

# ***Probiotics in the management of GI disorders***

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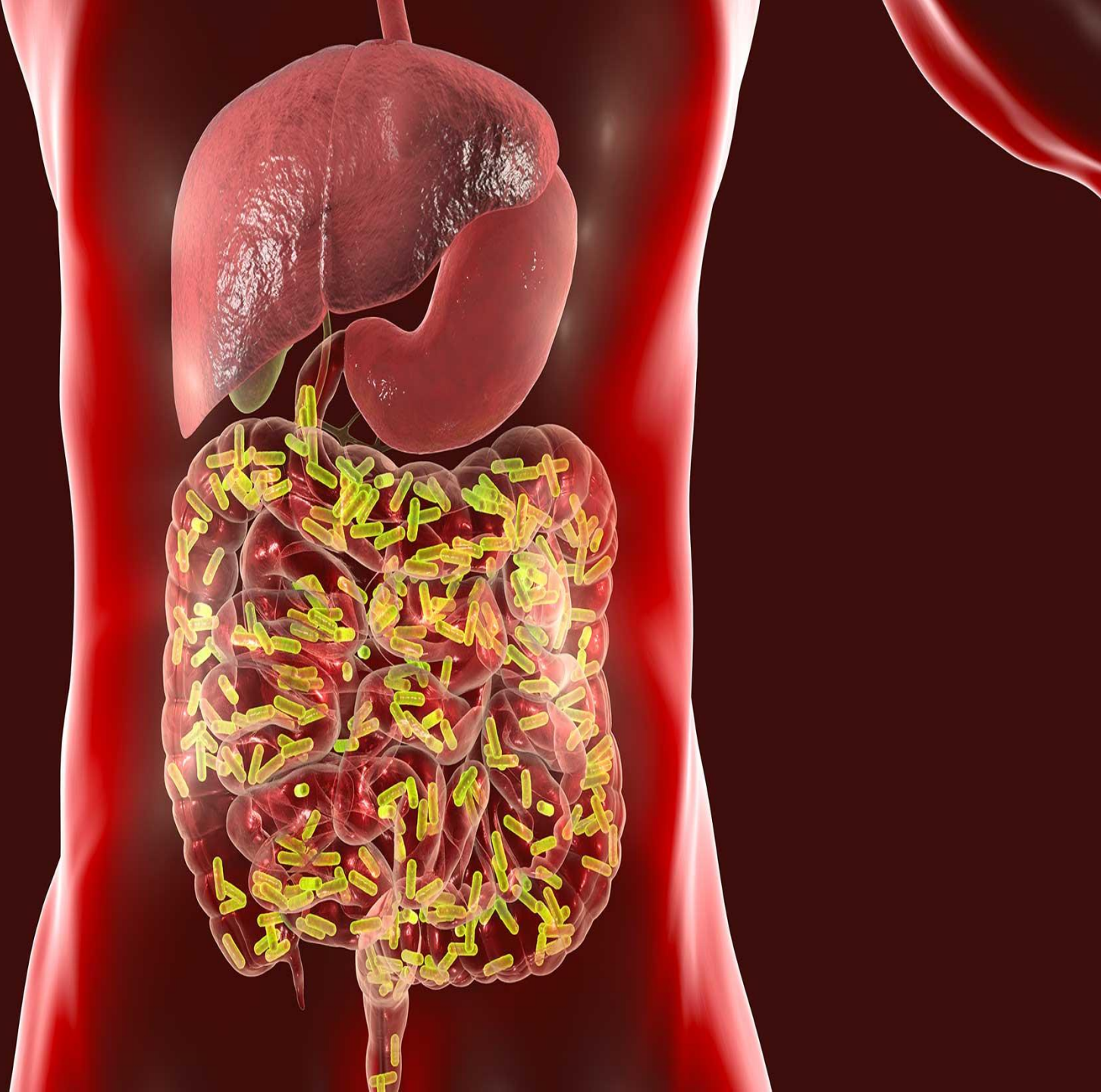
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**AGA (American Gastroenterology Association)  
World Gastroenterology Organisation  
Practice Guideline  
Uptodate**

- **The intestinal tract with vast ecology of microbes**
- **Necessary for health**
- **Potential to contribute to the development of diseases**

- ❑ Human gut is colonized by a complex microbial community (gut microbiome)
- ❑ it is an integral part of GI tract and it is essential for human health.



- ***Administration of antibiotics***
- ***Therapeutic diets and prebiotics***
- ***Probiotics***
- ***Combination of methods (synbiotics)***
- ***Fecal microbial transplant (FMT)***

# ***Probiotics***

- **Live microorganisms**
- **In adequate amounts : health benefit on the host**

# *Prebiotics*

- **selectively fermented ingredient**
- **specific changes in the composition of the gastrointestinal microbiota**
- **specific changes in the activity of the gastrointestinal microbiota**
- **conferring benefit(s) upon host health**

# *Synbiotics*

- **both probiotics and prebiotics**
- **with conferred health benefits**



- *Within the last 20 years, there has been increasing recognition and interest in the role of the gut microbiome in gastrointestinal health.*

# *probiotics*

- **IBD(particularly pouchitis)**
- **Antibiotic-related diarrhea**
- **Infectious diarrhea**
- **Hepatic encephalopathy**
- **Irritable bowel syndrome**
- **Allergy**

# Mechanisms for the benefit

- Incompletely understood
- Suppression of growth /invasion
- Improvement of intestinal barrier function
- Modulation of the immune system
  - induce protective cytokines
  - suppress proinflammatory cytokines
- Modulation of pain perception
  - micro-opioid and cannabinoid receptors
  - analgesic functions ( similar to morphine)
- Generating of short-chain fatty acids

## **Probiotics differ**

- ability to resist gastric acid and bile acids
- colonization in the intestinal tract
- influence cytokines
- **Not all probiotics are alike.**
- benefits observed clinically with one species are not necessarily generalizable to another.

# ***Pouchitis***

- **surgical treatment of U.C and FAP**
- **ileal pouch-anal anastomosis (IPAA)**
- **Pouchitis : the most common complication**
- **increased stool frequency, urgency, hematochezia, abdominal pain, fever**
- **preventing an initial attack**
- **preventing further relapse**
- **maintenance therapy**

# Ulcerative colitis

- **Convincing data to support the use of probiotic preparations are lacking.**
- **AGA recommendation: only in the context of a clinical trial**

# IBD



- ☐ VSL#3 maybe effective in inducing remission in active UC.
- ☐ Probiotics maybe as effective as 5-ASA in preventing relapses of quiescent UC.

- ☐ Aliment pharmacol Ther. 2017(46)
- ☐ SR-MA



# Crohn's disease

- **Clinical trials : mixed results**
- **AGA recommendation: only in the context of a clinical trial**
- **studies of probiotics for induction or maintenance of remission : small sample sizes**



# Other Diarrheal Illness

- **Infectious diarrhea**
- **C. difficile infection**
- **IBS**
- **Celiac disease**

# Infectious diarrhea

- *In children with acute infectious gastroenteritis, suggest against the use of probiotics.*
- *in children with presumed acute infectious diarrheal illness has no benefit.*

## C. difficile infection

- No recommendations
- **WGO Practice Guideline:**

**in the prevention of antibiotic-associated diarrhea, there is strong evidence of efficacy in adults or children who are receiving antibiotic therapy**

# Antibiotic-associated diarrhea



- ❑ Lactobacilli strains especially *L.casei* have a good effect on the prevention of *Clostridium difficile* associated diarrhea and antibiotic-associated diarrhea.

- ❑ J. Dig Dis 2020(21)
- ❑ SR-MA



# IBS

- In symptomatic children and adults, we recommend the use of probiotics *only in the context of a clinical trial.*

# IBS



❑ Treatment with a multi-strain probiotics for 8 weeks led to significant increases in beneficial in the gut as well as the improvement of gastrointestinal symptoms in diarrhea predominant IBS.

❑ Gastroenterology research and practice 2018(8)

# Celiac disease

- *Lactobacillus and Bifidobacterium*  
*concentrations are decreased in celiac disease*  
=
- *Probiotics can degrade or alter gluten and gliadin*
- *Mixed results*
- *Suggestion*: *lack of activation of mucosal cytokine responses following consumption of bread*

# Constipation

- Evidence to support the use of probiotics in children or adults are lacking.
- Suggestion of improvement in defecation frequency, stool consistency, and intestinal transit time
- marked heterogeneity in study design and results



# Constipation in children



- ❑ While some probiotic strains showed some effects on defecation frequency none of the probiotics had beneficial effects on frequency of fecal incontinence or frequency of abdominal pain .

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- ❑ Eur. J Pediatr 2017(197):1-10
- ❑ SR



# Lactose Intolerance

- Lactase-containing probiotics
- Lactose fermenting *Lactobacillus acidophilus* strain : reduced symptoms

## ***Other Disorders***

- ***Helicobacter pylori eradication***
  - reducing side effects
  - no evidence to use alone
- **GERD**
- **SBBO**
- **Colic**
- **Chronic abdominal pain**

## ***Other Disorders***

- **Allergy**
  - reduce intestinal permeability
  - reduce generation of proinflammatory cytokines
- **Nonalcoholic fatty liver disease**
- **Hepatic encephalopathy**
- **NEC**



A photograph of a long, straight path in a park or garden during autumn. The path is covered in a thick layer of fallen orange and yellow leaves. On both sides of the path, there are rows of trees with vibrant autumn foliage in shades of orange, red, and yellow. The trees are tall and slender, with their canopies forming a natural archway over the path. In the distance, a few people can be seen walking along the path. The overall atmosphere is peaceful and scenic.

***With Thanks***