Dietary & Lifestyle Management of Fecal Incontinence

Sponsored by:

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Fecal Incontinence
Centers of Educational Expertise

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Clinical Associations with Fecal Incontinence

Identify Risk Factors and Relevant Comorbid Conditions

Variable	Odds Ratios (95% CI)
Diarrhea	53 (6.1, 471)
IBS	4.8 (1.6, 14)
Cholecystectomy	4.2 (1.2, 15)
Current smoker	4.7 (1.4, 15)
Rectocele	4.9 (1.3, 19)
Stress urinary incontinence	3.1 (1.4, 6.5)
Obstetric risk factors (grade 1)	0.8 (0.4, 1.9)
Obstetric risk factors (grade 2)	1.1 (0.4, 3.6)
Obstetric risk factors (grade 3)	1.9 (0.7, 5.2)
Diarrhea	53 (6.1, 471)

Bharucha AE et al. *Gastroenterology*. 2010;139:1559-1566.

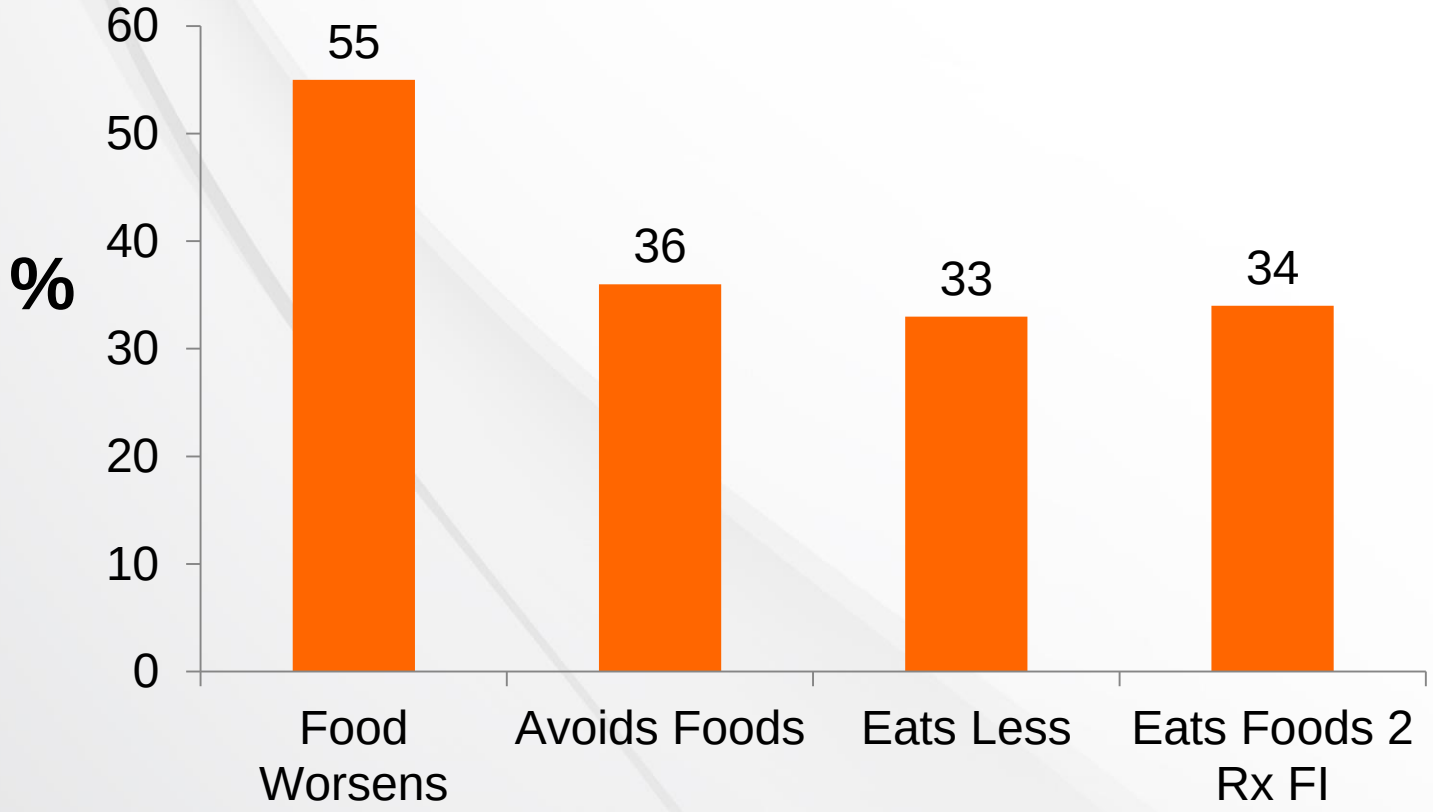
Diet & Fecal Incontinence

- Of 242 elderly reporting FI >once in the past year, 67% used self-care practices such as diet modification or food avoidance to manage their symptoms
- Amongst 336 overweight women, FI was independently associated with low fiber intake, higher depressive symptoms, and increased urinary tract symptoms
- In interviews of 10 women with FI, participants reported that they did not receive adequate therapeutic advice from their physicians about the effect of diet on FI or how to modify their diet

Bliss et al. *J Gerontol Nurs*. 2005;31:35-44
Markland et al. Am J Obstet Gynecol 2009;200
Hansen et al. *J Wound Ostomy Continence Nurs*. 2006;33:52-62

Diet & Fecal Incontinence

- 188 participants (>18 yo, independently living) with FI >twice in 2 weeks completed an 8 question survey



21% modify eating patterns because of FI

Croswell et al. *J Wound Ostomy Continence Nurs.* 2010;37(6):677-682.

Diet & Fecal Incontinence

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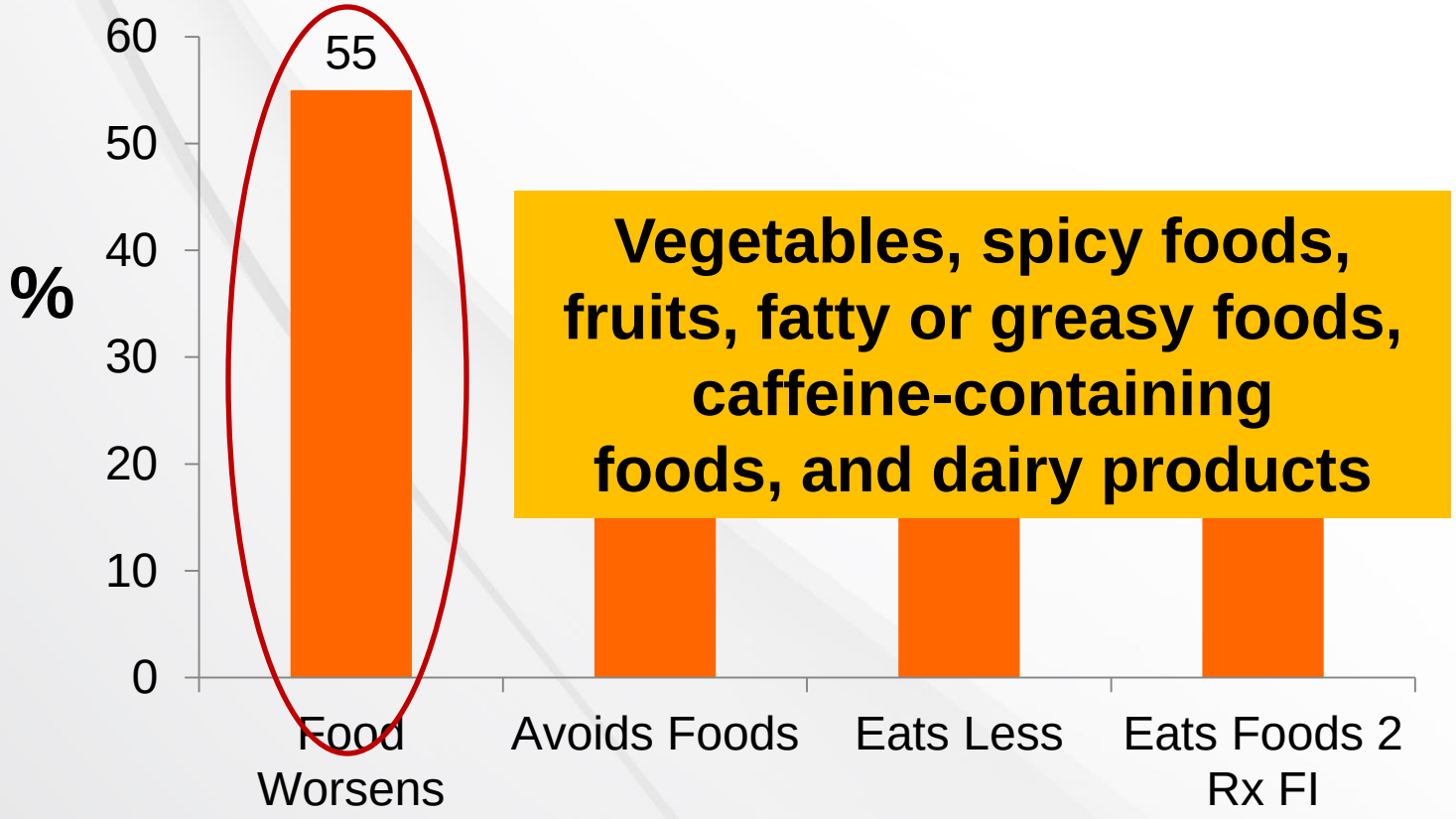

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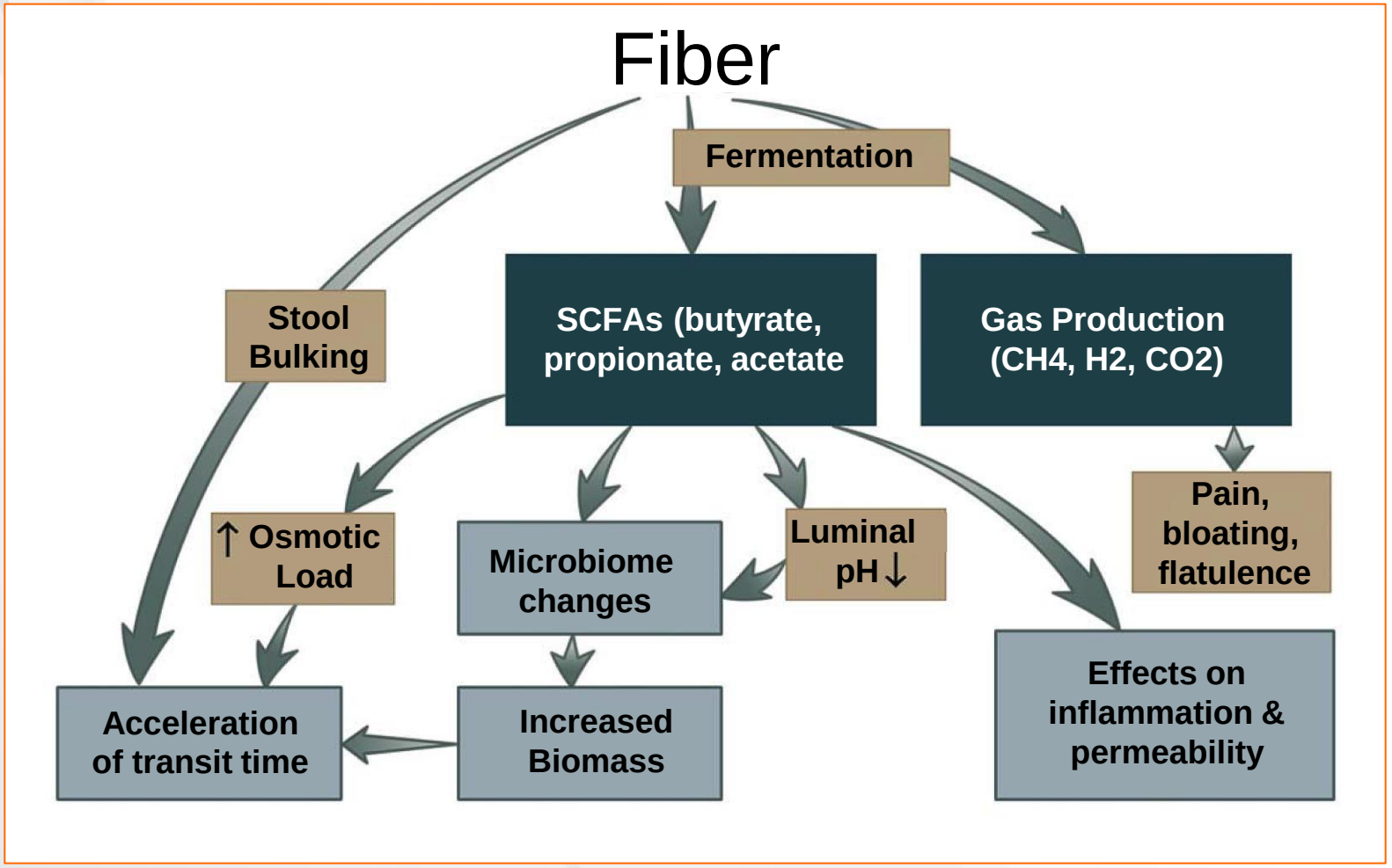
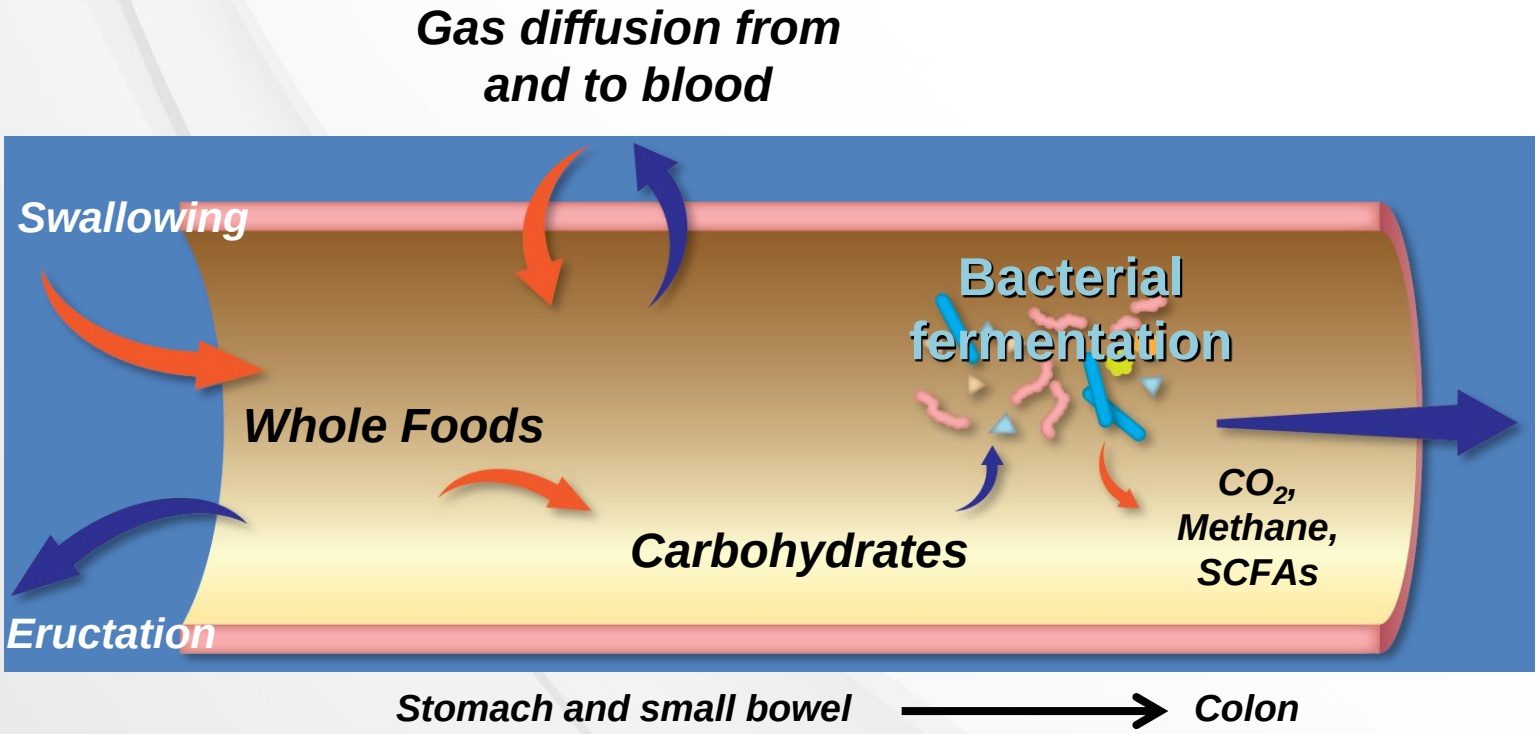
Why Might Diet Cause Fecal Incontinence

Pathophysiology of Fiber Effects in the GI Tract



Eswaran, Chey et al. *Am J Gastroenterol* 2013

Normal Intestinal Gas Production and Elimination



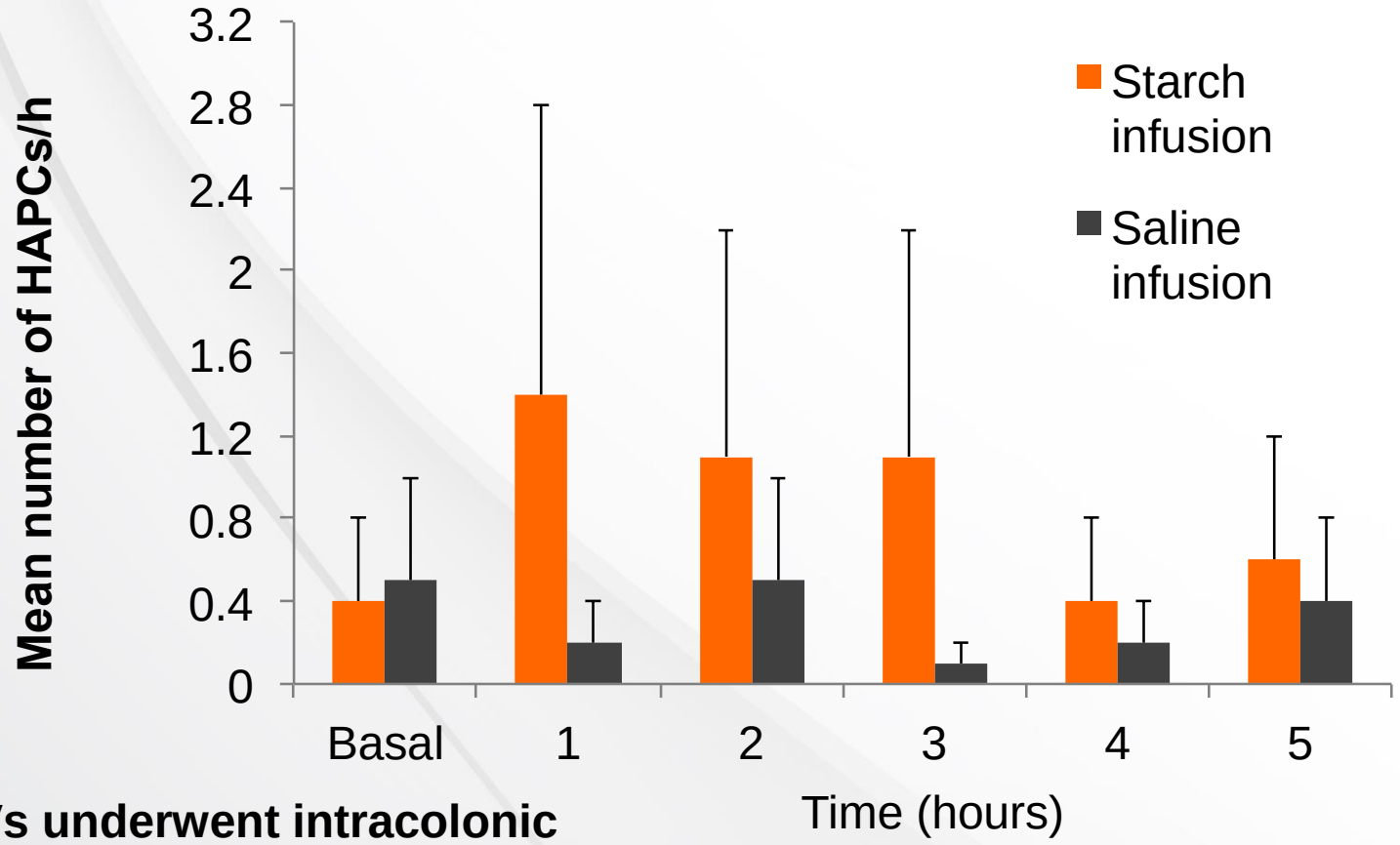
SCFAs:

- ***Butyrate affects nerves and motility in the colon***

Bottom line: Carbohydrates are fermented to short chain fatty acids (SCFAs). SCFAs like butyrate play a critical role in normal colon function & health

Adapted from Azpiroz F, Malagelada JR. Gastroenterology. 2005;129:1060-1078.
Rome Foundation Functional GI Disorders Specialty Modules.

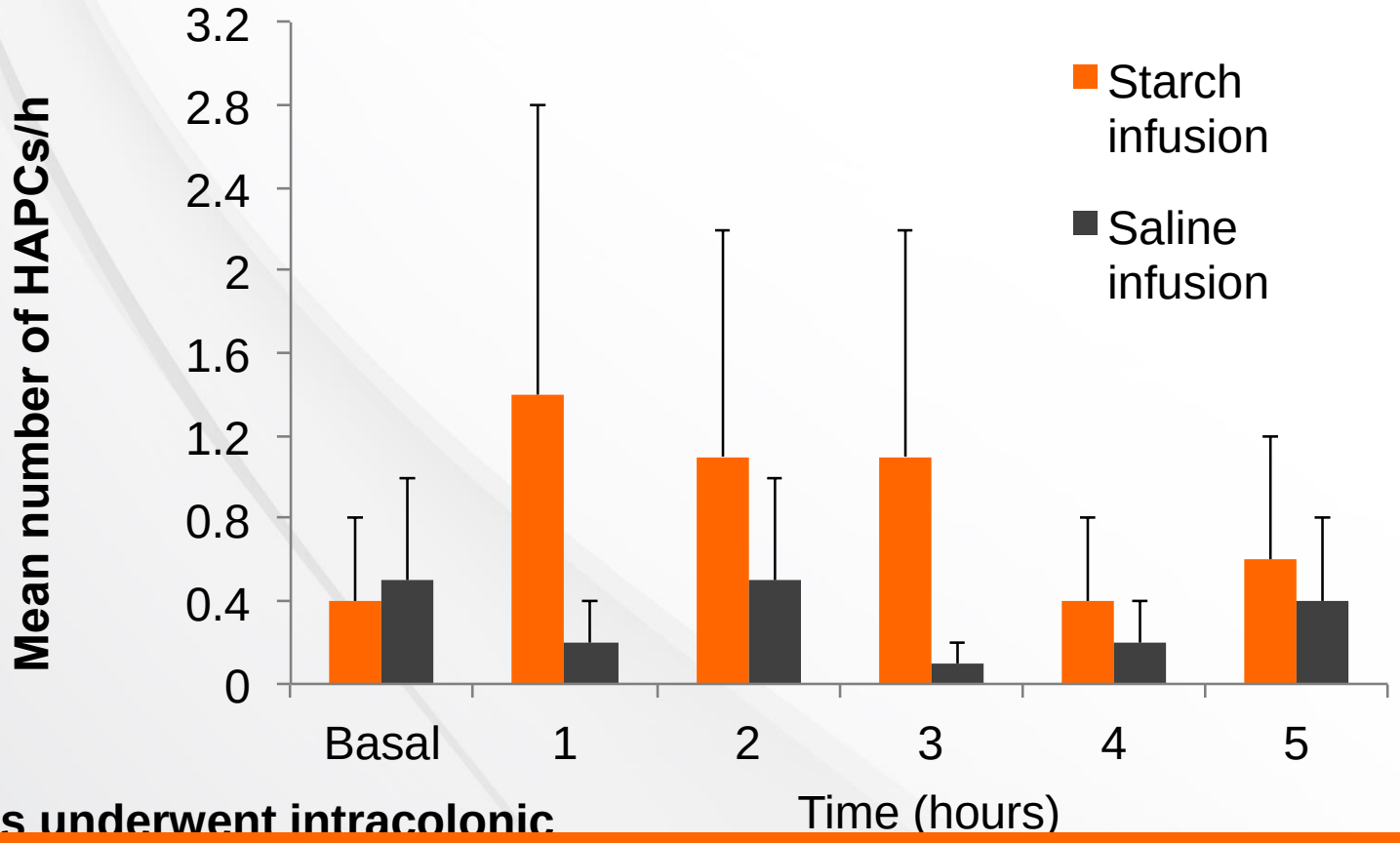
Effect of starch infusion on the number of high pressure colon contractions



10 HVs underwent intracolonic infusion of 15g wheat starch or saline
No effect on motility index or tone

Jouët P, et al. *Neurogastroenterol Motil* 2011;23:450

Effect of starch infusion on the number of high pressure colon contractions



10 HVs underwent intracolonic

Bottom line: Wheat starch (fermented) but not saline induced high pressure contractions in the colon

Jouët P, et al. *Neurogastroenterol Motil* 2011;23:450

Dietary & Lifestyle Management of Fecal Incontinence

Behavioral Techniques for Fecal Incontinence

- Avoid rushing to the toilet
  - Increases abdominal wall contraction which increases chance of fecal incontinence
  - Reduces focus on pelvic floor
  - Stop and perform Kegel exercise and proceed to toilet
- Clean, squeeze, reclean
  - After bowel movement, clean anus, perform 2-3 Kegel exercises, then re-clean
  - If stool present, may have avoided fecal incontinence
- Delay bowel movement after biofeedback therapy
  - Start with brief periods, then increase; improves confidence
- Wean off laxatives and antidiarrheals

Dietary Interventions for Fecal Incontinence

- Diet[1]
  - Evaluate fiber intake[1]
  - If stools are frequent and/or loose, evaluate intake of fermentable, poorly absorbed carbohydrates[1]
    - Consider evaluation for lactose maldigestion or fructose malabsorption
  - Evaluate relationship between caffeine intake[1] and symptoms

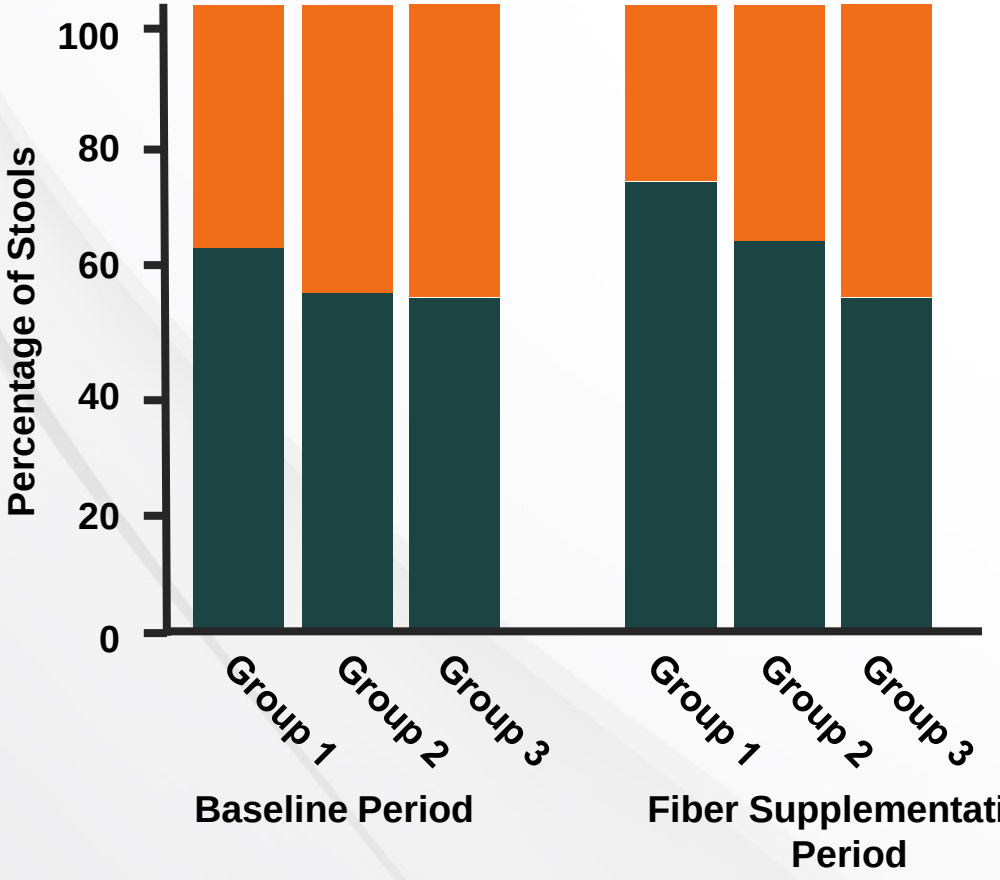
1. Rao SSC et al. *Am J Gastroenterol*. 2004;99:1585-1604.

The Effect of Fiber is Variable

- Some evidence suggests that fiber (psyllium, gum arabic) may reduce fecal incontinence[1]
- Approach fiber supplementation with caution
  - Fiber supplements can potentially worsen diarrhea by increasing colonic fermentation of unabsorbable fiber[2]

1. Bliss DZ et al. *Nurs Res*. 2001;50:203-213;
2. Rao SSC et al. *Am J Gastroenterol*. 2004;99:1585-1604.

Supplementation With Dietary Fiber May Improve Fecal Incontinence



P=.002 (baseline vs fiber supplementation period) for groups 1 and 2

Liquid + unformed

Soft but formed + hard but formed

N=39

Group 1= Usual diet + 25 g Metamucil (7.1 g psyllium) per day
Group 2= Usual diet + 25 g gum arabic per day
Group 3= Usual diet + 0.25 g pectin (placebo)

Bliss DZ et al. *Nurs Res*. 2001;50:203-213.

Stool Characteristics

- Stool consistency, volume, and presence of irritants in the stool may contribute to fecal incontinence
  - Large-volume liquid stools require intact sensation and unimpaired sphincter function to be retained
- Stool characteristics may be influenced by:
  - Diet
  - Infection
  - Co-morbidities
    - Inflammatory bowel disease
    - Irritable bowel syndrome
    - Diabetes
    - SIBO
  - Medications

Rao SSC et al. *Gastroenterology.* 2004;126:S14-S22.

Assess Diet, Medications, and Lifestyle

Dietary components that may elicit or exacerbate fecal incontinence

Fiber	Fiber supplements, whole-grain cereals or bread, whole-wheat based cereals
Certain fruits and vegetables	Rhubarb, figs, prunes, plums, beans, cabbage, sprouts
Spices	Chili powder
Alcohol	Especially stouts, beers, or ales
Lactose/fructose	Milk, other high-lactose or high-fructose foods
Caffeine	Coffee, tea, sodas
Vitamin and mineral supplements	Excessive vitamin C, magnesium, phosphorus, and/or calcium
Olestra fat substitute	Can cause loose stools

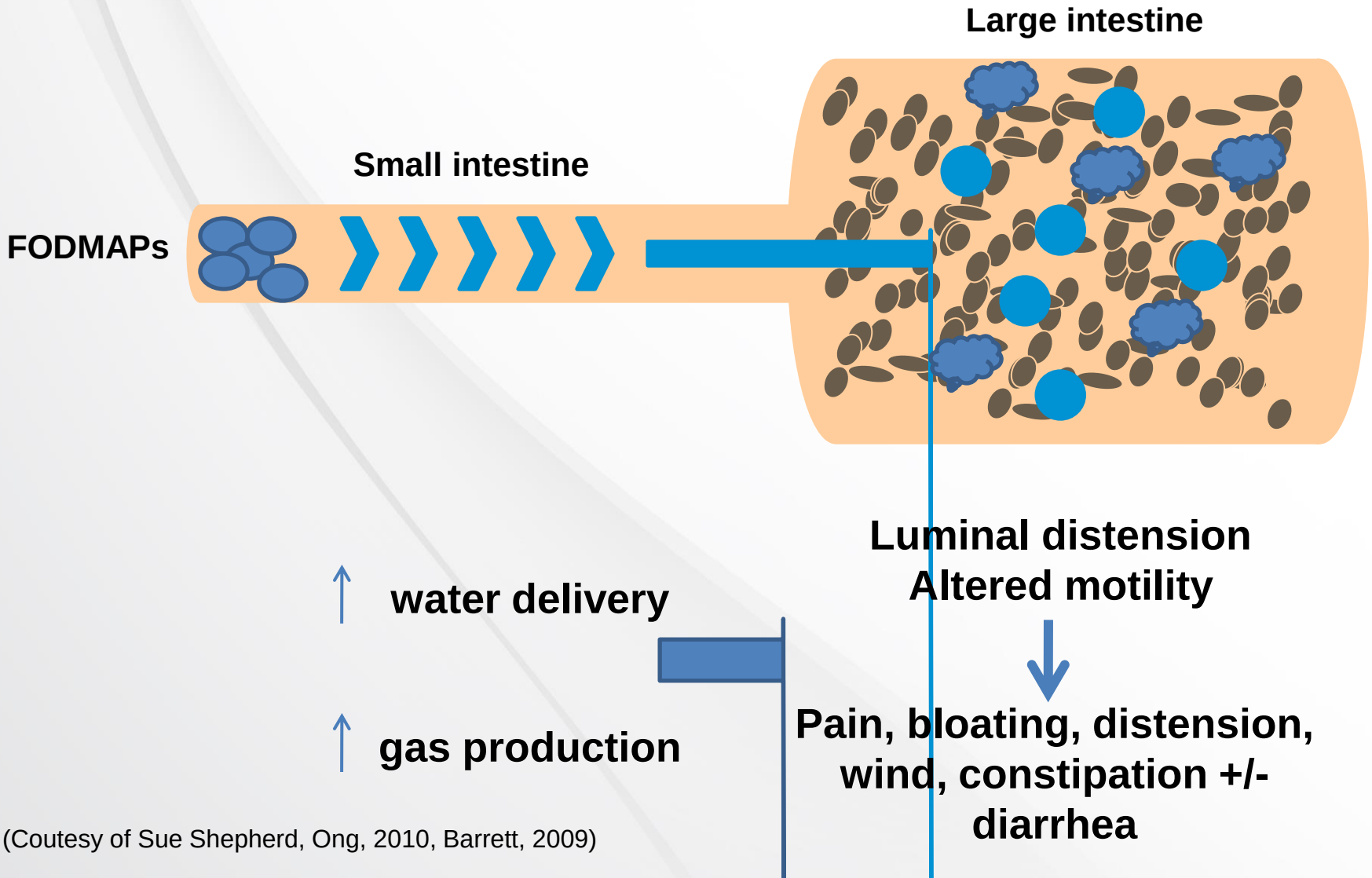
Adapted from National Institute for Health and Clinical Excellence (NICE). CG49 Faecal incontinence: tables. Available at: http://www.nice.org.uk/CG49Tables#table2. Accessed March 30, 2013.

What are FODMAPs?

- **Fermentable oligo-, di-, monosaccharides and polyols**
- **Fruits with fructose exceeding glucose**
  - Apples, pears, watermelon
- **Fructan containing vegetables**
  - Onions, leeks, asparagus, artichokes
- **Wheat based products**
  - Bread, pasta, cereal, cake, biscuits
- **Sorbitol and lactose containing foods**
- **Raffinose containing foods**
  - Legumes, lentils, cabbage, brussel sprouts

Eswaran & Chey, GI Cl North Am 2011;40:141
Shepherd, et al, Clin Gastro Hepatol 2008;6:765
Gibson & Shepherd. J Gastro Hepatol 2010;25:252

FODMAPs: Mechanism of Action

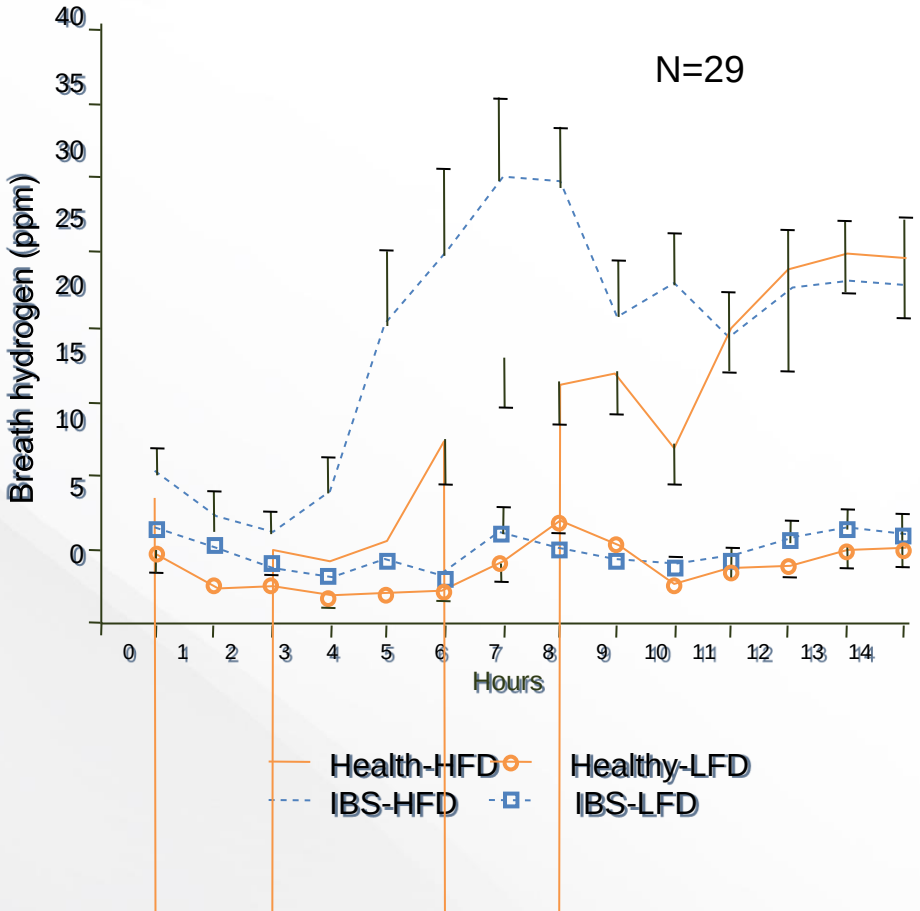


(Coutesy of Sue Shepherd, Ong, 2010, Barrett, 2009)

Impact of FODMAP Diet on Breath Hydrogen Production and Symptoms

- Design
  - Single-blind crossover study in 15 healthy and 15 IBS patients
  - 2-day consumption of high-FODMAP diet (50 g/d) or low-FODMAP diet (9 g/d)
- Results
  - Higher levels of breath hydrogen produced with high FODMAP diet
  - Gastrointestinal symptoms and lethargy induced by high FODMAP diet in IBS but not control patients

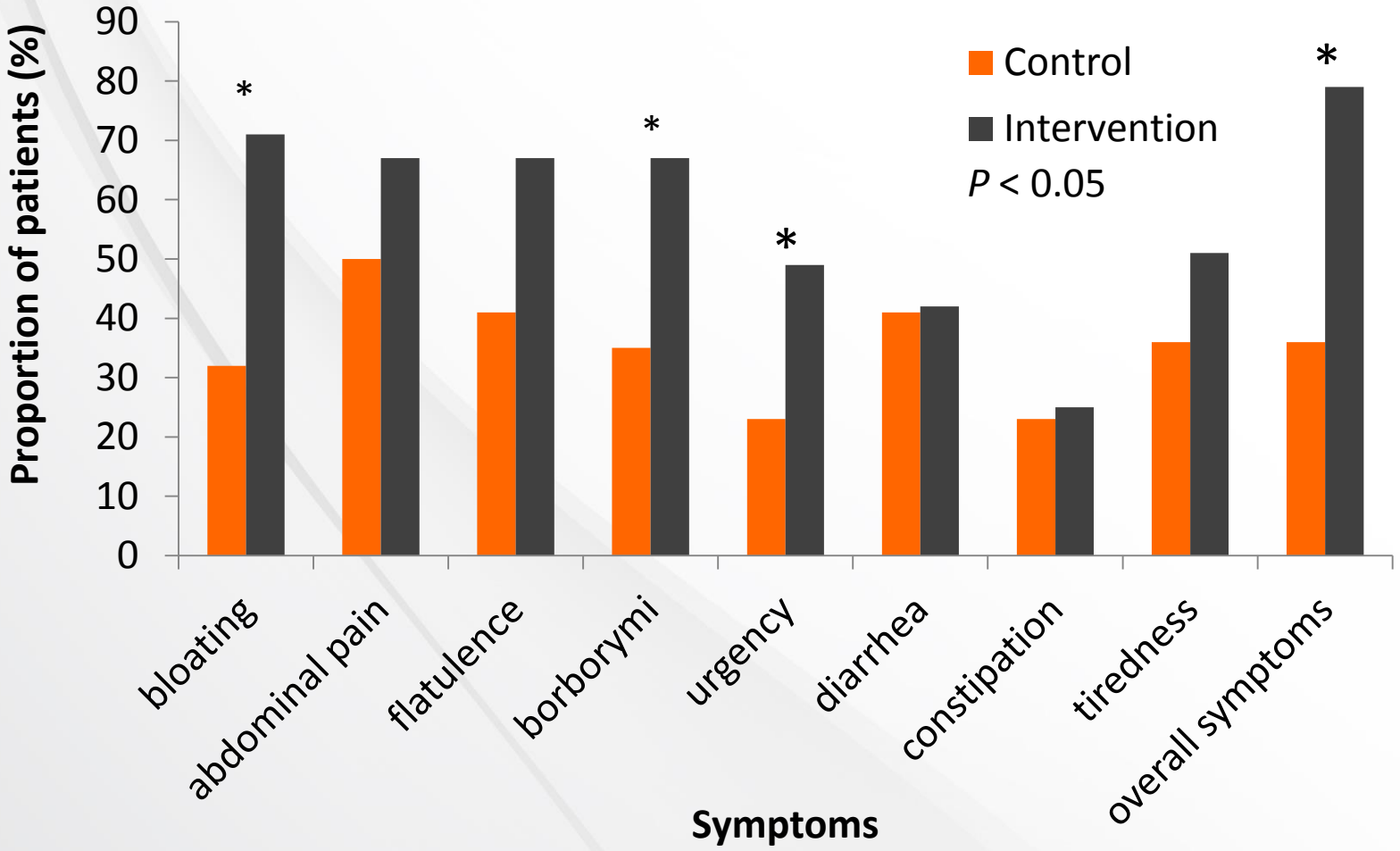
Breath hydrogen production



HFD=high-FODMAP diet; LFD=low-FODMAP diet

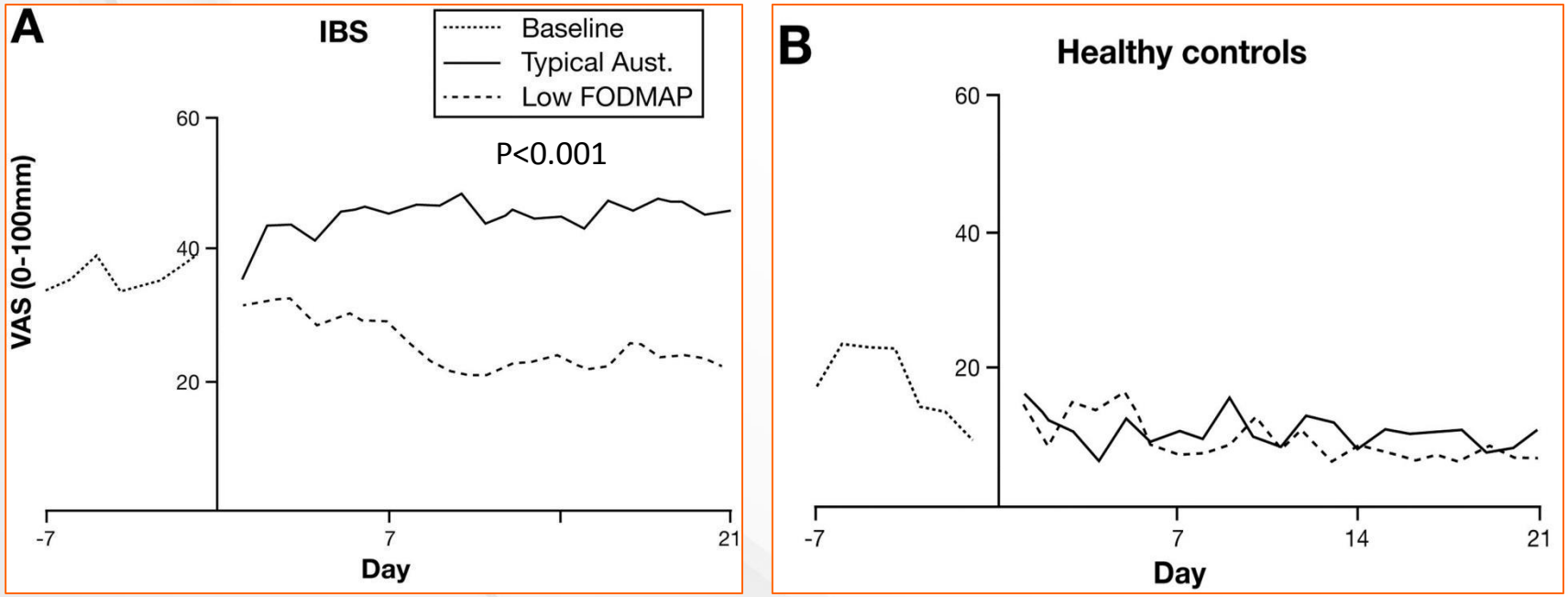
Ong DK et al. *J Gastroenteorl Hepatol*. 2010;25:1366-1373.

Daily Symptom Scores on low-FODMAP vs. Control Diet



Staudacher HM, et al. *J Nurt* 2012;142:1510.

A Low-FODMAP Diet Reduces Symptoms in IBS



30 IBS pts & 8 HVs: 1 week baseline followed by 21 days of low-fodmap diet or typical Australian diet before crossing over to other diet
Significant benefits for overall IBS symptoms, bloating, pain, & wind ($p<0.001$)
Benefits for King's Stool Chart only for IBS-D ($p<0.04$)

Halmos, et al. *Gastroenterology* 2014;146:67

Other Nonpharmacologic Treatments of Fecal Incontinence

Intervention	Mechanism of Action	Side Effects	Comments
Incontinence pads	Provides skin protection; prevents soiling; conduct moisture away from skin	Skin irritation	Disposable provides better skin protection than nondisposable
Enemas or Suppositories	Evacuates rectum, decreasing likelihood of FI	Inconvenient; side effects from specific preparations	

Whitehead WE, Bharucha AE. *Gastroenterology.* 2010;138:1231-1235.

Summary

- Diarrhea and IBS are strongly associated with FI
- FI patients often associate their problems with food and alter their diets to improve their symptoms
- Fiber may provide benefits to some patients with FI
- FODMAPs may decrease stool consistency and increase stool frequency, particularly in IBS patients
  - Low FODMAP diets have not been evaluated for FI
- Behavior modification can also be helpful for some FI patients