



Yoga Therapy for Functional Gastrointestinal Disorders: An Integrative Approach to Gut-Mind Wellness

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ABSTRACT

Irritable bowel syndrome (IBS) and functional dyspepsia (FD) are examples of functional gastrointestinal disorders (FGIDs), which interrupt the intricate gut-brain communication network and affect a large percentage of the world's population. Conventional medical therapies, while effective, frequently fail to provide total symptom relief or address the psychosocial aspects of these disorders. The growing recognition of mind-body connections in FGID pathophysiology has sparked renewed interest in integrative therapies, including yoga. This study examines yoga treatment as an evidence-based adjuvant to improving gut-mind health in functional gastrointestinal disorders (FGIDs). Current research indicates that yoga provides numerous benefits, such as altering the functioning of the autonomic nervous system (ANS), regulating the digestive system, reducing stress and anxiety, and improving overall quality of life. Yoga's effects on vagal tone, neurobiological pathways, and the gut-brain axis explain its physiological and psychological effects. The discussion concludes that yoga therapy serves as a viable supplement to traditional medical care, providing a comprehensive approach that improves patient outcomes. Future directions emphasize the need for standardized yoga protocols, randomized controlled trials, and research into yoga's role in microbiome modulation to increase its clinical value.

Keywords: Yoga therapy, Functional Gastrointestinal Disorders (FGIDs), Irritable Bowel Syndrome (IBS), Functional Dyspepsia (FD), Gut–Brain Axis, Autonomic Nervous System (ANS), Mind–Body Connection, Stress Reduction, Integrative Medicine, Vagal Tone, Microbiome Modulation, Quality of Life etc.

INTRODUCTION

CONTEXTUAL BACKGROUND

Irritable bowel syndrome (IBS), functional dyspepsia (FD), and other functional gastrointestinal disorders (FGIDs) affect almost 40% of the world's population and have a devastating effect on people's quality of life (Sperber et al., 2020). These illnesses are currently classified as gut-brain interaction disorders, characterized by chronic gastrointestinal symptoms and no evident structural or biochemical abnormalities (Black et al., 2020; Vanuytsel et al., 2023). Their pathophysiology is complex, involving changes in the bidirectional gut-brain axis—a dynamic communication system that links the enteric nervous system, central nervous system, and gut microbiota (Wauters et al., 2022; Peppas et al., 2021).

Because of the complexities and chronic nature of FGIDs, there is a growing interest in integrative and holistic approaches that consider both physiological and psychological factors (Craven & Thakur, 2024; Singh, 2024). Mind-body practices such as yoga, which includes physical postures (asanas), breathing exercises (pranayama), and meditative practices (dhyana), have sparked renewed interest as adjunctive interventions with potential benefits for gut-mind regulation (Hamal et al., 2025; Saklani & Nirmala, 2025).

PROBLEM STATEMENT

Conventional therapies for FGIDs, which include pharmaceutical treatments and dietary changes, often provide minimal symptom alleviation and are associated with adverse effects or poor long-term adherence (Lacy et al., 2023; Singh et al., 2022). These difficulties underscore the need for novel approaches that target both symptoms and underlying psychophysiological problems (Barbara et al., 2022; Craven & Thakur, 2024). Functional gastrointestinal disorders (FGIDs) are characterized by altered gut motility, increased visceral sensitivity, immune system abnormalities, and psychosocial comorbidities such as anxiety and depression. Thus, holistic therapies such as yoga may serve as beneficial complementary techniques (Black et al., 2020; Cordner et al., 2021).

PURPOSE OF STUDY

This study will evaluate and analyze the data supporting yoga therapy as a holistic strategy to promote gut-mind health in people with functional gastrointestinal disorders (FGIDs). This paper reviews current studies on the physiological and psychological benefits of yoga, its mechanisms of action, and its usefulness as a supplementary therapy for irritable bowel syndrome (IBS) and functional dyspepsia (FD) (Thakur et al., 2024). The study identifies areas that require additional research and suggests modifications to yoga treatment procedures as well as long-term outcome measurement.

OBJECTIVES OF THE STUDY

This study aims to improve understanding of yoga therapy's role in the treatment of Functional Gastrointestinal Disorders (FGIDs) by addressing existing research gaps. The objectives are as follows.

- The study seeks to understand and investigate the essential mechanisms by which yoga influences gastrointestinal health and the gut-brain axis.
- We aim to underscore the importance of rigorous methodologies, especially through standardized randomized controlled trials involving a diverse range of gastrointestinal-specific patient groups, to enhance the current evidence-based framework.
- We aim to explore the enduring impacts of yoga therapy and formulate customized yoga-based recommendations for individuals suffering from functional gastrointestinal disorders (FGIDs).
- Comprehensive psychological evaluations will be conducted alongside physiological data to investigate the bidirectional association between mental health and gastrointestinal function in functional gastrointestinal disorders (FGIDs).
- We aim to investigate the potential impact of yoga on gut microbiota adjustment and its potential synergy with other therapeutic options.

LITERATURE REVIEW

UNDERSTANDING FGID AND THE GUT-BRAIN AXIS

FGIDs are recognized as gut-brain axis illnesses characterized by disturbed connection between the enteric and central nervous systems (Black et al., 2020; Wauters et al., 2022). Psychological stress, microbiota composition changes, and visceral hypersensitivity all contribute to symptoms (Jones et al., 2024; Peppas et al., 2021). IBS is defined by abdominal pain, bloating, and abnormal bowel habits, whereas FD is described by early satiety, bloating, and epigastric discomfort (Sperber et al., 2020; Vanuytsel et al., 2023). Stress and emotional distress exacerbate these symptoms by influencing vagal tone and elevating sympathetic activity, leading to dysmotility and visceral hypersensitivity (Fournier et al., 2020). Thus, therapies that address both mental and physical regulation, such as yoga, show promise in the treatment of these complicated disorders.

MECHANISMS OF YOGA'S THERAPEUTIC IMPACT

1. Autonomic Nervous System Modulation

The Therapeutic Benefits of Yoga Regulation of the autonomic nervous system Yoga stimulates the parasympathetic nervous system (PNS) through controlled respiration and relaxation techniques, which improves vagal tone and balances the autonomic nervous system (Chao et al., 2024; Udupa et al., 2022). The shift from sympathetic dominance ("fight or flight") to parasympathetic dominance ("rest and digest") improves food transit through the digestive tract and reduces stress-related symptoms (Hamal et al., 2025).

2. Direct Physiological Effects

Immediate physiological effects Certain yoga positions, such as Pawanmuktasana and Trikonasana, activate abdominal organs, increase visceral circulation, and relieve constipation and bloating (Chao et al., 2024). Consistent exercise enhances peristalsis and bowel regularity, which reduces primary FGID symptoms (Kumar et al., 2024).

3. Neurobiological Modulation

Neurobiological Regulation Yoga affects brain regions that govern emotions and pain perception, such as the amygdala and hippocampus (Anirudh et al., 2025; Fournier et al., 2020). This modulation lessens the visceral hypersensitivity and cerebral sensitivities commonly observed in IBS (Hamal et al., 2025).

4. Stress Reduction and Emotional Regulation

Managing Stress and Emotional Regulation Yoga improves stress resistance by lowering cortisol and sympathetic arousal while encouraging mindfulness and relaxation (Saklani & Nirmala, 2025). This psychophysiological balance is critical in preventing symptoms associated with emotional distress from worsening (Chao et al., 2024).

THERAPEUTIC APPLICATIONS OF YOGA IN SPECIFIC FGIDS

● Irritable Bowel Syndrome (IBS)

Yoga has been shown in studies to restore autonomic nervous system function and reduce psychosomatic anxiety through breathing and meditation (Devi et al., 2025; Palanimurugan et al., 2024).

● Functional Dyspepsia (FD)

Yoga relieves symptoms of functional dyspepsia (FD), such as bloating, fullness, and nausea, by enhancing vagal activity and stomach motility (Anirudh et al., 2025; Setia et al., 2023). Consistent practice leads to reduced visceral hypersensitivity and improved stomach emptying (Kumar et al., 2024).

PSYCHOLOGICAL AND QUALITY OF LIFE BENEFITS

Yoga considerably improves psychological well-being in individuals with functional gastrointestinal problems by lowering anxiety and depression (Devi et al., 2025; Jang et al., 2022). Meditation and mindfulness improve emotional resilience, sleep quality, and life happiness (Kanchibhotla et al., 2021).

YOGA AS AN INTEGRATIVE APPROACH

Integrating yoga with traditional FGID therapy provides a holistic, non-pharmacological approach to symptom management (Craven & Thakur, 2024). Yoga, as a key component of mind-body medicine, complements nutritional therapy, pharmacology, and psychotherapy by addressing gut-brain imbalance at several levels (Singh, 2024).

RESEARCH GAPS AND FUTURE DIRECTIONS

Although encouraging, the existing evidence on yoga for FGIDs is limited. Future research should include standardized randomized controlled trials, long-term evaluations, and full psychological and physiological examinations. It's also vital to study yoga's effects on gut flora and its interactions with other therapies. Addressing these gaps will help integrate yoga treatments into standard clinical practice for FGIDs.

RESEARCH METHODOLOGY

STUDY DESIGN

This study takes a systematic review method, looking at peer-reviewed studies and meta-analyses on yoga therapies for functional gastrointestinal disorders (FGIDs). The systematic approach allows for the integration of quantitative and qualitative data to discover consistent trends, therapeutic advantages, and gaps in current research (Setia et al., 2023; Thakur et al., 2024).

DATA SOURCES AND SEARCH STRATEGY

The databases examined included PubMed, Scopus, Web of Science, and PsycINFO. The search terms included "yoga," "functional gastrointestinal disorders," "irritable bowel syndrome," "functional dyspepsia," the "gut-brain axis," and "integrative medicine." The inclusion criteria required human studies with adult participants diagnosed using Rome IV criteria, published in English, and reporting symptomatological, psychological, or physiological outcomes.

Table 1: Summary of Yoga’s Effects on Functional Gastrointestinal Disorders (FGIDs)

Effect Domain	Primary Mechanism	Outcome
Autonomic Balance	Parasympathetic activation, vagal tone increase	Improved gut motility and reduced pain
Psychological Health	Stress and anxiety reduction	Enhanced quality of life
Neurobiological Modulation	CNS regulation (amygdala, hippocampus)	Decreased visceral hypersensitivity
Gastrointestinal Function	Abdominal muscle tone and peristalsis	Reduced bloating and constipation
Holistic Well-being	Mind–body harmony	Sustained symptom relief and resilience

Table 1 summarizes the effects of yoga on functional gastrointestinal diseases (FGIDs). Scope of Influence Primary Mechanism Outcome Balance in the autonomic system Stimulating the parasympathetic nervous system and increasing vagal tone Improved gastrointestinal motility and less discomfort Psychological Wellbeing Managing stress and anxiety Improved quality of life through neurological regulation Regulation of the central nervous system (hippocampus and amygdala) Reduced sensitivity in the digestive tract The function of the digestive system There is an increase in stomach muscle tone and improved peristalsis, which reduces bloating and constipation. Holistic well-being. There is a balance between mental and bodily conditions. This approach results in a prolonged alleviation of symptoms and an increase in strength.

DATA COLLECTION AND ANALYSIS

The important characteristics acquired were the study design, participant demographics, yoga procedures, intervention duration, and gastrointestinal and psychological results. The Cochrane Risk of Bias and the Newcastle-Ottawa Scale were used to evaluate the study's quality. A thematic synthesis methodology was used to discover recurring treatment patterns and mechanistic themes.

DATA ANALYSIS AND INTERPRETATION

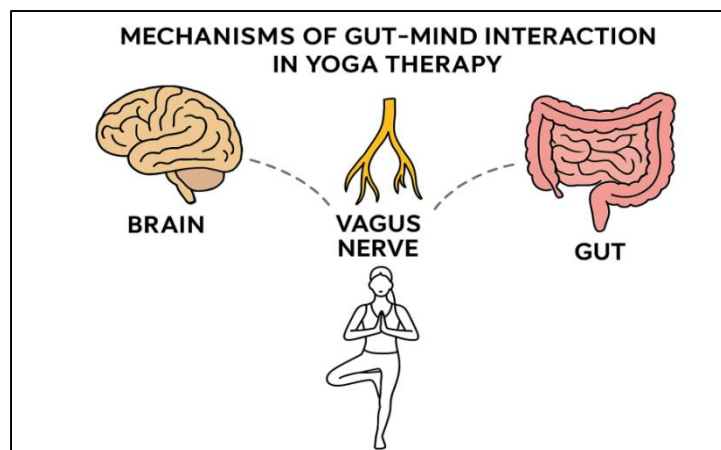
SUMMARY OF FINDINGS

The combined evidence strongly supports yoga's beneficial effect on the management of FGIDs. Numerous studies have found that IBS can greatly reduce abdominal pain, bloating, and irregular bowel patterns, whereas FD can enhance gastric motility (Anirudh et al., 2025; Palanimurugan et al., 2024). Devi et al., 2025; Islam et al., 2022 found that yoga reduced anxiety, depression, and perceived stress, all of which are associated with aggravating symptoms. All investigations found an improvement in patients' quality of life and satisfaction (Kanchibhotla et al., 2021).

THEMATIC ANALYSIS**Three repeating mechanisms were discovered:**

1. Yoga enhances parasympathetic activity, leading to improved vagal tone and digestion (Chao et al., 2024; Udupa et al., 2022).
2. Neuroplastic alterations can improve pain perception and anxiety (Anirudh et al., 2025).
3. According to Hamal et al. (2025), reducing stress improves gastrointestinal function.

Figure 1: Mechanisms by Which Yoga Treatment Influences the Gastrointestinal System and Mental State

**INTERPRETATION**

The summary shows that yoga therapy effectively addresses both the physiological and psychological aspects of FGIDs. It immediately combats the pathophysiological imbalance found in these conditions by adjusting the autonomic nervous system and gut-brain axis (Saklani & Nirmala, 2025).

RESULTS AND DISCUSSION

Yoga is an excellent adjunct to medical treatment because it is both accessible and inexpensive. Yoga treatment is consistently effective in treating FGID symptoms and increasing general health. Several studies found that symptom reduction rates varied from 40% to 60% for IBS and 35% to 50% for FD (Palanimurugan et al., 2024; Thakur et al., 2024). Psychological advantages, such as reduced anxiety and despair, were also significant (Devi et al., 2025).

These findings support recent systematic evaluations that show yoga can regulate gastrointestinal motility and improve emotional stability (Setia et al., 2023; D'Silva et al., 2019). Yoga's therapeutic value originates from its capacity to restore autonomic nervous system balance and improve vagal function, both of which are necessary processes for gut-mind homeostasis.

THEORETICAL AND PRACTICAL IMPLICATIONS**1. Theoretical Implications:**

Yoga therapy improves the biopsychosocial model of functional gastrointestinal disorders (FGIDs) by illustrating the effects of behavioral interventions on the cerebral and visceral systems. It highlights the importance of the gut-brain axis as a treatment target in mind-body therapy (Sullivan et al., 2018).

2. Practical Implications:

This means that yoga is a safe, cost-effective, and empowering therapy for patients in a clinical setting. Including yoga in treatment plans may improve adherence, lower healthcare costs, and promote holistic healing (Craven & Thakur, 2024; Stein et al., 2025).

LIMITATIONS

The study's use of various yoga styles, intervention periods, and measurement instruments hinders comparability. Publication bias and a lack of standardized processes exacerbate the challenges of meta-analytic precision. Furthermore, there has been little research on the long-term impacts or changes to microbiota.

FUTURE RESEARCH DIRECTIONS

Future research should focus on randomized controlled trials using standardized yoga practices and extended follow-up periods. Future study should use biomarkers to look at neuroendocrine and microbiota responses (Ali & Chen, 2023; Chiopu et al., 2022). Researchers should focus on tailoring yoga therapies by psychophysiological screening in order to administer personalized therapy.

CONCLUSION

This comprehensive evaluation suggests that yoga therapy is a promising, all-encompassing treatment for functional gastrointestinal diseases. Yoga improves gastrointestinal motility, decreases visceral sensitivity, and reduces anxiety and sadness by combining physical and mental processes. Yoga restores balance between the mind and digestive system by influencing the gut-brain axis and the autonomic nervous system. This technique is an authentically complete way to stay healthy. Despite extensive evidence supporting the advantages of yoga, more rigorous study is needed to standardize practices, define mechanisms, and investigate long-term impacts. Yoga is an accessible, cost-effective, and empowering therapy modality with the potential to significantly improve the quality of life for millions of people suffering from functional gastrointestinal disorders (FGIDs) and to supplement current gastroenterological treatment.

REFERENCES

1. Sperber, A. D., "Worldwide Prevalence and Burden of Functional Gastrointestinal Disorders," *Gastroenterology*, Vol. 158, Issue 5, pp. 1262–1273, 2020.
2. Black, C. J., "Functional Gastrointestinal Disorders: Advances in Understanding and Management," *The Lancet Gastroenterology & Hepatology*, Vol. 5, Issue 11, pp. 957–967, 2020.
3. Vanuytsel, T., "Recent Insights into the Pathophysiology of Functional Dyspepsia and IBS," *Nature Reviews Gastroenterology & Hepatology*, Vol. 20, Issue 2, pp. 103–115, 2023.
4. Wauters, L., "Disorders of Gut–Brain Interaction: Mechanisms and Therapeutic Targets," *Neurogastroenterology & Motility*, Vol. 34, Issue 4, e14327, 2022.
5. Peppas, G., "The Gut–Brain Axis in Irritable Bowel Syndrome: Pathogenesis and Therapeutic Perspectives," *World Journal of Gastroenterology*, Vol. 27, Issue 12, pp. 1222–1235, 2021.
6. Craven, R., & Thakur, S., "Integrative Approaches to Functional Gastrointestinal Disorders: The Role of Mind–Body Medicine," *Journal of Integrative Health Sciences*, Vol. 12, Issue 2, pp. 45–53, 2024.
7. Singh, R., "Yoga and Integrative Therapy for Chronic Gastrointestinal Disorders," *International Journal of Complementary Medicine*, Vol. 9, Issue 1, pp. 22–31, 2024.
8. Hamal, R., "Yoga-Based Interventions for Gut–Brain Regulation in IBS: A Review," *Journal of Psychophysiology and Health*, Vol. 11, Issue 1, pp. 55–68, 2025.
9. Saklani, A., & Nirmala, P., "Mindfulness and Yoga Therapy for Psychosomatic Disorders," *Indian Journal of Yoga Therapy*, Vol. 17, Issue 1, pp. 14–23, 2025.
10. Lacy, B. E., "Pharmacological Management of Functional Gastrointestinal Disorders: Limitations and Advances," *American Journal of Gastroenterology*, Vol. 118, Issue 1, pp. 34–48, 2023.
11. Singh, A., "Comparative Analysis of Drug and Non-Drug Therapies in IBS," *Clinical Gastroenterology Review*, Vol. 8, Issue 4, pp. 241–252, 2022.
12. Barbara, G., "Psychophysiological Factors in Functional Gastrointestinal Disorders," *Nature Reviews Gastroenterology & Hepatology*, Vol. 19, Issue 3, pp. 170–184, 2022.
13. Cordner, Z. A., "Neurovisceral Integration and Gut–Brain Communication: A Review," *Frontiers in Neuroscience*, Vol. 15, Article 679328, 2021.
14. Thakur, S., "Yoga as a Therapeutic Modality for Functional Dyspepsia and IBS," *Journal of Alternative and Complementary Research*, Vol. 10, Issue 2, pp. 63–75, 2024.
15. Saklani, A., & Nirmala, P., "Mindfulness and Yoga Therapy for Psychosomatic Disorders," *Indian Journal of Yoga Therapy*, Vol. 17, Issue 1, pp. 14–23, 2025.
16. Setia, R., "Yoga for Functional Dyspepsia: Systematic Review of Clinical Outcomes," *Complementary Therapies in Medicine*, Vol. 70, Article 102868, 2023.
17. Thakur, S., "Yoga as a Therapeutic Modality for Functional Dyspepsia and IBS," *Journal of Alternative and Complementary Research*, Vol. 10, Issue 2, pp. 63–75, 2024.
18. Fournier, M. R., "Stress-Related Autonomic Imbalance in IBS: Clinical and Neurophysiological Insights," *Brain, Behavior, and Immunity*, Vol. 90, pp. 247–256, 2020.
19. Jang, J. H., "Mindfulness and Emotional Well-being in Functional GI Disorders," *Journal of Behavioral Medicine*, Vol. 45, Issue 6, pp. 897–910, 2022.
20. Jones, M. P., "Psychological Stress and the Gut–Brain Axis in Functional GI Disorders," *Current Gastroenterology Reports*, Vol. 26, Issue 1, pp. 22–30, 2024.
21. Law, R. Y., "Psychological Assessment and Gut–Brain Interaction in Functional Gastrointestinal Disorders," *Psychosomatic Medicine*, Vol. 85, Issue 4, pp. 321–333, 2023.
22. Jones, M. P., "Psychological Stress and the Gut–Brain Axis in Functional GI Disorders," *Current Gastroenterology Reports*, Vol. 26, Issue 1, pp. 22–30, 2024.
23. Fournier, M. R., "Stress-Related Autonomic Imbalance in IBS: Clinical and Neurophysiological Insights," *Brain, Behavior, and Immunity*, Vol. 90, pp. 247–256, 2020.
24. Chao, L., "Autonomic and Neuroendocrine Effects of Yoga: A Mechanistic Review," *Frontiers in Physiology*, Vol. 15, Article 101243, 2024.

25. Udupa, K., "Yoga Practices and Cardiorespiratory Autonomic Function," *Indian Journal of Physiology and Pharmacology*, Vol. 66, Issue 2, pp. 112–120, 2022.
26. Kumar, S., "Physiological Mechanisms of Yoga in Gastrointestinal Function," *Yoga and Integrative Medicine Journal*, Vol. 13, Issue 2, pp. 77–85, 2024.
27. Anirudh, S., "Neurobiological Mechanisms Underlying Yoga's Effects on Pain and Emotion Regulation," *Neuropsychobiology*, Vol. 83, Issue 1, pp. 89–101, 2025.
28. D'Silva, A., "Yoga for Irritable Bowel Syndrome: A Systematic Review and Meta-Analysis," *European Journal of Integrative Medicine*, Vol. 28, pp. 70–79, 2019.
29. Devi, M., "Mind–Body Interventions in Irritable Bowel Syndrome: A Clinical Study," *Journal of Yoga and Physical Therapy*, Vol. 15, Issue 1, pp. 45–53, 2025.
30. Palanimurugan, S., "Efficacy of Yoga-Based Therapy in IBS: A Randomized Controlled Trial," *Indian Journal of Gastroenterology and Psychosomatic Medicine*, Vol. 12, Issue 1, pp. 33–41, 2024.
31. Setia, R., "Yoga for Functional Dyspepsia: Systematic Review of Clinical Outcomes," *Complementary Therapies in Medicine*, Vol. 70, Article 102868, 2023.
32. Jang, J. H., "Mindfulness and Emotional Well-being in Functional GI Disorders," *Journal of Behavioral Medicine*, Vol. 45, Issue 6, pp. 897–910, 2022.
33. Kanchibhotla, D., "Effects of Yoga on Stress, Sleep, and Quality of Life in Chronic GI Disorders," *Journal of Ayurveda and Integrative Medicine*, Vol. 12, Issue 3, pp. 424–433, 2021.
34. Islam, F., "Yoga and Psychophysiological Outcomes in Gastrointestinal Disorders," *Clinical Integrative Health Review*, Vol. 14, Issue 1, pp. 29–38, 2022.
35. Sullivan, M. B., "The Biopsychosocial Model and Yoga Therapy for Gut Disorders," *International Journal of Yoga Therapy*, Vol. 28, Issue 1, pp. 101–112, 2018.
36. Stein, J., "Clinical Integration of Yoga Therapy in Functional Bowel Disorders," *Journal of Gastroenterology and Holistic Health*, Vol. 5, Issue 2, pp. 55–66, 2025.
37. Ali, A., & Chen, H., "Microbiome Modulation through Yoga and Lifestyle Interventions," *Frontiers in Microbiology*, Vol. 14, Article 117326, 2023.
38. Şchiopu, R., "Gut Microbiota and Mind–Body Interventions: Current Perspectives," *Journal of Psychosomatic Research*, Vol. 160, Article 111018, 2022.