Medical Nutrition Interventions for Common Digestive Disorders

Nancee Jaffe, MS, RD
UCLA Digestive Health & Nutrition Clinic
Performance Indicators

8.1.5 Applies medical nutrition therapy in disease prevention and management.
8.3.1 Maintains the knowledge and skill to manage a variety of disease states and clinical conditions.
8.3.6 Keeps abreast of current nutrition and dietetics knowledge and trends.
8.3.7 Integrates new knowledge and skills into practice.

Learning Codes

2070 Macronutrients: carbohydrate, fat, protein, fiber, water
3100 Supplemental nutrients, botanicals
5220 Gastrointestinal disorders
Overview

Medical Nutrition Therapy for:

• Functional Gut Disorders
  • Irritable Bowel Syndrome (IBS)
  • Gastroparesis
• Gas & Bloating
Functional Gut Disorders
Functional Gut Disorders

**Definition**

- Disorder where the body's normal activities are impaired (gut-brain interaction)
  - *Movement of the intestines*
  - *Sensitivity of the nerves of the intestines*
  - *Way in which the brain controls some of these functions*
  - *Gut microbiome*
- There are NO structural abnormalities that can be seen by endoscopy, x-ray, or blood tests
## Functional GI Symptoms

- Acid reflux/ heartburn
- Abdominal cramping
- Vomiting
- Nausea
- Abdominal pain
- Constipation
- Diarrhea
- Bloating
- Changes in motility (movement of digestive organs)
- Gas / excess flatus (passing gas)

## Functional Disease States

- Functional heartburn
- Functional dyspepsia (indigestion)
- Functional vomiting
- Functional abdominal pain
- Functional constipation
- Functional diarrhea
- Functional dysphagia (trouble swallowing)
- Aerophagia (swallowing excess air)
- **Irritable bowel syndrome**
Irritable Bowel Syndrome (IBS)
Facts & Figures

- **Functional Gut Disorders**
  - ~1 in 4 people or more in the U.S. have one of these disorders
  - 40% of GI problems seen by doctors and therapists

- **Irritable Bowel Syndrome**
  - Affects 25-45 million people in US – 10-20% of population
  - About 2 in 3 IBS sufferers are female
  - Approx. 20-40% of all visits to gastroenterologists are for IBS symptoms

`iffgd – aboutibs.org`
Irritable Bowel Syndrome

Definition:

- Recurrent abdominal pain on average at least 1 day/week in the last 3 months, associated with two or more of the following:
  - Related to defecation
  - Associated with a change in frequency of stool
  - Associated with a change in form of stool

*Criterion fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis

Rome IV criteria, 2016
<table>
<thead>
<tr>
<th>SUBTYPE</th>
<th>STOOL TYPE 1 &amp; 2</th>
<th>STOOL TYPE 6 &amp; 7</th>
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</thead>
<tbody>
<tr>
<td>IBS with predominant constipation</td>
<td>More than 25%</td>
<td>Less than 25%</td>
</tr>
<tr>
<td>IBS with predominant diarrhea</td>
<td>Less than 25%</td>
<td>More than 25%</td>
</tr>
<tr>
<td>IBS with mixed bowel habits</td>
<td>More than 25%</td>
<td>More than 25%</td>
</tr>
</tbody>
</table>

IBS Unclassified: Patient who meets diagnostic criteria for IBS but whose bowel habits cannot be accurately categorized into one of the three subtypes above.

Irritable Bowel Syndrome

Evolving Pathophysiology of IBS

Genetics
Microbiome/Metabolome
Immune Activation
Permeability

Brain-gut interactions

Visceral hypersensitivity

Abnormal GI motility

Psychological disorder


Courtesy William Chey MD
Next Steps?

What to do?

• Pharmacotherapy
• Modify stress
  • *Gut-Directed Hypnotherapy*
  • *Cognitive Behavioral Therapy*
  • *Mindfulness Meditation*
• Work on comorbidities
• *Diet Interventions*
Next Steps?

What to do?

- Diet Interventions
  - Fiber (psyllium husk)
  - Supplements such as probiotics
  - Fat amounts / types
  - Proteins (A1 β-casein, rubisco, lectin, α-ATI, gluten)
- NICE Guidelines
- Low Fodmap Diet
Low FODMAP Diet

- Created at Monash University, Australia in 1999
- Acronym for specific sugars that ferment in the gut and contribute to GI symptoms
  - **F** – fermentable
  - **O** – oligosaccharides (Fructans and Galacto-Oligosaccharides)
  - **D** – disaccharides (Lactose)
  - **M** – monosaccharides (excess Fructose)
  - **A** – and
  - **P** – polyols (sorbitol, mannitol, maltitol, xylitol, isomalt)
Facts & Figures

- 50%-86% of patients respond to the low-FODMAP diet
- 64–77% of patients report high adherence rates following low FODMAP diet counselling from a dietitian
- +75% of patients can reintroduce FODMAPs and maintain symptom control
- Satisfaction with symptoms in 72.1% of responders at a mean of 15.7 months follow-up

Tuck et al, JGH, 2017
FODMAPs

Bacterial fermentation

SCFA
(Butyrate, propionate, acetate)

Increased osmotic load

Luminal pH

Microbiome changes

Trophic effects

Increased biomass

Acceleration of transit time

Gas production
(CH₄, H₂, CO₂)

Effects on:
- Motility
- Visceral sensation
- Immune activation
- Permeability

GI Symptoms
- Pain
- Gas / bloating
- Altered bowel movements
The FODMAP Problem

- Lactose
- Fructose
- Fructans
- GOS
- Polyols
## The FODMAP Problem

<table>
<thead>
<tr>
<th></th>
<th>Fructans / GOS</th>
<th>Fructose / Polyols</th>
<th>Lactose</th>
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<tbody>
<tr>
<td><strong>Osmotic Effect</strong></td>
<td>+</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td><strong>Fermentation</strong></td>
<td>+++</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td><strong>Result?</strong></td>
<td>Gas and bloating</td>
<td>Diarrhea</td>
<td>Diarrhea, possible gas and bloating</td>
</tr>
</tbody>
</table>

*Courtesy Kate Scarlata*
HIGH FODMAP DIET CHECKLIST

FOODS TO AVOID

**high lactose**  
[creates gas + pulls water into the gut]  
CHEESE  
COMMERCIAL PREPARED RICOTTA CHEESE, COTTAGE CHEESE  
BEVERAGES  
COW, SHEEP, & GOAT MILK  
OTHER  
EVAPORATED MILK, YOGURT, ICE CREAM, CUSTARD

**excess fructose**  
[pulls water into the gut]  
VEGETABLES  
JERUSALEM ARTICHOKES, ASPARAGUS, SUGAR SNAP PEAS, SUN-DRIED TOMATOES  
FRUIT  
APPLES, BOYSENBERRY, CHERRIES, FRESH FIGS, MANGO, PEARS, TAMARILLO, WATERMELON  
SWEETENERS  
AGAVE, HIGH FRUCTOSE CORN SYRUP, HONEY  
ALCOHOL  
RUM

**high fructans/GOS**  
[creates gas]  
VEGETABLES  
ARTICHOKE, GARLIC, LEEK AND SCALLION BULBS (THE WHITE PARTS), SHALLOT, ONION, ONION & GARLIC POWDER, PEAS, SOYBEANS, KIDNEY BEANS  
FRUIT  
BANANA (1/3), CURRANTS, DATES, FIGS (DRIED), GRAPEFRUIT, NECTARINE, PERSIMMON, PLUMS, PRUNES, WHITE PEACHES, WATERMELON  
GRAINS  
RYE, WHEAT, BARLEY  
NUTS  
PISTACHIOS, CASHEW  
LEGUMES  
BORLOTTI BEANS, MATURE SOYBEANS (MOST SOY MILK, SOY FLOUR), BAKED BEAN, BLACK BEANS, FAVA BEANS, KIDNEY BEANS, NAVY BEANS, SPLIT PEAS  
OTHER  
OOLONG TEA, CHAMOMILE AND FENNEL HERBAL TEA, CAROB, CHICORY ROOT EXTRACT, INULIN OR FOS (FRUCTOOLIGOSACCHARIDE)

**high polyols**  
[pulls water into the gut]  
VEGETABLES  
CAULIFLOWER, MUSHROOMS, SNOW PEAS  
FRUIT  
APPLES, APRICOTS, BLACKBERRIES, CHERRIES, NECTARINES, PEARS, YELLOW PEACHES, PLUMS, PRUNES, WATERMELON  
SWEETENERS  
SORBITOL, MANNITOL, ISOMALT, XYLITOL

---

The FODMAP elimination diet is to be followed for a limited time, approximately 2-6 weeks. Work with a FODMAP knowledgeable registered dietician to provide guidance on the reintroduction phase of the diet and to ensure your diet is nutritionally adequate and balanced.

Courtesy Kate Scarlata
**Low FODMAP diet checklist**

*By Kate Scarlata RDN, FODMAP & IBS expert*

### low lactose

**CHEESE**
- Brie, Camembert, Colby, Cheddar, Goat cheese, Feta, Havarti, Mozzarella, Parmesan, Pecorino, Swiss, Lactose free Cottage, Lactose free Cream cheese

**BEVERAGES**
- Lactose free cow’s milk (whole, 2%, 1% or fat free), canned coconut milk (full fat & light), Hemp milk, Almond milk, Rice milk

**OTHER**
- Lactose free ice cream, sorbet from acceptable fruits, Lactose free Yogurt, Goat’s milk yogurt, Coconut Yogurt, Lactose free Sour cream, Whipped cream

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### no excess fructose

**FRUIT**

- BANANA (1/3 RIPE), DRIED BANANA CHIPS, BLUEBERRIES, CANTALOUPE, DURIAN MELON, CLEMENTINE, FRESH AND DRIED COCONUT, DRAGON FRUIT, GRAPE, Ripe Guava, Honeydew, KIWFruit (Gold & Green), KUMquats, Lemons, Limes, ORANGE, Papaya, Passion fruit, Pineapple, Prickly Pear, Plantain, Raspberries, Rhubarb, Star fruit, Strawberries, Tangelo, Tamarind

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### low fructans/GOS

**VEGETABLES**
- ARUGULA, BAMBOO SHOOTS, BOK CHOY, BEAN SPROUTS, 4 SLICES BEET ROOT, 1/4 C. BUTTERNUT SQUASH, BELL PEPPERS, 1/2 C. BROCCOLI, CARROTS, CELERIAC, CHIVES, COLLARD GREENS, COMMON GREEN & RED CABBAGE, SWEET CORN (1/2 OF COB), RED & GREEN CHILI, CUCUMBER, EGGPLANT, ENDIVE, FENNEL BULB & STALK, GREEN BEANS, FRESH & GROUND GINGER ROOT, KABOCHA SQUASH, KALE, LETTUCE, PARSNIP, PATTY PAN SQUASH, 1/4 C. CANNED PUMPKIN, POTATO (WHITE) OR 1/4 C. SWEET POTATO, RADISH, RUTABAGA, SCALLIONS & LEeks (GREEN PART ONLY), SPAGHETTI SQUASH, SPINACH, SWISS CHARD, SUMMER SQUASH, NORI SEAWEED, 1/4 C. TARO, TOMATOES (CANNED, CHERRY, Plum & Common BEEFSTEAK), TURNIP, OIL INFUSED WITH GARLIC OR ORION, WATER CHESTNUTS, ZUCCHINI, WATERCRESS, GREEN & BLACK OLIVES

**FRUITS**
- 1/2 SMALL POMEGRANATE, 1 TB DRIED CRANBERRIES OR RAISINS, 1/4 C. DRIED COCONUT & those listed on the no excess fructose and low polyol sections.

**GRAINS**
- GF bread, GF PASTA, MILLET, OATS, RICE, RICE CAKES, QUinoa, QUINOA FLAKES, SLOW LEAvenED SOURDOUGH WHEAT OR SPELT BREAD, SOBA NOODLES, POLENTA, CORN TortalLs

**NUTS/SEEDS**
- 10 ALMONDS, 10 BRAZIL NUTS, 10 CHESTNUTS, 10 HAZELNUTS, 20 MACADAMIAS, 32 PEANUTS, 10 PECONS, 1 TB PINE NUTS, 10 WALNUTS, 2 TB CHIA SEEDS, 2 TB POPPY SEEDS, 2 TB PUMPKIN SEEDS, 1 TB SESAME SEEDS, 2 TB SUNFLOWER SEEDS

**LEGUMES**
- 1/4 C. DRAINED & RINSED CANNED CHICKPEAS, 1 C. EDAMAME, 1/4 C. DRAINED AND RINSED CANNED LENTILS, FIRM TOFU, TEMPEH (PLAIN)

**HERBS**
- BASIL, CILANTRO, CORIANDER, CURRY LEAVES, KAFFIR LIME LEAVES, LEMONGRASS, MINT, ROSEMARY, PARSLEY, SAGE, TARRAGON, THYME

**COFFEE and TEA**
- COFFEE, ESPRESSO, TEAS; BLACK, GREEN AND WHITE TEAS, HERBAL PEPPERMINT TEA

---

### low polyols

**FRUIT**
- BANANA (1/3 RIPE), DRIED BANANA CHIPS, BLUEBERRIES, CANTALOUPE, DURIAN MELON, CLEMENTINE, FRESH AND DRIED COCONUT, DRAGON FRUIT, GRAPE, Ripe GUAVA, HONEYDew, KIWFruit (Gold & Green), KUMquats, Lemons, Limes, ORANGE, Papaya, Passion fruit, Pineapple, Prickly Pear, Plantain, Raspberries, Rhubarb, Star fruit, Strawberries, Tangelos, Tamarind

**VEGETABLES**
- 1/8 AVOCADO, 1/4 C. BUTTERNUT SQUASH, 1/4 STALK CELERY, 1/4 C. SWEET POTATO, OYSTER MUSHROOMS

**SWEETENERS and BAKING**
- PURE MAPLE SYRUP, WHITE SUGAR, BROWN SUGAR, STEVIA, PALM SUGAR, RAW SUGAR, RICE MALT SYRUP, DARK CHOCOLATE, COCOA POWDER, VANILLA

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*Courtesy Kate Scarlata*
Reintroduction Phase

- Slow and progressive reintroduction of the 5 sugar categories
- Completed after 2-6 weeks; patient is 50+% better with diet
- Each sugar tested over a 3 day period at differing levels to assess tolerance and thresholds

<table>
<thead>
<tr>
<th>Day</th>
<th>Quantity / Food</th>
<th>Time Taken</th>
<th>Symptoms</th>
<th>Time of Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 teaspoon honey</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>2 teaspoon honey</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td>3 teaspoon honey</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tuck et al, JGH, 2017
Resources

- Kate Scarlata’s FODMAP Website:
  - http://blog.katescarlata.com/fodmaps/
  - Checklists high vs low fodmap foods
  - Grocery list and meal ideas
  - Great weekly blog
    - Recipes
    - Fodmap brands
Resources


- **Low Fodmap Central:** [https://www.nestlehealthscience.us/lowfodmap](https://www.nestlehealthscience.us/lowfodmap)

- **University of Michigan FODMAP site:** [http://www.myginutrition.com/index.html](http://www.myginutrition.com/index.html)
Gastroparesis (GP)
Gastroparesis

**Definition**

- Gastro = stomach
- Paresis = weak muscles / partial or full paralysis
  - *Delayed stomach emptying*
- Measured using Gastric Emptying Study
Gastroparesis

**Cause**

- Gastroparesis in the Community Research Survey 2016
  - 1423 adults with GP
  - 44% idiopathic
  - 15% not told potential cause
  - 12% diabetes
  - Remaining – vagal nerve injury, virus, surgery, autoimmune disorder (lupus, scleroderma), medication-induced
Facts & Figures

• 50 in 100,000 persons in USA have gastroparesis
• Estimated to affect up to 5 million individuals
• More common in females
• Since initial diagnosis, 60.0% of patients experience weight loss
Gastroparesis

**Symptoms**

- Early satiety
- Postprandial fullness despite portion size
- Loss of appetite
- Abdominal fullness
- Abdominal bloating
- Abdominal distention
- Abdominal discomfort or pain
- Nausea
- Vomiting
Next Steps?

**What to do?**

- Medications
  - *Prokinetics*
  - *Antiemetics*
- Diet
  - ????????
Anecdote vs Evidence?

- Few studies on dietary advice for GP
- Basic advice
  - Low fat
  - Smaller meals
  - Lower in fiber
  - Fluids separate from solids

Homko et al, NGM, 2015
Parrish, Prac Gastro, 2011
Yu et al, Dig Dis Sci, 2017
Parrish, Gastro Clin N AM, 2015
Anecdote vs Evidence?

Food Toleration and Aversion Survey (2015)

- **Poorly tolerated:**
  - Orange and tomato juice
  - Fried chicken
  - Oranges
  - Sausages and bacon
  - Pizza
  - Peppers
  - Onions
  - Lettuce
  - Coffee
  - Salsa
  - Broccoli and cabbage
  - Roast beef

- **Well tolerated:**
  - Saltine crackers
  - Jello
  - Graham crackers
  - Pretzels
  - Potatoes
  - Salmon and white fish
  - Clear soups
  - White rice
  - Popsicles
  - Applesauce
  - Ginger ale
  - Pasta

Wytiaz et al, Dig Dis Sci, 2015
Anecdote vs Evidence?

Symptom-provoking foods:
- Spicy
- Fatty
- Acidic
- Roughage

Tolerated foods:
- Bland
- Sweet
- Salty
- Starchy

Wytiaz et al, Dig Dis Sci, 2015
Ask Your Patient

**Important Questions:**

- **Time**
  - Of meals in regards to symptoms; night vs morning?
- **Temperature**
  - Of foods; hot vs cold?
- **Texture / Consistency**
  - Liquids vs solids? – liquid emptying preserved in GP
  - Ground vs solids? – ground/pureed are more broken down
- **Amount**
  - Larger volume = slower emptying
  - 4-6+ meals daily
Important Questions:

- Fat
  - Higher vs lower?; higher likely to lead to nausea
  - Releases cholecystokinin which delays gastric emptying
  - Liquid vs solid in food?
    - High-fat solid > low-fat solid > high-fat liquid > low-fat liquid

Wytiaz et al, Dig Dis Sci, 2015
Parrish, Prac Gastro, 2011
Parrish, Gastro Clin N AM, 2015
Homko et al, NGM, 2015
Ask Your Patient

**Important Questions:**

- Fiber
  - Insoluble fiber = problem
    - Bezoars
    - Bloats out top portion of stomach
  - Soluble fiber
    - Absorbs water, moves to bottom of stomach (?)
  - Viscous = *delayed emptying*
  - Fermentable = *delayed laxation*
Ask Your Patient

**Important Questions:**

- Body Position
  - *Sitting upright or walking = gravity helps encourage emptying*

*Wytaiz et al, Dig Dis Sci, 2015*
*Parrish, Prac Gastro, 2011*
*Parrish, Gastro Clin N AM, 2015*
Gastroparesis

Side Effects

• Constipation
  • Osmotic laxatives and stool softeners

• Glycemic control

• Unintentional weight loss
  • UBW vs current weight
    • Using ideal body weight = overestimation/underestimation of degree of nutrition risk
  • Unintentional weight loss greater than 5-10% over 3-6 months
  • May require EN/PN

Parrish, Prac Gastro, 2011
Parrish, Gastro Clin N AM, 2015
Gastroparesis

Parkman et al, Gastroenterology, 2011

- Used NIDDK Gastroparesis Registry
  - Gastroparesis (on PO intake) = 305 total; (204 idiopathic, 101 diabetic)
  - Completed diet questionnaires (Block FFQ) at 7 centers
- Majority of patients with gastroparesis consume diets deficient in
  - Calories (average 1168 calories)
  - Carbohydrates (48% of intake; 139 +/- 95 grams)
  - Protein (16% of intake; 49 +/- 38 grams)
  - Vitamins
  - Minerals
Gastroparesis

**Energy deficient diet vs. energy appropriate**

- Vitamin A (50% vs 10%)
- Thiamin (62% vs 4%)
- Riboflavin (50% vs 2%)
- Vitamin B6 (55% vs 5%)
- Vitamin B12 (45% vs 5%)
- Vitamin C (66% vs 19%)
- Vitamin D (71% vs 44%)
- Niacin (66% vs 5%)
- Folate (90% vs 31%)
- All minerals (40% to 63% more patients were inadequate in their intake)
Gastroparesis

Side effects

• Vitamin / Mineral / Calories / Protein Deficiencies
  • Depending on anatomy (gastric surgeries)
  • Chewable and liquid supplements = better tolerated
    • Watch for GI irritant inactive ingredients (polyols, fructose)
  • May require EN/PN
## Nutrition Facts

**Serving Size 1 Carton (11 FL. OZ.)**

**Servings Per Container 1**

<table>
<thead>
<tr>
<th>Amount Per Serving</th>
<th>% Daily Value*</th>
</tr>
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<tbody>
<tr>
<td>Calories 220</td>
<td>9%</td>
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<tr>
<td>Fat Calorie 50</td>
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</tr>
<tr>
<td>Total Fat 6g</td>
<td>9%</td>
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<tr>
<td>Saturated Fat 1g</td>
<td>5%</td>
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<tr>
<td>Trans Fat 0g</td>
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<tr>
<td>Cholesterol 0mg</td>
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<tr>
<td>Sodium 190mg</td>
<td>8%</td>
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<tr>
<td>Potassium 170mg</td>
<td>5%</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>8%</td>
</tr>
<tr>
<td>Dietary Fiber 2g</td>
<td>8%</td>
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<tr>
<td>Sugars 9g</td>
<td></td>
</tr>
<tr>
<td>Protein 16g</td>
<td>32%</td>
</tr>
</tbody>
</table>

Vitamin A 25%
- Vitamin C 25%
- Calcium 10%
- Iron 10%
- Vitamin D 25%
- Vitamin E 25%
- Thiamine 10%
- Riboflavin 20%
- Niacin 20%
- Vitamin B6 15%
- Folate 25%
- Vitamin B12 25%
- Biotin 10%
- Pantothenic Acid 25%
- Phosphorus 30%
- Iodine 25%
- Magnesium 20%
- Zinc 20%
- Copper 25%

*Percent Daily Values are based on a 2,000 calorie diet.
Gas & Bloating
Gas & Bloating

- **Bloating**: the subjective sensation or feeling of increased abdominal pressure
- **Distention**: the objective increase in diameter of the abdominal area

*Courtesy Lynn Connolly MD MSCR*
Facts & Figures

• Affects 20-30% of general population
  • 50% say severity affects daily activities
• More frequent in women (2:1)
• 76-96% of IBS patients have bloating
  • 2nd most common symptom after pain
  • Up to 60% rate bloating as most problematic symptom
• 50% of functional dyspepsia and chronic constipation patients have bloating

Courtesy Lynn Connolly MD MSCR
Next Steps?

**What to do?**

- Medications
- Procedures / Testing
- Look for food triggers
- Add in anti-gas supplement
The FODMAP Problem

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Courtesy Kate Scarlata
Sulfur-Contributing Foods

**Malodorous Flatus**

Hydrogen sulfide gas creation:

1. Colonic bacteria degrade cysteine and methionine (conversion to homocysteine) - *Enterococci, Enterobacteria*, and *Clostridia (E. coli)*

2. Pyruvate and α-ketobutyrate = electron donors to generate more H$_2$S

3. Inorganic sulfur from cruciferous and alliums

4. γ-Proteobacteria reduce iron flavoproteins to produce H$_2$S
Sulfur-Contributing Foods

Dietary sources derived from Sulphur-containing AAs and special metabolites:

- Legumes (including peanuts and peas)
- Beans
- Soybeans
- Aged cheese (Swiss, muenster, provolone, etc.)
- Eggs (yolk)
- Beef
- Fish (pink)
- Garlic / Onion
- Whey
- Broccoli
- Cauliflower
- Brussels sprouts
- Asparagus
- Cabbage
Next Steps?

What to do?

• Medications
• Procedures / Testing
• Look for food triggers
• Add in anti-gas supplement
Digestive Enzymes

Gas from GOS:

- **α-galactosidase** - 300 GALU taken with high GOS foods provides clinically significant reduction in symptoms in GOS-sensitive individuals with IBS

Gas from Lactose

- **β-galactosidase** - 20 grams lactose required 3000 ALU to achieve symptoms reduction in lactose-intolerant individuals

Tuck, Am J Gastro 2017
Montalto, Eur J Clin Nutr. 2005
Simethicone + Charcoal

**Limited Studies**

- Simethicone alone
  - *Surfactant to ease passage of gas, increase transit time*
- Activated Charcoal
  - *Significant reduction in bloating and gas (n=99)*
- Simethicone, activated charcoal, magnesium
  - *FD (n=276) vs placebo: significant reduction in post-prandial fullness, epigastric pain, burning, abdominal bloating*

- Charcoal underpants
Peppermint & STW-5

- **Peppermint:**
  - Smooth muscle calcium channel antagonist – *decrease contractions*
  - Normalization of orocecal transit time – *slow motility*
  - Carminative effects – *prevent flatulence*
  - Serotonergic (5HT3) antagonism – *antiemetic*

- **STW-5:**
  - Preparation combining 20 different herbs
  - Meta-analysis - double-blind, placebo-controlled, multi-center trial
    - *STW5 more effective than placebo for functional dyspepsia*
    - *Bloating was not studied* - “Relieved the sensations of fullness and tension, which could be considered a surrogate for bloating”

Madisch, Aliment Pharmacol Ther. 2004
Impaired viscero-somatic reflexes

Somatic perception

Visceral hypersensitivity

Increased intraluminal gas

Diaphragmatic breathing exercises

Adapted from Azpiroz F, Malagelada J-R. Gastroenterology 2005
Take Home Messages

• Irritable Bowel Syndrome
  • Needs a well rounded / whole being approach
  • Low fodmap diet as first line treatment

• Gastroparesis
  • Individualized for patient needs
  • Be careful of deficiencies and weight loss

• Gas and Bloating
  • Food triggers vs supplements
  • Diaphragmatic breathing exercises can help distention only patients
Thank You!!

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Questions to Keith –

IBS:
1) how often do you use low fodmap?
2) What about IBS-C patients?
3) Do you use probiotics?
4) what about digestive enzymes

GP:
1) how often do you prescribe oral supplements?
2) can you use fiber supplements for constipation in GP?
What do I want Keith to say – bio

Nancee graduated from California State University, Los Angeles, where she earned her masters of science in nutrition. She completed her dietetic internship at the Cedars-Sinai Medical Center and at the University of California, Los Angeles, where she was mentored by Dr. Lin Chang of the G. Oppenheimer Center for the Neurobiology of Stress and Resilience.

Nancee was invited to join the UCLA Vatche and Tamar Manoukian Division of Digestive Diseases in 2012, where she is an integral part of the Celiac Disease Program and Digestive Health & Nutrition Clinic. She is involved with direct patient interaction during individual nutrition counseling sessions on such disease states as irritable bowel syndrome, inflammatory bowel disease, celiac disease, short bowel syndrome and idiopathic or functional bowel.

Nancee was a reviewer for the American Gastroenterological Association patient initiatives for short bowel syndrome and the low fodmap diet in 2016. She also helps mentor the division's fellows and is asked to speak on nutrition and digestive disorders at conferences inclusive of the Southern California Society of Gastroenterology. Nancee is currently working on research regarding the reintroduction phase of the low fodmap diet with Dr. Lin Chang.