# Functional dyspepsia: Pathophysiology, diagnosis, managemen.

**Ricardo Lima***

Department of Digestive Disorders, University of São Paulo, Brazil

## Introduction

Global guidelines for dyspepsia highlight its high prevalence and significant impact on quality of life, emphasizing a symptom-based approach to diagnosis and management. The latest recommendations integrate updated understanding of pathophysiology, focusing on patient-centered care and the importance of H. pylori testing and eradication, alongside targeted pharmacological and non-pharmacological therapies based on predominant symptoms[1].

Managing functional dyspepsia involves navigating its complex pathophysiology, which includes gut-brain axis dysfunction, visceral hypersensitivity, and altered gastric motility. Current management strategies range from lifestyle modifications and dietary adjustments to pharmacotherapy, including acid suppressants, prokinetics, and neuromodulators, often requiring a personalized approach due to varied patient responses and symptom profiles[2].

Functional dyspepsia diagnostic criteria, particularly the Rome IV criteria, provide a standardized framework for identifying and classifying the condition. Updates to these criteria reflect an evolving understanding of the disorder's pathophysiology and symptom presentation, aiding in more accurate diagnosis and guiding treatment strategies by differentiating between postprandial distress syndrome and epigastric pain syndrome[8].

Post-infectious functional dyspepsia (PI-FD) emerges after acute gastrointestinal infections, characterized by persistent dyspeptic symptoms. The pathophysiology involves changes in gut microbiota, increased gut permeability, low-grade inflammation, and altered gut-brain interactions. Treatment approaches often target these mechanisms, including dietary changes, probiotics, and neuromodulators, though more specific therapies are still under investigation[3].

H. pylori eradication therapy offers a significant, albeit modest, benefit for a subset of dyspepsia patients, particularly those with uninvestigated dyspepsia or functional dyspepsia in H. pylori-endemic regions. The decision to eradicate H. pylori should consider local prevalence rates and individual patient profiles, as the effectiveness varies and may not resolve symptoms for all infected individuals, highlighting the multifactorial nature of dyspepsia[7].

The long-term use of proton pump inhibitors (PPIs) for functional dyspepsia is a topic of ongoing discussion, with evidence suggesting that while effective for some, prolonged use can lead to potential adverse effects and may not be necessary for all patients. A careful assessment of risks versus benefits is crucial, advocating for appropriate patient selection and periodic re-evaluation of the necessity for continuous PPI therapy[4].

Dietary interventions are a cornerstone in the management of functional dyspepsia, with increasing evidence supporting the role of certain foods and eating habits in symptom exacerbation or relief. While individualized approaches are key, common recommendations often include avoiding trigger foods, consuming smaller, more frequent meals, and reducing intake of fatty foods, caffeine, and spicy items. Specific dietary patterns like a low-FODMAP diet show promise in some subgroups[6].

Psychological factors play a significant role in the perception and severity of functional dyspepsia symptoms. Stress, anxiety, depression, and somatization are frequently associated with worse outcomes, suggesting that a biopsychosocial model is essential for understanding and managing the condition. Integrating psychological therapies, such as cognitive-behavioral therapy or hypnotherapy, can offer substantial benefits for many patients[5].

Complementary and alternative medicine (CAM) approaches for functional dyspepsia are gaining interest, offering non-pharmacological options for symptom management. While some CAM therapies, such as certain herbal remedies or acupuncture, show preliminary promise, the evidence base remains varied, emphasizing the need for robust, well-designed randomized controlled trials to establish their efficacy and safety before widespread clinical adoption[9].

The search for reliable biomarkers in functional dyspepsia is critical for objective diagnosis, prognostication, and personalized treatment. While no single definitive biomarker has been identified, research is exploring various avenues, including genetic markers, gut microbiome signatures, inflammatory mediators, and motility parameters, all aiming to shed light on the diverse underlying pathophysiological mechanisms of this complex disorder[10].

***Correspondence to:** Ricardo Lima, Department of Digestive Disorders, University of São Paulo, Brazil. E-mail: rlim@usp.br

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## Conclusion

Dyspepsia is a widespread condition with significant patient impact. Global guidelines emphasize a symptom-based diagnosis, patient-centered care, H. pylori testing, and eradication, alongside targeted pharmacological and non-pharmacological therapies[1]. Functional dyspepsia's complex pathophysiology involves gut-brain axis dysfunction, visceral hypersensitivity, and altered gastric motility. Management strategies are often personalized, encompassing lifestyle, diet, acid suppressants, prokinetics, and neuromodulators[2]. A specific subtype, Post-infectious Functional Dyspepsia (PI-FD), arises after acute gastrointestinal infections, linking to gut microbiota changes, permeability, inflammation, and gut-brain interactions, necessitating targeted treatments like diet, probiotics, and neuromodulators[3]. The use of Proton Pump Inhibitors (PPIs) for functional dyspepsia warrants careful assessment of long-term risks versus benefits and patient selection[4]. Psychological factors, including stress, anxiety, and depression, are crucial for symptom perception and severity, highlighting the need for a biopsychosocial approach and psychological therapies like Cognitive-Behavioral Therapy (CBT)[5]. Dietary interventions are foundational, with recommendations for avoiding trigger foods, smaller meals, and reducing fats, caffeine, and spicy items; low-FODMAP diets show promise in some cases[6]. H. pylori eradication can offer modest benefits, particularly in endemic regions, but its effectiveness varies, underscoring the condition's multifactorial nature[7]. The Rome IV criteria provide a standardized framework for functional dyspepsia diagnosis, evolving with understanding of pathophysiology and symptom presentation[8]. Complementary and Alternative Medicine (CAM) therapies, such as herbal remedies or acupuncture, are explored, though more rigorous trials are needed to establish efficacy and safety[9]. Research actively seeks reliable biomarkers, including genetic markers, microbiome signatures, and inflammatory mediators, to aid objective diagnosis and personalized treatment for this complex disorder[10].

## References


1. Jan T, Nimish V, Robin CS. World Gastroenterology Organisation Global Guidelines: *Dyspepsia* (2023). J Clin Gastroenterol. 2023;57(5):455-467.
2. Cristiano S, Francesco C, Francesca RS. Management of functional dyspepsia: an update on evidence and challenges. *J Clin Gastroenterol.* 2022;56(3):199-208.
3. Takanori K, Atsuko N, Hiroki T. Post-infectious functional dyspepsia: *Pathophysiological mechanisms and treatment. J Gastroenterol Hepatol.* 2023;38(2):206-214.
4. Jun Y, Yu Y, Xin C. Long-term proton pump inhibitor use in patients with functional dyspepsia: a systematic review and meta-analysis. *Sci Rep.* 2022;12(1):18169.
5. Siu HW, Joyce HL, Vincent KL. Psychological factors in functional dyspepsia: A systematic review and meta-analysis of observational studies. *J Psychosom Res.* 2022;155:110744.
6. Kok-Ann G, Hwee-Lin P, Kelvin TT. Diet and functional dyspepsia: Systematic review and meta-analysis. *Clin Gastroenterol Hepatol.* 2022;20(8):1709-1721.e4.
7. Alexander CF, Giovanni B, Nicholas JT. Effectiveness of Helicobacter pylori eradication therapy on dyspeptic symptoms: a systematic review and meta-analysis. *Lancet Gastroenterol Hepatol.* 2020;5(2):167-177.e5.
8. Jee HO, Beom JK, *Kee WJ. Updates in functional dyspepsia. J Neurogastroenterol Motil.* 2021;27(1):15-28.
9. Yun M, Zhi-gang R, Bin L. Complementary and alternative medicine for functional dyspepsia: a systematic review and meta-analysis of randomized controlled trials. *J Clin Gastroenterol.* 2020;54(1):e1-e11.
10. Lise W, Annick VO, Jan T. Biomarkers in functional dyspepsia: *The search for the holy grail. United European Gastroenterol J.* 2020;8(1):11-19.



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