ISSN 1948-5190 (online)

World Journal of *Gastrointestinal Endoscopy*

Monthly Volume 17 Number 11 November 16, 2025

Published by Baishideng Publishing Group Inc

World Journal of Gastrointestinal Endoscopy

Contents

Monthly Volume 17 Number 11 November 16, 2025

REVIEW

Zhai YX, Mao T, Li XY, Ren LL, Tian ZB. Advances and future directions in endoscopic bariatric therapies. *World J Gastrointest Endosc* 2025; 17(11): 109157 [DOI: 10.4253/wjge.v17.i11.109157]

MINIREVIEWS

Sihag S, O'Hara F, McNamara D. Toward an expanded role for video capsule endoscopy in patients with gastrointestinal bleeding: A review of the literature. *World J Gastrointest Endosc* 2025; 17(11): 108788 [DOI: 10.4253/wjge.v17.i11.108788]

Hatsuzawa Y, Tsujinaka S, Miura T, Kitamura Y, Mitamura A, Sawada K, Hikage M, Nakano T, Shibata C. Current roles of colonoscopy in minimally invasive colorectal surgery: Preoperative guidance, intraoperative colonoscopy, and combined endoscopic-laparoscopic surgery. *World J Gastrointest Endosc* 2025; 17(11): 108874 [DOI: 10.4253/wjge.v17.i11.108874]

Singh AK, Singh A, Kochhar R, Manrai M. Esophageal strictures: Management beyond dilation. *World J Gastrointest Endosc* 2025; 17(11): 110024 [DOI: 10.4253/wjge.v17.i11.110024]

Wang C, Wang CH, Shi WJ, Pan SW, Zhai YQ. Brief overview of congenital gastric ectopic pylorus: A rare gastric abnormality. *World J Gastrointest Endosc* 2025; 17(11): 112519 [DOI: 10.4253/wjge.v17.i11.112519]

ORIGINAL ARTICLE

Retrospective Cohort Study

El-Domiaty N, Beuvon F, Carpentier-Pourquier M, Ibrahim W, Oumrani S, Doumbe-Mandengue P, Belle A, Chaussade S, Pellat A, Shiha G, Coriat R, Barret M. Subtype-specific risk factors for gastric adenomas and independent predictors of recurrence after endoscopic resection. *World J Gastrointest Endosc* 2025; 17(11): 110436 [DOI: 10.4253/wjge.v17.i11.110436]

Shu J, Liao YS, Zhang YJ, Zhou WL, Zhang H. Impact of periampullary diverticulum on the incidence of post-endoscopic retrograde cholangiography pancreatitis. *World J Gastrointest Endosc* 2025; 17(11): 111243 [DOI: 10.4253/wjge.v17.i11.111243]

Retrospective Study

Zakaria N, Tahseen MU, Niaz TS, Asim M, Yaseen A, Kadir S, Qureshi S, Ghazanfar S, Leghari A, Taj MA, Siddiqui AR, Altaf A, Ahmed N, Raza A, Salman J, Shoaib UB, Siyal M, Durvesh AK, Niaz SK. Endoscopic retrograde cholangiopancreatography in pediatric and adult populations: 17-year experience from Pakistan with trends, complications, and global comparison. *World J Gastrointest Endosc* 2025; 17(11): 109909 [DOI: 10.4253/wjge.v17.i11.109909]

Asada S, Kitagawa K, Hanatani J, Motokawa Y, Osaki Y, Iwata T, Kaji K, Mitoro A, Nagai M, Yoshiji H, Sho M. Endoscopic biliary drainage with multi-hole self-expandable metallic stent during neoadjuvant chemoradiotherapy in pancreatic cancer. *World J Gastrointest Endosc* 2025; 17(11): 111107 [DOI: 10.4253/wjge.v17.i11.111107]

Li F, Xie YL, Xu D, Lu CH, Wu JW, Ma JX, Guan GX, Wang HX. Comparison of different anastomosis methods in laparoscopically assisted left hemicolectomy for colon cancer. *World J Gastrointest Endosc* 2025; 17(11): 111117 [DOI: 10.4253/wjge.v17.i11.111117]

Observational Study

Zignani N, Balzarini M, Dabizzi E, Fracas E, Millefanti L, Segato S, Vecchi M, Cengia G, Missale G, Tontini GE, Moneghini D, Cavallaro F. Endoscopic ultrasound features of pancreatic solid lesions: Descriptive and predictive analysis on a multicenter sample. *World J Gastrointest Endosc* 2025; 17(11): 112487 [DOI: 10.4253/wjge.v17.i11.112487]

SYSTEMATIC REVIEWS

Calderon-Martinez E, Abreu Lopez B, Flores Monar G, Dave R, Teran Hooper C, Salolin Vargas VP, Shah YR, Patel R, Dahiya DS, Gangwani MK, Advani R. Effectiveness of endoscopy in patients with concomitant gastrointestinal bleeding and acute coronary syndrome: A systematic review. *World J Gastrointest Endosc* 2025; 17(11): 110030 [DOI: 10.4253/wjge.v17.i11.110030]

Pal P, Kata P, Nabi Z, Ramchandani M, Gupta R, Tandan M, Duvvur NR. Endoscopic resection of colitis-associated neoplasia: A scoping review. *World J Gastrointest Endosc* 2025; 17(11): 110082 [DOI: 10.4253/wjge.v17.i11.110082]

Agrawal H, Agarwal N, Gupta N. Impact of gut microbiome on outcomes following endoscopic interventions in gastrointestinal disease. *World J Gastrointest Endosc* 2025; 17(11): 110207 [DOI: 10.4253/wjge.v17.i11.110207]

META-ANALYSIS

Sun GY, Liu ZX, Sun Y, Yang Z. Efficacy and safety of double-balloon enteroscopy-assisted endoscopic retrograde cholangiopancreatography in surgically altered anatomy: A systematic review and meta-analysis. *World J Gastrointest Endosc* 2025; 17(11): 112348 [DOI: 10.4253/wjge.v17.i11.112348]

CASE REPORT

Liu XR, Chen XZ, Fan MW, Zhang SH, Shi N, Liu CX, Chen Y, Wang XM. Endoscopic treatment for dysphagia caused by mid-esophageal diverticulum and diffuse esophageal spasm: A case report. *World J Gastrointest Endosc* 2025; 17(11): 111770 [DOI: 10.4253/wjge.v17.i11.111770]

Rajandran A, Sakiris A, John S. Diagnosis and management of a rare case of esophageal epidermoid metaplasia: A case report. *World J Gastrointest Endosc* 2025; 17(11): 112247 [DOI: 10.4253/wjge.v17.i11.112247]

LETTER TO THE EDITOR

Majeed AA, Butt AS. Motorized spiral enteroscopy in altered anatomy: Balancing clinical success with safety challenges. *World J Gastrointest Endosc* 2025; 17(11): 113466 [DOI: 10.4253/wjge.v17.i11.113466]

World Journal of Gastrointestinal Endoscopy

Monthly Volume 17 Number 11 November 16, 2025

Contents

ABOUT COVER

Editorial Board Member of *World Journal of Gastrointestinal Endoscopy*, Diogo Turiani Hourneaux de Moura, MD, MSc, PhD, Professor, Division of Gastrointestinal Endoscopy, Hospital Vila Nova Star - Rede DOR, Sao Paulo 04544-000, Brazil. dthmoura@hotmail.com

AIMS AND SCOPE

The primary aim of *World Journal of Gastrointestinal Endoscopy* (*WJGE*, *World J Gastrointest Endosc*) is to provide scholars and readers from various fields of gastrointestinal endoscopy with a platform to publish high-quality basic and clinical research articles and communicate their research findings online.

WJGE mainly publishes articles reporting research results and findings obtained in the field of gastrointestinal endoscopy and covering a wide range of topics including capsule endoscopy, colonoscopy, double-balloon enteroscopy, duodenoscopy, endoscopic retrograde cholangiopancreatography, endosonography, esophagoscopy, gastrointestinal endoscopy, gastroscopy, laparoscopy, natural orifice endoscopic surgery, proctoscopy, and sigmoidoscopy.

INDEXING/ABSTRACTING

The *WJGE* is now abstracted and indexed in Emerging Sources Citation Index (Web of Science), PubMed, PubMed Central, Reference Citation Analysis, China Science and Technology Journal Database, and Superstar Journals Database. The 2025 Edition of Journal Citation Reports® cites the 2024 journal impact factor (JIF) for *WJGE* as 1.8; JIF without journal self cites: 1.7; 5-year JIF: 1.9; JIF Rank: 98/147 in gastroenterology and hepatology; JIF Quartile: Q3; and 5-year JIF Quartile: Q3.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: *Jiao Xu*; **Production Department Director:** *Xiao-Mei Zheng*; **Cover Editor:** *Jia-Ping Yan*.

NAME OF JOURNAL
World Journal of Gastrointestinal Endoscopy

ISSN
ISSN 1948-5190 (online)

LAUNCH DATE
October 15, 2009

FREQUENCY
Monthly

EDITORS-IN-CHIEF
Bing Hu, Joo Young Cho

EDITORIAL BOARD MEMBERS
https://www.wjgnet.com/1948-5190/editorialboard.htm

PUBLICATION DATE
November 16, 2025

COPYRIGHT
© 2025 Baishideng Publishing Group Inc

PUBLISHING PARTNER
Digestive Endoscopy Center of West China Hospital, SCU

INSTRUCTIONS TO AUTHORS
https://www.wjgnet.com/bpg/gerinfo/204

GUIDELINES FOR ETHICS DOCUMENTS
https://www.wjgnet.com/bpg/GerInfo/287

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH
https://www.wjgnet.com/bpg/gerinfo/240

PUBLICATION ETHICS
https://www.wjgnet.com/bpg/GerInfo/288

PUBLICATION MISCONDUCT
https://www.wjgnet.com/bpg/gerinfo/208

ARTICLE PROCESSING CHARGE
https://www.wjgnet.com/bpg/gerinfo/242

STEPS FOR SUBMITTING MANUSCRIPTS
https://www.wjgnet.com/bpg/GerInfo/239

ONLINE SUBMISSION
https://www.f6publishing.com

PUBLISHING PARTNER's OFFICIAL WEBSITE
http://www.cd120.com/index.html

© 2025 Baishideng Publishing Group Inc. All rights reserved. 7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA
E-mail: office@baishideng.com https://www.wjgnet.com

World Journal of Gastrointestinal Endoscopy

Submit a Manuscript: https://www.f6publishing.com

World J Gastrointest Endosc 2025 November 16; 17(11): 110207

DOI: 10.4253/wjge.v17.i11.110207

ISSN 1948-5190 (online)

SYSTEMATIC REVIEWS

Impact of gut microbiome on outcomes following endoscopic interventions in gastrointestinal disease

Himanshu Agrawal, Nitin Agarwal, Nikhil Gupta

Specialty type: Gastroenterology and hepatology

Provenance and peer review: Invited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's classification

Scientific Quality: Grade A

Novelty: Grade C

Creativity or Innovation: Grade C

Scientific Significance: Grade B

P-Reviewer: Liu YH, MD, PhD, Professor, China

Received: June 3, 2025

Revised: June 12, 2025

Accepted: September 23, 2025

Published online: November 16, 2025

Processing time: 167 Days and 0.6 Hours

Himanshu Agrawal, Department of Surgery, University College of Medical Sciences (University of Delhi), GTB Hospital, Delhi 110095, India

Nitin Agarwal, Nikhil Gupta, Department of Surgery, Atal Bihari Vajpayee Institute of Medical Sciences and Dr. Ram Manohar Lohia Hospital, Delhi 110001, India

Corresponding author: Nikhil Gupta, Professor, Department of Surgery, Atal Bihari Vajpayee Institute of Medical Sciences and Dr. Ram Manohar Lohia Hospital, BKS Marg, Delhi 110001, India. nikhil_ms26@yahoo.co.in

Abstract

BACKGROUND

Endoscopic interventions play a vital role in diagnosing and managing gastrointestinal diseases, but complications such as bleeding, infection, and delayed healing can adversely affect patient outcomes. The influence of the gut microbiome on these outcomes is increasingly being recognized.

AIM

To evaluate the role of the gut microbiome in influencing clinical outcomes after endoscopic interventions, focusing on microbial diversity, specific taxa, metabolic functions, and emerging predictive models.

METHODS

A systematic literature search was conducted in PubMed, EMBASE, and Cochrane databases up to May 2025, selecting human studies that analyzed gut microbiome composition or function in relation to endoscopic interventions and clinical outcomes. Microbiome analysis techniques included 16S rRNA gene sequencing, metagenomics, and metabolomics.

RESULTS

Forty-two studies met the inclusion criteria. Our review identifies key beneficial microbes, such as *Faecalibacterium prausnitzii* and *Bacteroides spp.*, which support mucosal healing. In contrast, dysbiosis (*e.g.*, an increased abundance of *Proteobacteria*) is associated with poorer healing and higher complication rates. Notably, microbiome-informed predictive models have shown strong potential for forecasting post-procedural complications, offering a pathway to personalized treatment strategies. Probiotics have also emerged as a promising intervention, helping to restore microbial balance and reduce complications such as infection and delayed healing.

CONCLUSION
The gut microbiome plays a significant role in recovery after endoscopy. Integrating microbiome analysis into clinical decision-making could improve outcomes through personalized predictions and targeted therapies. Future research should focus on standardizing microbiome assessment protocols and validating predictive models to optimize patient care.

Key Words: Gut microbiome; Endoscopy; Mucosal healing; Dysbiosis; Machine learning

©The Author(s) 2025. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: The gut microbiome critically influences patient outcomes after endoscopic procedures by modulating mucosal healing and inflammation. Disruptions from bowel preparation and the procedures affect microbial balance, with targeted probiotic and microbiome-based therapies offering promising recovery improvements. Integration of multi-omics and machine learning enables personalized prediction and management of complications, marking a shift toward precision medicine in gastrointestinal endoscopy.

Citation: Agrawal H, Agarwal N, Gupta N. Impact of gut microbiome on outcomes following endoscopic interventions in gastrointestinal disease. *World J Gastrointest Endosc* 2025; 17(11): 110207
URL: https://www.wjgnet.com/1948-5190/full/v17/i11/110207.htm
DOI: https://dx.doi.org/10.4253/wjge.v17.i11.110207

INTRODUCTION

Endoscopic interventions serve key roles in diagnosing and managing gastrointestinal diseases, including screening colonoscopy and advanced therapies such as endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD)[1] Despite technical progress, predicting patient outcomes remains difficult. Complications like bleeding, infection, delayed healing, and stricture formation can worsen prognosis and increase healthcare costs[2].

The human gastrointestinal tract contains about 10^{14} bacteria, forming a complex ecosystem that influences host physiology, immune responses, and disease risk. This microbiome regulates immune function, supports epithelial barrier integrity, and affects inflammation and tissue repair[3]. Dysbiosis, an imbalance in microbial composition, associates with several gastrointestinal disorders including inflammatory bowel disease (IBD), colorectal cancer, and functional conditions[4].

Recent evidence indicates the gut microbiome may affect recovery and complications after endoscopic interventions. Variations in microbial diversity and the presence of specific bacterial taxa correlate with clinical outcomes[5]. Microbial metabolites such as short-chain fatty acids contribute to epithelial regeneration and immune regulation essential for mucosal healing[6]. Additionally, bowel preparation before endoscopy temporarily alters the microbiome, which could impact recovery after the procedure[7].

This manuscript reviews the role of the gut microbiome in outcomes after endoscopic interventions. It examines how changes in microbial diversity, specific bacteria, and metabolites influence healing, complications, and disease recurrence. It describes the effects of endoscopy and bowel preparation on gut microbes. The paper presents microbiome-based prediction models and therapies that aim to improve patient care. It highlights the use of multi-omics and machine learning (ML) methods to support personalized treatment and better prognosis in gastrointestinal endoscopy.

MATERIALS AND METHODS

A systematic literature search was performed following PRISMA guidelines. We queried PubMed, EMBASE, and Cochrane Library databases from inception until May 2025. Search terms combined keywords and Medical Subject Heading related to gut microbiome ("gut microbiome", "intestinal microbiome"), endoscopic interventions ("endoscopy", "colonoscopy", "endoscopic mucosal resection"), and outcomes ("complications", "healing", "prediction", "response").

We included original research studies that evaluated the gut microbiome in human patients undergoing any endoscopic procedure, reported clinical outcomes related to procedure success, complications such as bleeding, infection, or strictures, or healing, and used microbiome analysis techniques like 16S rRNA gene sequencing, shotgun metagenomics, or metabolomics. We excluded animal and *in vitro* studies.

Two independent authors screened titles and abstracts for relevance. Full texts of eligible studies were assessed against inclusion criteria, and disagreements were resolved by consensus. From included studies, we extracted data on study design, population size, patient demographics, type of endoscopic procedure, microbiome sampling method (stool or mucosal biopsy), sequencing technique, and timing relative to the procedure. We collected data on microbial diversity

metrics, including alpha and beta diversity, specific taxa associated with outcomes, functional analyses such as metabolic pathways and metabolite levels, and clinical outcomes like complication rates, healing times, and therapeutic response. Study quality was assessed using the Newcastle-Ottawa Scale for observational studies and the Cochrane Risk of Bias tools for interventional trials.

RESULTS

The initial search yielded 1264 records. After removing duplicates and screening abstracts, 112 full-text articles were reviewed. Forty-two studies met inclusion criteria (Figure 1). These studies collectively demonstrate that gut microbiome composition and diversity significantly correlate with mucosal healing, complication rates, and disease recurrence after endoscopic interventions. Interventions such as *Helicobacter pylori* (*H. pylori*) eradication, probiotics, and microbiome-targeted therapies showed promising clinical benefits in improving recovery and reducing adverse outcomes. ML models integrating microbiome profiles provide accurate predictions of recurrence risk, supporting personalized post-endoscopy surveillance.

DISCUSSION

Microbial diversity and host-microbe interactions

The gastrointestinal microbiome varies along the digestive tract, reflecting different local environments. Microbial composition shifts significantly from the stomach to the colon. Each section hosts communities adapted to its conditions [7]. The upper gastrointestinal tract, including the duodenum and jejunum, absorbs fats, simple carbohydrates, and proteins. The distal small intestine absorbs bile acids and vitamin B12. The colon receives few dietary carbohydrates and nutrients but supports the highest microbial diversity due to bacterial fermentation[8].

Culturomics and next-generation sequencing show that the colon has greater microbial diversity than upper regions, with distinct bacterial groups in each area[9]. The stomach, previously considered mostly sterile due to acid, contains microbes important for gastric health and disease[10]. Detailed studies link stomach microbiome profiles to conditions like chronic gastritis, peptic ulcers, and gastric cancer risk[11]. These findings challenge earlier views on microbial distribution and highlight the need to account for local differences in microbiome diagnostics and treatments.

Functional roles of key microbes and their metabolites

Certain bacterial genera influence health outcomes. *Faecalibacterium prausnitzii*, a key butyrate producer, reduces inflammation and promotes healing by blocking nuclear factor kappa B pathways and activating regulatory T cells. Low levels are linked to delayed healing after endoscopic injury[12,13]. *Bacteroides* species aid immune tolerance and mucosal repair by breaking down polysaccharides, but their loss during bowel preparation or flare-ups impairs recovery. *Proteobacteria*, including *Escherichia coli* and *Klebsiella pneumoniae*, release lipopolysaccharides during inflammation, triggering cytokine release and worsening mucosal damage. *Lactobacillus* and *Bifidobacterium* may help maintain epithelial barriers post-endoscopy, though the benefits of probiotics are mixed. *Fusobacterium nucleatum* is associated with colorectal cancer and poor healing after polyp resection by promoting inflammation and inhibiting cell death[8,14,15] (Table 1).

The gastrointestinal microbiome closely interacts with host physiology, influencing both disease and treatment outcomes. Endomicroscopy reveals how colorectal mucosal traits affect bacterial composition. Inflammation shifts microbial communities, favoring facultative anaerobes. Goblet cells shape bacterial colonization, and the microbiome rapidly responds to host changes, thereby affecting disease progression and treatment. Microbial metabolism, including short-chain fatty acids such as butyrate, supports mucosal integrity and immune regulation[16]. Low butyrate levels or its loss are linked to poor healing and increased risk of complications. Microbial bile acid conversion influences epithelial growth, while disrupted metabolism contributes to stricture formation. Tryptophan metabolism and the aryl hydrocarbon receptor regulate intestinal barrier function; reduced microbial production of aryl hydrocarbon receptor ligands increases permeability and inflammation post-procedure. Elevated gram-negative bacteria and lipopolysaccharides exacerbate inflammation, delay healing, and increase oxidative damage (Table 2)[11,15,17-22].

Microbiome-immune system interactions

The gut microbiome influences innate and adaptive immune responses essential for mucosal healing. Commensal microbes stimulate regulatory T cells to produce interleukin-10 and transforming growth factor-beta[23]. These cytokines reduce inflammation and support tissue repair. Losing these microbes shifts the immune system toward inflammation. Microbial signals control neutrophil and macrophage recruitment and activation[24]. Excess neutrophils produce reactive oxygen species that harm the mucosa. A balanced microbiome limits this response and helps resolve inflammation. Microbial metabolites strengthen epithelial tight junctions and increase mucus layer thickness[7]. Dysbiosis weakens these defences, allowing antigens and pathogens to cross, causing chronic inflammation[25].

Effects of endoscopic interventions on the gut microbiome

Bowel preparation for colonoscopy causes lasting changes in the gut microbiome. Longitudinal studies show mucosal and luminal microbes shift significantly after standard prep with bisacodyl and polyethylene glycol[26]. Bacteroidetes and species like *Faecalibacterium prausnitzii* consistently increase. These changes reorganize microbial communities and

Table 1 Summary of microbiome roles in endoscopic interventions

Microbial genera	Function	Impact on healing and complications
Faecalibacterium	Butyrate production, anti-inflammatory effects	Promotes mucosal healing, reduces inflammation
Bacteroides	Polysaccharide breakdown, immune regulation	Supports immune tolerance, aids mucosal repair
Proteobacteria	Pathogenicity, LPS production	Increases inflammation, delays healing
Fusobacterium	Inflammation promotion, cancer association	Impairs healing, linked to cancer recurrence

LPS: Lipopolysaccharides.

Table 2 Key metabolites and their roles in mucosal healing

Metabolite	Source microbes	Role in healing
Butyrate	*Faecalibacterium prausnitzii*, *Bacteroides*	Fuels colonocytes, regulates immune cells, maintains epithelial integrity
SCFAs (acetate, propionate)	Fermentative bacteria (*e.g.*, *Bacteroides*)	Supports tight junctions, immune modulation
LPS	*Proteobacteria*, pathogenic strains	Triggers cytokine release, exacerbates inflammation

SCFAs: Short chain fatty acids; LPS: Lipopolysaccharides.

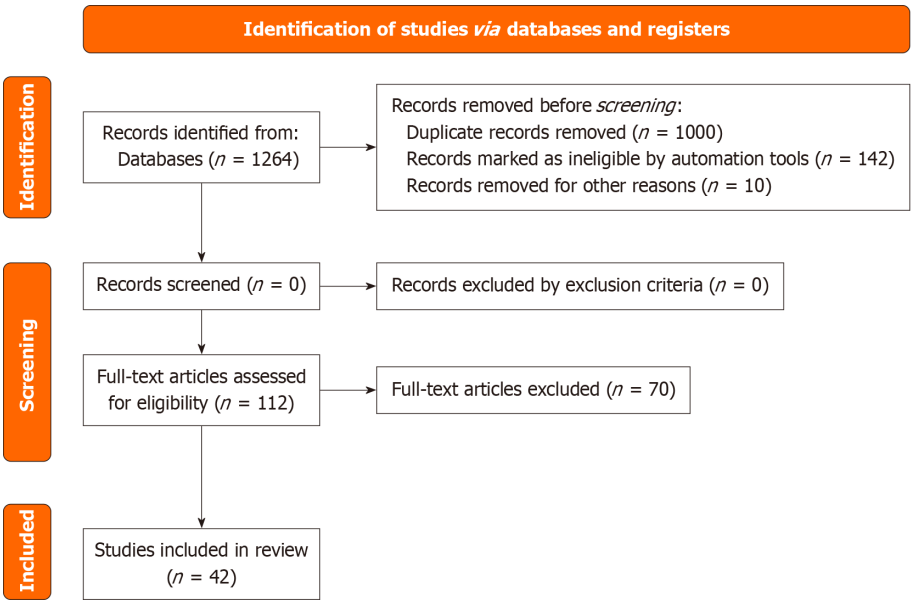

Figure 1 PRISMA 2009 flow diagram.

affect disease detection and treatment[27].

Effects differ between healthy individuals and those with IBD. In IBD patients, bowel prep reduces differences between mucosal and luminal microbiomes, increasing shared microbial groups in biopsies and stool. This convergence may reduce diagnostic accuracy by masking disease-related markers[28].

Cheon *et al*[29] found that *H. pylori* eradication therapy speeds mucosal healing and reduces ulcer size after EMR for gastric ulcers. Shen *et al*[30] showed that enhanced recovery after surgery-based nursing care improves management of postoperative complications and prognosis in patients with early gastrointestinal tumors treated by endoscopic resection. Shi *et al*[31] developed a ML model using gut microbiome and clinical data to predict colorectal polyp recurrence one year after EMR (Table 3) (Figure 2).

Colonoscopy alters gut microbial composition. Probiotic supplementation helps restore balance and improves patient outcomes. Reviews indicate probiotics support mucosal healing by modulating immune response and repairing the epithelial barrier[32]. Follow-up over three to six months shows some microbes return to baseline, while others remain altered, indicating lasting microbiome effects after endoscopy[33]. Endoscopic interventions impact the microbiome beyond bowel prep. Sampling with ingestible devices shows traditional endoscopy, involving fasting and sedation, may not capture normal microbiome states[34]. Upper endoscopy risks contamination from oral, oesophageal, or gastric

Table 3 Endoscopic and gastric procedure studies

Ref.	Title	Study group	Intervention	Inference
Cheon *et al*[29]	*H. pylori* eradication therapy may facilitate gastric ulcer healing after endoscopic mucosal resection	Patients undergoing endoscopic mucosal resection for gastric ulcers	*H. pylori* eradication therapy	Eradication therapy accelerates mucosal healing and reduces ulcer size post-endoscopy
Shen *et al*[30]	The impact of ERAS-based nursing interventions on postoperative complication management and prognosis in early gastrointestinal tumor endoscopic resection	Early GI tumor patients undergoing endoscopic resection	ERAS nursing care protocol	ERAS nursing interventions improve complication management and prognosis post-endoscopic resection
Shi *et al*[31]	Construction and validation of machine learning-based predictive model for colorectal polyp recurrence one year after endoscopic mucosal resection	Patients post-endoscopic mucosal resection for colorectal polyps	ML model using microbiome + clinical data	Microbiome-informed ML model predicts colorectal polyp recurrence with good accuracy

H. pylori: *Helicobacter pylori*; GI: Gastrointestinal; ERAS: Enhanced recovery after surgery; ML: Machine learning.

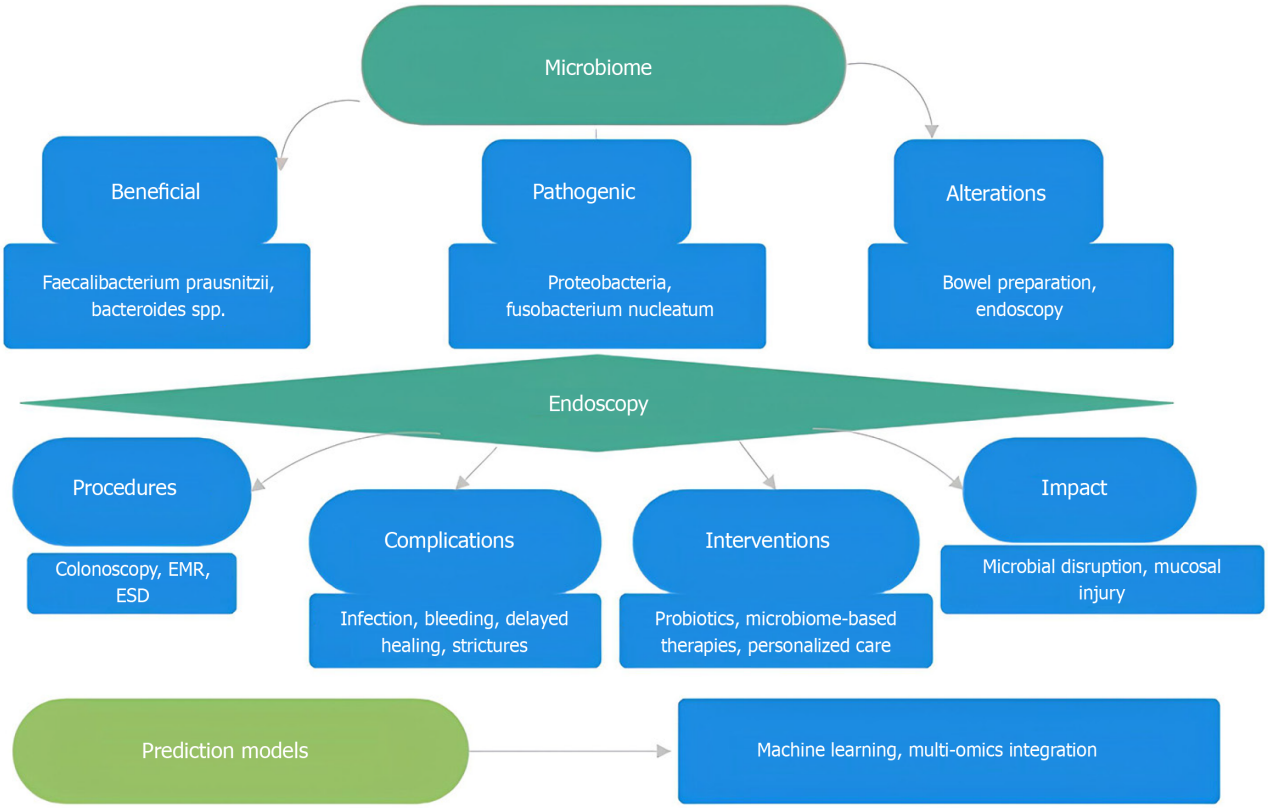

Figure 2 Microbiome-endoscopy-complication axis flowchart. EMR: Endoscopic mucosal resection; ESD: Endoscopic submucosal dissection.

microbes, complicating analysis. The invasive nature alters the gut environment, creating artificial conditions that misrepresent microbial communities[35].

Magnetic controlled capsule endoscopy offers a less invasive alternative that preserves natural microbiome conditions while allowing thorough examination[36]. Combined with metabolomic analysis, this method supports noninvasive disease detection and maintains microbiome integrity. Future technologies should minimize disruption to native microbial ecosystems to improve patient outcomes[37].

Microbiome patterns relate to outcomes in endoscopic therapies[38]. Barrett's esophagus patients with microbial profiles rich in anti-inflammatory taxa show higher mucosal remission rates after treatment. Dysbiosis associates with persistent metaplasia and recurrence[39]. In IBD, higher microbial diversity and more butyrate producers link to better mucosal healing after medical and endoscopic treatments[40]. For colorectal cancer prevention, microbial signatures assess adenoma recurrence risk. High levels of pro-inflammatory bacteria like *Fusobacterium nucleatum* indicate greater risk and slower healing[41].

Microbiome-based prediction models for colorectal diseases

Microbiome-based prediction models aid colorectal cancer and polyp detection[42]. ML methods like Naive Bayes and

Neural Networks reduce false negatives to about 5% by analyzing stool samples for microbial signatures linked to colorectal neoplasia. This approach may reduce colonoscopy demand and improve early detection[43].

After adenoma resection, taxa such as *Butyricimonas*, *Faecalitalea*, and *Catenibacterium* remain elevated, suggesting use in surveillance[44]. These bacteria correlate with adenoma-related amino acid profiles, linking microbiome changes to tumor development[45]. Bioinformatic analyses separate high- and low-risk colorectal adenocarcinoma patients by microbial patterns related to immune cell infiltration and survival. Reviews identify many bacteria with predictive value, but models require validation in prospective studies before clinical use[46]. Studies find 39 bacterial species differing between colorectal cancer patients with and without lympho-vascular invasion[47]. Random Forest and XGBoost models accurately predict clinical outcomes.

Ben Izhak *et al*[48] found gut microbiome changes linked to weight loss and metabolic improvement after bariatric surgery, suggesting microbiome monitoring can predict surgical outcomes. Carlini *et al*[49] showed preoperative gut microbiome interventions reduced anastomotic leak rates in laparoscopic colorectal cancer surgery. Jin *et al*[50] demonstrated that gut microbiome from patients without anastomotic complications promoted collagen synthesis and healing in colon anastomoses, indicating microbiome manipulation aids recovery. Liu *et al*[51] reported that *Bifidobacterium animalis* supplementation after colorectal polyp resection improved immune response and recovery *vs* placebo. Park *et al*[52] found probiotics after anterior colon resection reduced postoperative symptoms and complications. Martínez-Sánchez *et al*[53] and Veziant *et al*[54] are studying dietary and clinical factors combined with microbiome profiling to predict surgical and cancer outcomes in colorectal patients. These studies highlight the gut microbiome as a modifiable factor to improve colorectal surgery results and patient prognosis (Table 4).

Gastric disease prediction and risk stratification

Gastric microbiome analysis aids disease prediction and risk assessment, especially for chronic gastritis and gastric cancer [55]. Oral bacterial profiles, including *Prevotella*, *Haemophilus*, *Fusobacterium*, *Neisseria*, and *Streptococcus*, show distinct patterns in patients undergoing upper endoscopy[56]. While alpha diversity does not strongly correlate with findings, the presence and abundance of specific bacteria provide useful diagnostic data alongside endoscopy[57].

Tests for gastric microbiota dysbiosis show promise in cancer risk assessment for atrophic gastritis patients, with specificity near 89% in identifying high-grade dysplasia or cancer[58]. These models analyze antrum and corpus biopsy samples to predict cancer risk and may serve as clinical biomarkers. Low levels of healthy gastric bacteria also signal gastrointestinal disease risk and offer opportunities for early detection[59].

Functional studies using genomic DNA sequencing of gastric biopsies enhance understanding of host-microbe interactions and improve risk prediction[60]. Combining microbiome data with biomarkers like pepsinogen ratios, *H. pylori* antibodies, and gastrin levels improves screening accuracy over endoscopy alone[61].

Cheon *et al*[29] conducted a randomized controlled trial on *H. pylori* eradication after EMR in gastric ulcer patients. The therapy accelerated mucosal healing and reduced ulcer size, supporting its use as standard postoperative care. Shen *et al* [30] tested enhanced recovery after surgery-based nursing interventions in patients undergoing endoscopic resection for early gastrointestinal tumours. Their trial showed better management of postoperative complications and improved prognosis, emphasizing microbiota-related supportive care. Shi *et al*[31] created a ML model using gut microbiome and clinical data to predict colorectal polyp recurrence one year after EMR. This approach highlights microbiome profiling for personalized surveillance. Studies show colonoscopy causes significant shifts in gut microbiome. Probiotic supplementation restores balance and improves outcomes. Reviews on probiotics in mucosal healing support their role in restoring the epithelial barrier and modulating immune response after endoscopic interventions. These methods aid personalized detection and risk assessment.

Post-procedural outcomes and complications

Surgical site infections and anastomotic complications link closely to gut microbiome composition, especially after colorectal surgery. Reviews show strong connections between microbiome profiles and issues like anastomotic leaks, infections, and postoperative ileus. Certain bacteria influence wound healing, immune response, and tissue repair[1].

Despite improved surgical standards and care in high-volume centres, complication rates remain significant: 10%-30% for ileus, 6.5%-20% for infections, and 2.7%-20% for leaks. Preoperative microbiome analysis can predict these risks, opening paths for preventive measures. Surgery also alters gut microbiome, with changes varying by bacterial type and affecting recovery positively or negatively.

Distinct microbial patterns appear in patients who develop complications, highlighting the role of microbiome in outcomes. Studies such as Carlini *et al*[49] have shown that targeted modulation of gut microbiome prior to colorectal surgery significantly reduces anastomotic leak incidence, underscoring the microbiome's role in surgical healing. Similarly, Jin *et al*[50] demonstrated that microbiome from patients without anastomotic complications promotes epithelial collagen synthesis and supports colon anastomosis healing.

Cheon *et al*[29] found that *H. pylori* eradication therapy speeds mucosal healing after gastric mucosal resection. Bowel preparation and the procedure can disrupt the microbiome, causing prolonged imbalance and slower recovery. Probiotic supplementation after surgery reduces infection rates and improves immune function[52,62]. Persistent dysbiosis raises risks for complications and disease recurrence, highlighting the need for microbiome-focused perioperative care[63]. Preoperative microbiome optimization through probiotics and diet aims to increase beneficial bacteria before surgery. Microbiome assessment may become part of risk evaluation, and targeted interventions could improve outcomes[64].

Advanced ML applications in microbiome analysis

Gut microbiome data is complex and high-dimensional, posing challenges and opportunities for clinical research,

Table 4 Colorectal Interventions

Ref.	Title	Study group	Intervention	Inference
Ben Izhak *et al*[48]	Projection of gut microbiome pre-and post-bariatric surgery to predict surgery outcome	Patients undergoing bariatric surgery	Bariatric surgery with perioperative microbiome profiling	Microbial shifts post-surgery correlate with weight loss success and metabolic improvements
Carlini *et al*[49]	Implementation of the gut microbiota prevents anastomotic leaks in laparoscopic colorectal surgery for cancer	Colorectal cancer patients undergoing laparoscopic surgery	Preoperative gut microbiota modulation	Microbiota-targeted intervention reduces anastomotic leak rates
Jin *et al*[50]	Gut microbiota from non-complicated anastomotic leak patients promotes colon anastomotic healing	Patients with and without anastomotic leak	Microbiota transfer from non-leak patients to epithelial cells	Microbiota from healthy patients induces collagen synthesis, promoting healing
Liu *et al*[51]	Improvement effect of *Bifidobacterium animalis subsp*. lactis MH-02 in patients receiving resection of colorectal polyps	Patients undergoing colorectal polyp resection	*Bifidobacterium animalis* supplementation	Probiotic improves postoperative immune parameters and recovery
Park *et al*[52]	Effects of probiotics on the symptoms and surgical outcomes after anterior resection of colon cancer	Colon cancer patients post anterior resection	Probiotic supplementation	Probiotics reduce postoperative symptoms and complications
Martínez-Sánchez *et al*[53]	Gut microbiome modification through dietary intervention in patients with colorectal cancer (protocol)	Colorectal cancer patients planned for surgery	Dietary intervention to modify microbiome	Protocol to assess dietary impact on microbiome and surgical outcomes
Veziant *et al*[54]	Prognostic value of combination of gut microbiota, sarcopenia, obesity, metabolic syndrome to predict surgical/oncologic outcomes in colorectal cancer	Colorectal cancer surgery patients	Observational with microbiota and clinical/metabolic factor assessment	Protocol to evaluate gut microbiota with clinical/metabolic factors for outcome prediction

especially in predicting postoperative outcomes and disease recurrence[65]. ML has enabled integration of large microbiome datasets with clinical variables to create predictive models that support personalized medicine and postoperative care[66]. Shi *et al*[31] developed a ML model combining microbial profiles and clinical data to predict colorectal polyp recurrence within one year after EMR. The model showed strong accuracy, supporting its use in personalized surveillance and early intervention. Yu *et al*[67] used bioinformatics and ML to analyze microbiome and transcriptome data for colon adenocarcinoma risk prediction. This multi-omics approach enhances risk stratification by integrating host gene expression with microbial patterns. Liu *et al*[58] created gut microbiome-based algorithms to predict metachronous adenoma after colorectal cancer surgery, identifying high-risk patients for improved follow-up. Wang *et al*[2] reviewed computational methods, including ML, to study microbial interactions linked to colorectal anastomotic leaks, aiding microbiome-targeted prevention. Yu *et al*[68] applied computational analysis to track microbiome changes after colorectal adenoma resection, providing insights on healing and recurrence risk. Challenges remain in handling data heterogeneity, high dimensionality, and model interpretability. Advances in algorithms, validation, and multi-omics integration will improve clinical application of ML in microbiome analysis[69]. ML on gut microbiome data enables personalized risk assessment and targeted care, advancing precision management in surgery and gastrointestinal diseases.

Integration with clinical data, biomarkers, and surveillance

Integrating gut microbiome profiles with clinical data and biomarkers improves prediction of postoperative outcomes. Combining microbial signatures with patient demographics, metabolic status, inflammatory markers, and imaging provides a clearer view of risks and recovery[70]. Veziant *et al*[54] designed the METABIOTE cohort to assess gut microbiome, sarcopenia, obesity, and metabolic syndrome in predicting surgical and oncologic outcomes after colorectal cancer surgery. This approach enhances risk assessment beyond clinical data by including microbial and metabolic factors. Liu *et al*[62] developed algorithms combining microbiome and clinical data to identify patients at risk for metachronous adenoma recurrence, improving surveillance. Caenepeel *et al*[71] found microbiome composition correlates with disease activity and treatment response in IBD. Combining microbiome analysis with biomarkers like C-reactive protein, fecal calprotectin, and endoscopy refines monitoring and treatment. Yu *et al*[67] integrated transcriptomic, metabolomic, and microbiome data to capture host-microbe interactions related to healing and inflammation. These multi-omics models, often with ML, identify composite biomarkers that enhance prognosis. Challenges include data standardization, integration, and the need for large cohorts. Gut microbiome analysis offers value in postoperative surveillance and disease monitoring. Tracking microbial composition and function over time gives early insight into recovery, complication risks, and disease recurrence[72]. Shi *et al*[31] showed combining microbiome data with clinical factors predicts colorectal polyp recurrence after endoscopic resection, supporting early surveillance and intervention. Liu *et al*[73] developed gut microbiome-based algorithms to forecast metachronous adenoma risk after colorectal cancer surgery, enabling personalized follow-up. In IBD, mucosal and fecal microbiome profiles act as biomarkers for disease activity and relapse[74]. Caenepeel *et al*[71] and Wang *et al*[75] identified microbiome signatures linked to endoscopic healing and clinical remission, guiding treatment and reducing invasive interventions. Continuous microbiome monitoring helps detect early postoperative complications like anastomotic leaks and infections. Carlini *et al*[49] and Wang *et al*[75] highlight microbiome markers' role in predicting and preventing these events. Though standardizing

sampling and data analysis remains difficult, gut microbiome surveillance provides a non-invasive, dynamic tool to improve patient management, outcomes, and reduce healthcare costs through early detection and personalized care.

Therapeutic and probiotic interventions for recovery enhancement

Modulating the gut microbiome offers therapeutic strategies to improve outcomes after gastrointestinal surgery and endoscopy. Randomized trials by Liu *et al*[51] and Park *et al*[52] show probiotic supplementation enhances immune function, speeds recovery, and reduces postoperative complications. Carlini *et al*[49] found preoperative microbiome modulation lowers anastomotic leak rates after colorectal surgery, highlighting clinical benefits of microbiome optimization. Dietary interventions are being studied for their role in shaping the microbiome to support surgical recovery[53]. Fecal microbiome transplantation (FMT) also shows potential in restoring microbial balance and promoting mucosal healing, though further research is needed. Advanced microbiome-based predictive models, such as those by Shi *et al*[31], support personalized postoperative care by identifying high-risk patients for targeted treatment. Microbiome-targeted therapies represent a move toward precision medicine to enhance recovery, reduce complications, and improve outcomes. Clinical trials indicate probiotics aid recovery after colorectal polyp resection. One study found *Bifidobacterium animalis subsp. lactis* microbiota homeostasis-02, given daily for seven days, lowered postoperative symptoms and improved bowel function *vs* placebo[76].

Probiotics support mucosal barriers, regulate immunity, and restore microbial balance disrupted by interventions. Early use and strain selection, especially Bifidobacterium species, increase benefits[76].

These findings support including probiotics in post-procedural care. Probiotics are simple, low-cost, safe, and have no major side effects. Future studies should determine optimal probiotic combinations, treatment duration, and patient groups to maximize benefits and minimize risks.

Challenges and limitations in clinical implementation

Microbiome research faces technical challenges before routine clinical use. Variations in sample collection, processing, and analysis affect measurement accuracy and interpretation. Bowel preparation for endoscopy alters microbial communities, complicating results. Upper gastrointestinal sampling risks contamination, requiring standardized protocols to ensure accuracy and safety[77]. Quality control in sequencing and bioinformatics is essential for reliable data across laboratories[78]. Processing microbiome data needs specialized skills and infrastructure often absent in clinical settings. User-friendly tools and standardized pipelines are necessary for wider adoption[79]. Study heterogeneity complicates findings due to differences in sample types, timing, storage, DNA extraction, sequencing, and analysis methods. The lack of standard metrics for microbial diversity and function limits comparisons. Confounders such as diet, medications, comorbidities, and lifestyle often remain uncontrolled, affecting microbiome and clinical outcomes. The microbiome also changes over time with diet, stress, and illness. Single time-point samples miss these fluctuations, making longitudinal sampling crucial to understand effects on healing and complications[80]. Most evidence is correlative, with few interventional trials testing if altering the microbiome through probiotics, prebiotics, antibiotics, or fecal transplants improves endoscopic outcomes[81]. More trials are needed before clinical application. Clinical implementation faces challenges from a lack of standardized, practical protocols for microbiome assessment[82]. High sequencing and analysis costs limit use. Clinicians need validated biomarkers and decision-support tools for routine care [83]. Microbiome-based tests face unique regulatory hurdles. Many models come from case-control studies requiring external validation in prospective trials. Temporal and individual variability complicate validation[84]. The absence of standardized reference ranges across populations hinders clinical interpretation. Demographic, dietary, and geographic factors demand population-specific standards. Regulatory frameworks for microbiome diagnostics remain under development, requiring collaboration among researchers, clinicians, and authorities. Integration with clinical workflows and proof of cost-effectiveness are essential for adoption[85].

Future directions and emerging technologies

Advances in sequencing enable detailed identification of species, strains, resistance genes, virulence factors, and metabolic pathways through shotgun metagenomics. Combining microbiome data with metabolomics, proteomics, and transcriptomics creates comprehensive profiles of host-microbe interactions. Multi-omics approaches offer more insight than microbiome analysis alone[75]. Real-time sequencing and point-of-care testing could allow rapid analysis during endoscopy for immediate clinical decisions. Artificial intelligence and ML, especially deep learning, analyze complex multi-omics data and detect clinical patterns[86]. Federated learning supports large-scale research while protecting patient privacy. Cloud platforms increase access to advanced analytics without local infrastructure[87]. Future research should focus on large, longitudinal studies tracking microbiome changes linked to clinical outcomes. Integrating multi-omics will improve understanding of host-microbe interactions. ML can enhance prediction of complications and treatment responses. Clinical trials must test interventions like probiotics, prebiotics, dietary changes, and fecal microbiome transplants[88]. Personalized endoscopy could use microbiome profiles for risk assessment, bowel preparation optimization, and tailored post-procedure care[89]. Targeted microbiome modulation offers new options to improve post-endoscopic outcomes. Precision probiotics designed for individual microbiomes may enhance therapy and reduce side effects. Synthetic microbial communities could deliver consistent, targeted effects beyond traditional probiotics[90]. FMT effectively treats recurrent *Clostridioides difficile* infection and is under study for other dysbiosis-related conditions[91]. Standardized FMT protocols for endoscopic patients could provide strong treatment options[92]. Selective depletion using targeted antimicrobials or bacteriophages can remove harmful bacteria while preserving beneficial ones. New microbiome-based drugs, such as prebiotics, postbiotics, and microbiome-derived therapeutics, offer precise control over microbiome modification. Integrating microbiome monitoring with treatment could enable adaptive

protocols that maximize benefits and minimize risks in real time[62,73,93,94].

CONCLUSION

The gastrointestinal microbiome influences outcomes after endoscopic interventions. It aids disease detection, supports recovery, and improves patient management. Combining advanced sequencing with ML produces models that identify high-risk patients, guide treatments, and enhance surveillance. Spatial and temporal microbial variations provide information beyond traditional clinical measures, enabling personalized care. Endoscopic interventions change microbiome composition, making microbial factors relevant in clinical decisions. Microbiome-targeted therapies show potential to improve outcomes. Despite technical and regulatory challenges, research and technology will transform gastroenterology. Standardized protocols, validation methods, and user-friendly tools are needed for routine care and resource optimization (Figure 2). Future efforts should emphasize prospective validation, multi-omics integration, and targeted therapies using microbiome data. Microbiome analysis offers opportunities for early detection, treatment prediction, and personalized strategies. This shift toward precision medicine could improve outcomes after endoscopic interventions.

FOOTNOTES

Author contributions: Agrawal H took charge of drafting the manuscript; Agrawal H and Gupta N were responsible for the research conception and design; Agrawal H, Agarwal N, and Gupta N were jointly responsible for data acquisition, data analysis and interpretation, critical revision of the manuscript, supervision; and all authors thoroughly reviewed and endorsed the final manuscript.

Conflict-of-interest statement: All the authors report no relevant conflicts of interest for this article.

PRISMA 2009 Checklist statement: The authors have read the PRISMA 2009 Checklist, and the manuscript was prepared and revised according to the PRISMA 2009 Checklist.

Open Access: This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: https://creativecommons.org/Licenses/by-nc/4.0/

Country of origin: India

ORCID number: Himanshu Agrawal 0000-0001-7994-2356; Nitin Agarwal 0000-0002-4820-9896; Nikhil Gupta 0000-0001-7265-8168.

S-Editor: Bai Y
L-Editor: A
P-Editor: Zhao YQ

REFERENCES

1 **Agnes A**, Puccioni C, D'Ugo D, Gasbarrini A, Biondi A, Persiani R. The gut microbiota and colorectal surgery outcomes: facts or hype? A narrative review. *BMC Surg* 2021; **21**: 83 [*RCA*] [PMID: 33579260 DOI: 10.1186/s12893-021-01087-5] [FullText] [Full Text(PDF)]
2 **Wang AH**, Li M, Li CQ, Kou GJ, Zuo XL, Li YQ. Human colorectal mucosal microbiota correlates with its host niche physiology revealed by endomicroscopy. *Sci Rep* 2016; **6**: 21952 [*RCA*] [PMID: 26916597 DOI: 10.1038/srep21952] [FullText] [Full Text(PDF)]
3 **Alam A**, Neish A. Role of gut microbiota in intestinal wound healing and barrier function. *Tissue Barriers* 2018; **6**: 1539595 [*RCA*] [PMID: 30404570 DOI: 10.1080/21688370.2018.1539595] [FullText]
4 **Rinninella E**, Raoul P, Cintoni M, Franceschi F, Miggiano GAD, Gasbarrini A, Mele MC. What is the Healthy Gut Microbiota Composition? A Changing Ecosystem across Age, Environment, Diet, and Diseases. *Microorganisms* 2019; **7**: 14 [*RCA*] [PMID: 30634578 DOI: 10.3390/microorganisms7010014] [FullText] [Full Text(PDF)]
5 **Allegretti JR**, Khanna S, Mullish BH, Feuerstadt P. The Progression of Microbiome Therapeutics for the Management of Gastrointestinal Diseases and Beyond. *Gastroenterology* 2024; **167**: 885-902 [*RCA*] [PMID: 38754739 DOI: 10.1053/j.gastro.2024.05.004] [FullText]
6 **Amoroso C**, Perillo F, Strati F, Fantini MC, Caprioli F, Facciotti F. The Role of Gut Microbiota Biomodulators on Mucosal Immunity and Intestinal Inflammation. *Cells* 2020; **9**: 1234 [*RCA*] [PMID: 32429359 DOI: 10.3390/cells9051234] [FullText] [Full Text(PDF)]
7 **Gorkiewicz G**, Moschen A. Gut microbiome: a new player in gastrointestinal disease. *Virchows Arch* 2018; **472**: 159-172 [*RCA*] [PMID: 29243124 DOI: 10.1007/s00428-017-2277-x] [FullText] [Full Text(PDF)]
8 **Sears CL**. Enterotoxigenic Bacteroides fragilis: a rogue among symbiotes. *Clin Microbiol Rev* 2009; **22**: 349-369, Table of Contents [*RCA*] [PMID: 19366918 DOI: 10.1128/CMR.00053-08] [FullText] [Full Text(PDF)]
9 **Guyton K**, Alverdy JC. The gut microbiota and gastrointestinal surgery. *Nat Rev Gastroenterol Hepatol* 2017; **14**: 43-54 [*RCA*] [PMID: 27729657 DOI: 10.1038/nrgastro.2016.139] [FullText]
10 **Shi Y**, Cui H, Wang F, Zhang Y, Xu Q, Liu D, Wang K, Hou S. Role of gut microbiota in postoperative complications and prognosis of

gastrointestinal surgery: A narrative review. *Medicine (Baltimore)* 2022; **101**: e29826 [*RCA*] [PMID: 35866808 DOI: 10.1097/MD.0000000000029826] [FullText] [Full Text(PDF)]

11 **Marchesi JR**, Adams DH, Fava F, Hermes GD, Hirschfield GM, Hold G, Quraishi MN, Kinross J, Smidt H, Tuohy KM, Thomas LV, Zoetendal EG, Hart A. The gut microbiota and host health: a new clinical frontier. *Gut* 2016; **65**: 330-339 [*RCA*] [PMID: 26338727 DOI: 10.1136/gutjnl-2015-309990] [FullText] [Full Text(PDF)]

12 **Al Radi ZMA**, Prins FM, Collij V, Vich Vila A, Festen EAM, Dijkstra G, Weersma RK, Klaassen MAY, Gacesa R. Exploring the Predictive Value of Gut Microbiome Signatures for Therapy Intensification in Patients With Inflammatory Bowel Disease: A 10-Year Follow-up Study. *Inflamm Bowel Dis* 2024; **30**: 1642-1653 [*RCA*] [PMID: 38635882 DOI: 10.1093/ibd/izae064] [FullText]

13 **Kostic AD**, Gevers D, Pedamallu CS, Michaud M, Duke F, Earl AM, Ojesina AI, Jung J, Bass AJ, Tabernero J, Baselga J, Liu C, Shivdasani RA, Ogino S, Birren BW, Huttenhower C, Garrett WS, Meyerson M. Genomic analysis identifies association of Fusobacterium with colorectal carcinoma. *Genome Res* 2012; **22**: 292-298 [*RCA*] [PMID: 22009990 DOI: 10.1101/gr.126573.111] [FullText]

14 **Arfi S**, Sharma P, Das K, Bhaskar Y, Goel I, Singh H, Das R. Low abundance of healthy bacteria in the gastric microbiota can be a potential biomarker for gastrointestinal diseases: A pilot study. *Indian J Med Res* 2024; **159**: 254-258 [*RCA*] [PMID: 38484125 DOI: 10.4103/ijmr.ijmr_864_23] [FullText]

15 **O'Keefe SJ**. Diet, microorganisms and their metabolites, and colon cancer. *Nat Rev Gastroenterol Hepatol* 2016; **13**: 691-706 [*RCA*] [PMID: 27848961 DOI: 10.1038/nrgastro.2016.165] [FullText]

16 **David LA**, Maurice CF, Carmody RN, Gootenberg DB, Button JE, Wolfe BE, Ling AV, Devlin AS, Varma Y, Fischbach MA, Biddinger SB, Dutton RJ, Turnbaugh PJ. Diet rapidly and reproducibly alters the human gut microbiome. *Nature* 2014; **505**: 559-563 [*RCA*] [PMID: 24336217 DOI: 10.1038/nature12820] [FullText] [Full Text(PDF)]

17 **Gan L**, Wang Y, Huang S, Zheng L, Feng Q, Liu H, Liu P, Zhang K, Chen T, Fang N. Therapeutic Evaluation of Bifidobacterium animalis subsp. lactis MH-02 as an Adjunctive Treatment in Patients with Reflux Esophagitis: A Randomized, Double-Blind, Placebo-Controlled Trial. *Nutrients* 2024; **16**: 342 [*RCA*] [PMID: 38337627 DOI: 10.3390/nu16030342] [FullText]

18 **Bosch S**, Acharjee A, Quraishi MN, Rojas P, Bakkali A, Jansen EE, Brizzio Brentar M, Kuijvenhoven J, Stokkers P, Struys E, Beggs AD, Gkoutos GV, de Meij TG, de Boer NK. The potential of fecal microbiota and amino acids to detect and monitor patients with adenoma. *Gut Microbes* 2022; **14**: 2038863 [*RCA*] [PMID: 35188868 DOI: 10.1080/19490976.2022.2038863] [FullText] [Full Text(PDF)]

19 **Breton Mdcm-Mstr J**, Tanes C, Wilson N, Kachelries K, Bittinger K, Mattei P, Baldassano R. P1311 Mucosal Microbiome Signatures Associated with Postoperative Endoscopic Recurrence in Paediatric Crohn's Disease. *J Crohns Colitis* 2025; **19**: i2362-i2362 [DOI: 10.1093/ecco-jcc/jjae190.1485] [FullText]

20 **Levy M**, Kolodziejczyk AA, Thaiss CA, Elinav E. Dysbiosis and the immune system. *Nat Rev Immunol* 2017; **17**: 219-232 [*RCA*] [PMID: 28260787 DOI: 10.1038/nri.2017.7] [FullText]

21 **Buffet-Bataillon S**, Bouguen G, Fleury F, Cattoir V, Le Cunff Y. Gut microbiota analysis for prediction of clinical relapse in Crohn's disease. *Sci Rep* 2022; **12**: 19929 [*RCA*] [PMID: 36402792 DOI: 10.1038/s41598-022-23757-x] [FullText] [Full Text(PDF)]

22 **De Cruz P**, Kang S, Wagner J, Buckley M, Sim WH, Prideaux L, Lockett T, McSweeney C, Morrison M, Kirkwood CD, Kamm MA. Association between specific mucosa-associated microbiota in Crohn's disease at the time of resection and subsequent disease recurrence: a pilot study. *J Gastroenterol Hepatol* 2015; **30**: 268-278 [*RCA*] [PMID: 25087692 DOI: 10.1111/jgh.12694] [FullText]

23 **Schirmer M**, Smeekens SP, Vlamakis H, Jaeger M, Oosting M, Franzosa EA, Ter Horst R, Jansen T, Jacobs L, Bonder MJ, Kurilshikov A, Fu J, Joosten LAB, Zhernakova A, Huttenhower C, Wijmenga C, Netea MG, Xavier RJ. Linking the Human Gut Microbiome to Inflammatory Cytokine Production Capacity. *Cell* 2016; **167**: 1125-1136.e8 [*RCA*] [PMID: 27814509 DOI: 10.1016/j.cell.2016.10.020] [FullText]

24 **Rosen C**, Shezen E, Aronovich A, Klionsky YZ, Yaakov Y, Assayag M, Biton IE, Tal O, Shakhar G, Ben-Hur H, Shneider D, Vaknin Z, Sadan O, Evron S, Freud E, Shoseyov D, Wilschanski M, Berkman N, Fibbe WE, Hagin D, Hillel-Karniel C, Krentsis IM, Bachar-Lustig E, Reisner Y. Preconditioning allows engraftment of mouse and human embryonic lung cells, enabling lung repair in mice. *Nat Med* 2015; **21**: 869-879 [*RCA*] [PMID: 26168294 DOI: 10.1038/nm.3889] [FullText]

25 **Ganesh BP**, Klopfleisch R, Loh G, Blaut M. Commensal Akkermansia muciniphila exacerbates gut inflammation in Salmonella Typhimurium-infected gnotobiotic mice. *PLoS One* 2013; **8**: e74963 [*RCA*] [PMID: 24040367 DOI: 10.1371/journal.pone.0074963] [FullText] [Full Text (PDF)]

26 **Dey N**, Soergel DA, Repo S, Brenner SE. Association of gut microbiota with post-operative clinical course in Crohn's disease. *BMC Gastroenterol* 2013; **13**: 131 [*RCA*] [PMID: 23964800 DOI: 10.1186/1471-230X-13-131] [FullText] [Full Text(PDF)]

27 **Ticinesi A**, Milani C, Lauretani F, Nouvenne A, Mancabelli L, Lugli GA, Turroni F, Duranti S, Mangifesta M, Viappiani A, Ferrario C, Maggio M, Ventura M, Meschi T. Gut microbiota composition is associated with polypharmacy in elderly hospitalized patients. *Sci Rep* 2017; **7**: 11102 [*RCA*] [PMID: 28894183 DOI: 10.1038/s41598-017-10734-y] [FullText] [Full Text(PDF)]

28 **Yeh JH**, Lin CW, Wang WL, Lee CT, Chen JC, Hsu CC, Wang JY. Positive Fecal Immunochemical Test Strongly Predicts Adenomas in Younger Adults With Fatty Liver and Metabolic Syndrome. *Clin Transl Gastroenterol* 2021; **12**: e00305 [*RCA*] [PMID: 33570858 DOI: 10.14309/ctg.0000000000000305] [FullText] [Full Text(PDF)]

29 **Cheon JH**, Kim JH, Lee SK, Kim TI, Kim WH, Lee YC. Helicobacter pylori eradication therapy may facilitate gastric ulcer healing after endoscopic mucosal resection: a prospective randomized study. *Helicobacter* 2008; **13**: 564-571 [*RCA*] [PMID: 19166423 DOI: 10.1111/j.1523-5378.2008.00647.x] [FullText]

30 **Shen Y**, Xi Y, Ru LGX, Liu H. The impact of ERAS-based nursing interventions on postoperative complication management and prognosis in early gastrointestinal tumor endoscopic resection: a prospective randomized controlled study. *Langenbecks Arch Surg* 2025; **410**: 135 [*RCA*] [PMID: 40257535 DOI: 10.1007/s00423-025-03652-5] [FullText]

31 **Shi YH**, Liu JL, Cheng CC, Li WL, Sun H, Zhou XL, Wei H, Fei SJ. Construction and validation of machine learning-based predictive model for colorectal polyp recurrence one year after endoscopic mucosal resection. *World J Gastroenterol* 2025; **31**: 102387 [*RCA*] [PMID: 40124266 DOI: 10.3748/wjg.v31.i11.102387] [FullText] [Full Text(PDF)]

32 **Jo HH**, Lee MY, Ha SE, Yeom DH, Kim YS. Alteration in gut microbiota after colonoscopy: proposed mechanisms and the role of probiotic interventions. *Clin Endosc* 2025; **58**: 25-39 [*RCA*] [DOI: 10.5946/ce.2024.147] [FullText]

33 **Filidou E**, Kolios G. Probiotics in Intestinal Mucosal Healing: A New Therapy or an Old Friend? *Pharmaceuticals (Basel)* 2021; **14**: 1181 [*RCA*] [PMID: 34832962 DOI: 10.3390/ph14111181] [FullText] [Full Text(PDF)]

34 **Liu K**, Qin M, Huang J. The prescreening tool for gastric cancer in China. *Gut* 2020; **69**: 1 [*RCA*] [PMID: 31481546 DOI: 10.1136/gutjnl-2019-319591] [FullText]

35 **Palleja A**, Mikkelsen KH, Forslund SK, Kashani A, Allin KH, Nielsen T, Hansen TH, Liang S, Feng Q, Zhang C, Pyl PT, Coelho LP, Yang H, Wang J, Typas A, Nielsen MF, Nielsen HB, Bork P, Wang J, Vilsbøll T, Hansen T, Knop FK, Arumugam M, Pedersen O. Recovery of gut microbiota of healthy adults following antibiotic exposure. *Nat Microbiol* 2018; **3**: 1255-1265 [*RCA*] [PMID: 30349083 DOI: 10.1038/s41564-018-0257-9] [FullText]

36 **Drago L**, Toscano M, De Grandi R, Casini V, Pace F. Persisting changes of intestinal microbiota after bowel lavage and colonoscopy. *Eur J Gastroenterol Hepatol* 2016; **28**: 532-537 [*RCA*] [PMID: 27015015 DOI: 10.1097/MEG.0000000000000581] [FullText]

37 **Barnes EL**, Nowell WB, Venkatachalam S, Dobes A, Kappelman MD. Racial and Ethnic Distribution of Inflammatory Bowel Disease in the United States. *Inflamm Bowel Dis* 2022; **28**: 983-987 [*RCA*] [PMID: 34473272 DOI: 10.1093/ibd/izab219] [FullText]

38 **Hamilton AL**, Kamm MA, De Cruz P, Wright EK, Feng H, Wagner J, Sung JJY, Kirkwood CD, Inouye M, Teo SM. Luminal microbiota related to Crohn's disease recurrence after surgery. *Gut Microbes* 2020; **11**: 1713-1728 [*RCA*] [PMID: 32564657 DOI: 10.1080/19490976.2020.1778262] [FullText]

39 **Hattori S**, Nakamura M, Yamamura T, Maeda K, Sawada T, Mizutani Y, Yamamoto K, Ishikawa T, Furukawa K, Ohno E, Honda T, Kawashima H, Ishigami M, Hirooka Y, Fujishiro M. The microbiome can predict mucosal healing in small intestine in patients with Crohn's disease. *J Gastroenterol* 2020; **55**: 1138-1149 [*RCA*] [PMID: 33067682 DOI: 10.1007/s00535-020-01728-1] [FullText]

40 **Buffie CG**, Pamer EG. Microbiota-mediated colonization resistance against intestinal pathogens. *Nat Rev Immunol* 2013; **13**: 790-801 [*RCA*] [PMID: 24096337 DOI: 10.1038/nri3535] [FullText]

41 **Hernández-Rocha C**, Turpin W, Borowski K, Stempak JM, Sabic K, Gettler K, Tastad C, Chasteau C, Korie U, Hanna M, Khan A, Mengesha E, Bitton A, Schwartz MB, Barrie A, Datta LW, Lazarev M, Brant SR, Rioux JD, McGovern DPB, Duerr RH, Schumm LP, Cho JH, Silverberg MS. After Surgically Induced Remission, Ileal and Colonic Mucosa-Associated Microbiota Predicts Crohn's Disease Recurrence. *Clin Gastroenterol Hepatol* 2025; **23**: 612-620.e10 [*RCA*] [PMID: 38969076 DOI: 10.1016/j.cgh.2024.06.022] [FullText]

42 **Kurlinkutė A**. Gut Microbiome Impact on Postoperative Morbidity after Major Abdominal Oncological Surgery. M.Sc. Thesis, Vilniaus universitetas. 2024. Available from: https://epublications.vu.lt/object/elaba:210539739/index.html

43 **Wang T**, Cai G, Qiu Y, Fei N, Zhang M, Pang X, Jia W, Cai S, Zhao L. Structural segregation of gut microbiota between colorectal cancer patients and healthy volunteers. *ISME J* 2012; **6**: 320-329 [*RCA*] [PMID: 21850056 DOI: 10.1038/ismej.2011.109] [FullText]

44 **Lederer AK**, Pisarski P, Kousoulas L, Fichtner-Feigl S, Hess C, Huber R. Postoperative changes of the microbiome: are surgical complications related to the gut flora? A systematic review. *BMC Surg* 2017; **17**: 125 [*RCA*] [PMID: 29202875 DOI: 10.1186/s12893-017-0325-8] [FullText] [Full Text(PDF)]

45 **Wang R**, Taubenberger JK. Methods for molecular surveillance of influenza. *Expert Rev Anti Infect Ther* 2010; **8**: 517-527 [*RCA*] [PMID: 20455681 DOI: 10.1586/eri.10.24] [FullText] [Full Text(PDF)]

46 **Ivanov II**, Littman DR. Modulation of immune homeostasis by commensal bacteria. *Curr Opin Microbiol* 2011; **14**: 106-114 [*RCA*] [PMID: 21215684 DOI: 10.1016/j.mib.2010.12.003] [FullText] [Full Text(PDF)]

47 **Weaver L**, Troester A, Jahansouz C. The Impact of Surgical Bowel Preparation on the Microbiome in Colon and Rectal Surgery. *Antibiotics (Basel)* 2024; **13**: 580 [*RCA*] [PMID: 39061262 DOI: 10.3390/antibiotics13070580] [FullText]

48 **Ben Izhak M**, Eshel A, Cohen R, Madar-Shapiro L, Meiri H, Wachtel C, Leung C, Messick E, Jongkam N, Mavor E, Sapozhnikov S, Maharshak N, Abu-Abeid S, Alis A, Mahler I, Meoded A, Meron Eldar S, Koren O, Louzoun Y. Projection of Gut Microbiome Pre- and Post-Bariatric Surgery To Predict Surgery Outcome. *mSystems* 2021; **6**: e0136720 [*RCA*] [PMID: 34100636 DOI: 10.1128/mSystems.01367-20] [FullText] [Full Text(PDF)]

49 **Carlini M**, Grieco M, Spoletini D, Menditto R, Napoleone V, Brachini G, Mingoli A, Marcellinaro R. Implementation of the gut microbiota prevents anastomotic leaks in laparoscopic colorectal surgery for cancer:the results of the MIRACLe study. *Updates Surg* 2022; **74**: 1253-1262 [*RCA*] [PMID: 35739383 DOI: 10.1007/s13304-022-01305-6] [FullText]

50 **Jin X**, Liu Y, Yan W, Shi S, Liu L, Lin B, Guo X, Cai T, Wei Y. Gut microbiota from nCAL patients promotes colon anastomotic healing by inducing collagen synthesis in epithelial cells. *J Gastroenterol Hepatol* 2022; **37**: 1756-1767 [*RCA*] [PMID: 35849493 DOI: 10.1111/jgh.15946] [FullText]

51 **Liu H**, Zhang K, Liu P, Xu X, Zhou Y, Gan L, Yao L, Li B, Chen T, Fang N. Improvement Effect of Bifidobacterium animalis subsp. lactis MH-02 in Patients Receiving Resection of Colorectal Polyps: A Randomized, Double-Blind, Placebo-Controlled Trial. *Front Immunol* 2022; **13**: 940500 [*RCA*] [PMID: 35833120 DOI: 10.3389/fimmu.2022.940500] [FullText] [Full Text(PDF)]

52 **Park IJ**, Lee JH, Kye BH, Oh HK, Cho YB, Kim YT, Kim JY, Sung NY, Kang SB, Seo JM, Sim JH, Lee JL, Lee IK. Effects of PrObiotics on the Symptoms and Surgical ouTComes after Anterior REsection of Colon Cancer (POSTCARE): A Randomized, Double-Blind, Placebo-Controlled Trial. *J Clin Med* 2020; **9**: 2181 [*RCA*] [PMID: 32664289 DOI: 10.3390/jcm9072181] [FullText] [Full Text(PDF)]

53 **Martínez-Sánchez MA**, Núñez-Sánchez MÁ, Balaguer-Román A, Oliva-Bolarín A, Pujante-Gilabert G, Hernández-Agüera Q, Mesa-López MJ, Egea-Valenzuela J, Queipo-Ortuño MI, Ruiz-Alcaraz AJ, Ferrer-Gómez M, Gil-Martínez J, Ramos-Molina B. Gut Microbiome Modification through Dietary Intervention in Patients with Colorectal Cancer: Protocol for a Prospective, Interventional, Controlled, Randomized Clinical Trial in Patients with Scheduled Surgical Intervention for CRC. *J Clin Med* 2022; **11**: 3613 [*RCA*] [PMID: 35806897 DOI: 10.3390/jcm11133613] [FullText] [Full Text(PDF)]

54 **Veziant J**, Poirot K, Chevarin C, Cassagnes L, Sauvanet P, Chassaing B, Robin F, Godfraind C, Barnich N, Pezet D, Pereira B, Gagniere J, Bonnet M. Prognostic value of a combination of innovative factors (gut microbiota, sarcopenia, obesity, metabolic syndrome) to predict surgical/oncologic outcomes following surgery for sporadic colorectal cancer: a prospective cohort study protocol (METABIOTE). *BMJ Open* 2020; **10**: e031472 [*RCA*] [PMID: 31915159 DOI: 10.1136/bmjopen-2019-031472] [FullText] [Full Text(PDF)]

55 **Li Y**, Tan WH, Wu JC, Huang ZX, Shang YY, Liang B, Chen JH, Pang R, Xie XQ, Zhang JM, Ding Y, Xue L, Chen MT, Wang J, Wu QP. Microbiologic risk factors of recurrent choledocholithiasis post-endoscopic sphincterotomy. *World J Gastroenterol* 2022; **28**: 1257-1271 [*RCA*] [PMID: 35431509 DOI: 10.3748/wjg.v28.i12.1257] [FullText] [Full Text(PDF)]

56 **Liu H**, Cheng G, Xu YL, Fang Q, Ye L, Wang CH, Liu XS. Preoperative Status of Gut Microbiota Predicts Postoperative Delirium in Patients With Gastric Cancer. *Front Psychiatry* 2022; **13**: 852269 [*RCA*] [PMID: 35308872 DOI: 10.3389/fpsyt.2022.852269] [FullText] [Full Text (PDF)]

57 **Vipperla K**, O'Keefe SJ. The microbiota and its metabolites in colonic mucosal health and cancer risk. *Nutr Clin Pract* 2012; **27**: 624-635 [*RCA*] [PMID: 22868282 DOI: 10.1177/0884533612452012] [FullText]

58 **Liu Y**, Geng R, Liu L, Jin X, Yan W, Zhao F, Wang S, Guo X, Ghimire G, Wei Y. Gut Microbiota-Based Algorithms in the Prediction of Metachronous Adenoma in Colorectal Cancer Patients Following Surgery. *Front Microbiol* 2020; **11**: 1106 [*RCA*] [PMID: 32595614 DOI:

10.3389/fmicb.2020.01106] [FullText] [Full Text(PDF)]

59 **Nassani N**, Alsheikh M, Carroll B, Nguyen D, Carroll RE. Theranostic Gastrointestinal Endoscopy: Bringing Healing Light to the Lumen. *Clin Transl Gastroenterol* 2020; **11**: e00119 [*RCA*] [PMID: 32352709 DOI: 10.14309/ctg.0000000000000119] [FullText] [Full Text(PDF)]

60 **Machiels K**, Pozuelo Del Río M, Martinez-De la Torre A, Xie Z, Pascal Andreu V, Sabino J, Santiago A, Campos D, Wolthuis A, D'Hoore A, De Hertogh G, Ferrante M, Manichanh C, Vermeire S. Early Postoperative Endoscopic Recurrence in Crohn's Disease Is Characterised by Distinct Microbiota Recolonisation. *J Crohns Colitis* 2020; **14**: 1535-1546 [*RCA*] [PMID: 32333762 DOI: 10.1093/ecco-jcc/jjaa081] [FullText] [Full Text(PDF)]

61 **Machiels K**, Sabino J, Vandermosten L, Joossens M, Arijs I, de Bruyn M, Eeckhaut V, Van Assche G, Ferrante M, Verhaegen J, Van Steen K, Van Immerseel F, Huys G, Verbeke K, Wolthuis A, de Buck Van Overstraeten A, D'Hoore A, Rutgeerts P, Vermeire S. Specific members of the predominant gut microbiota predict pouchitis following colectomy and IPAA in UC. *Gut* 2017; **66**: 79-88 [*RCA*] [PMID: 26423113 DOI: 10.1136/gutjnl-2015-309398] [FullText]

62 **Liu Y**, Méric G, Havulinna AS, Teo SM, Åberg F, Ruuskanen M, Sanders J, Zhu Q, Tripathi A, Verspoor K, Cheng S, Jain M, Jousilahti P, Vázquez-Baeza Y, Loomba R, Lahti L, Niiranen T, Salomaa V, Knight R, Inouye M. Early prediction of incident liver disease using conventional risk factors and gut-microbiome-augmented gradient boosting. *Cell Metab* 2022; **34**: 719-730.e4 [*RCA*] [PMID: 35354069 DOI: 10.1016/j.cmet.2022.03.002] [FullText] [Full Text(PDF)]

63 **Martins FP**, Andrade-Silva J, Teixeira BL, Ferrari A, Christoff AP, Cruz GNF, Paladino FV, de Oliveira LFV, Hernandes C. Oral microbiome test as an alternative diagnostic tool for gastric alterations: A prospective, bicentric cross-sectional study. *PLoS One* 2024; **19**: e0314660 [*RCA*] [PMID: 39621633 DOI: 10.1371/journal.pone.0314660] [FullText]

64 **Mima K**, Sakamoto Y, Kosumi K, Ogata Y, Miyake K, Hiyoshi Y, Ishimoto T, Iwatsuki M, Baba Y, Iwagami S, Miyamoto Y, Yoshida N, Ogino S, Baba H. Mucosal cancer-associated microbes and anastomotic leakage after resection of colorectal carcinoma. *Surg Oncol* 2020; **32**: 63-68 [*RCA*] [PMID: 31765952 DOI: 10.1016/j.suronc.2019.11.005] [FullText]

65 **Mondot S**, Lepage P, Seksik P, Allez M, Tréton X, Bouhnik Y, Colombel JF, Leclerc M, Pochart P, Doré J, Marteau P; GETAID. Structural robustness of the gut mucosal microbiota is associated with Crohn's disease remission after surgery. *Gut* 2016; **65**: 954-962 [*RCA*] [PMID: 26628508 DOI: 10.1136/gutjnl-2015-309184] [FullText] [Full Text(PDF)]

66 **Moss A**, Bourke MJ, Williams SJ, Hourigan LF, Brown G, Tam W, Singh R, Zanati S, Chen RY, Byth K. Endoscopic mucosal resection outcomes and prediction of submucosal cancer from advanced colonic mucosal neoplasia. *Gastroenterology* 2011; **140**: 1909-1918 [*RCA*] [PMID: 21392504 DOI: 10.1053/j.gastro.2011.02.062] [FullText]

67 **Yu L**, Zhao G, Wang L, Zhou X, Sun J, Li X, Zhu Y, He Y, Kofonikolas K, Bogaert D, Dunlop M, Zhu Y, Theodoratou E, Li X. A systematic review of microbial markers for risk prediction of colorectal neoplasia. *Br J Cancer* 2022; **126**: 1318-1328 [*RCA*] [PMID: 35292756 DOI: 10.1038/s41416-022-01740-7] [FullText] [Full Text(PDF)]

68 **Yu J**, Nong C, Zhao J, Meng L, Song J. An Integrative Bioinformatic Analysis of Microbiome and Transcriptome for Predicting the Risk of Colon Adenocarcinoma. *Dis Markers* 2022; **2022**: 7994074 [*RCA*] [PMID: 35096207 DOI: 10.1155/2022/7994074] [FullText] [Full Text (PDF)]

69 **Nardone OM**, Bazarova A, Bhandari P, Cannatelli R, Daperno M, Ferraz J, Goetz M, Gui X, Hayee B, De Hertogh G, Lazarev M, Li J, Parra-Blanco A, Pastorelli L, Panaccione R, Occhipinti V, Rath T, Smith SCL, Shivaji UN, Tontini GE, Vieth M, Villanacci V, Zardo D, Bisschops R, Kiesslich R, Ghosh S, Iacucci M. PICaSSO virtual electronic chromendoscopy accurately reflects combined endoscopic and histological assessment for prediction of clinical outcomes in ulcerative colitis. *United European Gastroenterol J* 2022; **10**: 147-159 [*RCA*] [PMID: 35194978 DOI: 10.1002/ueg2.12185] [FullText] [Full Text(PDF)]

70 **Ó Cuív P**, Ljungberg JK, Zhou J, Nissen M, Krueger A, Boyd J, Bongers M, Jeimy JL, Vivian C, Reich E, Rabellino A, Newell R, Fang L, Macdonald S, Pribyl A, Caban S, Mccarthy H, Soh J, Reid L, Wills B, Mchale D, Wood DL, Frazer IH, Angel N, Chipperfield H, Begun J, Keely S, Tyson GW, Hugenholtz P, Munro T, Krause L. A human microbiome-derived therapeutic for ulcerative colitis promotes mucosal healing and immune homeostasis. 2025 Preprint. Available from: bioRxiv: 10.1101/2025.04.18.25325957 [DOI: 10.1101/2025.04.18.25325957] [FullText]

71 **Caenepeel C**, Sadat Seyed Tabib N, Vieira-Silva S, Vermeire S. Review article: how the intestinal microbiota may reflect disease activity and influence therapeutic outcome in inflammatory bowel disease. *Aliment Pharmacol Ther* 2020; **52**: 1453-1468 [*RCA*] [PMID: 32969507 DOI: 10.1111/apt.16096] [FullText]

72 **O'Brien CL**, Allison GE, Grimpen F, Pavli P. Impact of colonoscopy bowel preparation on intestinal microbiota. *PLoS One* 2013; **8**: e62815 [*RCA*] [PMID: 23650530 DOI: 10.1371/journal.pone.0062815] [FullText] [Full Text(PDF)]

73 **Liu Y**, Li B, Wei Y. New understanding of gut microbiota and colorectal anastomosis leak: A collaborative review of the current concepts. *Front Cell Infect Microbiol* 2022; **12**: 1022603 [*RCA*] [PMID: 36389160 DOI: 10.3389/fcimb.2022.1022603] [FullText]

74 **Williamson AJ**, Alverdy JC. Influence of the Microbiome on Anastomotic Leak. *Clin Colon Rectal Surg* 2021; **34**: 439-446 [*RCA*] [PMID: 34853567 DOI: 10.1055/s-0041-1735276] [FullText]

75 **Wang H**, Yan G, Wu Y, Zhuoma D, Liu Z, Gao X, Wang X. Fecal microbiota related to postoperative endoscopic recurrence in patients with Crohn's disease. *Gastroenterol Rep (Oxf)* 2024; **12**: goae017 [*RCA*] [PMID: 38524186 DOI: 10.1093/gastro/goae017] [FullText] [Full Text (PDF)]

76 **Wira CR**, Ghosh M, Smith JM, Shen L, Connor RI, Sundstrom P, Frechette GM, Hill ET, Fahey JV. Epithelial cell secretions from the human female reproductive tract inhibit sexually transmitted pathogens and Candida albicans but not Lactobacillus. *Mucosal Immunol* 2011; **4**: 335-342 [*RCA*] [PMID: 21048705 DOI: 10.1038/mi.2010.72] [FullText] [Full Text(PDF)]

77 **Puca P**, Petito V, Laterza L, Lopetuso LR, Neri M, Del Chierico F, Boskoski I, Gasbarrini A, Scaldaferri F. Bariatric procedures and microbiota: patient selection and outcome prediction. *Ther Adv Gastrointest Endosc* 2021; **14**: 26317745211014746 [*RCA*] [PMID: 34368762 DOI: 10.1177/26317745211014746] [FullText] [Full Text(PDF)]

78 **Reinink AR**, Lee TC, Higgins PD. Endoscopic Mucosal Healing Predicts Favorable Clinical Outcomes in Inflammatory Bowel Disease: A Meta-analysis. *Inflamm Bowel Dis* 2016; **22**: 1859-1869 [*RCA*] [PMID: 27206015 DOI: 10.1097/MIB.0000000000000816] [FullText]

79 **Seo H**, Park JY, You HS, Kim BJ, Kim JG. Comparative Changes in Fecal Microbiome After Endoscopic Resection and Surgical Resection in Gastric Cancer Patients. *J Pers Med* 2025; **15**: 144 [*RCA*] [PMID: 40278323 DOI: 10.3390/jpm15040144] [FullText]

80 **Shobar RM**, Velineni S, Keshavarzian A, Swanson G, DeMeo MT, Melson JE, Losurdo J, Engen PA, Sun Y, Koenig L, Mutlu EA. The Effects of Bowel Preparation on Microbiota-Related Metrics Differ in Health and in Inflammatory Bowel Disease and for the Mucosal and Luminal Microbiota Compartments. *Clin Transl Gastroenterol* 2016; **7**: e143 [*RCA*] [PMID: 26866392 DOI: 10.1038/ctg.2015.54] [FullText] [Full Text(PDF)]

81 **Sokol H**, Brot L, Stefanescu C, Auzolle C, Barnich N, Buisson A, Fumery M, Pariente B, Le Bourhis L, Treton X, Nancey S, Allez M, Seksik P; REMIND Study Group Investigators. Prominence of ileal mucosa-associated microbiota to predict postoperative endoscopic recurrence in Crohn's disease. *Gut* 2020; **69**: 462-472 [*RCA*] [PMID: 31142586 DOI: 10.1136/gutjnl-2019-318719] [FullText]

82 **Stavrou G**, Kotzampassi K. Gut microbiome, surgical complications and probiotics. *Ann Gastroenterol* 2017; **30**: 45-53 [*RCA*] [PMID: 28042237 DOI: 10.20524/aog.2016.0086] [FullText] [Full Text(PDF)]

83 **Ruseckaitė S**. The Influence of The Microbiota On Anastomosis Complications After Primary Colorectal Surgery: A Literature Review. M.Sc. Thesis, Lithuanian University Of Health Sciences. 2025. Available from: https://portalcris.lsmuni.lt/server/api/core/bitstreams/57152b8a-fd54-43ce-90dc-082a676422ff/content

84 **Tsigalou C**, Paraschaki A, Bragazzi NL, Aftzoglou K, Bezirtzoglou E, Tsakris Z, Vradelis S, Stavropoulou E. Alterations of gut microbiome following gastrointestinal surgical procedures and their potential complications. *Front Cell Infect Microbiol* 2023; **13**: 1191126 [*RCA*] [PMID: 37333847 DOI: 10.3389/fcimb.2023.1191126] [FullText] [Full Text(PDF)]

85 **van Praagh JB**, de Goffau MC, Bakker IS, Harmsen HJ, Olinga P, Havenga K. Intestinal microbiota and anastomotic leakage of stapled colorectal anastomoses: a pilot study. *Surg Endosc* 2016; **30**: 2259-2265 [*RCA*] [PMID: 26385781 DOI: 10.1007/s00464-015-4508-z] [Full Text] [Full Text(PDF)]

86 **Xiao H**, Luo H, Qin A, Shu W, Liu X, Xiao F, Liao X, Shi Z, Zou Y, Xu K, Cao S, Li C, Hu Y, Zhang S, Guo J, Wang S, Yan S. Comparing Participation and Interim Effectiveness of Endoscopy and Biomarker-Based Screening for Gastric Cancer: A Cluster Randomized Controlled Trial. *J Cancer* 2024; **15**: 6110-6121 [*RCA*] [PMID: 39440067 DOI: 10.7150/jca.99100] [FullText]

87 **Zaramella A**, Arcidiacono D, Duci M, Benna C, Pucciarelli S, Fantin A, Rosato A, De Re V, Cannizzaro R, Fassan M, Realdon S. Predictive Value of a Gastric Microbiota Dysbiosis Test for Stratifying Cancer Risk in Atrophic Gastritis Patients. *Nutrients* 2024; **17**: 142 [*RCA*] [PMID: 39796578 DOI: 10.3390/nu17010142] [FullText] [Full Text(PDF)]

88 **Zheng J**, Sun Q, Zhang J, Ng SC. The role of gut microbiome in inflammatory bowel disease diagnosis and prognosis. *United European Gastroenterol J* 2022; **10**: 1091-1102 [*RCA*] [PMID: 36461896 DOI: 10.1002/ueg2.12338] [FullText] [Full Text(PDF)]

89 **Zheng Z**, Hu Y, Tang J, Xu W, Zhu W, Zhang W. The implication of gut microbiota in recovery from gastrointestinal surgery. *Front Cell Infect Microbiol* 2023; **13**: 1110787 [*RCA*] [PMID: 36926517 DOI: 10.3389/fcimb.2023.1110787] [FullText] [Full Text(PDF)]

90 **Dadkhah E**, Sikaroodi M, Korman L, Hardi R, Baybick J, Hanzel D, Kuehn G, Kuehn T, Gillevet PM. Gut microbiome identifies risk for colorectal polyps. *BMJ Open Gastroenterol* 2019; **6**: e000297 [*RCA*] [PMID: 31275588 DOI: 10.1136/bmjgast-2019-000297] [FullText] [Full Text(PDF)]

91 **Ferrie S**, Webster A, Wu B, Tan C, Carey S. Gastrointestinal surgery and the gut microbiome: a systematic literature review. *Eur J Clin Nutr* 2021; **75**: 12-25 [*RCA*] [PMID: 32661352 DOI: 10.1038/s41430-020-0681-9] [FullText]

92 **Hajjar R**, Gonzalez E, Fragoso G, Oliero M, Alaoui AA, Calvé A, Vennin Rendos H, Djediai S, Cuisiniere T, Laplante P, Gerkins C, Ajayi AS, Diop K, Taleb N, Thérien S, Schampaert F, Alratrout H, Dagbert F, Loungnarath R, Sebajang H, Schwenter F, Wassef R, Ratelle R, Debroux E, Cailhier JF, Routy B, Annabi B, Brereton NJB, Richard C, Santos MM. Gut microbiota influence anastomotic healing in colorectal cancer surgery through modulation of mucosal proinflammatory cytokines. *Gut* 2023; **72**: 1143-1154 [*RCA*] [PMID: 36585238 DOI: 10.1136/gutjnl-2022-328389] [FullText]

93 **Jacob V**, Crawford C, Cohen-Mekelburg S, Viladomiu M, Putzel GG, Schneider Y, Chabouni F, O'Neil S, Bosworth B, Woo V, Ajami NJ, Petrosino JF, Gerardin Y, Kassam Z, Smith M, Iliev ID, Sonnenberg GF, Artis D, Scherl E, Longman RS. Single Delivery of High-Diversity Fecal Microbiota Preparation by Colonoscopy Is Safe and Effective in Increasing Microbial Diversity in Active Ulcerative Colitis. *Inflamm Bowel Dis* 2017; **23**: 903-911 [*RCA*] [PMID: 28445246 DOI: 10.1097/MIB.0000000000001132] [FullText]

94 **Koliarakis I**, Athanasakis E, Sgantzos M, Mariolis-Sapsakos T, Xynos E, Chrysos E, Souglakos J, Tsiaoussis J. Intestinal Microbiota in Colorectal Cancer Surgery. *Cancers (Basel)* 2020; **12**: 3011 [*RCA*] [PMID: 33081401 DOI: 10.3390/cancers12103011] [FullText] [Full Text (PDF)]

Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA
Telephone: +1-925-3991568
E-mail: office@baishideng.com
Help Desk: https://www.f6publishing.com/helpdesk
https://www.wjgnet.com

© 2025 Baishideng Publishing Group Inc. All rights reserved.