



DR. HYMAN+

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# **Functional Medicine Deep Dive**

March 2021

## **IBS/SIBO**

Featuring: Dr. Mary Pardee

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modrn

## Dr. Mary Pardee

Naturopathic Medical Doctor  
Certified Functional Medicine Doctor (IFM)  
BS Human Nutrition

Founder of modrn med a virtual telehealth company

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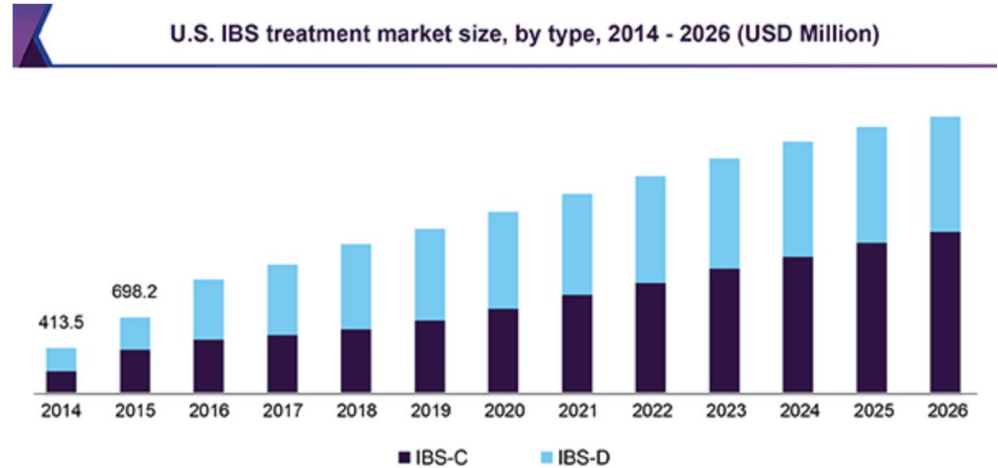
### Specialties

Integrative Gastroenterology  
Mental health and cognitive performance  
Metabolism



# IBS

- Affects 40 million people in the US
  - 1 Billion people in the world
- Approximately 10 to 15 percent of adults and adolescents have symptoms consistent with IBS



Source: [www.grandviewresearch.com](http://www.grandviewresearch.com)

# IBS

- Change in bowel habits (diarrhea/ constipation)
- Change in appearance of stool (hard/ loose)
- bloating/gas
- Abdominal discomfort
- Feeling of fullness
- No organic disease identifiable \*\*\*

## TYPES:

- IBS with predominant constipation (IBS-C)
- IBS with predominant diarrhea (IBS-D)
- IBS with mixed bowel habits (IBS-M)
- IBS unclassified- Patients who meet diagnostic criteria for IBS but cannot be accurately categorized into one of the other three subtypes.

# What does normal digestion look like?

Stool:

- Consistency
- Color
- Frequency
- Smell
- Blood
- Gas/bloating



Type 1 Separate hard lumps



Type 2 Lumpy and sausage like



Type 3 A sausage shape with cracks in the surface



Type 4 Like a smooth, soft sausage or snake



Type 5 Soft blobs with clear-cut edges



Type 6 Mushy consistency with ragged edges



Type 7 Liquid consistency with no solid pieces

# Causes of IBS

- Previously believed to be a syndrome due to mental health/ anxiety alone
- Post-infectious IBS- one in nine people who experience food poisoning develop IBS
- Overgrowth of bacteria/archae in the small intestines changes motility
  - 60% of IBS is now believed to be caused by overgrowth of bacteria in the small intestines

# Post infectious IBS (IBS-D or IBS-M)

**Here's an illustration of how an instance of food poisoning develops into post-infectious IBS.**



**INFECTION**  
BACTERIA RELEASE  
TOXIN (CdtB)



**IMMUNE RESPONSE**  
ANTI-CdtB FIGHTS  
AGAINST TOXIN, TRIGGERS  
ANTI-VINCULIN



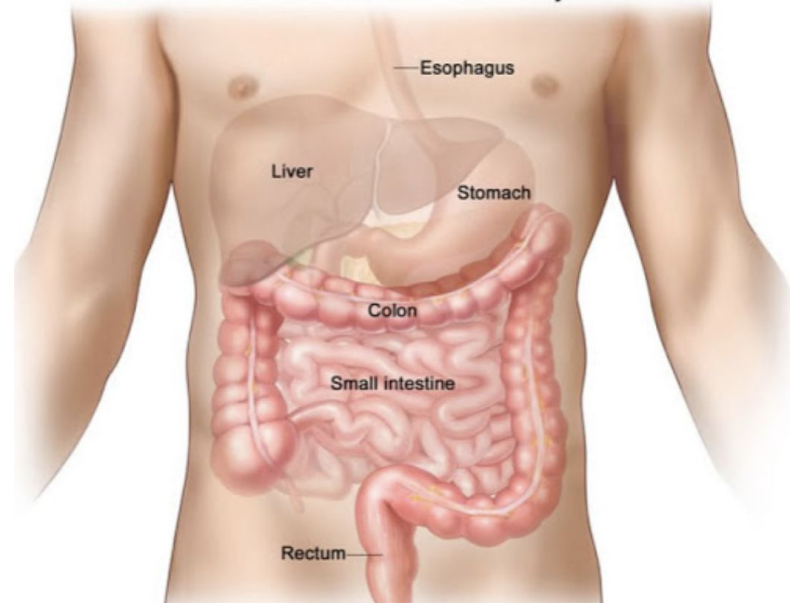
**AUTOIMMUNITY**  
ANTI-VINCULIN  
DAMAGES GUT



**IBS-D or IBS-M**  
BLOATING, PAIN,  
DIARRHEA

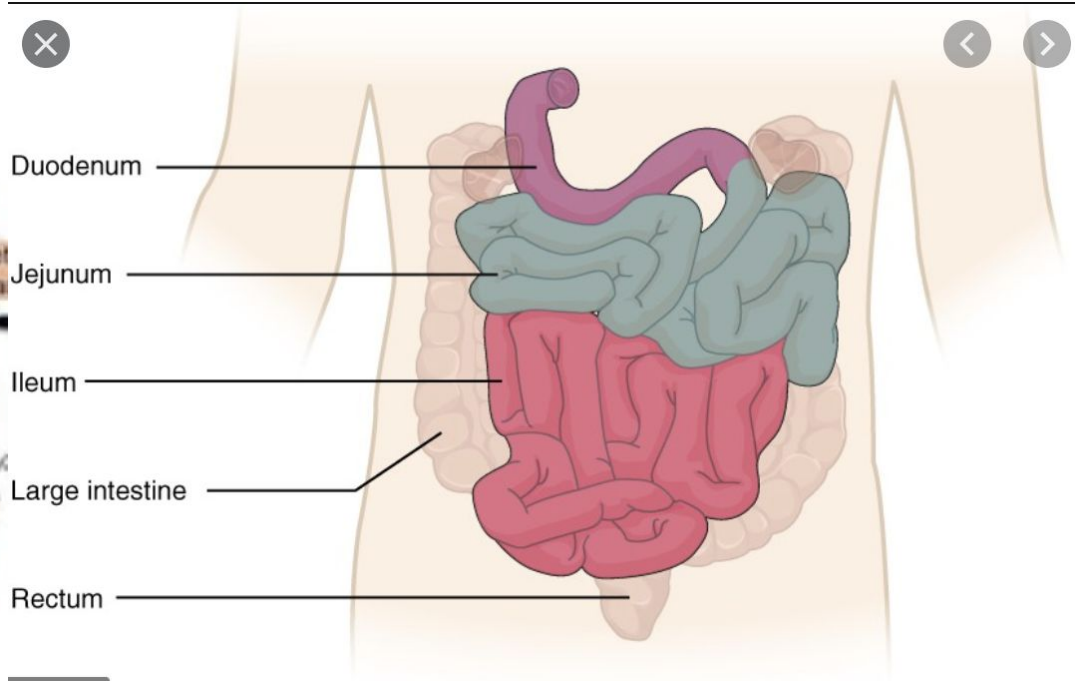
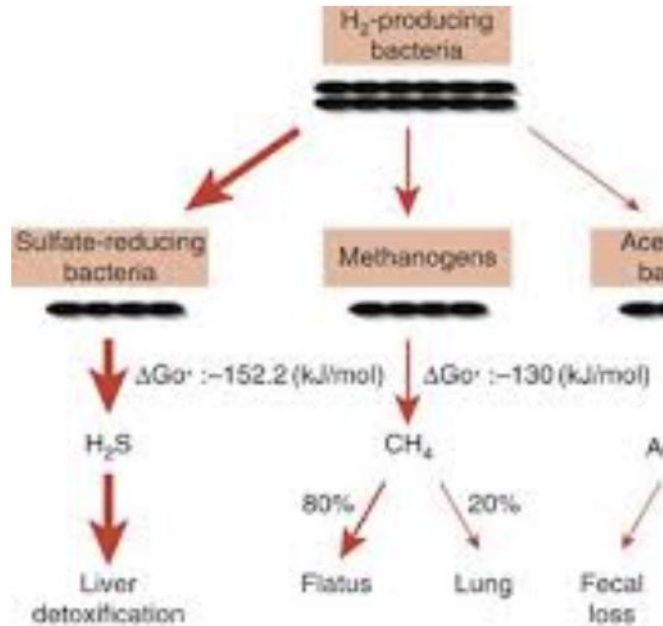
# SIBO

- Small intestines should contain less than  $10^3$  bacteria/mL
- Large intestines has  $< 10^{12}$  bacteria/mL
- SIBO is when there are  $>10^3$  bacteria/mL





# SIBO Pathophysiology



# TESTING

- Lactulose breath test that measures hydrogen, hydrogen sulfide and methane
  - Trio Smart
- Blood tests:
  - Thyroid :TSH, Free T3, Free T4, anti-thyroglobulin and anti-TPO antibodies
  - Vitamin D, B12
  - CBC
  - CMP
  - Amylase/lipase
  - Inflammation markers: hsCRP, ESR
  - Celiac panel
  - Ferritin
  - IBS Smart test - anti-CdtB and anti-vinculin antibodies
- Stool tests for bacterial infections, ova and parasite, h pylori, possibly calprotectin/ FOBT/Fecal fat

# SIBO Types

Hydrogen- Diarrhea, bloating/gas

Methane- Constipation, bloating/gas

Hydrogen Sulfide- Diarrhea, bloating/gas, sulfur smelling gas

# Treatment

- Treat any abnormal blood tests (thyroid, vitamin D, B12 etc)
- Hydrogen predominant SIBO
  - Rifaxamin- 14 days
  - OR Anti-microbial herbs - Options: berberine, oregano, neem
  - OR- both
- Methane predominant IMO
  - Rifaxamin + Neomycin- 14 days
  - OR Anti-microbial herbs - Options: berberine, oregano, neem, allicin, atrantil
  - OR- both
- Hydrogen sulfide
  - Same as hydrogen PLUS- Bismuth

# Treatment continued

- Low FODMAP Diet
  - OR elimination diet
- Prokinetics
  - Ginger, six gentlemen
  - Motegrity RX
- Avoid nuts
- Avoid raw veggies- choose cooked when possible- soups, stews, broths
- 12 hr overnight fast
- Avoid snacking
- Walk 10K steps per day
- Probiotic

Food Category	High FODMAP foods	Low FODMAP food alternatives
Vegetables	Artichoke, asparagus, cauliflower, garlic, green peas, leek, mushrooms, onion, sugar snap peas	Aubergine / eggplant, beans (green), bok choy, capsicum (bell pepper), carrot, cucumber, lettuce, potato, tomato, zucchini
Fruits	Apples, apple juice, cherries, dried fruit, mango, nectarines, peaches, pears, plums, watermelon	Cantaloupe, grapes, kiwi fruit (green), mandarin, orange, pineapple, strawberries

# Downfalls of the low-fodmap diet and improper use

- Alterations in the gut microbiome
  - Fructans and galacto-oligosaccharides have prebiotic
  - Reductions in beneficial bacteria
  - butyrate-producing bacteria are markedly reduced with strict low FODMAP
  - mucus-degrading bacteria are increased with low FODMAP
- Disordered eating
- FODMAPs should be reintroduced after ~6 weeks

Hill, Peta, Jane G. Muir, and Peter R. Gibson. "Controversies and recent developments of the low-FODMAP diet." *Gastroenterology & hepatology* 13.1 (2017): 36.

# Gut-brain connection

- Bi-directional
  - Autonomic nervous system
    - Vagus nerve
  - Post-biotic metabolites
- Blood sugar stability helps promote brain health which promotes gut health
  - Some symptoms of blood sugar instability are:
    - Craving sweets after meals
    - Irritability if meals are missed
    - Poor memory
    - Difficulty losing weight
- Balancing blood sugar: protein, fat, fiber

# Gut-brain connection- trauma and mental health

- Fight or flight- HPA axis dysfunction and gut health
- Social connection and community
- Trauma- Adverse childhood experiences (ACE Score)

**Instructions:** Below is a list of 10 categories of Adverse Childhood Experiences (ACEs). From the list below, please place a checkmark next to each ACE category that you experienced prior to your 18<sup>th</sup> birthday. Then, please add up the number of categories of ACEs you experienced and put the *total number* at the bottom.

Did you feel that you didn't have enough to eat, had to wear dirty clothes, or had no one to protect or take care of you?	<input type="checkbox"/>
Did you lose a parent through divorce, abandonment, death, or other reason?	<input type="checkbox"/>
Did you live with anyone who was depressed, mentally ill, or attempted suicide?	<input type="checkbox"/>
Did you live with anyone who had a problem with drinking or using drugs, including prescription drugs?	<input type="checkbox"/>
Did your parents or adults in your home ever hit, punch, beat, or threaten to harm each other?	<input type="checkbox"/>
Did you live with anyone who went to jail or prison?	<input type="checkbox"/>
Did a parent or adult in your home ever swear at you, insult you, or put you down?	<input type="checkbox"/>
Did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way?	<input type="checkbox"/>
Did you feel that no one in your family loved you or thought you were special?	<input type="checkbox"/>
Did you experience unwanted sexual contact (such as fondling or oral/anal/vaginal intercourse/penetration)?	<input type="checkbox"/>
Your ACE score is the total number of checked responses	



# Is the association between irritable bowel syndrome and abuse explained by neuroticism?

## A population based study

N J Talley, P M Boyce, M Jones

Table 3 Sexual abuse in subjects with and without irritable bowel syndrome (IBS)

Abuse	No IBS % (n)	IBS % (n)	Odds ratio (95% CI)
Childhood exposure sex organ	14.9 (612)	18.2 (85)	1.33 (0.74 to 2.39)
Childhood threat of sex	4.9 (614)	6.1 (82)	1.26 (0.48 to 3.36)
Childhood sex organ touched	10.9 (614)	14.3 (84)	1.36 (0.70 to 2.64)
Childhood touch others	6.4 (614)	6.0 (83)	0.95 (0.36 to 2.47)
Childhood rape	3.1 (614)	2.4 (83)	0.77 (0.18 to 3.38)
Childhood other sex experience	2.6 (610)	11.8 (85)	4.95* (2.17 to 11.30)
Any childhood sexual abuse	20.4 (616)	27.1 (85)	1.44 (0.86 to 2.42)
Adulthood exposure sex organ	9.1 (628)	15.1 (86)	1.78 (0.93 to 3.42)
Adulthood threatened with sex	7.6 (631)	16.3 (86)	2.36* (1.24 to 4.50)
Adulthood sex organ touched	8.0 (629)	14.9 (87)	2.03* (1.06 to 3.72)
Adulthood touch others	3.8 (631)	12.6 (87)	3.66* (1.72 to 7.77)
Adulthood rape	6.2 (631)	14.9 (87)	2.67* (1.36 to 5.22)
Adulthood other sex experience	2.9 (629)	7.0 (86)	2.55 (0.98 to 6.60)
Any adulthood sexual abuse	14.1 (631)	23.0 (87)	1.82* (1.05 to 3.14)

CI, confidence interval; n, number responding to question.

\*p < 0.05.

**Neuroticism**

Anxious

Depressed

Guilt Feelings

Low self-esteem

Tense

Moody

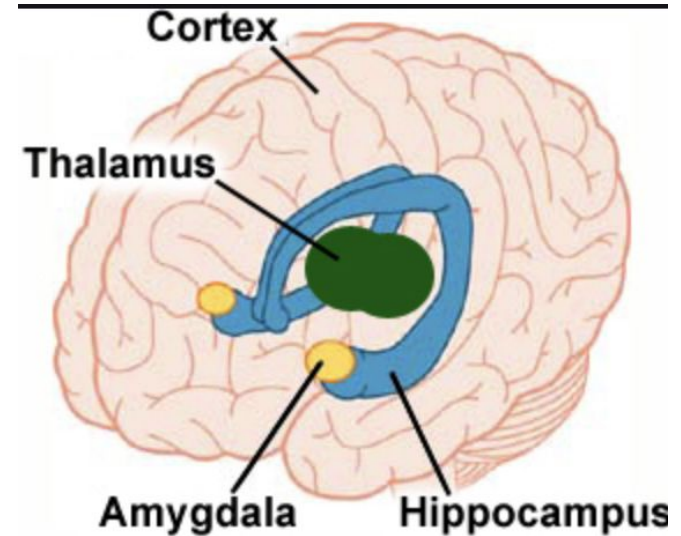
Hypochondriac

Lack of autonomy

Obsessive

# Gut brain connection- Inflammation

- Inflammation in the gut can change our neurochemistry



# Mindful eating- Digestions start with your eyes

- Cephalic phase of digestion- sight, smell, sound, feeling of food
  - 30% of stomach acid production and 20% of pancreatic enzyme secretion
- People who do other things and perform other tasks while they are eating (like watching TV or working) weigh 18% more than people who focus on eating itself.
  - This is 27 extra pounds on a 150lb person!
- Prepared foods have been around for <100 yrs



# How to incorporate mindful eating into your day

- See if you are hungry or if you are just eating out of boredom.
- Smell, look, take in your food
- Eat with someone
- Limit TV or scrolling on your phone
- Enjoy your food!- start to heal food shame/ guilt (this takes time, practice and usually therapy)

# Gut-brain- Post Biotics

- 100 trillion microorganisms in the gut- 10x the amount of human cells
- 20 million microbial genes vx 20,000 human genes
  - We are 1% human
- Post biotics
  - Butyrate- feeds our colon cells
    - Reduces NFkB (IBD)
  - Tryptophan, serotonin, melatonin
  - GABA
  - BDNF

# Actionable Gut-Brain Hack

- Increase fiber intake when you can tolerate it.
- Many people with IBS don't do well with high fiber diets until after they treat SIBO/ IMO.
- Once these imbalances are treated increase fiber gradually

## fiber consumption 101

hunter-gatherer  
societies

150 g/day

recommended  
dietary allowance  
(RDA)

25-30 g/day

average american  
consumption

15 g/day

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# THANK YOU!



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