
بسم الله الرحمن الرحیم

The Role of Healthy Nutrition in Gastrointestinal Diseases
World Digestive Health Day 2025

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WDHD 2025 Theme – Focus on Nutrition

"Your Digestive Health: Make It a Priority"
The 2025 theme by WGO focuses on prevention and self-care, with nutrition as a cornerstone.

GI disorders are strongly modifiable through diet.
Public and professional education is a key pillar.

World Gastroenterology Organisation – WDHD 2025 Announcement

Global Burden of GI Diseases & Nutrition Link

Over 25% of global adult population experiences functional GI disorders (FGIDs) – most influenced by diet

Rising prevalence of NAFLD, GERD, IBS, IBD worldwide

Strong epidemiological link with Western dietary patterns

Black CJ, et al. Nat Rev Gastroe Hepatol.2020;
Younossi ZM. Hepatolo. 2019;

Mechanisms – How Diet Influences the GI Tract

- Diet alters gut microbiota composition
- Influences gut permeability and mucosal immunity
- Affects GI motility, visceral sensitivity, and low-grade inflammation
- Key mediator: Short-chain fatty acids (SCFAs)

Zhao Y et al. TEM. 2022;
Tilg H, Zmora N. Gastroenterology. 2020

GERD – Nutrition-Based Prevention and Management

- High-fat meals, chocolate, peppermint, carbonated drinks, alcohol: **known triggers**
- Late-night eating & large meals **increase** reflux risk
- Mediterranean diet shows significant symptom relief (anti-inflammatory profile)

Haas L et al. Am J Gastroenterol. 2022 (ACG Clinical Guideline);
Moazzen S et al. Nutrients. 2021

GERD – Practical Dietary Recommendations

- **Meal habits:** Eat slowly, chew well, avoid large or high-fat meals
- **Timing:** Avoid eating within 2-3 hours before bedtime
- **Specific foods to avoid**: spicy foods, onions, citrus, peppermint, alcohol

Katz PO et al. Am J Gastroenterol. 2022 – ACG GERD Guidelines
Gawron AJ et al. J Clin Gastroenterol. 2021

Functional GI Disorders & Diet – Focus on IBS

- Over 60% of IBS patients report food as a trigger
- Common culprits: lactose, gluten (non-celiac), FODMAPs, caffeine
- Nutrition counseling significantly reduces symptoms and improves QoL

Chey WD et al. Am J Gastroenterol. 2020
Rej A et al. Nutrients. 2021

Low-FODMAP Diet in IBS – Evidence & Practice

Low-FODMAP: Reduces bloating, abdominal pain, gas

Protocol:

1. Elimination (2–6 weeks)
2. Reintroduction (to identify specific triggers)
3. Personalization

Dietitian guidance improves adherence and prevents nutrient deficiency

Staudacher HM et al. Gut. 2021
O'Keeffe M et al. Gastroenterology. 2018

Beyond FODMAP – Other Dietary Strategies in IBS

- Soluble fiber (psyllium) improves stool consistency
- Avoid sorbitol, fructose in sensitive patients
- Mindful eating, regular meals improve gut-brain axis regulation
- Emerging approach: IBS-specific Mediterranean Diet

Eswaran S et al. Am J Gastroenterol. 2022
Bellini M et al. Nutrients. 2020

Diet and IBD – Inflammation and Nutrition

- Malnutrition prevalent in up to 70% of Crohn's patients
- Exclusive Enteral Nutrition (EEN) induces remission (esp. in pediatric Crohn's)
- Mediterranean diet reduces relapse rates
- Anti-inflammatory diet modulates cytokines and gut microbiome

Levine A et al. Lancet Gastroenterol Hepatol. 202
Narula N et al. Gastroenterology. 2021

Diet and NAFLD – A Growing Epidemic

- NAFLD affects 25–30% of global adult population
- Excessive fructose, trans fats, refined carbs = key dietary drivers
- Weight loss of ≥7% improves steatosis, ≥10% improves fibrosis

Younossi ZM et al. Hepatology. 2019
Chalasani N et al. Gastroenterology. 2018 (AASLD Guidelines)

Dietary Interventions in NAFLD

- Mediterranean diet: Reduces hepatic fat, improves insulin sensitivity
- Limit: sugary drinks, red meat, refined carbs
- Increase: omega-3 (fatty fish), plant-based fats, whole grains

Properzi C et al. J Hepatol. 2018
Katsagoni CN et al. Nutrients. 2020

Celiac Disease – Role of Gluten-Free Diet (GFD)

- Lifelong GFD is the cornerstone of management
- Hidden gluten sources: sauces, soups, processed meats
- Nutritional risks: low fiber, iron, B12, calcium deficiencies
- Monitor adherence via anti-tTG, diet history

Rubio-Tapia A et al. Am J Gastroenterol. 2023 (ACG Guidelines)
Caio G et al. Nutrients. 2020

Non-Celiac Gluten/Wheat Sensitivity (NCGS)

- Presents with IBS-like symptoms after gluten ingestion
- No villous atrophy or positive serology
- GFD may help, but over-restriction carries risk
- Consider elimination–challenge approach

Uhde M et al. Gastroenterology. 2020
Catassi C et al. Nutrients. 2021

Diverticular Disease – Nutrition in Prevention & Management

- High-fiber diet lowers risk of diverticulosis & diverticulitis
- Red meat, processed foods, low physical activity = increased risk
- No need to routinely avoid seeds/nuts (old myth)

Strate LL et al. Gastroenterology. 2019
Tursi A et al. World J Gastroenterol. 2021

Dietary Fiber – Role in GI Health

Increases stool bulk, decreases transit time
Supports SCFA production, lowers pH, reduces inflammation
Soluble fiber: IBS, diarrhea-predominant conditions
Insoluble fiber: constipation-predominant cases

Slavin JL. Nutrients. 2019
Eswaran S et al. Gastroenterology Clinics. 2021

Constipation – Dietary and Lifestyle Measures

- Low fiber intake is a major contributor
- Increase fiber to 20–30g/day gradually
- Prunes, kiwifruit, psyllium: evidence-based options
- Adequate hydration + physical activity essential

Bharucha AE et al. Am J Gastroenterol. 2020
Müller-Lissner S et al. Clin Nutr. 2021

Diet and Colorectal Cancer Risk

- Red and processed meats increase CRC risk
- High-fiber, plant-based diet protective
- Alcohol, obesity, and low calcium intake: modifiable risks
- Mediterranean and DASH diets reduce risk

World Cancer Research Fund (WCRF), 2023 Report
Song M, Chan AT. Gastroenterology. 2020

Alcohol – Impact on the GI Tract

- Increases gastric acid, delays gastric emptying
- Alters gut microbiome and mucosal permeability
- Associated with GERD, gastritis, pancreatitis, liver disease
- Even low and moderate intake linked to colorectal and esophageal cancers

Rehm J et al. Lancet Gastroenterol Hepatol. 2021
Choi YJ et al. Am J Gastroenterol. 2020

Artificial Sweeteners and the Gut

- Common in sugar-free products: aspartame, sucralose, saccharin
- Disrupt gut microbiota diversity and metabolism
- Linked to glucose intolerance and low-grade inflammation
- Potential role in IBS symptom exacerbation

Suez J et al. Cell. 2022
Bian X et al. Gut Microbes. 2021

Ultra-Processed Foods – Hidden Threats

- High in additives, emulsifiers, sweeteners, low in fiber
- Alter gut microbiota and intestinal barrier function
- Associated with IBD, metabolic syndrome, and CRC risk
- WHO recommends minimizing intake

Zinöcker MK et al. Nutrients. 2020
Chassaing B et al. Gastroenterology. 2022

Gut Microbiota – Diet as a Key Modulator

- Dietary patterns rapidly alter microbiota composition
- Fiber, polyphenols, fermented foods promote diversity
- High-fat, high-sugar diets reduce microbial richness
- Dysbiosis linked to IBS, IBD, obesity, and CRC

Zmora N et al. Science. 2018
Johnson AJ et al. Cell Host Microbe. 2021

Fermented Foods – Role in GI Health

- Sources: yogurt, kefir, kimchi, sauerkraut, miso
- Contain live bacteria (Lactobacillus, Bifidobacterium)
- Improve barrier function, reduce inflammation
- May help with IBS, IBD (adjunctive), antibiotic-associated diarrhea

Marco ML et al. Nature Rev Gastroenterol Hepatol. 2021
Klemashevich C et al. Front Microbiol. 2022

Prebiotics and Probiotics in GI Disorders

- Prebiotics: fuel for beneficial bacteria (e.g. inulin, FOS)
- Probiotics: live organisms with clinical benefit (strain-specific)
- Use in IBS, AAD, mild IBD (adjunct), pouchitis
- Choose evidence-based strains (e.g. VSL#3, L. plantarum)

Ford AC et al. Am J Gastroenterol. 2020
Wilkins T et al. Am Fam Physician. 2021

Food Intolerances – A Functional GI Challenge

- Common: lactose, fructose, sorbitol, FODMAPs
- Cause bloating, gas, diarrhea – mimic IBS
- Diagnosis: hydrogen breath tests, elimination diets
- Personalization is key – avoid unnecessary restrictions

Staudacher HM et al. Lancet Gastroenterol Hepatol. 2021
Misselwitz B et al. Gut. 2019

Low FODMAP Diet – Evidence and Use

- Reduces IBS symptoms in ~70% of patients
- Phases: elimination → reintroduction → personalization
- Avoids fermentable oligo-, di-, monosaccharides, and polyols
- Needs dietitian support to prevent nutrient gaps

Halmos EP et al. Gastroenterology. 2014
Staudacher HM et al. Gut. 2017

GERD and Diet – Practical Tips

- Avoid: caffeine, chocolate, alcohol, mint, acidic foods
- Eat smaller meals; avoid late-night eating
- Elevate head of bed, maintain healthy weight
- Mediterranean diet beneficial in symptom control

Katz PO et al. Am J Gastroenterol. 2022 (ACG Guidelines)
Huang T et al. JAMA Otolaryngol Head Neck Surg. 2020

Peptic Ulcer Disease – Role of Diet

- Avoid alcohol, NSAIDs, spicy foods during flare
- Probiotics may enhance H. pylori eradication
- Frequent small meals not necessary per evidence
- Emphasize balanced, anti-inflammatory diet

Malfertheiner P et al. Gut. 2022 (Maastricht VI Consensus)
Goderska K et al. World J Gastroenterol. 2020

Functional Dyspepsia – Nutritional Strategies

- Smaller, low-fat meals reduce symptoms
- Avoid trigger foods (coffee, onions, carbonated drinks)
- Consider gluten-free trial in non-responders
- Psychogastroenterology and gut-brain axis also relevant

Talley NJ et al. Lancet Gastroenterol Hepatol. 2020
Stanghellini V et al. Nat Rev Dis Primers. 2021

Celiac Disease – Dietary Cornerstone

- Lifelong strict gluten-free diet (GFD) is essential
- Avoid wheat, rye, barley, cross-contaminated foods
- Oats only if certified gluten-free
- Monitor for nutritional deficiencies (iron, B12, D, folate)

Lebwohl B et al. Gastroenterology. 2023
Rubio-Tapia A et al. Am J Gastroenterol. 2022 (ACG Guidelines)

IBD – Nutrition in Management

- No universal diet; personalization needed
- Avoid processed foods, emulsifiers, high sugar
- Mediterranean & Specific Carbohydrate Diet (SCD) may help
- Exclusive enteral nutrition (EEN): first-line in pediatric Crohn’s

Lewis JD et al. Gastroenterology. 2021
Sands BE et al. J Crohns Colitis. 2022

Short Bowel Syndrome – Nutritional Approaches

- Tailor nutrition based on anatomy (jejunum vs ileum loss)
- High-complex carbs, low-fat if colon preserved
- May require parenteral nutrition + vitamin/mineral supplementation
- GLP-2 analogues (e.g., teduglutide) improve absorption

Jeppesen PB et al. Gastroenterology. 2020
Nightingale JM et al. ESPEN Guidelines. 2021

Nutrition in Liver Cirrhosis

- Prevent sarcopenia and protein-energy malnutrition (PEM)
- Frequent small meals + bedtime snack (complex carbs)
- Avoid alcohol, sodium (ascites), excess protein only in HE
- Branched-chain amino acids (BCAAs) may help

Plauth M et al. J Hepatol. 2021 (ESPEN-ESPGHAN Guidelines)
Merli M et al. Liver Int. 2020

Nonalcoholic Fatty Liver Disease (NAFLD) – Dietary Therapy

- Weight loss ≥7-10% improves steatosis and NASH
- Low-carb, Mediterranean diet > low-fat
- Avoid fructose, sugar-sweetened beverages
- Consider intermittent fasting, time-restricted eating

EASL Clinical Practice Guidelines. J Hepatol. 2021
Romero-Gómez M et al. Lancet Diabetes Endocrinol. 2022

Nutrition in Obesity and GI Health

- Weight loss reduces risk of GERD, IBD, and NAFLD
- Mediterranean, DASH, and low-carb diets effective
- Exercise and lifestyle changes complement dietary interventions
- Surgery (bariatric) when lifestyle changes fail

Luo J et al. Obes Rev. 2021
Molinari M et al. Gastroenterology. 2022

Diet and Gut-Brain Axis in Functional GI Disorders

- The gut-brain axis links nutrition to mood and GI symptoms
- Probiotics, prebiotics, and fiber beneficial for mood and gut health
- Stress management, mindfulness, and diet interact
- Multidisciplinary approach essential in management

Zheng P et al. Nat Rev Gastroenterol Hepatol. 2022
Mayer EA et al. Cell. 2021

Dietary Fiber – Importance for Gut Health

- Soluble fiber (psyllium, oats) helps manage constipation
- Insoluble fiber (wheat bran) aids in regular bowel movements
- Increases beneficial gut bacteria
- Recommended daily intake: 25-30g

Slavin JL. Nutrients. 2021
Smith MP et al. Gastroenterology. 2020

Hydration and GI Function

- Proper hydration supports digestion and motility
- Water helps in nutrient absorption and toxin elimination
- Dehydration exacerbates constipation and functional GI disorders
- Recommended intake: 2.5-3L/day for adults

Fenton T et al. Nutrients. 2021
Maughan RJ et al. J Physiol. 2022

Conclusion – Key Dietary Interventions for GI Health

- Personalized dietary plans are essential for GI disease management
- Emphasize whole foods, fiber, and healthy fats
- Avoid ultra-processed foods and known irritants
- Collaboration with dietitians and multidisciplinary teams improves outcomes

Swinnen S et al. Nutrients. 2021
Gibson PR et al. Gastroenterology. 2022

Mediterranean Diet Pyramid

Red meats & sweets
Enjoy Sparingly



Poultry, eggs & dairy
Enjoy 1–2x/wk



Fish, seafood & omega-3 rich foods
Enjoy >3x/wk



Whole grains, legumes, fruit, vegetables, healthy fats, herbs & spices
Enjoy Daily



Physical activity, meal & family time
Practice Daily




ANY
QUESTIONS?