Academic Papers and Journal Articles on Bloating Research

Comprehensive Review Papers and Pathophysiology Studies

Foundational Review Articles

Pathophysiology, Evaluation, and Treatment of Bloating (2010) is a seminal review paper published in *Clinical Gastroenterology and Hepatology* that provides comprehensive coverage of bloating mechanisms and treatment approaches. This influential paper (cited 100+ times) reviews the pathophysiology of bloating and abdominal distention, noting that while these terms are often used interchangeably, they involve different pathophysiologic processes that remain incompletely understood.[1]

Abdominal Bloating: Pathophysiology and Treatment (2013) published in *PMC* is another highly cited review (120+ citations) that explains the clinical importance, pathophysiologic mechanisms, and management of abdominal bloating. The authors conducted a comprehensive PubMed search on "abdominal bloating," "intestinal gas and IBS," and "distension and IBS" to provide evidence-based understanding of this complex problem.[2]

Abdominal Bloating: Pathophysiology and Treatment (2013) published in the *Journal of Neurogastroenterology and Motility* provides detailed analysis of potential mechanisms including gut hypersensitivity, impaired gas handling, altered gut microbiota, and abnormal abdominal-phrenic reflexes. The paper emphasizes that while bloating is very common and troublesome across all ages, it remains insufficiently understood.[3]

Recent Mechanistic Studies

European Consensus on Functional Bloating and Distension (2024) represents the most current expert consensus on functional bloating pathophysiology, involving visceral hypersensitivity, abdomino-phrenic dyssynergia, intestinal gas handling abnormalities, and microbiome alterations. This consensus paper provides the latest evidence-based understanding of bloating mechanisms.[4]

Abdominal Distension and Bloating: Mechanistic Approach (2024) published in *Gastroenterología y Hepatología* examines the prevalent conditions in gastroenterology that impair general well-being and quality of life. The paper discusses obesity-associated distension, increased intra-intestinal content, gastrointestinal dysmotility, and visceral hypersensitivity as key mechanisms.[5] [6]

Clinical Research and Intervention Studies

Irritable Bowel Syndrome and Bloating Studies

Bloating in Irritable Bowel Syndrome (2011) is a community-based cross-sectional survey published in *PMC* that studied 18,180 subjects to describe self-reported bloating occurrence in IBS patients. The study found that 61.6% of 198 IBS patients reported bloating symptoms, with bloating being more prevalent in patients with intermittent symptoms and diarrhea than constipation.[7]

Clinical Dimensions of Bloating in Functional Gastrointestinal Disorders (2016) published in the *Journal of Neurogastroenterology and Motility* studied 1,050 subjects to assess bloating prevalence and its diagnostic impact. The study revealed that abdominal bloating was more strongly associated with IBS than functional dyspepsia and might be an independent predictor of IBS severity (cited 27 times).[8] [9]

Comparison of Abdominal Bloating Severity Between IBS Patients examined 234 IBS patients with high versus low breath hydrogen excretion levels after lactulose administration. The study found statistically significant differences in bloating severity scores between groups, with implications for understanding fermentative profiles in IBS.[10]

Dietary Intervention Studies

Low FODMAP Diet Meta-Analysis (2017) published in *PLOS ONE* conducted a systematic review and meta-analysis of clinical studies comparing low-FODMAP diets to standard IBS diets. The study examined 902 publications, ultimately including 10 eligible studies for meta-analysis, demonstrating improved symptoms in adults with IBS compared to high-FODMAP standard diets.[11]

Efficacy and Safety of Low-FODMAP Diet with Gluten-Free Diet (2024) represents a recent systematic review and meta-analysis examining combined dietary interventions for adult IBS patients, providing current evidence on bloating management through dietary modification.[12]

Clinical Trial Studies

Multi-Digestive Enzyme and Herbal Dietary Supplement Study (2024) published in *Nutrition and Dietary Supplements* conducted a randomized, placebo-controlled, cross-over study showing that participants experienced 58% less abdominal distension at 30 minutes and 68% less at 90 minutes when using enzyme supplements compared to placebo.[13]

Evaluation and Comparison of Probiotics and Colloidal Bismuth (2023) was a double-blinded randomized clinical trial performed on 125 patients with functional abdominal bloating. The study demonstrated that patients in the probiotic group had significantly lower frequency and severity of bloating symptoms compared to bismuth and placebo groups.[14]

Vitamin D3 Supplementation in IBS (2020) published in the *Alexandria International Medical Journal* was a double-blinded, randomized, placebo-controlled trial of 80 IBS patients. The

study found significant reduction in IBS Severity Symptom Score, including bloating symptoms, with 4000 IU daily vitamin D3 supplementation over 12 weeks.[15]

Specialized Research Areas

Gas Production and Handling Studies

Gas and Bloating (2006) published in *PMC* examined gas perfusion with radiolabelled xenon gas transit, finding that patients with bloating exhibited selective retardation of gas flow in the small intestine. The paper provides comprehensive medical therapy recommendations for gas and bloating management (cited 38 times).[16]

Intestinal Gas Production by Gut Microbiota (2023) published in *ScienceDirect* provides a comprehensive review of gas production by the human gut microbiome and outlines foods associated with intestinal gas production. This highly cited review (87+ citations) offers detailed understanding of microbial gas production mechanisms.[17]

Management and Treatment Studies

Management Strategies for Abdominal Bloating and Distension (2014) published in *PMC* reviews new therapies involving dietary manipulation, particularly low-FODMAP diets, which have proved highly successful in relieving bloating symptoms. The paper examines behavioral, psychological, and pharmacological management approaches (cited 55 times).[18]

Management of Bloating (2022) published in *Neurogastroenterology & Motility* provides current evidence on both non-pharmacological and pharmacological management strategies, including dietary interventions to reduce intestinal fermentation and various therapeutic approaches (cited 23 times).[19]

Population and Epidemiological Studies

Bloating and Functional Gastro-intestinal Disorders (2014) published in *PMC* examines bloating as one of the most common complaints in functional gastrointestinal disorders, affecting up to 80% of patients with constipation and being frequently reported in various FGIDs. This comprehensive review is highly cited (97+ citations).[20]

Worldwide Prevalence and Burden of Functional Gastrointestinal Disorders (2021) represents a large-scale multinational study finding that more than 40% of persons worldwide have functional gastrointestinal disorders, which significantly affect quality of life and healthcare utilization. This landmark study has been cited over 2,000 times.[21]

Current Clinical Trial Research

Assessment and Validation of Electronic Gas and Bloating Diary is an ongoing clinical trial (NCT04684849) comparing frequency, duration, and severity of bloating between mobile app tracking and traditional diary methods in healthy subjects versus patients.[22]

Safety and Efficacy Study of Daikenchuto for Bloating (Clinical Trial NCT02074579) assesses the effect of orally administered TU-100 compared to placebo on abdominal bloating ratings in

clinical trial participants.[23]

These academic papers collectively represent the comprehensive body of scientific literature on bloating research, spanning from fundamental pathophysiology studies to clinical intervention trials, providing robust evidence for understanding and managing bloating symptoms across various patient populations.

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