
بسم الله الرحمن الرحیم

IBS & Diet



دکتر اباذر پارسی
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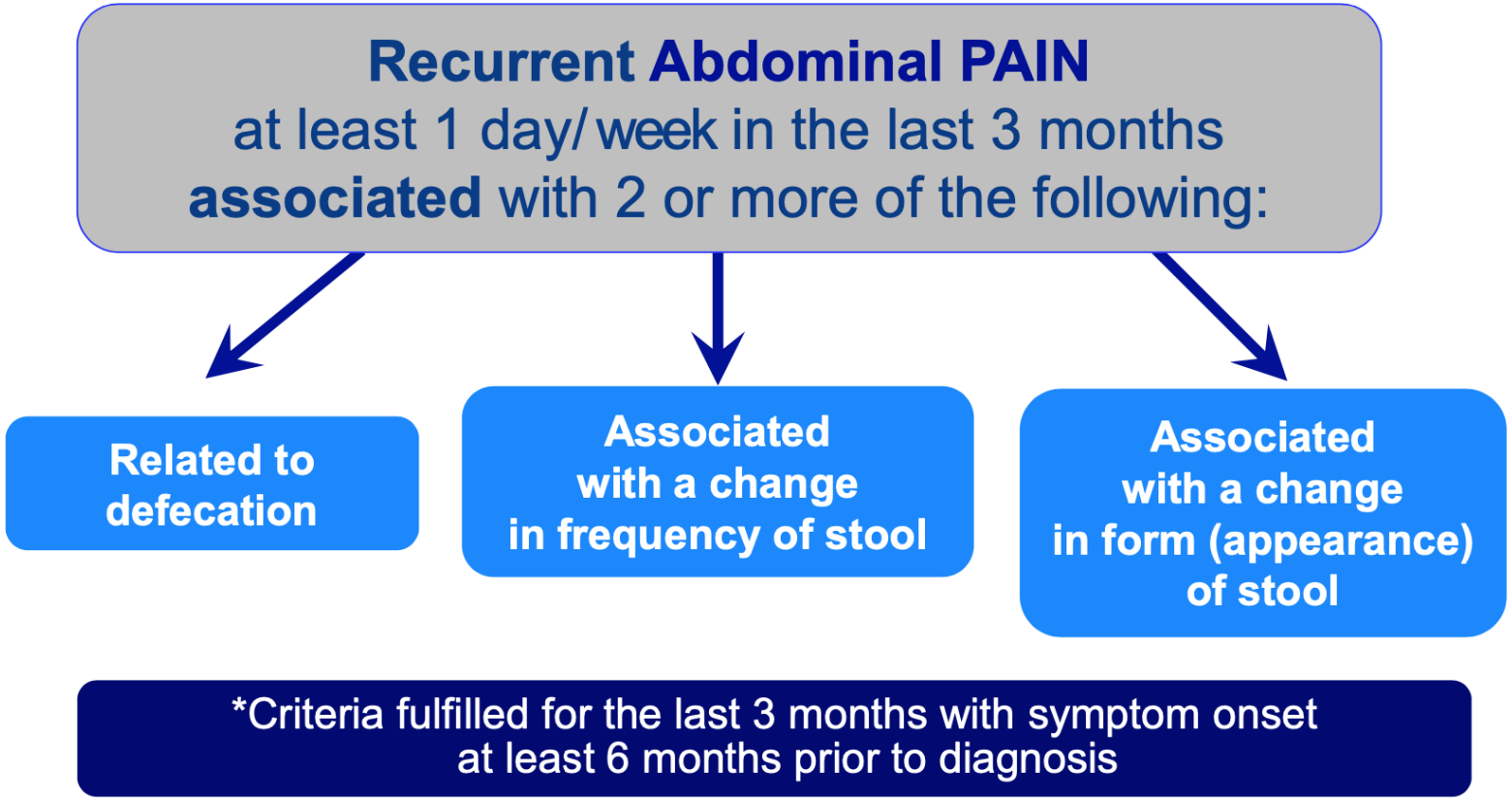
فوق تخصص بیماریهای گوارش وکبد
دانشگاه جندی شاپوراهواز

هشت خرداد ۱۴۰۴

- The causes of IBS are not fully understood.
- Different symptoms including:
- Abdominal pain/discomfort
- Bloating
- Incomplete evacuation ,diarrhoea or constipation (or variable bowel habit swinging between these

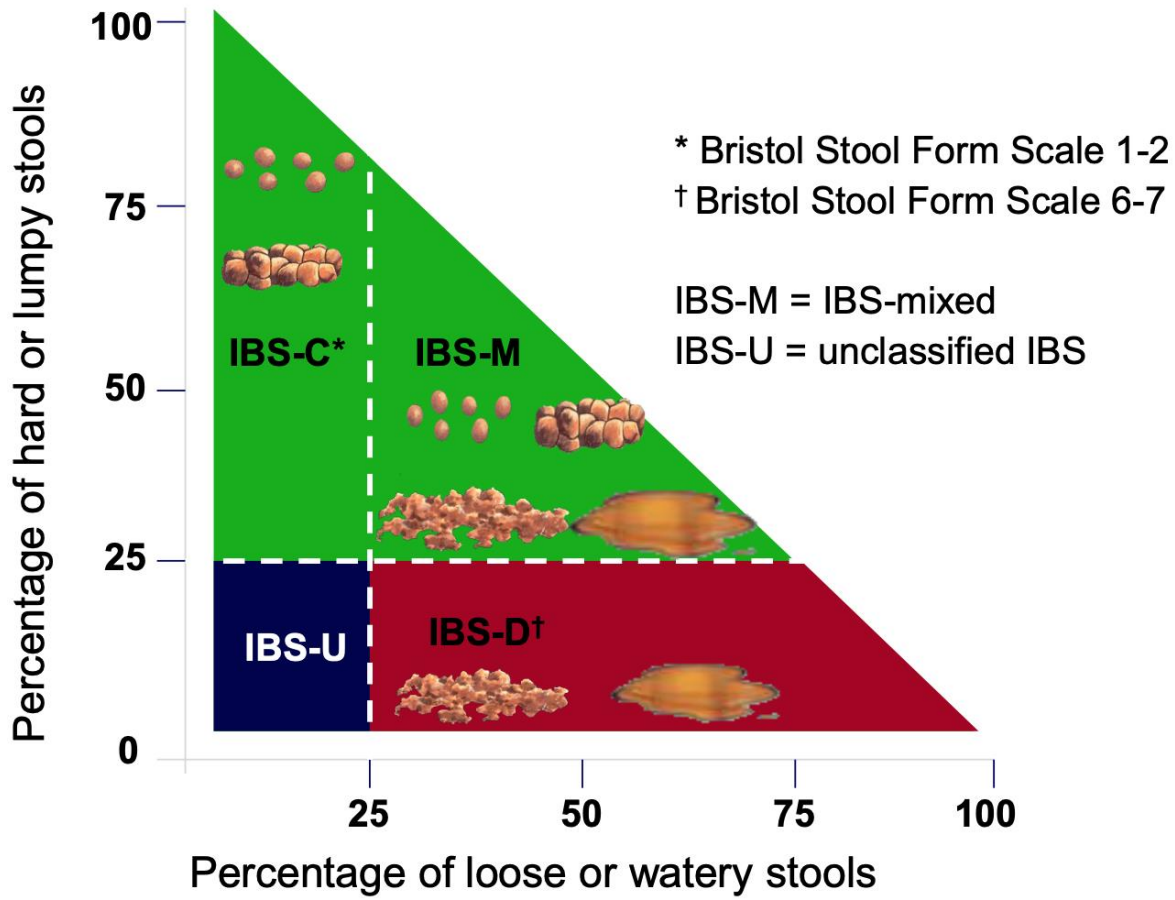
IBS Definition

Rome IV Criteria for IBS



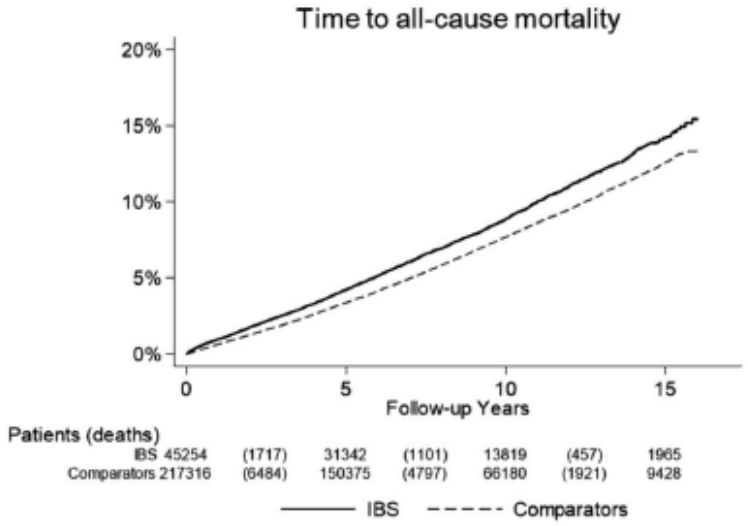
Lacy B et al. Gastroenterology. 2016;150:1393-1407 Rome Organization. Rome IV Disorders and Criteria.

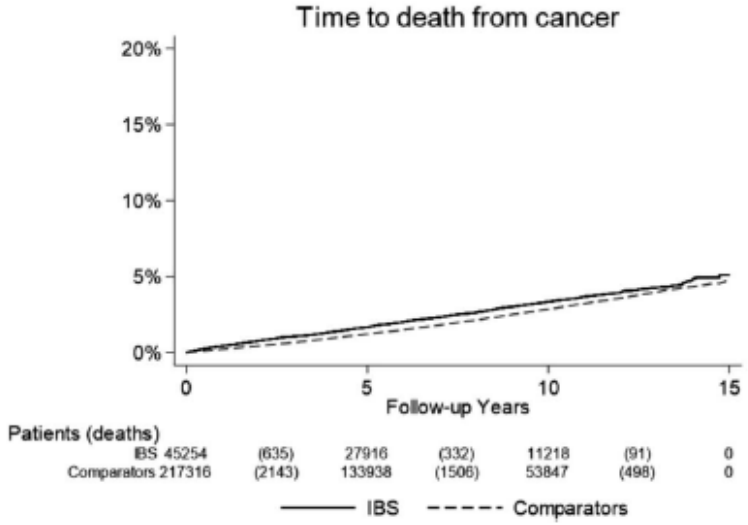
IBS Subtypes Based on Stool Consistency



No, IBS will not kill you……..

- Mortality concern is a major driver of care seeking in patients with IBS
- In this nationwide cohort of >45,000 individuals: no association between IBS and mortality
- No increased risk of mortality from cancer either
- Clinicians should spend more time on patient education and effective treatment approaches





K Staller, O Olén, *et al. Am J Gastroenterol.* 2020 May;115(5):746-755.

…But it might make you want to die

IBS patients require 4 years on average to get a confident diagnosis

IBS has significant impacts on QOL –
IBS-D: reluctance to leave home,

avoidance of places without a bathroom

– IBS-C: self-consciousness, difficulty concentrating

Increased absenteeism from work or school

Disproportionate healthcare resource use

– Mostly related to diagnostic testing, ED use, hospitalization



Black CJ, Ford AC. *Nat Rev Gastroenterol Hepatol*. 2020 Aug;17(8):473-486.

- These symptoms may vary over time
- Stress, anxiety or a hectic lifestyle can also play a role, which can lead to a flare up or worsening symptoms.

- IBS can be difficult to manage, but dietary and lifestyle changes can be very helpful in improving symptoms and therefore your quality of life.

- Many dietary factors are thought to be triggers for IBS symptoms:

- caffeine, alcohol, spicy or fatty foods, along with erratic eating patterns and behaviours.

- Dietary triggers can often be difficult to spot, especially when you have a flare of IBS symptoms.

Food Intolerance in IBS

Perceptions of food intolerance in IBS • 2X vs. general population

• 20-67 % of IBS patients have symptoms with eating a

meal
• Food intolerance, gastrocolic response,

microbiome/fermentation, gas handling, psychological factors

Difficult recognition of foods/ food components that trigger symptoms

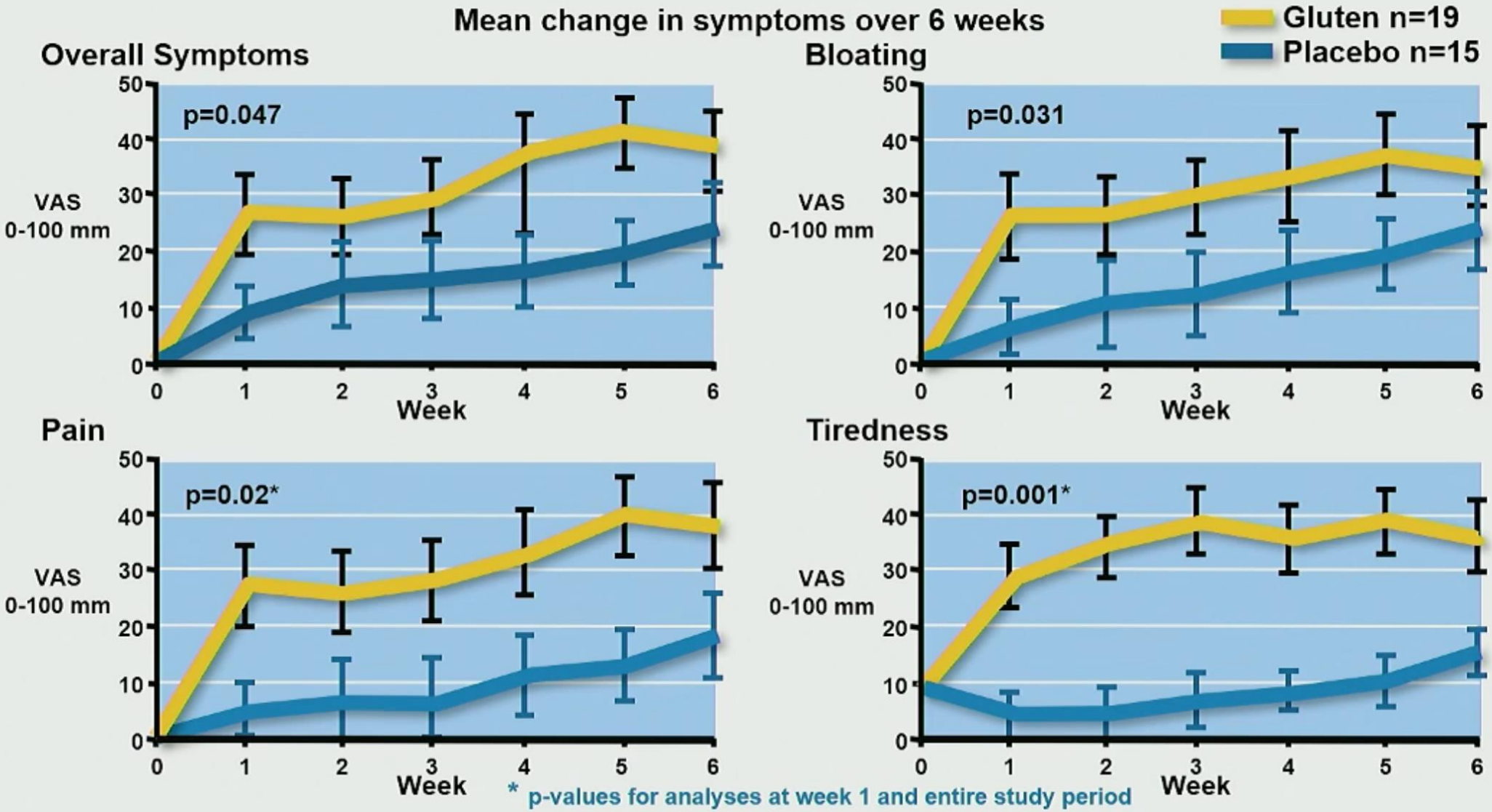
Prolonged fasting showed marked improvement in IBS symptoms



Diet and IBS

- Exclusion of gas-producing foods
  - Underlying visceral hyperalgesia
  - Exclusion of foods that increase gas production:
    - Beans, cruciferous vegetables (broccoli, cauliflower, cabbage), celery, carrots, raisins, bananas, prunes

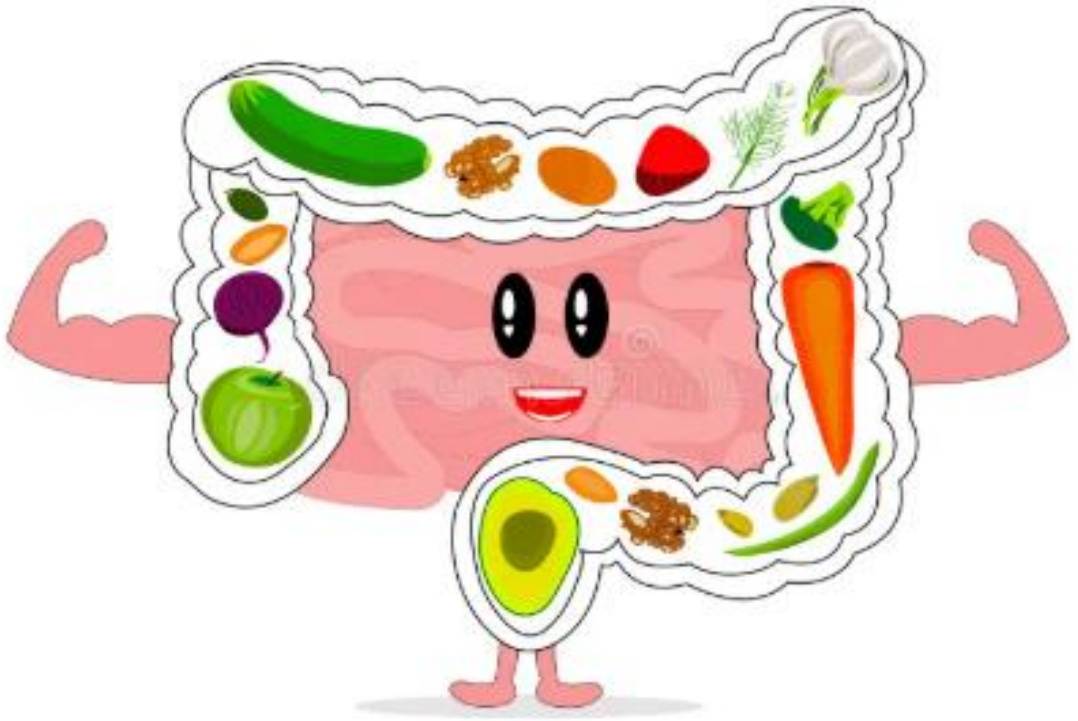
Benefits of a Gluten-Free Diet in IBS Patients Without Celiac Disease



Adapted from Biesiekierski JR, et al. Am J Gastroenterol, 2011

Diet and IBS : “FODMAP Diet”

- Carbohydrate malabsorption – “FODMAP’s”
  - **F**ermentable
  - **O**ligosaccharides
  - **D**isaccharides
  - **M**onosaccharides
  - **A**nd
  - **P**olyols
- May lead to Sx of IBS, increased intestinal permeability and possibly inflammation



FODMAP

- Fermentable: foods which do not fully digest/absorb in the intestine so ferment in the large bowel.
- a type of indigestible carbohydrates that are broken down by gut bacteria, producing byproducts like short-chain fatty acids and gases.



FODMAP

- Oligosaccharides: there are two groups of oligosaccharides that cause symptoms; Fructans and Galactooligosaccharides.

- These are poorly absorbed in all people as we do not have the ability to digest them in the small intestine.


Fructan
Garlic
Wheat
Figs
Ripe banana
Onion
Watermelon


FOOD SOURCES OF
GALACTOOLIGOSACCHARIDES
(GOS)
Legumes
Soya products
Nuts and Seeds
Whole grains

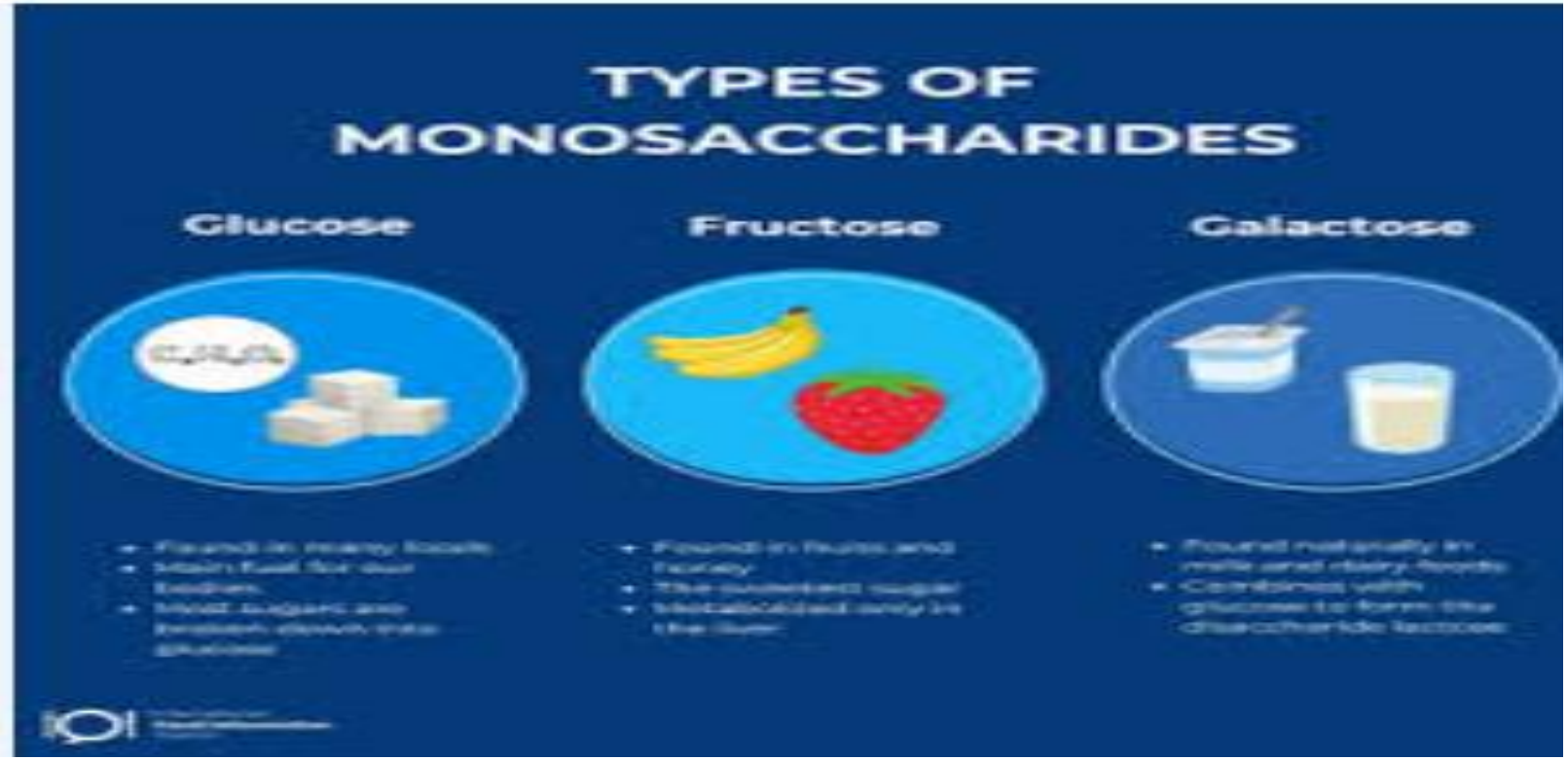
FODMAP

- Disaccharides: Lactose is a sugar found in all animal milks. Milk and yogurt are main sources of lactose



FODMAP

Monosaccharides: Fructose is a simple sugar but in excessive amounts may be poorly absorbed by some



FODMAP

- Polyols: Polyols are sugar alcohols such as sorbitol, mannitol and xylitol. These are poorly absorbed in most people.

- These occur naturally in some fruits and vegetables, but are also used as artificial sweeteners in sugar free chewing gum, mints, and other low calorie or sugar free products.

High Mannitol Foods



Button, Portobello, Swiss Brown, Enoki Mushrooms



Cauliflower



Celery



Peas

Low Mannitol Substitutes



Shimeji, Oyster Mushrooms



Broccoli



Potato



Zucchini



Cabbage, Lettuce, Spinach, Kale



Carrots



Capsicum

IBS AWARENESS MONTH

with FODMAP Friendly

Polyol Fruits

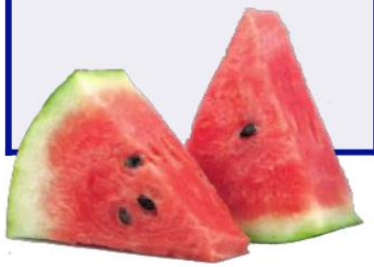
- Apple
- Apricot
- Avocado
- Cherries
- Nectarine
- Peach
- Pear
- Watermelon



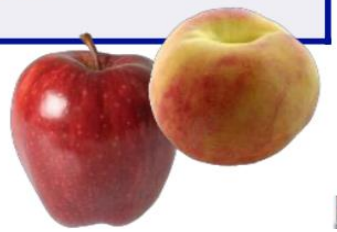
The low FODMAP Diet

Elimination of foods containing FODMAPs, followed by targeted re-introduction (often under guidance of dietician) to arrive at personalized diet

Excess Fructose	Lactose	Fructans	Galactans	Polyols
fruit apple, mango, pear, cherries, watermelon **sweeteners** sugar, high-fructose corn syrup **other** honey, asparagus	**milk** milk from cows, goats, or sheep; custard, ice cream, yogurt **cheeses** soft unripened cheeses (eg, cottage cheese, ricotta)	**vegetables** onion, leek, garlic, shallots, artichokes, asparagus, peas, beetroot, chicory **cereals** wheat, barley, rye	**legumes** baked beans, chickpeas, kidney beans, lentils	**fruit** apple, pear, apricot, cherries, peaches, nectarines, plums, watermelon **vegetables** cauliflower, mushrooms **sweeteners** sorbitol, mannitol, xylitol, chewing gum







Shepherd SJ, et al. *Am J Gastroenterol.* 2013;108:707-717. Shepherd SJ, Gibson PR. *J Am Diet Assoc*. 2006;106:1631-1639. Barrett JS, Gibson PR. *Ther Adv Gastroenterol*. 2012;5:261-268.

Low FODMAP Diet - FODMAP Foods

A low FODMAP diet may help people with gastrointestinal problems like bloating, gas, or irritable bowel syndrome (IBS). High and Low FODMAP Foods listed below.

GASTROENTEROLOGY CONSULTANTS of San Antonio

Foods to Avoid

Excess Fructose

- Fruit: apple, mango, nashi, pear, canned fruit in natural juice, watermelon.
- Sweeteners: fructose, high fructose corn syrup, corn syrup, honey.
- Concentrated fructose: concentrated fruit, large servings of fruit, dried fruit, fruit juice.

Lactose

- Milk: milk from cows, goats, or sheep.
- Custard, ice cream
- Yogurt
- Cheese: soft, unripened cheeses like cottage, cream, mascarpone, ricotta

Fructans

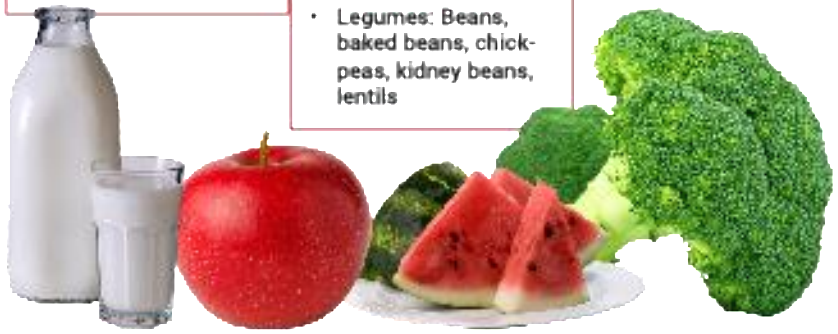
- Asparagus
- Beetroot
- Broccoli
- Brussels sprouts
- Cabbage
- Eggplant
- Fennel
- Garlic
- Leek
- Okra
- Onion (all)
- Shallots
- Cereals: wheat and rye in large amounts (e.g. bread, crackers, cookies, couscous, pasta)
- Fruit: custard apple, persimmon, watermelon
- Misc: chicory, dandelion, inulin

Galactans

- Legumes: Beans, baked beans, chickpeas, kidney beans, lentils

Polyols

- Apple
- Apricot
- Avocado
- Blackberry
- Cherry
- Lychee
- Nashi
- Nectarine
- Peach
- Pear
- Plum
- Prune
- Watermelon
- Vegetables: Green bell pepper, mushroom, sweet corn
- Sweeteners: sorbitol (420), mannitol (421), isomalt (953), maltitol (965), xylitol (967)



Foods to Enjoy

Fruit

- Banana
- Blueberry
- Boysenberry
- Canteloupe
- Cranberry
- Durian
- Grape
- Grapefruit
- Honeydew melon
- Kiwi
- Lemon
- Lime
- Mandarin
- Orange
- Passionfruit
- Pawpaw
- Raspberry
- Rhubarb
- Rockmelon
- Star anise
- Strawberry
- Tangelo

Misc

- Sweeteners - sucrose, glucose, artificial sweeteners not ending in "-ol", and sugar in small quantities
- Honey substitutes - small quantities of golden syrup, maple syrup, molasses, and treacle

Vegetables

- Alfalfa
- Artichoke
- Bamboo shoots
- Beat shoots
- Bok choy
- Carrot
- Celery
- Choko
- Choy sum
- Endive
- Ginger
- Green beans
- Lettuces
- Olives
- Parsnip
- Potato
- Pumpkin
- Red bell pepper
- Silver beet
- Spinach
- Summer squash (yellow)
- Swede
- Sweet potato
- Taro
- Tomato
- Turnip
- Yam
- Zucchini

Starch

- Gluten free bread or cereal products
- 100% spelt bread
- Rice
- Oats
- Polenta
- Other: arrowroot, millet, psyllium, quinoa, sorgum, tapioca

Dairy

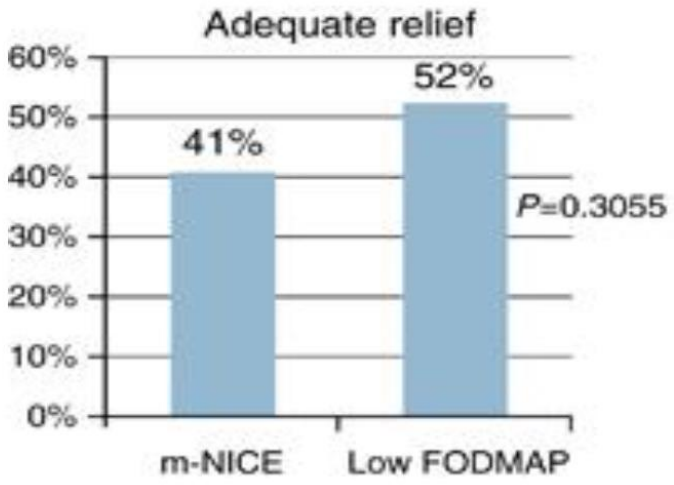
- Milk - lactose-free milk, oat milk, rice milk, soy milk (check for additives)
- Cheeses - hard cheeses, brie, and camembert
- Yogurt (lactose free)
- Ice cream substitutes - gelati, sorbet
- Butter substitutes (e.g. olive oil)

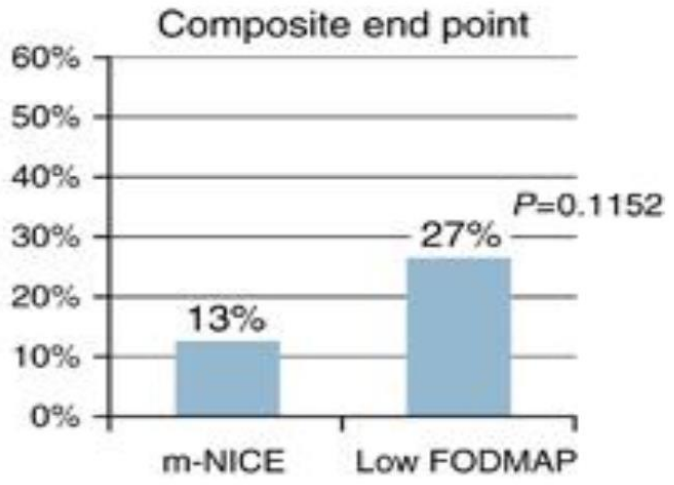


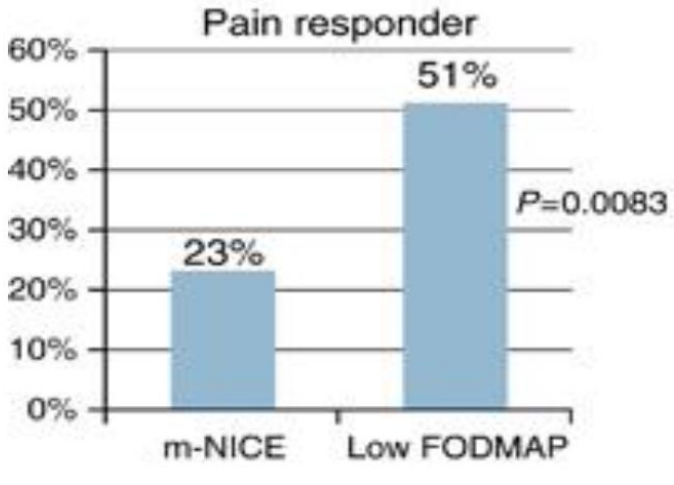
Comparing the Low FODMAP Diet to Modified NICE* diet in US Adults with IBS-D

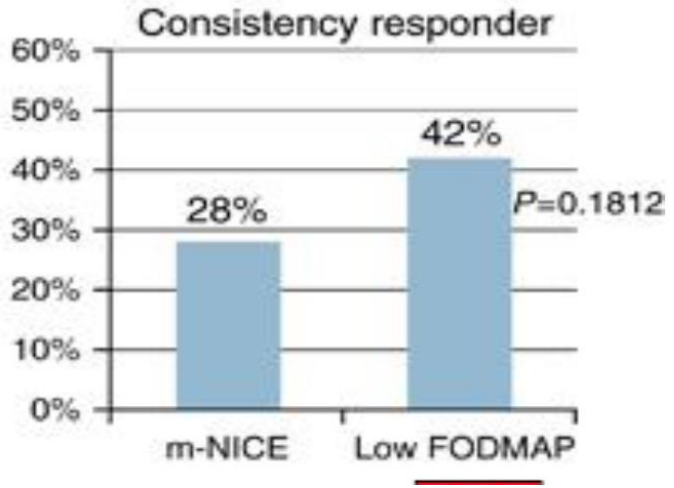
Example from the NICE guideline for IBS:

Reduce resistant starches
- whole grains, sweetcorn, and muesli that contains bran
- undercooked or reheated potato or maize/corn
- oven chips, crisps, potato waffles, fried rice
- part-baked and reheated breads, such as garlic bread, pizza base
- processed food such as potato or pasta salad, or manufactured biscuits and cakes
- ready meals containing pasta or potato, such as lasagna, shepherd's pie, macaroni cheese
- dried pasta







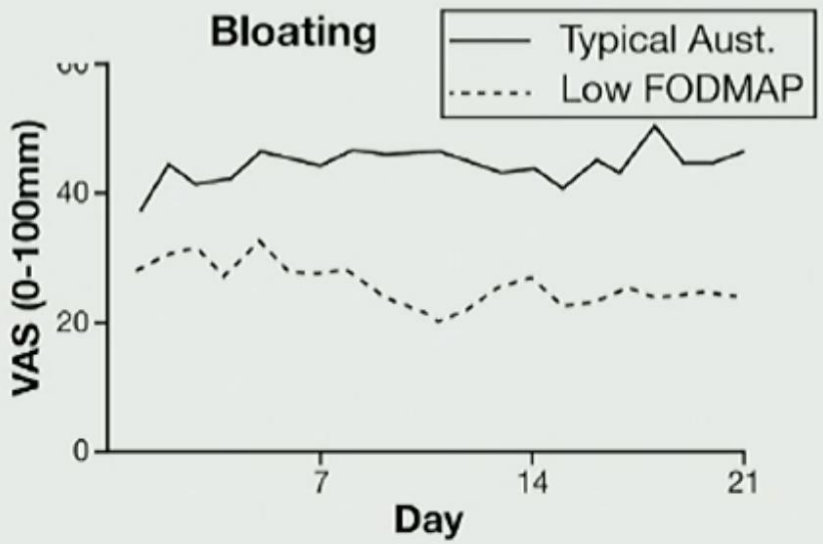


Eswaran et al. Am J Gastroenterol 2016; 111:1824–1832

*Diet based on National Institute for Health and Care Excellence (NICE

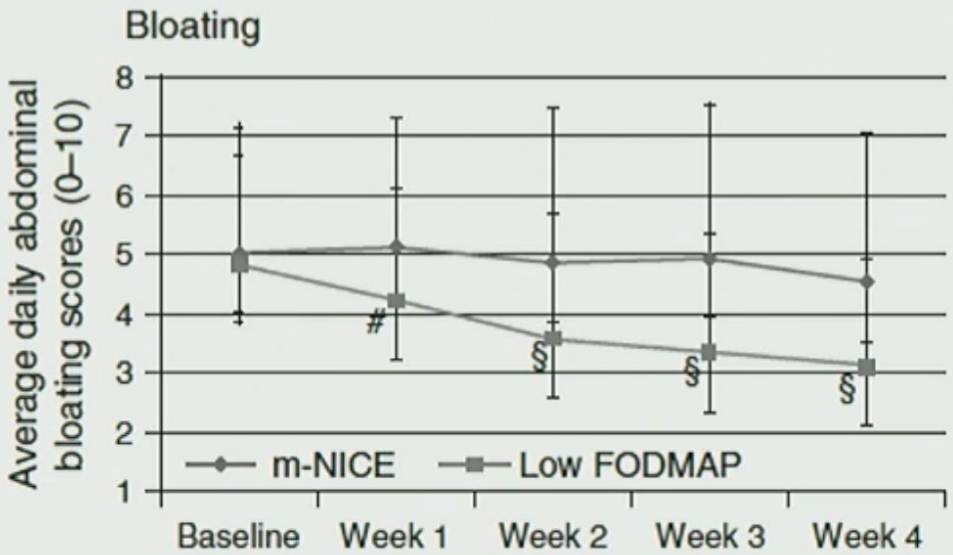
Low FODMAP Diet Reduces Bloating in IBS

Low FODMAP vs. High FODMAP Diet



Halmos, et al. Gastroenterology 2014;146:67

Low FODMAP vs. mNICE Diet



Eswaran S, et al. Am J Gastroenterol 2016;111(12):1824-1832

DOMINO Study – Is the low FODMAP diet efficacious in primary care settings?

- n = 459 patients
- RCT low FODMAP (LFD) vs antispasmodic in primary care setting using a smartphone app
- Response rates at 8 weeks: 71% of LFD vs 61% of antispasmodic groups (p=0.004)
- Significant difference as early as 4 weeks and at 16-week follow-up

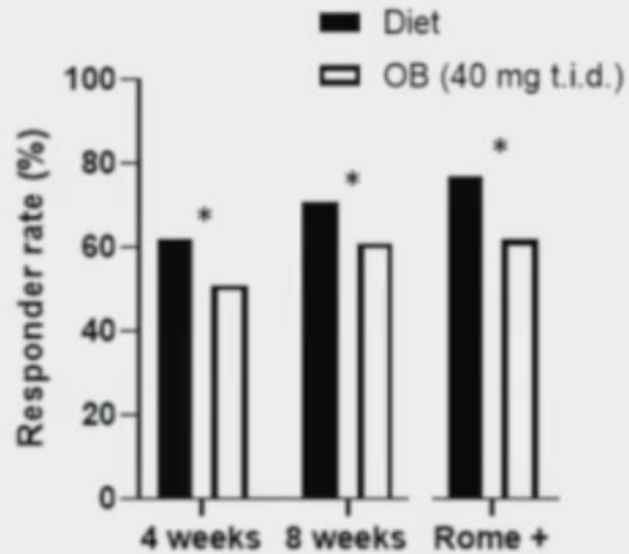


Figure 2 Responder rate was significantly higher in the diet group compared with medication after 4 (p=0.02) and 8 weeks (p=0.03) and more pronounced in Rome+ patients (p=0.004) based on Pearson χ^2 test. OB, otilonium bromide; t.i.d., three times a day.

Carbone et al, Gut 2022

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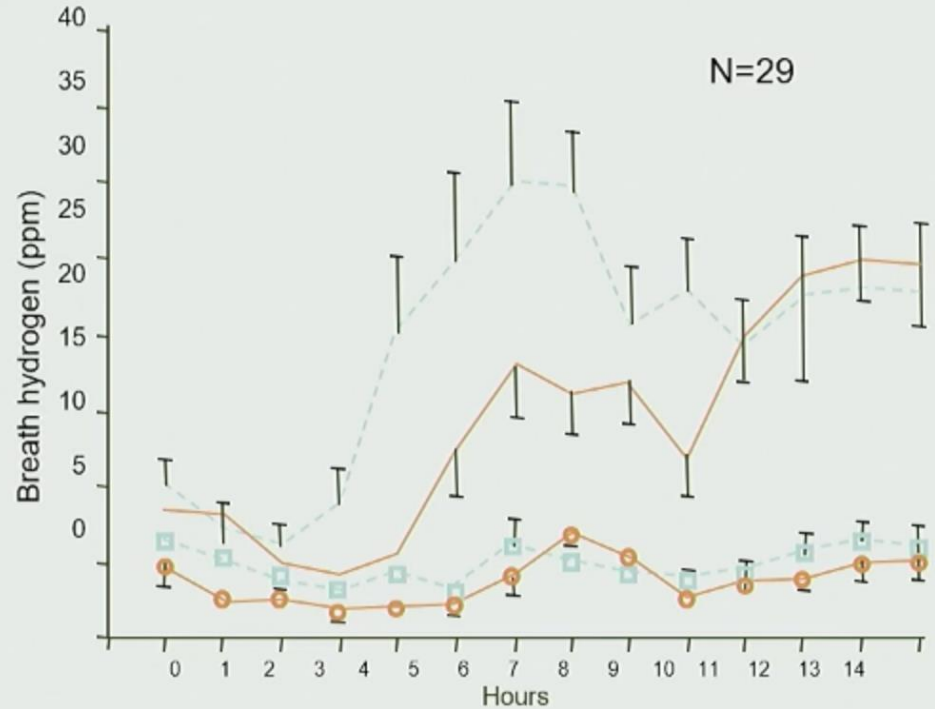
Impact of FODMAP Diet on Breath Hydrogen Production and Symptoms

- **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

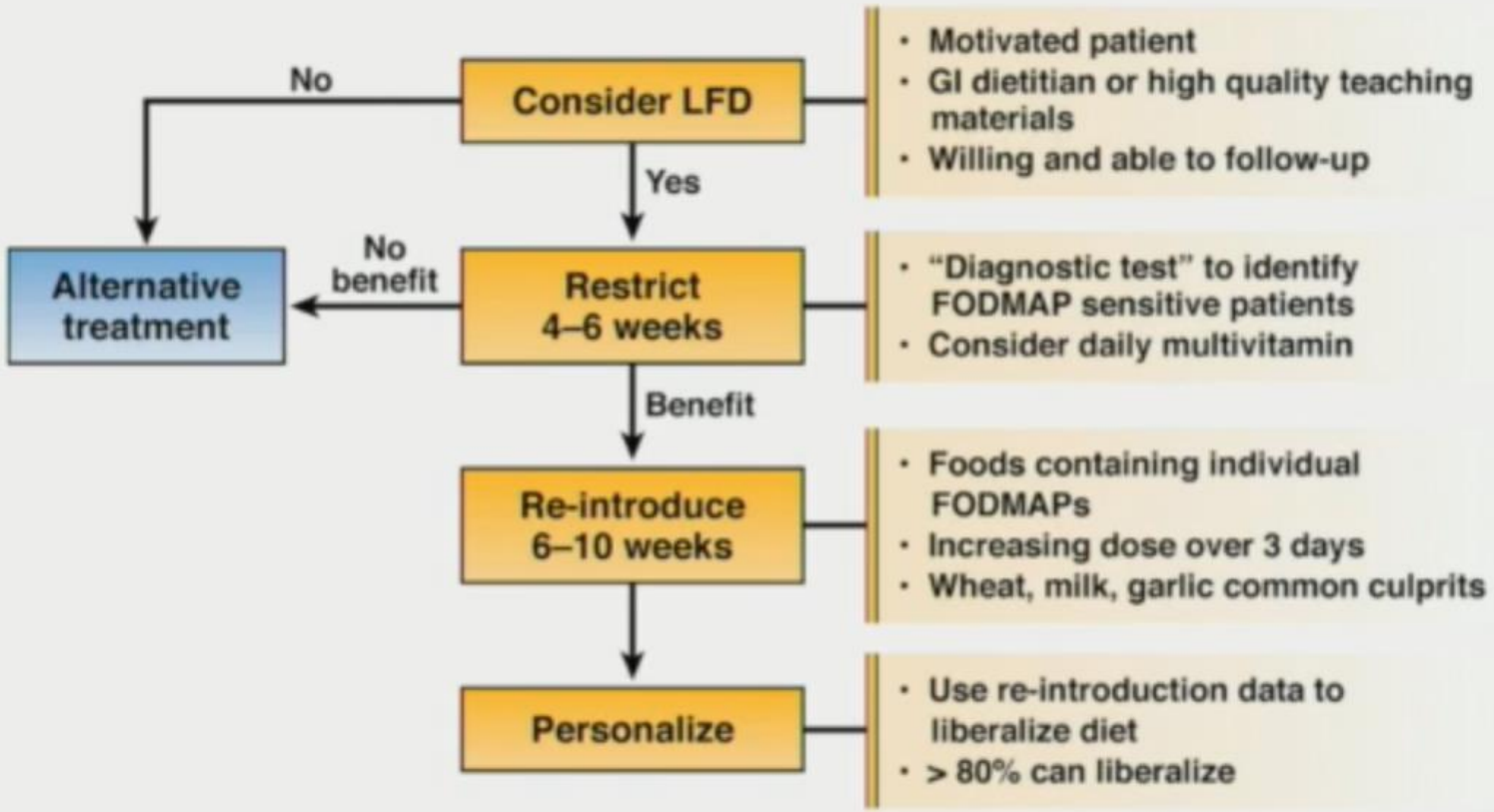
Breath hydrogen production



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

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

An overview of the low FODMAP diet



Chey et al, Gastroenterol 2022

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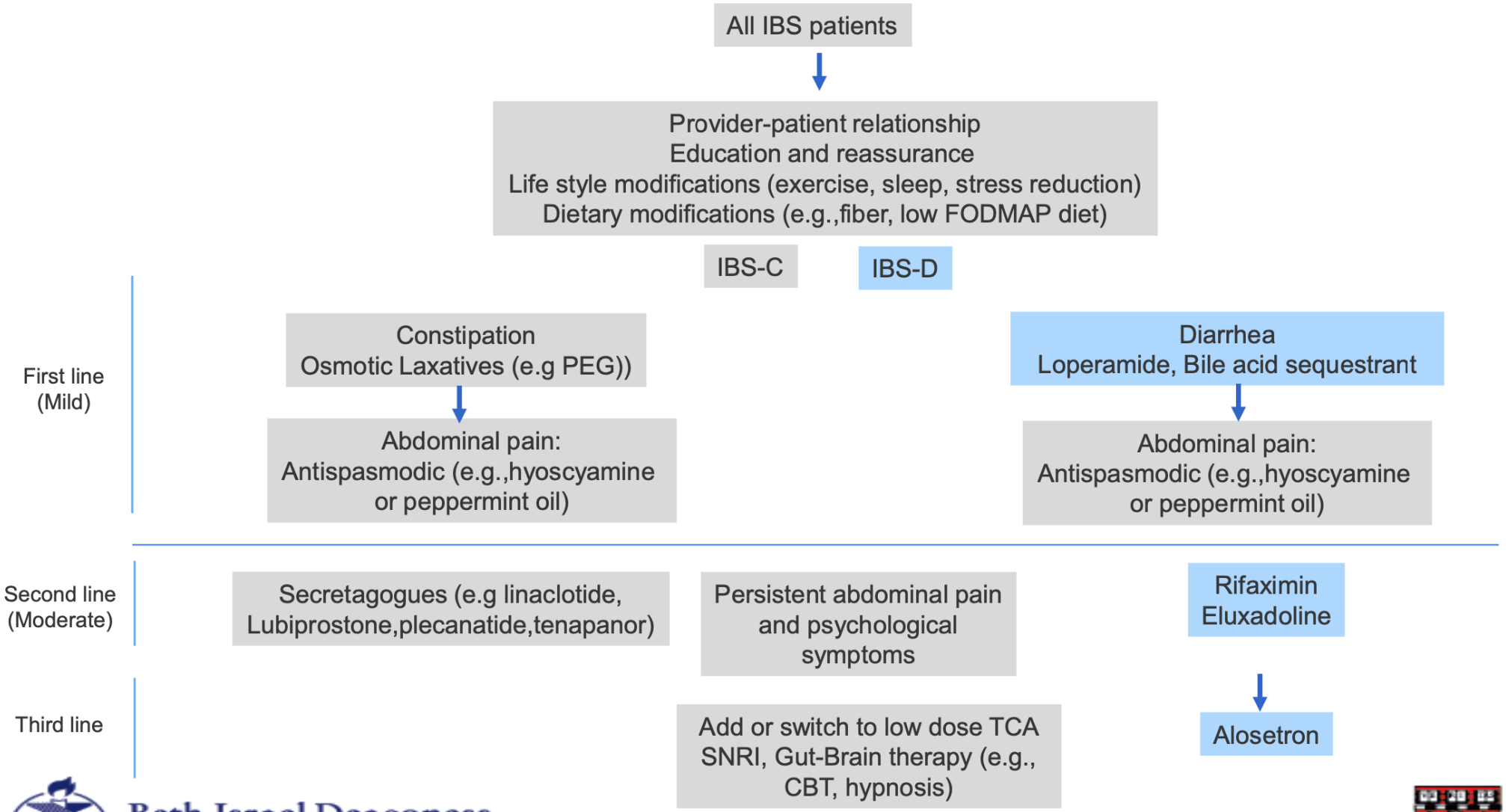
AGA Treatment Algorithm for IBS



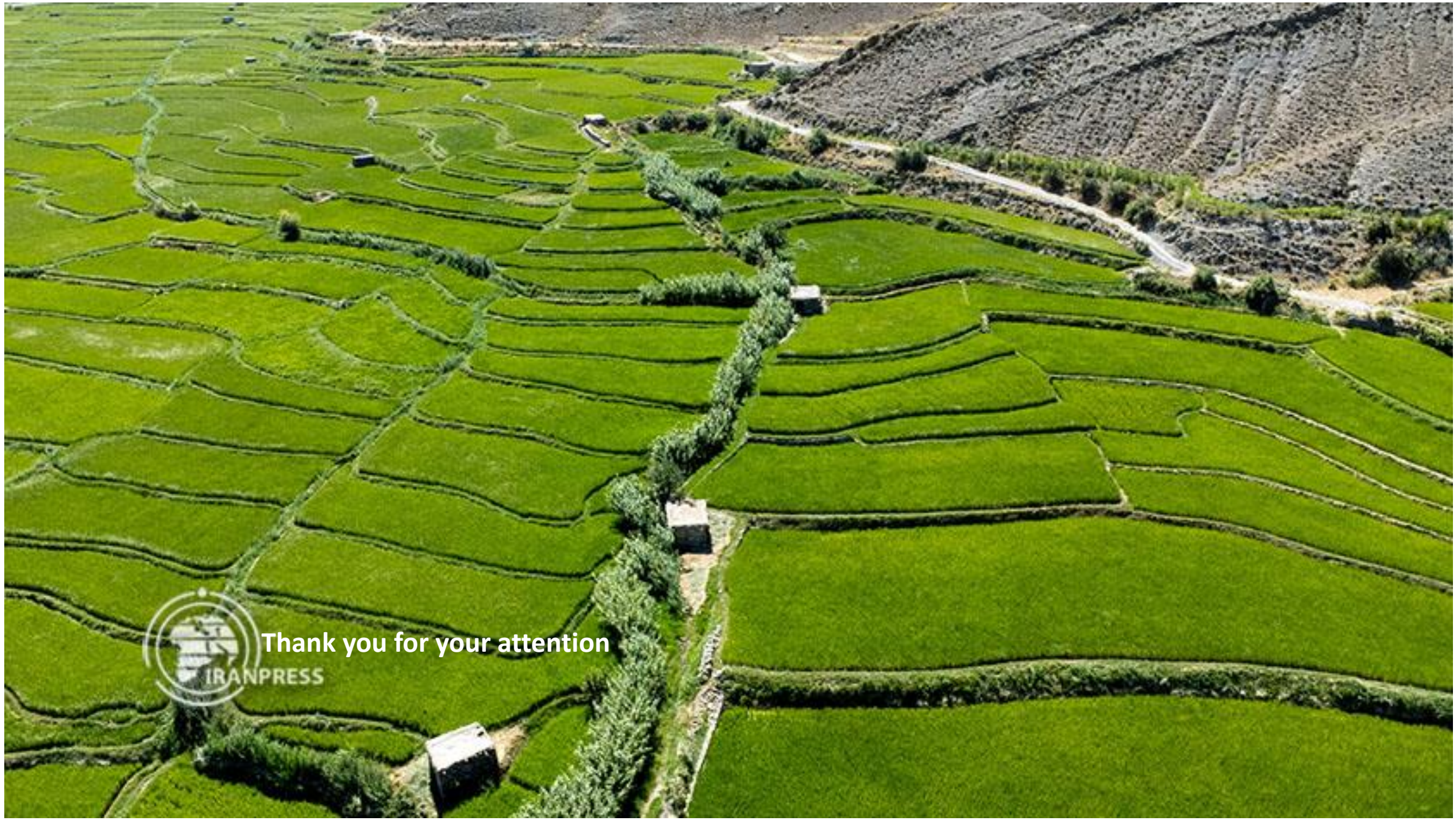
Beth Israel Deaconess Medical Center

Lembo, A et al. Gastroenterology 2022;163:137–151

A teaching hospital of Harvard Medical School

Summary

- Multi- disciplinary approach is essential for IBS treatment
- Importance of patient physician relation and life style modifications
- Make the diagnosis-target treatment to predominant symptom D
- If diet interventions needed, screen for eating disorders.
- No specific Diet pattern fit for All IBS patients .
- Dietary restriction is a difficult task in long term.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