 minutes through a nasogastric tube

Klein KB, Spiegel D. Modulation of gastric acid secretion by hypnosis. *Gastroenterology*. 1989 Jun;96(6):1383-7. doi: 10.1016/0016-5085(89)90502-7. PMID: 2714570

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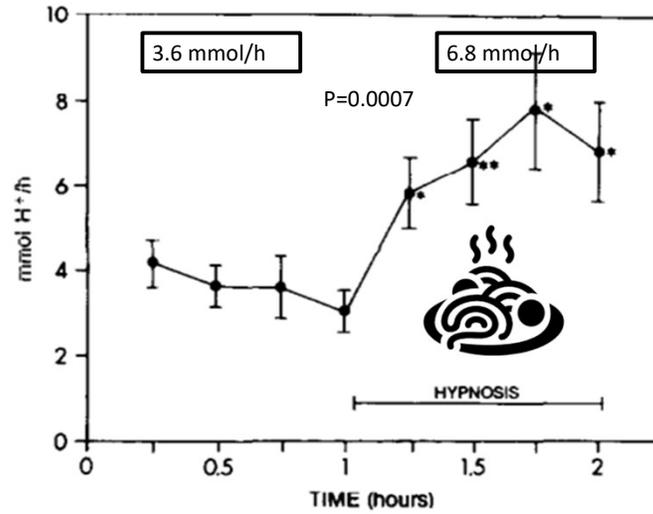
## GASTRIC ACID SECRETION



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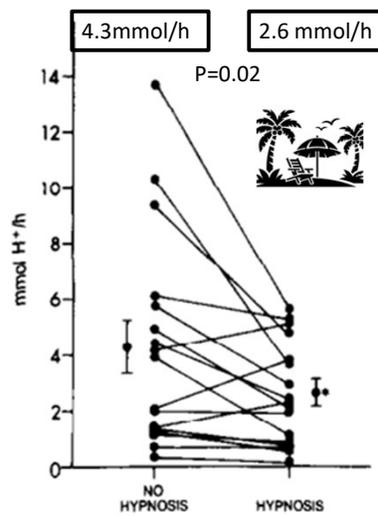
### 89% increase in gastric acid production



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### 39% decrease in gastric acid production



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## Rectal sensation and compliance

Houghton LA et al, Gut (2002); 51:701-704.

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## Study: hypnosis to generate emotion for testing purposes

- 20 subjects with IBS
- Rectal sensitivity assessed under 4 conditions
  - No hypnosis
  - Hypnosis, neutral emotion
  - Hypnosis, elicitation of happiness
  - Hypnosis, elicitation of anger

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**Table 1** Effect of hypnotic relaxation, anger, and happiness on volume thresholds (ml) in patients with irritable bowel syndrome

	Awake (control)	Hypnotic relaxation	Hypnotic happiness	Hypnotic anger
1st sensation	14 (12, 16)	26 (19, 34)***	22 (16, 29)*	17 (13, 23)
Desire to defecate	50 (38, 66)	65 (49, 85)**	55 (43, 71)	36 (25, 51)†††
Urgency	86 (69, 109)	114 (92, 142)*	100 (81, 123)	68 (54, 86)†††
Discomfort	132 (108, 160)	156 (135, 179)**	157 (134, 184)	84 (64, 108)*** †††

Results are expressed as geometric mean (95% confidence interval).

\* $p < 0.05$ , \*\* $p = 0.05$ , \*\*\* $p < 0.001$  compared with awake.

† $p < 0.05$  compared with relaxation.

†† $p < 0.01$  compared with happiness.

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## Hypnosis and rectal sensation

- Hypnotic relaxation (neutral emotion) significantly increased rectal distension volumes required to induce sensations, and hypnotic anger decreased them.
- There were no effects on rectal compliance or wall tension.

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### Summary: short term effects

- Increase the rate of gastric emptying
- Decrease discomfort of functional dyspepsia
- Slow orocecal (mouth to end of small intestine) transit
- Increase gastric acid production
- Decrease gastric acid production
- Decrease rectal sensitivity

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## LONGER TERM GI EFFECTS OF HYPNOSIS

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## Hypnosis and GI motility/transit

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- Treatment group (n=40): gut-directed hypnotherapy, 1 hour/week x12
- Control group (n=41): supportive therapy
- Pre- and post- measurements of gastric emptying time, small bowel transit time, colonic transit time, antroduodenal manometry

Lindfors P, Törnblom H, Sadik R, Björnsson ES, Abrahamsson H, Simrén M. Effects on gastrointestinal transit and antroduodenojejunal manometry after gut-directed hypnotherapy in irritable bowel syndrome (IBS). *Scand J Gastroenterol.* 2012 Dec;47(12):1480-7. doi: 10.3109/00365521.2012.733955. Epub 2012 Oct 24. PMID: 23094932.

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NO statistically significant changes  
between pre- and post-measurements

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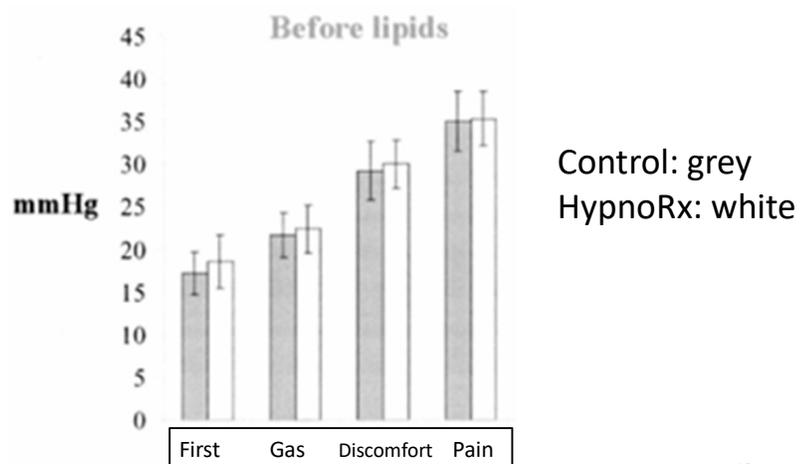
## GUT-DIRECTED HYPNOSIS AND COLONIC SENSATION IN IBS

- Treatment group (n=14): gut-directed hypnotherapy, 1 hour/week x12 weeks
- Control group (n=14): supportive therapy
- Pre- and post- measurements of mid-sigmoid
  - sensory thresholds
  - motor activity in response to duodenal lipid infusion

Simrén M et al. Psychosomatic Medicine 66(2):p 233-238, March 2004. | DOI: 10.1097/01.psy.0000116964.76529.6e

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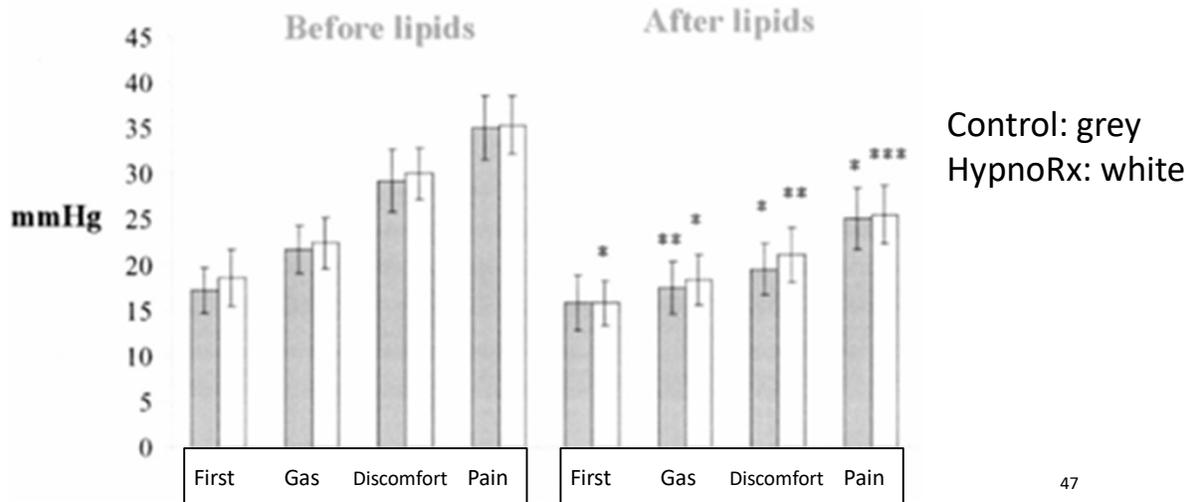
## BASELINE: NO DIFFERENCE IN FASTING RECTAL SENSITIVITY



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## BASELINE: SAME DROP IN SENSORY THRESHOLDS AFTER LIPIDS



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## POST-INTERVENTION: NO CHANGE IN FASTING COLONIC SENSITIVITY

TABLE 1. Sensory Thresholds in the Fasting State<sup>a</sup>

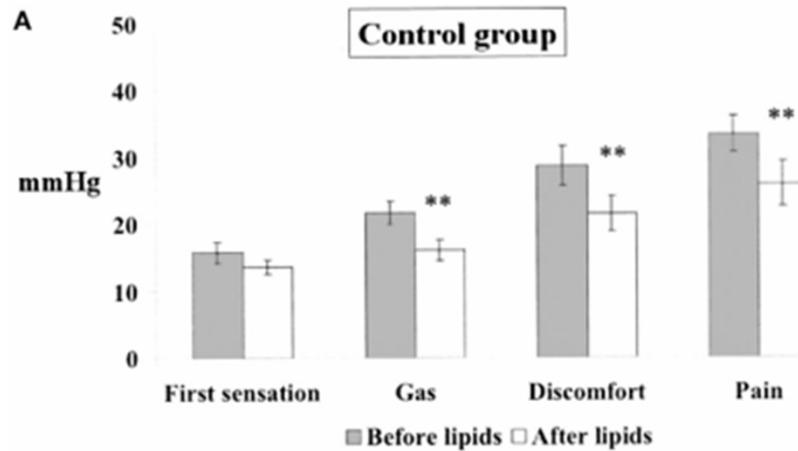
	Baseline		3 Months	
	Controls (N = 14)	Hypnotherapy (N = 14)	Controls (N = 13)	Hypnotherapy (N = 13)
First sensation	17.2 ± 2.5	18.6 ± 3.1	16.9 ± 1.5	16.5 ± 1.7
Gas	21.7 ± 2.6	22.4 ± 2.8	21.8 ± 1.7	21.7 ± 3.1
Discomfort	29.2 ± 3.4	30.0 ± 2.8	28.7 ± 2.9	25.9 ± 3.7
Pain	35.0 ± 3.5	35.3 ± 3.2	33.5 ± 2.6	35.4 ± 3.9

No significant differences either *between* or *within* groups

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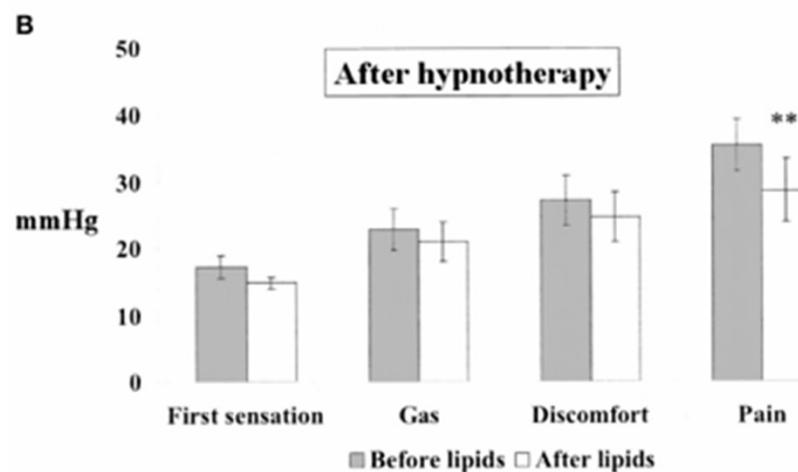
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POST-INTERVENTION: COLONIC SENSITIVITY  
CONTROL GROUP STILL HAS LOWER THRESHOLD FOR GAS,  
DISCOMFORT, PAIN



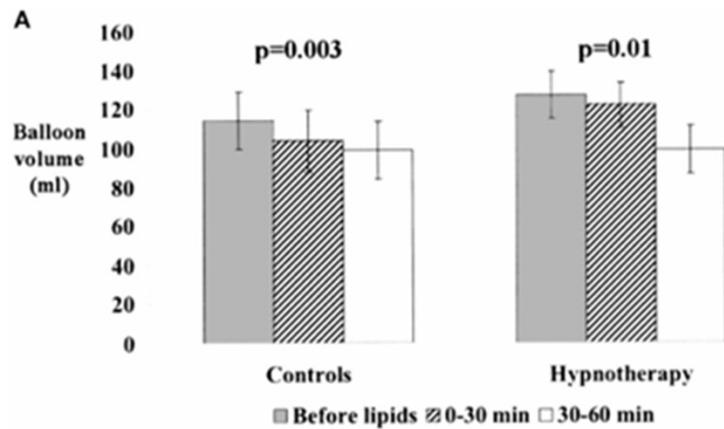
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POST-INTERVENTION: COLONIC SENSITIVITY  
HypnoRx GROUP HAS LOWER THRESHOLD FOR PAIN, BUT NOT  
GAS/DISCOMFORT



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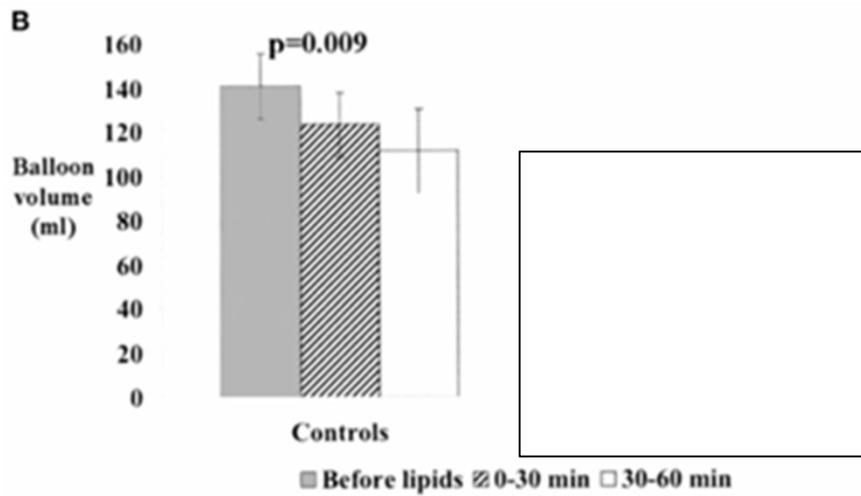
BASELINE: COLONIC TONE  
DECREASED BALLOON VOLUME (INCREASED TONE) WITH  
LIPID INFUSION



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POST-INTERVENTION: COLONIC TONE  
CONTROLS STILL HAVE DECREASED BALLOON VOLUME WITH  
LIPID INFUSION

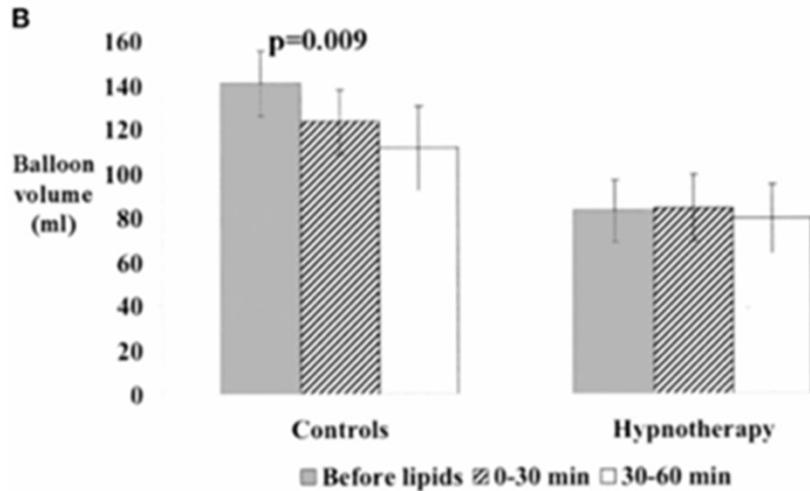


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Post-intervention: colonic tone

HypnoRx group has decreased balloon volume (increased tone) in fasting state but no response to lipid infusion

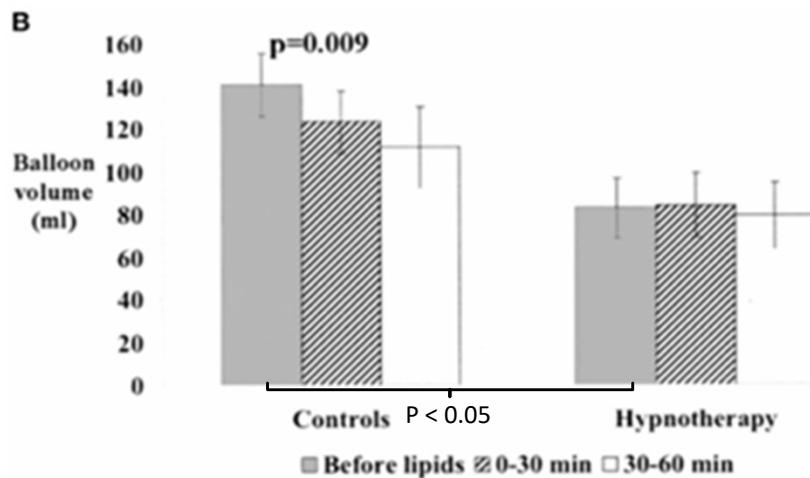


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Post-intervention: colonic tone

HypnoRx group has decreased balloon volume (increased tone) in fasting state but no response to lipid infusion



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## HYPERSENSITIVITY



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Healthy control group (n=17): measurements of colonic sensory thresholds, to generate a reference range

IBS group (n=23): gut-directed hypnotherapy, 1 hour/week x12

Pre- and post- measurements of colonic sensation and compliance/tone

Classification as normally sensitive, hypersensitive, or hyposensitive rectum

Lea R et al. Aliment Pharmacol Ther. 2003 Mar 1;17(5):635-42. doi: 10.1046/j.1365-2036.2003.01486.x. PMID: 12641511

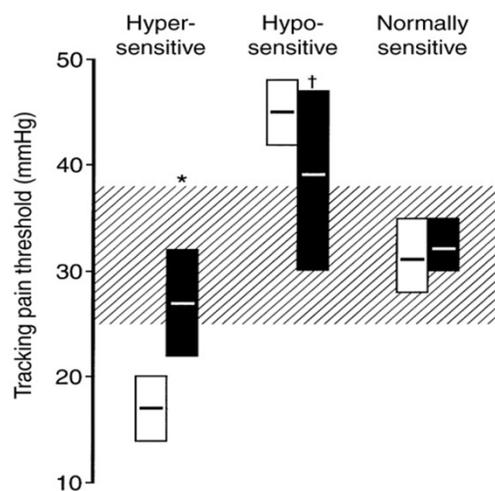
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- 10 of 23 IBS patients (44%) had rectal hypersensitivity at baseline
- In this subgroup, pain sensitivity improved significantly after 12 weeks of treatment
- In other subgroups, no significant change in sensitivity

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### Hypersensitive group mean pain threshold increased to normal



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SO, THE  
HYPERSENSITIVE  
GROUP FELT  
BETTER?

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SO, THE  
HYPERSENSITIVE  
GROUP FELT  
BETTER?  
YES, BUT...

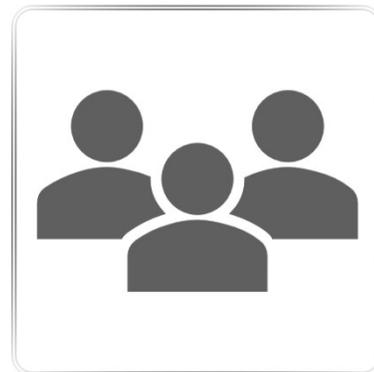
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SO, THE  
HYPERSENSITIVE  
GROUP FELT  
BETTER?  
YES, BUT...

SO DID  
EVERYONE  
ELSE

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- Hypnotherapy was generally effective at relieving symptoms ( $P=0.002$ )
- No one sub-group improved significantly more than another



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## SIMILAR FINDINGS IN CHILDREN

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## Rectal sensitivity in children

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- Treatment group (n=18): gut-directed hypnotherapy, 1 hour x6 over 12 weeks
- Control group (n=20): supportive therapy
- Pre- and post- measurements of abdominal pain and rectal sensitivity

Vlieger AM, van den Berg MM, Menko-Frankenhuis C, Bongers ME, Tromp E, Benninga MA. No change in rectal sensitivity after gut-directed hypnotherapy in children with functional abdominal pain or irritable bowel syndrome. *Am J Gastroenterol*. 2010 Jan;105(1):213-8. doi: 10.1038/ajg.2009.613. Epub 2009 Oct 27. PMID: 19861956.

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## Rectal sensitivity in children

- Mean rectal sensitivity did not change significantly in either group
- However, hypnosis associated with resolution of rectal hypersensitivity
  - 6 to 0 of 18 in the HT group ( P = 0.04)
  - 6 to 4 of 20 in the SMT group ( P = 0.69)
- But in practical terms:

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## Rectal sensitivity in children

- No relationship between baseline pain threshold and
  - pain intensity score
  - pain frequency score
  - duration of symptoms
- Treatment outcome *unrelated* to rectal sensitivity

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## Does rectal sensitivity matter?

Central pain amplification may be more important.

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### Summary: longer term effects of hypnosis

- Decrease colonic contractions, and perception of gas or discomfort, after fat ingestion in those with IBS
- NO change in gastric emptying time or colonic transit
- Improvement in rectal hypersensitivity in IBS patients

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## Conclusion

- Hypnosis has measurable physiologic effects including
  - Decreased rectal sensitivity in the short and long term
  - Increased gastric emptying rate in short term
  - Changes in gastric pH in short term
- Studies have used general relaxation, imagery of food/eating, and distracting imagery to achieve changes in physiology.
- However... these effects do not explain the effectiveness of hypnosis in GI conditions.

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