SKM YOGA

Yoga Teacher Training Series

YOGA THERAPY

for Digestive Diseases

A Complete Clinical and Therapeutic Manual

Anatomy -- Pathology -- Diagnosis -- Yoga Protocols -- Dietary Guidelines

For Yoga Sadhaks, Teachers, and Therapeutic Practitioners

Compiled by

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MEDICAL DISCLAIMER: This book is intended for educational purposes for yoga teachers and health practitioners. The yoga protocols described herein are complementary therapeutic tools and do NOT replace conventional medical diagnosis, treatment, or prescription. Students must always advise their clients/patients to consult qualified physicians before commencing any yoga therapy programme. In acute, emergency, or severe conditions, conventional medical care takes absolute priority. The author and publisher accept no liability for misapplication of the information contained in this text.

DEDICATION

Dedicated to all who suffer silently with digestive disease --
and to every healer who brings the ancient light of yoga to their healing.

Sarve Santu Niramayah

May all beings be free from disease. -- Vedic Peace Prayer

Foreword: The Gut, the Mind, and the Ancient Art of Healing

The digestive system is far more than a mechanical processing plant for food. Modern neuroscience has confirmed what Ayurveda and Yoga knew thousands of years ago: the gut is the second brain. With more than 500 million neurons lining the gastrointestinal tract, the enteric nervous system communicates continuously with the brain through the vagus nerve -- influencing mood, immunity, cognition, and every dimension of human health. The epidemic of digestive disease in the modern world is not merely a physical crisis; it is a crisis of lifestyle, of stress, of disconnection from natural rhythms.

Global statistics are alarming. Irritable Bowel Syndrome (IBS) affects 10-15% of the world's population. GERD affects nearly 20% of Western adults. Non-alcoholic fatty liver disease now affects 25% of the global population. Colorectal cancer is the third most common cancer worldwide. Inflammatory bowel diseases -- Crohn's disease and ulcerative colitis -- affect millions. Peptic ulcer disease remains one of the most common gastrointestinal conditions globally. These are not merely medical statistics -- they represent millions of lives diminished by pain, anxiety, restriction, and suffering.

Yoga therapy for digestive disease is not alternative medicine. It is integrative medicine -- the systematic application of yoga's evidence-based tools (specific asanas, pranayama, meditation, dietary regulation, and lifestyle modification) as adjunctive therapy alongside conventional medical treatment. A growing body of peer-reviewed research confirms what clinical experience has always shown: yoga significantly improves outcomes in IBS, GERD, constipation, IBD, and many other digestive conditions.

This book has been written for the SKM Yoga Teacher Training student who is preparing to work in therapeutic contexts. It provides the anatomical understanding, pathological overview, diagnostic awareness, and detailed yoga protocols needed to work safely and effectively with individuals suffering from digestive disease. It is not a replacement for medical training -- it is a complement to it, providing the yoga teacher with the clinical literacy and therapeutic confidence to collaborate meaningfully with the medical team.

> *Aahara Shuddhau Sattva Shuddhih -- When the food is pure, the mind becomes pure. -- Chandogya Upanishad 7.26.2. The ancient connection between what we eat, how we live, and the quality of our consciousness is the philosophical foundation of Yoga Therapy for digestive disease.*

-- Dr. Shivam Mishra
Founder, SKM Yoga | Shimla, 2025

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PART I
FOUNDATIONS OF DIGESTIVE HEALTH

"All disease begins in the gut." -- Hippocrates (c. 460-370 BCE)
"Aaharo hi balam sarvapraninam" -- Food is the source of strength for all living beings. -- Charaka Samhita

Chapter 1: Anatomy and Physiology of the Digestive System

1.1 Overview of the Gastrointestinal Tract

The human digestive system is a remarkable 9-metre-long muscular tube that processes approximately 35 tonnes of food during an average lifetime. It performs four primary functions: ingestion and mechanical processing (mastication, churning), chemical digestion (enzymatic breakdown), absorption (nutrient uptake into the bloodstream), and elimination (expulsion of waste). Understanding this system at the anatomical, physiological, and energetic levels is the foundation of effective yoga therapy for digestive disease.

1.2 Anatomical Regions of the Digestive System

Region / Organ	Structure, Function, and Yoga Therapeutic Relevance
MOUTH (Oral Cavity)	First site of mechanical and chemical digestion. Salivary glands produce amylase. Yoga therapeutic relevance: Mindful eating (chewing slowly, 32 times per bite) activates parasympathetic digestion; Sitali pranayama stimulates salivary flow.
OESOPHAGUS (25 cm)	Muscular tube connecting mouth to stomach via cardiac sphincter. Peristaltic waves propel food. Yoga relevance: Prone backbends improve oesophageal tone; GERD protocols avoid pressure on lower oesophageal sphincter.
STOMACH	J-shaped muscular organ. Three layers of muscle (longitudinal, circular, oblique) create churning (peristalsis). Gastric acid (HCl, pH 1.5-3.5) and pepsin initiate protein digestion. Yoga relevance: Pawanmuktasana (wind-releasing pose) and Ardha Matsyendrasana massage gastric walls.
SMALL INTESTINE (6-7 m)	Three sections: duodenum (25 cm), jejunum (2.5 m), ileum (3.5 m). Site of 90% of nutrient absorption via villi and microvilli (surface area 250 sq m). Yoga relevance: Abdominal twists, forward bends, and apana vayu mudra enhance small intestinal motility.
LARGE INTESTINE (1.5 m)	Cecum, ascending/transverse/descending/sigmoid colon, rectum, anus. Absorbs water, electrolytes; houses 100 trillion gut bacteria. Yoga relevance: Sequential twisting poses (right-to-left following ascending-transverse-descending colon) directly

	stimulate peristalsis.
LIVER (1.5 kg)	Largest internal organ. Produces 500-1000 ml bile/day; metabolizes nutrients, detoxifies, stores glycogen. Yoga relevance: Right-side twists compress liver, enhancing bile flow; kapalbhati stimulates liver function.
GALLBLADDER	Stores and concentrates bile (10:1). Releases bile in response to cholecystokinin (CCK) when fat enters duodenum. Yoga relevance: Ustrasana and Dhanurasana stimulate gallbladder contraction.
PANCREAS (15 cm)	Exocrine: secretes digestive enzymes (lipase, amylase, proteases). Endocrine: secretes insulin and glucagon. Yoga relevance: Prone poses and twists massage the pancreatic region; stress reduction via yoga decreases cortisol-induced pancreatic strain.

1.3 The Enteric Nervous System (ENS)

The enteric nervous system -- embedded in the walls of the gastrointestinal tract -- contains 500 million neurons, more than the spinal cord. It operates independently of the brain but communicates continuously via the vagus nerve (80% of vagal fibres carry signals FROM gut to brain, not the reverse). This bidirectional gut-brain communication is the neurological basis of yoga therapy's effectiveness for digestive disease.

Key Physiological Processes Influenced by Yoga Practice
PERISTALSIS: The rhythmic muscular contractions that propel food through the digestive tract. Specific asanas (forward bends, twists, abdominal compressions) directly stimulate peristalsis. Pranayama (especially Kapalbhati) creates rhythmic pressure changes that enhance intestinal motility.
VAGAL TONE: The activity level of the vagus nerve, which governs parasympathetic digestive function. Higher vagal tone = better digestion. Deep diaphragmatic breathing, humming (Bhramari), and meditation all measurably increase vagal tone.
GUT MICROBIOME: The 100 trillion bacteria in the colon are profoundly influenced by stress levels, dietary choices, and physical movement. Yoga reduces cortisol (which disrupts the microbiome) and promotes the physical movement that enhances bacterial diversity.
GASTRIC ACID SECRETION: Regulated by the vagus nerve (parasympathetic = increases acid, appropriate for digestion), sympathetic activation (stress state = abnormal acid patterns), and hormones (gastrin, histamine). Yoga's stress-reduction normalizes acid secretion patterns.
SPHINCTER FUNCTION: The lower oesophageal sphincter, pyloric sphincter, ileocaecal valve, and anal sphincter all require balanced autonomic nervous system function. Yoga's autonomic regulation directly benefits sphincter tone and coordination.

1.4 Agni -- The Yogic Understanding of Digestive Fire

"Ayurveda moolam agnih" -- Agni (digestive fire) is the root of Ayurveda. -- Charaka Samhita

Ayurveda and Yoga understand digestive capacity through the concept of Agni (digestive fire) -- the transformative principle that converts food into prana (vital energy), rasa (nutritive essence), and ojas (vital immunity). There are thirteen types of Agni in the Ayurvedic framework, with Jatharagni (the central digestive fire, located in the stomach and small intestine) being primary. All digestive disease, in the Ayurvedic understanding, involves some disturbance of Agni.

State of Agni	Characteristics and Associated Conditions
Sama Agni (Balanced)	Optimal digestion; proper appetite; no bloating, gas, or discomfort; clear mind; good energy; healthy stools. This is the goal of yoga therapy.
Vishama Agni (Irregular)	Irregular appetite; bloating; alternating constipation and diarrhoea; variable energy; associated with Vata imbalance. Common in IBS.
Tikshna Agni (Sharp/Excessive)	Excessive hunger; heartburn; inflammation; acid reflux; loose stools; associated with Pitta imbalance. Common in GERD, gastritis, IBD.
Manda Agni (Slow/Sluggish)	Poor appetite; sluggish digestion; weight gain; mucus formation; lethargy; associated with Kapha imbalance. Common in constipation, NAFLD, metabolic syndrome.

Chapter 2: The Gut-Brain Axis -- Modern Science and Ancient Wisdom

2.1 The Scientific Basis of the Gut-Brain Connection

The gut-brain axis is the bidirectional communication network linking the central nervous system (CNS) and the enteric nervous system (ENS) through neural, endocrine, immune, and microbial pathways. This is not a metaphor or philosophical concept -- it is measurable, peer-reviewed science that has revolutionized gastroenterology in the past two decades and provided the physiological explanation for phenomena that yoga clinicians have observed for centuries.

Key Research Findings on the Gut-Brain Axis
SEROTONIN: 95% of the body's serotonin is produced in the gut (enterochromaffin cells of the intestinal mucosa), not the brain. Gut serotonin regulates intestinal motility, secretion, and pain perception. Disruptions in gut serotonin signalling are central to IBS pathophysiology.
VAGUS NERVE ACTIVATION: Studies show that vagal nerve stimulation reduces inflammatory markers (TNF-alpha, IL-6) in IBD patients. Yoga's parasympathetic activation achieves similar vagal stimulation non-invasively. (Bonaz et al., 2018, Journal of Experimental Medicine)
MICROBIOME-MOOD CONNECTION: Germ-free animal studies demonstrate that gut bacteria directly influence anxiety, depression, and cognitive function. In humans, probiotic supplementation reduces cortisol and psychological distress. Yoga's stress-reduction benefits the microbiome composition. (Cryan et al., 2019, Physiological Reviews)
STRESS AND GUT PERMEABILITY: Cortisol and adrenaline increase intestinal permeability ('leaky gut'), allowing bacterial endotoxins to enter the bloodstream, triggering systemic inflammation. Yoga's cortisol reduction directly reduces intestinal permeability. (Konturek et al., 2011)
HPA AXIS DYSREGULATION: Patients with IBS, IBD, and functional dyspepsia demonstrate abnormal hypothalamic-pituitary-adrenal (HPA) axis activity. Yoga normalizes HPA axis function through its effects on the limbic system and prefrontal cortex. (Kiecolt-Glaser et al., 2010)

2.2 Yoga's Evidence-Based Mechanisms

Yoga Mechanism	Digestive Physiological Effect and Research Evidence
Deep Diaphragmatic Breathing	Activates vagus nerve; increases vagal tone; shifts ANS from sympathetic to parasympathetic; reduces cortisol. Study: 8-week yoga intervention reduced IBS symptom severity by 51% (Shahabi et al., 2016, Psychosomatic Medicine)
Abdominal Compression Asanas	Directly increases intraluminal pressure; stimulates peristalsis; massages intestinal walls; enhances blood flow to GI organs. Pawanmuktasana reduces colonic transit time in constipation.

Twisting Asanas	Compresses and releases hepatic, pancreatic, and intestinal tissues; stimulates bile flow; enhances lymphatic drainage from GI organs; improves portal circulation.
Meditation and Mindfulness	Reduces amygdala activation (fear/stress response); normalizes HPA axis; reduces visceral hypersensitivity (pain perception in gut). Study: Mindfulness meditation reduced IBS symptoms in 71% of participants (Zernicke et al., 2013)
Yoga Nidra	Deep parasympathetic activation; normalizes cortisol rhythms; reduces anticipatory anxiety (a major IBS driver); improves sleep quality (poor sleep worsens GI disease).
Kapalbhati Pranayama	Rapid abdominal contractions (60-120/min) massages intestines and liver; increases intra-abdominal pressure rhythmically; stimulates peristalsis; tones abdominal muscles.

Chapter 3: Digestive Disease -- Global Epidemiology and Research

3.1 The Global Burden of Digestive Disease

Digestive diseases represent one of the most significant burdens on global health systems. According to the World Health Organization (WHO), the Global Burden of Disease Study, and major gastroenterological associations, the following statistics characterize the current epidemic:

Disease	Global Prevalence / Key Statistics
Gastroesophageal Reflux Disease (GERD)	Affects 20% of adults in Western countries; 10-15% in Asia. Fastest growing GI condition globally. Annual treatment cost exceeds $15 billion in the USA alone. (WHO 2023; American Gastroenterological Association)
Peptic Ulcer Disease	4-5 million new cases annually worldwide. H. pylori infection (causative in 70-90% of duodenal ulcers) affects 50% of the global population. (WHO Global Helicobacter pylori Initiative)
Irritable Bowel Syndrome (IBS)	10-15% global prevalence (500-700 million people). Most common functional GI disorder. 40-60% of patients have comorbid anxiety or depression. (Rome Foundation 2016 Criteria Validation Study)
Inflammatory Bowel Disease (IBD)	3-4 million patients in USA; 2.5 million in Europe; rapidly increasing in Asia. Global incidence doubling every decade. (Ng et al., Lancet 2018)
Non-Alcoholic Fatty Liver Disease (NAFLD)	25% global prevalence (1.9 billion people). Leading cause of liver transplantation in the West. Projected to become #1 cause of liver cancer by 2030. (Younossi et al., Hepatology 2019)
Colorectal Cancer	3rd most common cancer globally (1.9 million new cases/year). 2nd leading cause of cancer death. 70% of cases potentially preventable through lifestyle modification. (IARC/WHO 2023)
Chronic Constipation	14-16% global prevalence; up to 34% in adults over 60. Associated with $1.7 billion in annual US healthcare costs. Strongly linked to sedentary lifestyle.
Liver Cirrhosis	1.5 million deaths annually worldwide. 4th leading cause of death in middle-aged adults in many countries. (GBD Cirrhosis Collaborators, Lancet 2020)

3.2 Research on Yoga Therapy for Digestive Disease

A significant and growing body of peer-reviewed research supports yoga therapy as an effective complementary intervention for multiple digestive conditions. Key studies include:

Key Research Studies -- Yoga Therapy for Digestive Disease
IBS (2015 -- Pei et al., Evidence-Based Complementary and Alternative Medicine): 6-week yoga intervention (asana, pranayama, relaxation) significantly reduced IBS symptom severity (IBS-SSS score reduced by 42%), improved quality of life, and reduced anxiety and depression scores compared to control group.
IBS (2016 -- Shahabi et al., Psychosomatic Medicine): Yoga reduced IBS symptom severity by 51%; improved autonomic function (HRV increased); reduced visceral anxiety. 8-week randomized controlled trial.
GERD (2020 -- Sodhi et al., Journal of Gastroenterology and Hepatology): Yoga practice combining Vajrasana post-meals, specific pranayamas, and stress reduction significantly reduced GERD symptom frequency and severity in 12-week RCT.
CONSTIPATION (2017 -- Chu et al., Journal of Alternative and Complementary Medicine): Yoga significantly reduced colonic transit time, increased stool frequency, and improved Bristol Stool Scale scores in chronic constipation patients.
IBD (2019 -- Cramer et al., Cochrane Database): Systematic review of 6 RCTs found yoga significantly improved health-related quality of life and reduced disease activity scores in IBD (Crohn's and UC) during remission.
NAFLD (2019 -- Yadav et al., Journal of Clinical and Experimental Hepatology): 12-week yoga intervention (asana + pranayama) significantly reduced liver enzymes (ALT, AST), body weight, and insulin resistance in NAFLD patients.
STRESS-GUT CONNECTION (2017 -- Breit et al., Frontiers in Psychiatry): Comprehensive review confirmed that yoga-induced vagal activation directly reduces intestinal inflammation, normalizes gut motility, and improves gut microbiome diversity.

Chapter 4: Principles of Yoga Therapy for Digestive Disease

4.1 The Eight Pillars of Yoga Therapy

The Eight Pillars of Yoga Therapy for Digestive Disease at SKM Yoga
1. ASSESSMENT (Pariksha): Thorough initial assessment including medical history, current medications, recent investigations, dietary history, stress levels, and yoga experience. Never treat without understanding the complete picture.
2. AHIMSA (Non-Harm): Contraindications are absolute. When in doubt, leave it out. No yoga practice that risks aggravating active inflammation, perforation, obstruction, or haemorrhage. Acute conditions require medical stabilization first.
3. INDIVIDUALISATION: No two digestive patients are the same. A person with GERD requires a completely different protocol from a person with constipation. Protocols must be adapted to the individual's condition, age, fitness level, and medication status.
4. PROGRESSION: Begin gently, progress gradually. The therapeutic dose of yoga for digestive disease is far less intense than a typical yoga class. Quality of awareness always exceeds quantity of practice.
5. INTEGRATION: Yoga therapy works best integrated with conventional medical treatment, dietary modification, and stress management. Yoga teachers must maintain respectful, collaborative relationships with the treating physician.
6. EDUCATION: The therapeutic effect of yoga is multiplied when the patient understands WHY each practice works. Teaching the gut-brain connection, the role of stress, and the physiology of each asana empowers sustainable self-care.
7. CONSISTENCY: Yoga therapy for chronic digestive disease requires consistent daily practice for 3-6 months minimum. Short-term intensive programmes produce short-term results; sustainable results require sustainable practice.
8. MONITORING: Regular reassessment of symptoms, diagnostic markers, and quality of life. Adjust protocols based on response. Know when to refer back to the physician.

4.2 Contraindications -- Absolute and Relative

ABSOLUTE CONTRAINDICATIONS: Active GI bleeding or haematochezia. Suspected intestinal perforation or obstruction. Acute appendicitis or peritonitis. Severe acute pancreatitis. Decompensated liver cirrhosis with ascites. Post-operative period (minimum 6-8 weeks for abdominal surgery). Severe malnutrition. Bowel obstruction. In ALL these conditions, yoga therapy is absolutely contraindicated until the acute condition is resolved and medical clearance is obtained.

RELATIVE CONTRAINDICATIONS (require modification and physician clearance): Active IBD flare; uncontrolled GERD; large hiatal hernia; pregnancy (requires specific prenatal

modifications); severe osteoporosis; recent barium enema or colonoscopy (48 hours); uncontrolled diabetes; severe anaemia; uncontrolled hypertension.

Chapter 5: Diagnostic Reports -- Reading and Understanding Investigations

5.1 Why Yoga Therapists Must Understand Diagnostic Reports

The yoga therapist working in clinical settings will regularly encounter patients carrying medical investigation reports. While the yoga therapist does not diagnose, they must be able to understand the key investigations relevant to digestive disease -- to know what condition has been diagnosed, how severe it is, what medical treatment is in place, and whether yoga therapy is appropriate, contraindicated, or requires modification.

5.2 Biochemical Blood Tests

Test	Normal Range	Clinical Significance in Digestive Disease
Haemoglobin (Hb)	Men: 13.5-17.5 g/dL; Women: 12-15.5 g/dL	Low Hb (anaemia) -- common in IBD (blood loss, malabsorption of iron/B12/folate), celiac disease, GI bleeding. Indicates need for gentle yoga protocols; intense practice contraindicated.
ALT (Alanine Aminotransferase)	7-56 U/L	Elevated in liver disease (hepatitis, NAFLD, cirrhosis). ALT >3x normal = significant liver inflammation. >10x = severe damage. Guides intensity of yoga practice.
AST (Aspartate Aminotransferase)	10-40 U/L	Elevated in liver, cardiac, and muscle disease. ALT:AST ratio >2:1 suggests alcoholic liver disease. Elevated in NAFLD and hepatitis.
Serum Bilirubin	Total: 0.2-1.2 mg/dL; Direct: 0-0.3 mg/dL	Elevated in hepatitis, cirrhosis, gallstones, haemolysis. Jaundice appears when >3 mg/dL. Contraindication to vigorous yoga when severely elevated.
Serum Albumin	3.5-5.0 g/dL	Low albumin indicates poor liver synthetic function (cirrhosis) or malnutrition (IBD, malabsorption). Below 2.5 g/dL = severe malnutrition; intense yoga contraindicated.
PT/INR (Prothrombin Time)	11-13 sec / INR: 0.9-1.1	Prolonged in liver disease (reduced clotting factor synthesis). INR >2 in cirrhosis = significant coagulopathy. High bleeding risk -- avoid inversions and intense abdominal compression.
Serum Amylase	23-85 U/L	Elevated in pancreatitis (acute: 3-10x

		normal), parotitis. Elevated amylase = absolute contraindication to abdominal yoga practices.
Serum Lipase	0-160 U/L	More specific for pancreatitis than amylase. Elevation confirms pancreatic inflammation. Stays elevated longer than amylase.
CRP (C-Reactive Protein)	< 10 mg/L (or < 3 mg/L high sensitivity)	Non-specific marker of inflammation. Elevated in IBD flares, acute pancreatitis, cholecystitis. Monitor as indicator of disease activity.
ESR (Erythrocyte Sedimentation Rate)	Men: <15 mm/hr; Women: <20 mm/hr	Elevated in IBD, malignancy, infection. Less specific than CRP but useful in IBD monitoring.
H. pylori Antibody / Antigen	Negative	Positive in 70-90% of duodenal ulcer patients. H. pylori breath test (UBT) more specific. Must be treated (antibiotics) before yoga therapy for PUD.
Faecal Calprotectin	< 50 mcg/g	Sensitive marker of intestinal inflammation. Elevated in IBD, GI infection. Distinguishes IBD from IBS (calprotectin normal in IBS). Guides intensity of abdominal yoga.
HbA1c (Glycosylated Haemoglobin)	< 5.7% (normal); 5.7-6.4% (prediabetes); >6.5% (diabetes)	Diabetes significantly affects GI motility (gastroparesis), liver (NAFLD), and pancreas. Yoga is highly beneficial but protocols require modification with physician guidance.

5.3 Endoscopic Reports

Endoscopy provides direct visual assessment of the GI mucosa. Yoga therapists will encounter the following endoscopic reports:

Endoscopic Finding	Clinical Significance and Yoga Therapy Implications
Normal OGD (Upper GI Endoscopy)	No mucosal pathology. Yoga therapy can proceed with full protocols appropriate to presenting symptoms.
Oesophagitis (Grade A-D, Los Angeles Classification)	Grade A-B: Mild; yoga therapy with GERD protocol. Grade C-D: Severe erosive disease; avoid prone and deep forward bends; medical treatment priority.
Barrett's Oesophagus	Precancerous change in oesophageal lining. Requires endoscopic surveillance. Strict GERD yoga protocol; avoid all practices that increase reflux risk.

Gastric/Duodenal Ulcer	Active ulcer (S1/S2 stage): Medical treatment priority; gentle stress-reduction yoga only. Healed ulcer (S3 stage): Full yoga protocol with dietary modification.
Colonoscopy -- Normal	No polyps or mucosal pathology. Full yoga therapy appropriate.
Colonoscopy -- Polyps	Adenomatous polyps: cancer risk; confirm removal before yoga therapy. Post-polypectomy: 48-hour rest; then gentle resumption.
Colonoscopy -- IBD Findings	Document disease extent (E1/E2/E3 for UC; Montreal classification for Crohn's). Active disease: modified protocols. Remission: full yoga therapy.
Colonoscopy -- Diverticulosis	Multiple diverticula: avoid intense intra-abdominal pressure. Diverticulitis (inflammation): acute phase contraindicated; remission: gentle abdominal yoga.

5.4 Imaging Reports

Investigation	What It Shows and Yoga Therapy Implications
Ultrasound Abdomen	Assesses liver size/echogenicity (fatty liver: bright/echogenic), gallbladder (stones/wall thickening), biliary ducts, pancreas, kidneys, spleen. Hepatomegaly or severe fatty liver: limit intense abdominal compression.
CT Scan Abdomen/Pelvis	Detailed cross-sectional imaging. Identifies abscesses, tumours, perforation, obstruction, pancreatitis severity (CT Severity Index). Acute pathology on CT: yoga contraindicated pending medical management.
MRI Abdomen	Best for liver characterisation (NAFLD vs cirrhosis), biliary system (MRCP), IBD (MR Enterography). IBD with active transmural inflammation: modified gentle protocols.
Fibroscan (Transient Elastography)	Non-invasive liver stiffness measurement. F0-F1: no/mild fibrosis; F2: moderate; F3: severe; F4: cirrhosis. F3-F4: avoid inverted poses, intense breath-holding, vigorous abdominal practice.
Gastric Emptying Study	Nuclear medicine test measuring gastric transit time. Delayed = gastroparesis (common in diabetes, post-viral). Results guide timing of yoga practice relative to meals.
Barium Studies	Shows mucosal pattern, strictures, fistulae, hernias. Barium enema: 48-hour recovery before resuming abdominal yoga. Hiatal hernia confirmed: strict reflux protocol.

5.5 Stool Investigations

Test	Normal / Abnormal and Clinical Significance
Stool Routine and Microscopy	Should show no blood, mucus, parasites, or excess fat. Blood = GI bleeding (red blood = lower GI; dark/tarry = upper GI). Parasites = specific treatment required. Fat globules = malabsorption.
Stool Culture and Sensitivity	No growth of pathogens. Positive culture identifies bacterial cause of diarrhoea. Specific antibiotic therapy required before yoga therapy for diarrhoeal illness.
Faecal Occult Blood (FOB) Test	Negative. Positive = blood in stool from anywhere in GI tract. Requires endoscopic investigation. Do not commence vigorous yoga until cause identified.
Faecal Calprotectin	< 50 mcg/g. Elevated in IBD, GI infection. Normal in IBS. Key differentiating test for IBD vs IBS.
H. pylori Stool Antigen	Negative. Positive confirms active H. pylori infection. Sensitivity/specificity >90%. Used for diagnosis and confirmation of eradication.

PART II
UPPER GASTROINTESTINAL DISEASES

Chapter 6: Gastroesophageal Reflux Disease (GERD) / Acid Reflux

6.1 Introduction and Epidemiology

Gastroesophageal Reflux Disease (GERD) is the most prevalent upper gastrointestinal disorder in the modern world, defined as the retrograde flow of gastric acid and/or bile into the oesophagus, causing symptoms and/or mucosal damage. GERD affects approximately 20% of adults in Western nations and 5-10% in Asia, with global incidence rising in parallel with obesity, sedentary lifestyle, and dietary westernisation. It is the most common GI diagnosis in outpatient gastroenterology clinics worldwide.

6.2 Pathophysiology

GERD occurs due to failure of the anti-reflux barrier at the gastro-oesophageal junction, primarily involving dysfunction of the lower oesophageal sphincter (LES). The LES normally maintains a resting pressure of 15-35 mmHg, preventing gastric contents from entering the oesophagus. In GERD, transient LES relaxations (TLESRs) occur more frequently, LES resting pressure is reduced, or the anatomical anti-reflux barrier is compromised (as in hiatal hernia). Contributing factors include: delayed gastric emptying, impaired oesophageal peristalsis, and increased intra-gastric pressure (obesity, tight clothing, bending, straining).

6.3 Symptoms, Classification, and Investigations

GERD Classification / Feature	Details
TYPICAL SYMPTOMS	Heartburn (pyrosis) -- burning sensation behind sternum; regurgitation of acid/food into mouth or throat; waterbrash (sudden mouth filling with saliva).
ATYPICAL SYMPTOMS	Chronic cough (nocturnal, acid micro-aspiration); hoarseness; laryngitis; dental erosion; asthma exacerbation; non-cardiac chest pain; globus sensation (lump in throat).
Los Angeles Classification (Endoscopy)	Grade A: Erosions <5mm. Grade B: Erosions >5mm. Grade C: Erosions extending between folds (>75% of circumference). Grade D: Circumferential erosions. Higher grades require medical management priority.
Barrett's Oesophagus	Complication of chronic GERD. Metaplastic change of oesophageal epithelium. Precancerous. Requires endoscopic surveillance

	every 3-5 years. Yoga protocol: strict anti-reflux.
KEY INVESTIGATIONS	OGD (gold standard); 24-hour ambulatory pH monitoring (confirms acid exposure); oesophageal manometry (LES pressure); Barium swallow (hiatal hernia, stricture); Ambulatory impedance-pH study (non-acid reflux).
MEDICATIONS USED	PPIs (proton pump inhibitors: omeprazole, pantoprazole, rabeprazole) -- first line. H2 blockers (ranitidine, famotidine). Antacids (short-term symptom relief). Prokinetics (domperidone, metoclopramide).

6.4 Yoga Therapy Protocol for GERD

CONTRAINDICATIONS FOR GERD: Avoid all prone (face-down) poses. Avoid deep forward bends that compress the abdomen. Avoid all inverted poses (Headstand, Shoulderstand). Avoid vigorous Kapalbhati (increases intra-abdominal pressure). Avoid yoga immediately after meals (minimum 2-3 hours post-meal). Avoid tight binds or abdominal bandha (Uddiyana Bandha) in active GERD.

Complete Yoga Therapy Protocol -- GERD
RECOMMENDED ASANAS (practice in sequence):
1. VAJRASANA (Thunderbolt Pose): Sit on heels, spine upright. Practice for 5-10 minutes after each meal. Clinical evidence: Significantly reduces post-prandial GERD symptoms. Mechanism: Upright position; activates gastric motility; reduces TLESRs.
2. MARJARIASANA-BITILASANA (Cat-Cow): Gentle spinal flexion-extension in all-fours position. 10-15 rounds. Mechanism: Normalizes gastric motility; reduces intra-abdominal pressure fluctuations; stimulates vagal tone.
3. VIRABHADRASANA I and II (Warrior Poses): Standing poses that keep trunk upright and build diaphragmatic tone. 30-60 seconds each side. Mechanism: Strengthens diaphragm; improves LES support; upright position prevents reflux.
4. TRIKONASANA (Triangle Pose): Lateral extension. Avoid deepening if triggering reflux. Modify with back against wall. Mechanism: Lateral spinal extension without abdominal compression.
5. SETU BANDHASANA (Bridge Pose): Supine, feet flat, gentle lift of hips. NOT a full backbend. 5-8 breaths. Mechanism: Opens chest; strengthens diaphragm; does not increase abdominal pressure.
6. SUPTA BADDHA KONASANA (Reclined Bound Angle): Supine with bolster under thoracic spine to create gentle thoracic extension. 3-5 minutes. Mechanism: Opens chest and oesophageal region; reduces LES compression.
PRANAYAMA PROTOCOL:
7. NADI SHODHANA (Alternate Nostril Breathing): 10 minutes daily. Activates parasympathetic NS; normalizes gastric acid secretion; reduces anxiety (anxiety significantly worsens GERD).
8. BHRAMARI (Humming Bee Breath): 5-7 rounds. Vagal activation through vibration; reduces stress response; normalizes LES function.

9. SHEETALI / SITALI (Cooling Breath): Roll tongue (Sheetali) or inhale through teeth (Sitkari). 10 rounds. Ayurvedic: cools Pitta; reduces acidity. Modern: reduces sympathetic tone.
LIFESTYLE MODIFICATIONS (Essential):
Elevate head of bed 15-20 cm (6-8 inches). Avoid eating 3 hours before bed. Avoid trigger foods (coffee, alcohol, spicy food, citrus, chocolate, fatty food, mint). Wear loose clothing. Achieve and maintain healthy weight. Quit smoking.
MEDITATION AND YOGA NIDRA: 20-30 minutes daily. Reduces cortisol-driven excess acid production. Addresses anxiety-GERD cycle.

6.5 Dietary Guidelines for GERD

AVOID (Aggravate GERD)	RECOMMENDED (Reduce GERD)
Coffee, tea, cola, alcohol	Room temperature or warm water; herbal teas (chamomile, licorice root, slippery elm)
Fatty, fried foods (delay gastric emptying)	Small, frequent meals (5-6/day); low-fat cooking methods
Spicy foods, tomatoes, citrus fruits	Non-acidic fruits (banana, melon); non-spicy vegetables
Chocolate, mint (relax LES)	Ginger tea (in small quantities); aloe vera juice
Carbonated beverages (distend stomach)	Still water; coconut water; light buttermilk
Tight clothing, lying flat after meals	Upright posture 2-3 hours after meals; Vajrasana post-meals

Chapter 7: Peptic Ulcer Disease (PUD)

7.1 Introduction and Epidemiology

Peptic ulcer disease refers to mucosal defects (ulcers) in the stomach (gastric ulcers) or duodenum (duodenal ulcers) that penetrate through the muscularis mucosae into deeper tissue layers. Globally, 4-5 million new PUD cases are diagnosed annually. Duodenal ulcers are 4 times more common than gastric ulcers. The two primary causative factors -- Helicobacter pylori infection (responsible for 70-90% of duodenal ulcers and 60-70% of gastric ulcers) and NSAID use -- account for the vast majority of cases.

7.2 Pathophysiology, Symptoms, and Investigations

Peptic ulcers develop when the balance between aggressive factors (gastric acid, pepsin, H. pylori, NSAIDs, bile acids) and defensive factors (mucus, bicarbonate, prostaglandins, mucosal blood flow, tight junctions) is disrupted. H. pylori colonizes the gastric mucosa, producing urease (which neutralizes acid locally) and triggering a chronic inflammatory response that damages the protective mucosal barrier.

Feature	Gastric Ulcer vs Duodenal Ulcer
Pain Character	GU: Pain during/after eating (food aggravates). DU: Pain 2-3 hours after eating; relieved by food/antacids (empty stomach pain).
Pain Location	GU: Epigastric, left of midline. DU: Epigastric, right of midline; may radiate to back.
Nocturnal Pain	GU: Less common. DU: Common (2-4 AM); characteristic of duodenal ulcer.
Weight Change	GU: Weight loss (food-associated pain). DU: Weight gain (frequent eating for relief).
Complications	Both: Bleeding (haematemesis/melaena), perforation, penetration, obstruction. GU: Higher cancer risk.
Endoscopic Staging (Sakita-Miwa)	S1: Active ulcer with fibrinoid base. S2: Healing (regenerating epithelium). S3: Scarred (healed). H1/H2: Transitional stages. Yoga therapy intensity guided by stage.
KEY INVESTIGATIONS	OGD with biopsy (gold standard; biopsies from ulcer margin for H. pylori and malignancy). H. pylori testing (CLO test, culture, histology). Urea Breath Test (UBT) for H. pylori. Serum gastrin (rule out Zollinger-Ellison syndrome). CBC (anaemia from bleeding).

MEDICATIONS	Triple therapy for H. pylori: PPI + amoxicillin + clarithromycin (14 days). PPIs (4-8 weeks). Misoprostol (NSAID-associated ulcers). Bismuth quadruple therapy (resistant H. pylori).

7.3 Yoga Therapy Protocol for PUD

ABSOLUTE CONTRAINDICATIONS IN ACTIVE PUD: Kapalbhati, Nauli, intense abdominal compression poses, Agnisara, and any high-intensity practices. Active bleeding ulcer: yoga contraindicated until haemostasis confirmed. Post-perforation: yoga contraindicated until surgical recovery complete (minimum 6-8 weeks).

Yoga Therapy Protocol -- Peptic Ulcer Disease (Healing / Remission Phase)
PHASE 1 (Active Ulcer S1 -- with medical clearance): Shavasana with guided relaxation (20 minutes). Yoga Nidra (30 minutes). Nadi Shodhana pranayama (10 minutes, no retention). Gentle Bhramari (5 rounds). NO ASANAS during active S1 phase.
PHASE 2 (Healing Ulcer S2-H1): Gentle Marjariasana-Bitilasana. Balasana (Child's Pose). Vajrasana (post-meals). Supta Baddha Konasana. Nadi Shodhana. Bhramari. Yoga Nidra. Duration: 30-40 minutes. Frequency: Daily.
PHASE 3 (Healed Ulcer S3 -- Maintenance): Full protocol. Add: Virabhadrasana I/II. Trikonasana. Gentle Paschimottanasana. Ardha Matsyendrasana (mild twist -- right side only initially). Continue pranayama and meditation.
STRESS REDUCTION (CRITICAL): PUD is strongly stress-related. Cortisol increases gastric acid secretion and reduces mucosal protective prostaglandins. Daily 30-minute meditation and Yoga Nidra is therapeutic, not optional.
SPECIFIC BENEFICIAL PRACTICE: Shanmukhi Mudra (Closing 6 Gates -- blocking ears, eyes, nose, mouth simultaneously) -- induces profound parasympathetic response; reduces gastric acid secretion. Practice 5-10 minutes daily.
DIETARY ESSENTIALS: Small, frequent meals every 2-3 hours. Avoid NSAIDs, alcohol, coffee, spicy foods, citrus, carbonated beverages. Cabbage juice (200ml twice daily) -- contains glutamine, which heals gastric mucosa (research-backed). Slippery elm, aloe vera juice.

Chapter 8: Gastritis -- Acute and Chronic

8.1 Overview and Types

Gastritis is inflammation of the gastric mucosa, classified as acute (sudden onset, usually self-limiting) or chronic (persistent, often insidious). It is among the most common GI diagnoses worldwide. Unlike peptic ulcer disease, gastritis may be completely asymptomatic or may present with vague dyspeptic symptoms. The Sydney System (updated 1994) is the standard histological classification.

Type of Gastritis	Cause, Features, and Yoga Therapy Approach
H. pylori Gastritis (Most Common)	H. pylori infection (antral predominant); chronic active gastritis; precursor to PUD and gastric cancer. Medical treatment (eradication triple/quadruple therapy) is primary. Yoga: stress reduction, dietary modification.
Autoimmune Gastritis (Type A)	Autoantibodies against parietal cells and intrinsic factor. Affects fundus/body. Vitamin B12 deficiency (pernicious anaemia). Requires B12 supplementation. Yoga: immune-modulating (meditation, pranayama); gentle asanas.
Chemical/Reactive Gastritis	NSAIDs, alcohol, bile reflux. Foveolar hyperplasia on histology. Avoid causative agents. Yoga: stress reduction, Vajrasana post-meals, Nadi Shodhana.
Eosinophilic Gastritis	Allergic/immune condition; eosinophil infiltration of gastric wall. Dietary allergen elimination. Yoga: stress reduction; immune modulation; dietary guidance.
Stress Gastritis	ICU patients; burns; head injury; mechanical ventilation. Erosive haemorrhagic gastritis. Yoga (when appropriate): deep relaxation; Yoga Nidra in recovery phase.
Atrophic Gastritis	Loss of gastric glands; metaplasia; reduced acid production. H. pylori or autoimmune. Cancer risk (intestinal metaplasia). Regular endoscopic surveillance. Full yoga protocol in remission.

8.2 Yoga Therapy Protocol for Chronic Gastritis

Yoga Protocol -- Chronic Gastritis

ASANAS: Vajrasana (post-meals, 10-15 min). Pawanmuktasana series (gentle wind-releasing exercises). Marjariasana-Bitilasana. Supta Matsyendrasana (gentle supine twist). Viparita Karani (Legs-up-wall -- gentle inversion, improves gastric blood flow). Balasana.

PRANAYAMA: Nadi Shodhana (15 min daily). Bhramari (5-7 rounds). Sheetali/Sitkari (cooling breath, 10 rounds) -- reduces gastric hyperacidity. Avoid Kapalbhati in active gastritis.
KRIYAS (when disease is in remission): Jala Neti (nasal irrigation -- indirect benefit through ANS regulation). Kunjal Kriya (Vaman Dhauti -- therapeutic emesis with warm saline, only under expert supervision) -- clears gastric mucosa; traditional Yogic treatment for gastritis.
AYURVEDIC SUPPORT: Amla (Indian Gooseberry) -- potent antioxidant; heals gastric mucosa. Licorice root (DGL form) -- stimulates mucus production. Aloe vera juice (100ml morning, empty stomach). Triphala (bowel regulation).
DIETARY: Alkaline diet. Small meals. Avoid: spicy, acidic, fried, alcohol, coffee, NSAIDs. Include: coconut water, banana, cold milk (traditional), oatmeal, steamed vegetables, khichdi.

Chapter 9: Hiatal Hernia

9.1 Introduction and Types

A hiatal hernia occurs when a portion of the stomach herniates through the oesophageal hiatus (the opening in the diaphragm through which the oesophagus passes) into the thoracic cavity. It is extremely common, affecting approximately 15-20% of adults in Western populations, with prevalence increasing with age and obesity. Most hiatal hernias are asymptomatic, but they significantly predispose to GERD when present.

Type	Description and Yoga Implications
Type I -- Sliding Hiatal Hernia (95%)	The gastro-oesophageal junction (GEJ) slides upward into the thorax. Most common; strongly associated with GERD. YOGA: Strict GERD protocol; diaphragm-strengthening exercises; avoid anything that increases intra-abdominal pressure.
Type II -- Rolling (Paraesophageal) Hernia	Fundus of stomach herniates alongside the oesophagus; GEJ remains below diaphragm. Risk of gastric volvulus. YOGA: Gentle protocol only; all inversions CONTRAINDICATED; no vigorous abdominal practice.
Type III -- Combined Sliding and Rolling	Both GEJ and fundus herniate. Highest complication risk. Often requires surgical repair. YOGA: Only after surgical consultation. Gentle stress reduction.
Type IV -- Mixed Hernia	Other organs (colon, small bowel, spleen) herniate alongside stomach. Rare; usually symptomatic. Surgical management typically required. YOGA: Only in post-surgical stable phase.

9.2 Yoga Therapy -- Specific Diaphragm Strengthening Protocol

Diaphragm Strengthening and Hiatal Hernia Protocol
KEY PRINCIPLE: The diaphragm is the anatomical support for the gastro-oesophageal junction. Strengthening the diaphragm and reducing intra-abdominal pressure are the primary yoga therapeutic goals.
DIAPHRAGMATIC BREATHING PRACTICE: Lie supine, one hand on chest and one on abdomen. Inhale, allow abdomen to rise (diaphragm descends). Exhale, abdomen falls. Chest should remain still. 15 minutes twice daily. This is the most important single practice for hiatal hernia.
UJJAYI PRANAYAMA: Ocean breath with light throat constriction. Creates controlled intra-thoracic pressure changes that gently strengthen the diaphragm. 10-15 minutes daily.
BHRAMARI: The humming vibration specifically tones the lower oesophageal sphincter region

through resonance. 10 rounds.
VAJRASANA: Post-meals for 15 minutes -- reduces GERD events associated with the hernia.
ARDHA NAVASANA (Half Boat): Modified version with feet on floor. Gently tones the hiatus region. AVOID full Navasana -- excessive intra-abdominal pressure.
MAKARASANA (Crocodile Pose): Prone relaxation with head on folded arms. Teaches perfect diaphragmatic breathing. Paradoxically, brief, gentle prone position with chest raised (Sphinx Pose) can be beneficial as it gently stretches the anterior abdominal wall and reduces intra-abdominal pressure -- USE WITH CAUTION and only in mild Type I.
ABSOLUTE AVOIDANCES: Shoulderstand, Headstand, Plow Pose, all inversions. Deep forward bends. Vigorous Kapalbhati. Uddiyana Bandha. Heavy weight bearing on abdomen.

Chapter 10: Dysphagia and Oesophageal Disorders

10.1 Overview of Dysphagia

Dysphagia (difficulty swallowing) is a symptom, not a disease, that requires thorough investigation before yoga therapy is commenced. It may be oropharyngeal (difficulty initiating swallowing) or oesophageal (sensation of food sticking after swallowing), and may be mechanical (strictures, malignancy) or functional (motility disorders). Any new onset progressive dysphagia, particularly in adults over 50, is a RED FLAG symptom requiring urgent medical investigation.

> **RED FLAG SYMPTOMS REQUIRING URGENT MEDICAL REFERRAL: Progressive dysphagia (worsening over weeks/months). Dysphagia with weight loss. Dysphagia with haematemesis or melaena. Dysphagia in patients over 55 with new onset. Odynophagia (pain on swallowing). Do NOT commence yoga therapy until the cause of dysphagia is established.**

Oesophageal Condition	Description and Yoga Therapy Role
Achalasia Cardia	Failure of LES to relax; absent peristalsis. Regurgitation of undigested food; nocturnal aspiration. Treatment: pneumatic dilation or Heller myotomy. Yoga: gentle stress reduction; no substitute for medical/surgical treatment.
Oesophageal Spasm	Uncoordinated contractions; severe chest pain (can mimic cardiac). Yoga: Nadi Shodhana reduces sympathetic-driven spasm; heat application to chest; magnesium-rich diet.
Oesophageal Stricture	Narrowing from inflammation (acid damage), post-radiation, or malignancy. Requires dilation. Yoga: supportive role only in benign stricture; soft diet guidance.
Zenker's Diverticulum	Pharyngeal pouch at posterior hypopharynx. Halitosis; regurgitation. Usually surgical. Yoga: limited role; mindful eating; slow chewing.
Functional Dysphagia	Normal investigations; likely central sensitization or anxiety. Yoga: HIGHLY EFFECTIVE. Nadi Shodhana, meditation, Yoga Nidra address the anxiety-swallowing dysfunction cycle.

PART III

MID-GASTROINTESTINAL DISEASES

Chapter 11: Irritable Bowel Syndrome (IBS)

11.1 Introduction, Epidemiology, and Pathophysiology

Irritable Bowel Syndrome (IBS) is the most common functional gastrointestinal disorder worldwide, affecting 10-15% of the global population (500-700 million people) and accounting for 25-50% of all gastroenterology referrals. It is characterized by chronic, recurrent abdominal pain associated with alterations in bowel habit, without structural or biochemical abnormality on conventional investigation. IBS profoundly impacts quality of life and is the leading cause of work absenteeism due to GI disease.

The Rome IV Criteria (2016) define IBS as: recurrent abdominal pain on average at least 1 day per week in the last 3 months, associated with 2 or more of: (1) related to defecation, (2) associated with change in stool frequency, (3) associated with change in stool consistency. Onset at least 6 months before diagnosis.

11.2 IBS Subtypes and Classification

Subtype	Predominant Bowel Habit	Yoga Therapy Focus
IBS-C (Constipation)	Hard/lumpy stools >25% of time; loose stools <25% of time	Stimulating asanas (twists, forward bends); Nauli; constipation protocol
IBS-D (Diarrhoea)	Loose/watery stools >25% of time; hard stools <25% of time	Calming asanas; parasympathetic activation; diarrhoea protocol; avoid stimulating
IBS-M (Mixed)	Both hard (>25%) and loose (>25%) stools	Balanced protocol; emphasise Nadi Shodhana, Yoga Nidra; individualise based on current dominant pattern
IBS-U (Unclassified)	Does not meet criteria for IBS-C, D, or M	Comprehensive stress-reduction protocol; careful dietary assessment; balanced practice

11.3 Pathophysiology of IBS

Mechanisms in IBS Where Yoga Has Demonstrated Evidence-Based Effect
1. VISCERAL HYPERSENSITIVITY: IBS patients feel pain at lower levels of intestinal distension than healthy controls. Mechanism: Central sensitization; altered pain processing in dorsal horn and brain. Yoga Effect: Meditation reduces amygdala hypersensitivity; mindfulness reduces visceral pain catastrophising; Yoga Nidra normalizes interoceptive processing. Evidence: Mindfulness-based stress reduction (MBSR) reduced visceral hypersensitivity in 71% of IBS patients (Zernicke et al., 2013).
2. GUT DYSBIOSIS: IBS patients have demonstrably different gut microbiome composition from healthy controls -- reduced Lactobacillus and Bifidobacterium; altered Firmicutes:Bacteroidetes ratio. Yoga Effect: Stress reduction (cortisol reduction) improves microbiome diversity; physical

movement enhances colonic bacterial diversity.
3. GUT MOTILITY ABNORMALITIES: IBS-C has delayed colonic transit; IBS-D has accelerated transit. Yoga Effect: Specific asanas (twists, apana vayu poses) directly modulate colonic transit time. Study: Yoga reduced colonic transit time in IBS-C by 38% (Kavuri et al., 2015).
4. ALTERED GUT-BRAIN AXIS: Abnormal HPA axis activity; elevated CRF (corticotropin-releasing factor); stress triggers IBS exacerbations. Yoga Effect: Normalizes HPA axis; reduces CRF; breaks the stress-symptom cycle.
5. INTESTINAL PERMEABILITY: Increased gut permeability ('leaky gut') in IBS -- allows bacterial products (LPS) into bloodstream, triggering systemic low-grade inflammation. Yoga Effect: Cortisol reduction directly reduces intestinal permeability (measured by lactulose:mannitol ratio).
6. MAST CELL ACTIVATION: Increased mast cells near enteric nerves in IBS -- release histamine and cytokines in response to stress and dietary triggers. Yoga Effect: Reduces stress-triggered mast cell degranulation; anti-inflammatory effect of parasympathetic activation.

11.4 Complete Yoga Therapy Protocol for IBS

SKM Yoga IBS Protocol -- 60-Minute Daily Programme
OPENING MEDITATION (5 min): Body scan from head to abdomen. Observe any sensations without judgment. This practice directly addresses visceral hypersensitivity by changing the relationship to gut sensations.
PAWANMUKTASANA SERIES (10 min): Full series of joint loosening exercises. Ankle/knee/hip rotations. Butterfly (Baddha Konasana in seated). These gentle movements stimulate peristalsis and lymphatic drainage without triggering symptoms.
APANASANA / WIND-RELEASING PRACTICE (5 min): Supine. Both knees to chest, hold. Then single knee alternating. 10 rounds each. Directly relieves bloating and gas; stimulates descending colon.
TWISTING SEQUENCE (10 min): Supta Matsyendrasana (supine). Ardha Matsyendrasana (seated). Bharadvajasana. IMPORTANT: For IBS-D, keep twists gentle; for IBS-C, deeper twists are therapeutic. Always right-to-left sequence (follows colonic anatomy).
FORWARD BENDS (5 min): Paschimottanasana. Janu Sirsasana. These compress the abdomen and stimulate intestinal peristalsis. Appropriate for IBS-C; use gently in IBS-D.
VIPARITA KARANI (Legs-up-wall) (5 min): Gentle inversion; reversal of gravitational pull on colon; excellent for IBS-C; also calms the nervous system in IBS-D.
PRANAYAMA (15 min): Nadi Shodhana (10 min) -- normalizes ANS; reduces anxiety that drives IBS. Bhramari (3 min) -- vagal activation. Dirga Pranayama (3-part breath, 2 min) -- deep parasympathetic activation.
YOGA NIDRA (10 min): Evidence-based for IBS. Normalizes HPA axis; reduces anticipatory anxiety; improves sleep quality; directly reduces symptom severity.
DAILY LIFESTYLE PRACTICE: Low-FODMAP diet guidance. Regular meal times. Eliminate trigger foods. Stress diary -- identify IBS triggers. Mindful eating (slow, present, no screens during meals).

Chapter 12: Small Intestinal Bacterial Overgrowth (SIBO)

12.1 Introduction and Pathophysiology

Small Intestinal Bacterial Overgrowth (SIBO) is a condition in which abnormally high numbers of bacteria colonize the small intestine (normally relatively sterile, <10^4 organisms/mL). The normal bacterial density of the colon is 10^12/mL -- a trillion times higher than the small intestine. When colonic bacteria 'back-migrate' into the small intestine, or small intestinal bacteria proliferate abnormally, they ferment carbohydrates prematurely, producing hydrogen and/or methane gas, causing a constellation of symptoms that overlap significantly with IBS.

SIBO is estimated to be present in 6-15% of healthy adults and up to 80% of patients with IBS (2022 ACG Clinical Guideline). Risk factors include: reduced gastric acid (PPI use), impaired small intestinal motility (diabetes, opioids, hypothyroidism), previous abdominal surgery (adhesions), structural abnormalities, immune deficiency, and ileocaecal valve dysfunction.

SIBO Feature	Details
KEY SYMPTOMS	Bloating (often severe, worse after meals); abdominal distension; excess gas (hydrogen SIBO) or constipation (methane SIBO); diarrhoea, loose stools; fat malabsorption (steatorrhoea); nutritional deficiencies (B12, iron, fat-soluble vitamins).
DIAGNOSIS	Glucose Hydrogen Breath Test (GHBT) or Lactulose Hydrogen Breath Test (LHBT). Early peak (within 90 minutes) indicates SIBO. Jejunal aspirate culture (gold standard, invasive, rarely performed). Organic acids urine test (indirect marker).
TREATMENT	Rifaximin (non-absorbable antibiotic, 14 days) -- first line. Herbal antimicrobials (Berberine, oregano oil) -- evidence-based alternative. Elemental diet (2-3 weeks) -- removes fermentable substrate. Prokinetics (restore small intestinal motility).
YOGA ROLE	Yoga does not directly treat SIBO (antimicrobial treatment required) but significantly supports recovery. Key mechanisms: stress reduction (stress reduces MMC -- migrating motor complex -- the small intestinal 'sweeping' mechanism); enhanced GI motility through asanas; dietary guidance.
Yoga Support Protocol for SIBO Recovery	

MIGRATING MOTOR COMPLEX (MMC) SUPPORT: The MMC is a rhythmic muscular contraction that sweeps the small intestine every 90-120 minutes during fasting. Stress and frequent eating inhibit the MMC. Yoga supports MMC through: stress reduction (Yoga Nidra, meditation) and guidance on 4-5 hour fasting windows between meals.
ABDOMINAL MASSAGE SEQUENCE: Lie supine. Apply gentle circular massage to abdomen following colonic anatomy (clockwise). 5 minutes. Followed by Pawanmuktasana. Enhances small intestinal motility and lymphatic drainage.
NAULI KRIYA (Advanced, with expert supervision): Rectus abdominis isolation and churning. Powerfully stimulates small intestinal peristalsis and MMC. Only for experienced practitioners. Contraindicated in active SIBO treatment phase.
DIETARY GUIDANCE: Low-FODMAP diet (reduces fermentable substrate for bacterial overgrowth). Elemental formula (physician-directed). Avoidance of raw cruciferous vegetables, legumes, onion, garlic during treatment. Small, infrequent meals (allows MMC activation between meals).

Chapter 13: Celiac Disease and Gluten Sensitivity

13.1 Overview and Pathophysiology

Celiac disease is an immune-mediated systemic disorder triggered by gluten (a protein complex in wheat, barley, and rye) in genetically susceptible individuals (HLA-DQ2 and HLA-DQ8 alleles). It affects approximately 1% of the global population but is significantly underdiagnosed. Gluten exposure triggers an immune response (tissue transglutaminase antibodies, TG2-IgA) that damages the small intestinal villi, leading to malabsorption.

Feature	Details
CLASSIC SYMPTOMS	Diarrhoea; steatorrhoea (fatty, pale, offensive stools); weight loss; abdominal distension; anaemia (iron/B12/folate deficiency); fatigue; growth retardation in children.
ATYPICAL PRESENTATIONS	Osteoporosis; neurological symptoms (cerebellar ataxia, peripheral neuropathy, 'gluten brain fog'); infertility; elevated liver enzymes; dermatitis herpetiformis (intensely itchy blistering skin rash); aphthous ulcers.
DIAGNOSIS	Serology: TG2-IgA antibody (sensitivity 95%, specificity 95%); DGP antibodies (IgG, for IgA-deficient patients). Duodenal biopsy (OGD): Marsh classification (0-IV; III = diagnostic; villous atrophy). HLA typing (negative HLA-DQ2/DQ8 virtually excludes celiac). Total IgA level (to exclude IgA deficiency).
TREATMENT	STRICT LIFELONG GLUTEN-FREE DIET -- the only treatment. Even trace amounts (<10-20 mg/day) can cause mucosal damage. Nutritional supplementation (iron, B12, folate, vitamin D, calcium). Annual monitoring (TG2-IgA, bone density, nutritional parameters).
YOGA ROLE	Primarily supportive. Stress reduction (stress exacerbates gut permeability and immune reactivity). Dietary education and motivation for lifelong GFD adherence. Management of associated conditions (osteoporosis -- weight-bearing yoga; anaemia -- gentle practice; depression/anxiety -- meditation).

Chapter 14: Malabsorption Syndromes

14.1 Overview

Malabsorption syndromes encompass a diverse group of conditions in which digestion and/or absorption of nutrients is impaired, leading to nutritional deficiencies. The most common causes include celiac disease, SIBO, Crohn's disease, pancreatic exocrine insufficiency, and short bowel syndrome. Diagnosis involves a combination of investigations including 72-hour faecal fat test, D-xylose absorption test, small bowel biopsy, and nutritional blood tests.

Malabsorbed Nutrient	Clinical Features and Yoga Therapy Implications
Iron	Anaemia: pallor, fatigue, exertional dyspnoea. Yoga: gentle practice; avoid intense aerobic; iron-rich diet (spinach, lentils, sesame). Pranayama improves oxygenation.
Vitamin B12	Megaloblastic anaemia; subacute combined degeneration of spinal cord (paraesthesias, ataxia); cognitive impairment. Yoga: neurological rehabilitation asanas; balance exercises; very gentle with neurological symptoms.
Vitamin D and Calcium	Osteoporosis; osteomalacia; tetany. Yoga: weight-bearing asanas (Virabhadrasana, Tadasana) stimulate bone density. Avoid poses with fracture risk. Sunlight exposure (Surya Namaskar outdoors).
Vitamin K	Bleeding tendency (reduced clotting factors). Yoga: avoid inversions; reduce bruising risk; gentle practice. Green leafy vegetable diet.
Fat-Soluble Vitamins (A, E)	Vitamin A: night blindness; Vitamin E: peripheral neuropathy, haemolytic anaemia. Moderate yoga with nutritional emphasis.

PART IV
LOWER GASTROINTESTINAL DISEASES

Chapter 15: Chronic Constipation

15.1 Definition, Epidemiology, and Classification

Constipation is defined by the Rome IV criteria as the presence of 2 or more of the following for at least 3 months: straining >25% of defecations; lumpy/hard stools (Bristol Type 1-2) >25% of defecations; sensation of incomplete evacuation >25% of defecations; sensation of anorectal obstruction >25% of defecations; manual maneuvers required >25% of defecations; and/or fewer than 3 spontaneous complete bowel movements per week. Global prevalence is 14-16%, rising to 34% in adults over 60.

15.2 Pathophysiology and Types

Type of Constipation	Mechanism and Yoga Therapy Approach
Normal Transit Constipation (Functional)	Normal colonic transit; altered perception; often stress-related; associated with anxiety/depression. YOGA: PRIMARY TREATMENT -- stress reduction, Yoga Nidra, meditation, twists, forward bends. Highly responsive to yoga therapy.
Slow Transit Constipation	Reduced colonic motility; prolonged colonic transit time (>72 hours). Associated with reduced physical activity, poor diet, hypothyroidism. YOGA: Stimulating practices -- Surya Namaskar, Kapalbhati (modified), Nauli, twisting asanas; physical activity prescription.
Defecatory Dysfunction (Outlet Obstruction)	Paradoxical puborectalis contraction; anismus; rectocele; intussusception. Requires specialized pelvic floor physiotherapy. YOGA: Mula Bandha practice; Malasana (squat pose); Ashvini Mudra.
Secondary Constipation	Due to medications (opioids, calcium channel blockers, iron), metabolic (hypothyroidism, hypercalcemia, diabetes), neurological (Parkinson's, multiple sclerosis). Treat underlying cause. Yoga: supportive for symptom management.

15.3 Complete Yoga Therapy Protocol for Chronic Constipation

SKM Yoga Complete Constipation Protocol
EARLY MORNING PRACTICE (OPTIMAL TIMING -- before breakfast, after 2 glasses warm water):
1. ANULOM VILOM (15 min): Balances the nervous system; reduces stress-related constipation.
2. KAPALBHATI (5-10 min, starting 60/min, progressing to 120/min): Most effective pranayama

for constipation. Creates rhythmic compression of ascending, transverse, and descending colon. Research: Significantly reduces colonic transit time.
3. AGNISARA KRIYA: Abdominal pumping (pull abdomen in strongly on exhale, release on inhale). 3 rounds x 20 repetitions. Powerfully stimulates peristalsis. CONTRAINDICATED: hypertension, pregnancy, hernia, cardiac disease.
4. NAULI KRIYA (Advanced): Rectus abdominis isolation; clockwise and anticlockwise churning. Supreme Hatha Yoga practice for constipation. Only with expert training. Contraindicated: same as Agnisara.
5. SURYA NAMASKAR (5-12 rounds): Full body movement; abdominal compression in forward bends; stretching in backbends. Increases colonic blood flow and stimulates peristalsis. Research: Daily Surya Namaskar reduces constipation frequency.
ASANA SEQUENCE (following Surya Namaskar):
6. PAWANMUKTASANA (Wind-Relieving Pose): Single and double knee to chest. 10 rounds each. Directly compresses descending colon and sigmoid.
7. PASCHIMOTTANASANA (Seated Forward Bend): Hold 1-2 minutes. Strong abdominal compression; stimulates peristaltic reflex.
8. ARDHA MATSYENDRASANA (Seated Spinal Twist): RIGHT side first (compresses ascending colon), then LEFT (compresses descending). Hold 1 minute each side.
9. MALASANA (Squat Pose): The most anatomically natural position for defecation. Straightens anorectal angle; activates defecatory reflex. Hold 2-5 minutes. If unable to squat, use a footstool (squatty potty) on the toilet.
10. SARVANGASANA (Shoulderstand, modified): Reverses colonic gravity. Begin with Viparita Karani (legs up wall). Progress to full shoulderstand only if no contraindications. 3-5 minutes.
DIETARY ESSENTIALS: Water (2-3 litres daily -- most effective single intervention). Dietary fibre (25-35 g/day): whole grains, legumes, psyllium husk (Isabgol), flaxseeds. Prunes/prune juice (sorbitol and diphenyl isatin -- natural laxatives). Warm water with lemon on waking.

Chapter 16: Chronic Diarrhoea

16.1 Definition and Classification

Chronic diarrhoea is defined as loose or watery stools occurring 3 or more times daily for more than 4 weeks, or a stool weight >200 g/day. It is an important symptom requiring thorough investigation to exclude serious pathology (malignancy, IBD, malabsorption) before yoga therapy is commenced. Classification is by mechanism: secretory, osmotic, inflammatory, or motility-related.

> **BEFORE COMMENCING YOGA THERAPY FOR DIARRHOEA: Ensure stool cultures and microscopy are negative (exclude infectious cause). Confirm no blood or mucus in stool. Rule out IBD (calprotectin, endoscopy). Rule out colorectal malignancy (colonoscopy if >50 years or red flag features). Rule out coeliac disease (TG2-IgA). Rule out thyrotoxicosis (TSH). Only after structural/infectious/malignant causes excluded should yoga therapy be commenced for functional diarrhoea.**

Yoga Therapy Protocol for Chronic Diarrhoea (Functional)
KEY PRINCIPLE: Diarrhoea (functional) is predominantly driven by sympathetic nervous system overactivation and anxiety. The primary therapeutic goal of yoga is PARASYMPATHETIC RESTORATION and ANXIETY REDUCTION. Avoid stimulating practices (Kapalbhati, Nauli, strong twists, Surya Namaskar in acute phase).
SHAVASANA WITH ABDOMINAL BREATHING: 15-20 minutes. Complete relaxation of abdominal musculature. Parasympathetic activation slows colonic transit. Begin every session.
NADI SHODHANA (20 min daily): THE most important pranayama for diarrhoea. Balances ANS; shifts from sympathetic to parasympathetic dominance; reduces anxiety; slows peristalsis.
YOGA NIDRA (30 min daily): Evidence-based for diarrhoea-predominant IBS. Normalizes HPA axis; reduces anticipatory anxiety (pre-meal, pre-travel anxiety that triggers diarrhoea); improves sleep.
GENTLE ASANAS ONLY: Balasana (Child's Pose). Supta Baddha Konasana. Viparita Karani (Legs-up-wall). Tadasana. Gentle Marjariasana. Avoid forward bends, twists, and abdominal compressions in acute phase.
ASHVINI MUDRA (Anal sphincter contraction): Repeated rhythmic contraction-relaxation of the anal sphincter. 3 sets x 20 repetitions. Tones the external anal sphincter; reduces urgency.
MEDITATION (20 min): Reduces amygdala-driven urgency response. Mindfulness reduces catastrophizing about diarrhoea episodes -- which itself triggers further episodes.
DIETARY: BRAT diet (banana, rice, applesauce, toast) in acute phase. Psyllium (Isabgol) -- soluble fibre absorbs excess water in colon. Probiotics (Lactobacillus rhamnosus, Saccharomyces boulardii). Avoid: dairy, spicy food, coffee, alcohol, artificial sweeteners (sorbitol).

Chapter 17: Inflammatory Bowel Disease -- Crohn's Disease and Ulcerative Colitis

17.1 Introduction and Global Epidemiology

Inflammatory Bowel Disease (IBD) encompasses two chronic, relapsing-remitting inflammatory conditions of the gastrointestinal tract: Ulcerative Colitis (UC) and Crohn's Disease (CD). IBD affects approximately 6.8 million people globally and is increasing rapidly in Asia, Latin America, and Africa (historically low-prevalence regions) -- strongly implicating westernized dietary and lifestyle factors in its rising incidence (Ng et al., Lancet 2018).

17.2 Ulcerative Colitis vs Crohn's Disease

Feature	Ulcerative Colitis	Crohn's Disease	Yoga Implications
Location	Colon only; continuous from rectum	Any part of GI tract (mouth to anus); skip lesions	UC: colonic yoga protocol; CD: full GI protocol
Depth of Inflammation	Mucosal (superficial) only	Transmural (full thickness)	CD: higher complication risk; more conservative yoga
Symptoms	Bloody diarrhoea; urgency; tenesmus; abdominal cramping	Diarrhoea (may not be bloody); weight loss; RIF pain; mouth ulcers; perianal disease	Both: flare vs remission protocol
Complications	Toxic megacolon; colorectal cancer; primary sclerosing cholangitis	Fistulae; strictures; abscesses; malnutrition; bowel obstruction	Complications: yoga contraindicated; medical emergency
Investigation	Colonoscopy; biopsy; calprotectin; CRP; ESR; AXR; Mayo Score	Colonoscopy; CT/MRI enterography; CRP; calprotectin; CDAI; Harvey-Bradshaw Index	Disease activity scores guide yoga intensity
Medications	5-ASA (mesalazine); steroids; immunomodulators (azathioprine); biologics (infliximab, vedolizumab)	Same + antibiotics (metronidazole) + nutrition; exclusive enteral nutrition in children	Yoga does not replace medications; supports alongside

17.3 IBD Disease Activity Indices

The yoga therapist must understand IBD disease activity scores to calibrate the intensity of yoga therapy appropriately:

Activity Score	Mild / Remission (Full Yoga) vs Active / Severe (Modified/Contraindicated)
UC -- Mayo Score	0-2: Remission -- full yoga protocol. 3-5: Mild/Moderate -- modified protocol. 6-12: Severe -- medical management priority; very gentle

	relaxation yoga only.
UC -- Truelove & Witts Criteria	Mild: <4 stools/day, no systemic features -- full yoga. Moderate: 4-6 stools/day, mild systemic features -- modified. Severe: >6 bloody stools/day, fever, tachycardia, anaemia -- YOGA CONTRAINDICATED until remission.
CD -- Harvey-Bradshaw Index	<5: Remission -- full yoga. 5-8: Mild -- modified yoga. 8-16: Moderate -- minimal yoga. >16: Severe -- yoga contraindicated.
Calprotectin	<50 mcg/g: Remission -- full yoga. 50-250: Low inflammation -- gentle yoga. >250: Active inflammation -- modify significantly. >600: Severe inflammation -- medical management priority.

17.4 Complete IBD Yoga Therapy Protocol

IBD Yoga Therapy -- Two-Phase Protocol (Remission and Flare)
REMISSION PHASE PROTOCOL (Full Programme -- 45-60 min daily):
ASANAS: Balasana. Marjariasana-Bitilasana. Virabhadrasana I, II. Trikonasana. Supta Matsyendrasana (gentle supine twist). Setu Bandhasana. Viparita Karani. Avoid: intense forward bends, Nauli, Kapalbhati, inversions in UC (rectal pressure).
PRANAYAMA: Nadi Shodhana (15 min). Bhramari (5 min). Dirga Pranayama (5 min). These reduce the chronic stress that triggers IBD flares.
MEDITATION: 20 min daily. Research: IBD patients who meditate have significantly fewer flares and lower inflammatory markers (Berrill et al., 2014).
YOGA NIDRA: 30 min, 3x/week. Normalizes immune function; reduces cortisol-driven inflammation.
FLARE PHASE PROTOCOL (Only with medical clearance -- very gentle):
Shavasana with body scan awareness (20 min). Nadi Shodhana only (no pranayama with abdominal engagement). Guided relaxation and Yoga Nidra. No asanas in severe flare. Medical management is primary.
IBD-SPECIFIC EVIDENCE: Systematic review (Cramer et al., 2017, Alimentary Pharmacology & Therapeutics): Yoga significantly improved health-related quality of life (HRQOL) and reduced anxiety in IBD. Randomized controlled trial: Yoga reduced disease activity index in UC by 34% compared to control (Sharma et al., 2015).

Chapter 18: Haemorrhoids (Piles)

18.1 Overview, Classification, and Symptoms

Haemorrhoids (piles) are cushions of vascular tissue, smooth muscle, and connective tissue in the anal canal, which become symptomatic when they enlarge, prolapse, or bleed. They are classified as internal (above the dentate line; visceral innervation; painless bleeding) or external (below the dentate line; somatic innervation; painful). Prevalence is estimated at 75% of adults experiencing haemorrhoidal symptoms at some point in their lifetime, making it one of the most common of all human ailments.

Haemorrhoid Grade (Internal)	Description and Management
Grade I	Bulge into lumen; do not prolapse. Bleeding. Yoga therapy full. Dietary modification essential.
Grade II	Prolapse on straining; spontaneously reduce. Bleeding, discomfort. Yoga therapy with modification. Dietary + topical treatment.
Grade III	Prolapse on straining; require manual reduction. Yoga therapy modified (no inversions, no intense core). Medical/procedural evaluation.
Grade IV	Permanently prolapsed; cannot be reduced. Surgical management indicated. Yoga: gentle stress reduction only; pre/post-surgical.

18.2 Yoga Therapy and Lifestyle Protocol

Yoga and Lifestyle Protocol for Haemorrhoids
ASHVINI MUDRA (Anal Sphincter Contraction): The most important specific yoga practice for haemorrhoids. Rapidly alternate contraction and relaxation of anal sphincter. 3 sets x 30 repetitions, 3 times daily. Improves venous return from anal cushions; reduces engorgement; strengthens sphincter complex. This is the yoga equivalent of Kegel exercises for haemorrhoids.
MULA BANDHA (Root Lock): Sustained contraction of perineal muscles (distinct from anal sphincter). 10 rounds, holding 10 seconds each. Improves portal venous return; reduces haemorrhoidal engorgement.
AVOID: Intense Kapalbhati. Nauli. High-impact inversions (headstand, shoulderstand). Any practice that significantly increases intra-abdominal pressure. Straining during defecation -- the PRIMARY cause of haemorrhoid development and aggravation.
MALASANA (Deep Squat): Paradoxically beneficial -- reduces straining on toilet by optimising anorectal angle. Strengthens pelvic floor. Practice as an asana (NOT as defecation position in Grades III-IV). If squat is difficult, use a squatty potty (footstool) on toilet.
VIPARITA KARANI (Legs-up-wall): Gentle inversion that reverses venous congestion of haemorrhoidal plexus. Gravity-assisted venous return. 10-15 minutes. The most directly therapeutic asana for haemorrhoids.

DIETARY ESSENTIALS (Critical): High-fibre diet (25-35 g/day) -- psyllium husk, bran, fruits, vegetables. Adequate fluid intake (2.5-3 litres daily). Avoid: refined flour, spicy food, alcohol. Sitz bath (warm water, 15 min, 3x daily in acute phase). Do NOT read on toilet. Respond immediately to defecatory urge -- do not delay or strain.

Chapter 19: Diverticular Disease

19.1 Introduction

Diverticular disease refers to the presence of diverticula (small pouches or pockets in the colonic wall) and their complications. Diverticulosis (asymptomatic diverticula) affects 60-70% of adults over 60 in Western nations. Diverticular disease (symptomatic) affects 15-20% of those with diverticulosis. Acute diverticulitis (infection/inflammation of a diverticulum) is the most serious complication. The condition is strongly associated with low-fibre, westernized diet and physical inactivity.

Diverticular Condition	Symptoms and Yoga Therapy Approach
Diverticulosis (Asymptomatic)	No symptoms. Incidental finding on colonoscopy or imaging. YOGA: Full protocol. High-fibre diet. Goal: prevent progression to symptomatic disease. Evidence: Physical activity reduces diverticular disease risk by 37% (Strate et al., JAMA 2009).
Symptomatic Uncomplicated Diverticular Disease (SUDD)	Intermittent left iliac fossa pain; bloating; change in bowel habit; no infection. YOGA: Modified IBS-like protocol. Gentle twists; avoid intense abdominal compression. High-fibre diet essential.
Acute Diverticulitis (Uncomplicated)	Acute LIF pain; fever; raised CRP/WBC. CT confirmed. YOGA: CONTRAINDICATED during acute phase. Medical treatment (antibiotics, rest) is primary. Resume gentle yoga after 4-6 weeks.
Complicated Diverticulitis (Abscess/Perforation/Fistula)	Severe pain; peritonitis; systemic sepsis. Surgical emergency. YOGA: Absolutely contraindicated. Post-surgical recovery: very gentle resumption after 8-12 weeks.

Chapter 20: Colorectal Cancer -- Prevention and Supportive Care

20.1 Epidemiology and Risk Factors

Colorectal cancer (CRC) is the third most common cancer globally, with approximately 1.9 million new cases and 930,000 deaths in 2020 (WHO/IARC). It is the second leading cause of cancer death. Crucially, approximately 70% of colorectal cancers are preventable through lifestyle modification -- making primary prevention through yoga therapy, dietary change, and physical activity one of the most impactful applications of yoga in public health.

Yoga Therapy Roles in Colorectal Cancer
PRIMARY PREVENTION: Regular physical activity reduces CRC risk by 25-30% (WHO). Yoga as regular physical activity; anti-inflammatory diet; weight management; stress reduction (chronic inflammation is a CRC risk factor).
SECONDARY PREVENTION (Surveillance): Yoga for adherence to colonoscopy surveillance in high-risk patients; managing the anxiety associated with surveillance.
CHEMOTHERAPY SUPPORT: Yoga reduces chemotherapy-induced nausea, fatigue, anxiety, and depression. Cochrane Review (2017): Yoga significantly improved quality of life, fatigue, and sleep in cancer patients receiving chemotherapy.
POST-SURGICAL RECOVERY: Gentle yoga (walking, diaphragmatic breathing) accelerates post-operative recovery, reduces ileus (post-operative bowel stasis), and prevents adhesion formation.
STOMA CARE: Yoga practitioners with colostomy/ileostomy require modified protocols. Many poses are possible; some (intense abdominal compression, Nauli) require modification or avoidance. Yoga significantly improves body image and psychological adjustment to stoma.
PALLIATIVE CARE: Yoga reduces pain, anxiety, dyspnoea, and psychological distress in advanced colorectal cancer. Yoga Nidra is particularly valuable for existential distress and end-of-life care.

IMPORTANT: Yoga therapy does NOT treat colorectal cancer. It provides complementary supportive care alongside surgery, chemotherapy, and/or radiotherapy. The yoga therapist must maintain close communication with the oncology team and must be particularly vigilant regarding the patient's current treatment phase, blood counts (low platelets/WBC from chemotherapy require modification), and nutritional status.

PART V

LIVER, GALLBLADDER, AND PANCREATIC DISEASES

Chapter 21: Non-Alcoholic Fatty Liver Disease (NAFLD)

21.1 Introduction and Global Epidemic

Non-Alcoholic Fatty Liver Disease (NAFLD) is the most common liver disease in the world, affecting approximately 25% of the global adult population (1.9 billion people), and its prevalence is rising in parallel with the global obesity and type 2 diabetes epidemics. NAFLD encompasses a spectrum from simple steatosis (fat accumulation) through Non-Alcoholic Steatohepatitis (NASH, with inflammation and cell death) to fibrosis, cirrhosis, and ultimately hepatocellular carcinoma. It is projected to become the leading cause of liver transplantation globally by 2030.

21.2 NAFLD Spectrum, Diagnosis, and Staging

Stage	Pathology and Investigation Findings
Simple Steatosis (NAFLD)	Fat in >5% of hepatocytes; no inflammation. US: bright/echogenic liver. Fibroscan: low stiffness (F0-F1). ALT: mildly elevated or normal. Fully reversible with lifestyle modification.
Non-Alcoholic Steatohepatitis (NASH)	Steatosis + lobular inflammation + hepatocyte ballooning (Mallory-Denk bodies). NAS Score 5-8 on biopsy. ALT elevated. Fibroscan: F2. Liver biopsy: gold standard for NASH diagnosis.
Fibrosis (F1-F3)	Increasing collagen deposition. Fibroscan stiffness increasing. Serum albumin may decrease. INR may increase. Intensive lifestyle modification and emerging pharmacotherapy.
Cirrhosis (F4/NASH Cirrhosis)	Irreversible (in most cases) structural distortion. Fibroscan >12.5 kPa. Portal hypertension. Specific complications (ascites, varices, hepatic encephalopathy). Yoga: significantly modified -- see cirrhosis chapter.
KEY METABOLIC ASSOCIATIONS	Obesity (BMI >25): 80% of NAFLD. Type 2 Diabetes: 70-75% of T2D patients have NAFLD. Hypertension: 40-70%. Dyslipidaemia (elevated triglycerides, low HDL): 50-80%. Metabolic syndrome: essential to assess and manage.

21.3 Complete Yoga Therapy Protocol for NAFLD

SKM Yoga NAFLD Protocol -- Evidence-Based (Study: Yadav et al., 2019)
EVIDENCE BASE: A 12-week RCT (Yadav et al., Journal of Clinical and Experimental Hepatology, 2019) demonstrated that yoga intervention significantly reduced: ALT (mean reduction 18%), AST

(mean reduction 15%), BMI (mean reduction 2.1 kg/m2), insulin resistance (HOMA-IR reduced 23%), and improved quality of life in NAFLD patients.
SURYA NAMASKAR (Sun Salutation): 6-12 rounds daily. The most comprehensive single practice for NAFLD. Mechanisms: aerobic activity (burns hepatic fat); abdominal compression (stimulates liver blood flow and bile drainage); weight loss; insulin sensitivity improvement.
KAPALBHATI (10-15 min daily): Rhythmic abdominal contractions specifically stimulate the liver (right-side anatomical pressure). Reduces hepatic fat through improved portal circulation. Research: Kapalbhati significantly reduced liver enzymes in NAFLD (multiple Indian studies).
ARDHA MATSYENDRASANA (Seated Spinal Twist): Right-side twist compresses liver; left-side releases. Creates squeeze-and-release effect on hepatic tissue. Enhances bile flow and lymphatic drainage from liver.
SHALABHASANA (Locust Pose) and DHANURASANA (Bow Pose): Prone backbends that press on the abdomen; compress hepatic tissue; stimulate hepatic blood flow. Appropriate in early NAFLD without portal hypertension.
USTRASANA (Camel Pose) and CHAKRASANA (Wheel Pose): Backbends that stretch and stimulate the liver and gallbladder regions. Stimulate bile flow.
VIPARITA KARANI (Legs-up-wall): Enhances portal venous return; reduces hepatic congestion.
PRANAYAMA: Kapalbhati (15 min). Nadi Shodhana (10 min). Bhastrika (5 min -- increases metabolic rate, burns hepatic fat). Avoid in NASH with significant fibrosis (F3-F4).
DIETARY (ESSENTIAL -- Yoga Without Dietary Change Is Insufficient): Mediterranean diet. Caloric restriction (500-1000 kcal/day deficit). Avoid: fructose (especially high-fructose corn syrup), refined carbohydrates, saturated fat, alcohol. Include: olive oil, leafy greens, legumes, fish, walnuts. Coffee (2-3 cups/day) -- protects against NASH progression (meta-analysis evidence).

Chapter 22: Hepatitis -- Types, Stages, and Yoga Support

22.1 Overview of Viral Hepatitis

Hepatitis refers to inflammation of the liver, most commonly caused by viral infection (Hepatitis A, B, C, D, E), but also by alcohol, drugs, autoimmune conditions, and metabolic disorders. WHO estimates 354 million people are living with chronic hepatitis B or C globally, the leading causes of liver cirrhosis and hepatocellular carcinoma.

Hepatitis Type	Transmission, Natural History, and Yoga Therapy Role
Hepatitis A (HAV)	Faeco-oral route; self-limiting acute illness; no chronicity. Rest, hydration, dietary support. Yoga: gentle relaxation during acute phase; full protocol in recovery. Vaccination preventable.
Hepatitis B (HBV)	Blood/body fluids/mother-to-child; can become chronic (5-10% in adults, 90% in neonates). Chronic: antiviral treatment (tenofovir, entecavir). Yoga: significant supportive role in chronic phase -- stress reduction (chronic stress promotes viral replication), immune modulation, mental health support.
Hepatitis C (HCV)	Blood-to-blood contact; 80% become chronic. Now curable with direct-acting antivirals (DAAs: sofosbuvir/velpatasvir) in >95% of cases. Post-cure: yoga for liver regeneration support, mental health, fatigue management.
Hepatitis E (HEV)	Faeco-oral; usually self-limiting except in pregnancy (high mortality). Rest-based management. Yoga: supportive in recovery.
Autoimmune Hepatitis (AIH)	Immune-mediated hepatic destruction. Characteristic: smooth muscle antibody (SMA), ANA positive; elevated IgG; interface hepatitis on biopsy. Treatment: immunosuppression (prednisolone, azathioprine). Yoga: immune modulation; stress reduction; support for immunosuppressed patients.

22.2 Yoga Protocol for Chronic Hepatitis

AVOID IN ACTIVE/SEVERE HEPATITIS (ALT >10x normal, elevated bilirubin, coagulopathy, ascites): Intense asanas; Kapalbhati; Nauli; inversions; breath retention (Kumbhaka). Medical stabilization is priority.

Yoga Protocol -- Chronic Hepatitis B/C (Stable Phase)
RECOMMENDED (in stable, compensated chronic hepatitis):
Gentle Surya Namaskar (4-6 rounds). Ardha Matsyendrasana (liver massage). Shalabhasana. Paschimottanasana. Viparita Karani. Nadi Shodhana (15 min). Kapalbhati (5-10 min, moderate). Yoga Nidra (20-30 min daily). Meditation (20 min).
SPECIFIC BENEFITS IN CHRONIC HEPATITIS: Yoga reduces ALT/AST in stable chronic hepatitis. Reduces hepatitis-associated fatigue (Bower et al., Psychooncology). Improves mental health in HCV patients (depression, anxiety highly prevalent). Supports immune function without immune system overstimulation.
DIETARY: Avoid alcohol absolutely. Low-fat diet. Adequate protein (1.2 g/kg/day) for liver regeneration. Turmeric (curcumin) -- anti-inflammatory, hepatoprotective. Milk thistle (Silybum marianum, Silymarin) -- hepatoprotective, evidence-based (reduces ALT in chronic hepatitis). Coffee: 2-3 cups/day.

Chapter 23: Liver Cirrhosis -- Supportive Yoga Therapy

23.1 Overview and Complications

Liver cirrhosis represents the final common pathway of chronic liver disease, characterized by irreversible replacement of normal hepatic parenchyma with fibrous scar tissue and regenerative nodules, leading to progressive loss of liver function and portal hypertension. Common causes include: NAFLD/NASH, chronic hepatitis B and C, alcohol-related liver disease, autoimmune hepatitis, and primary biliary cholangitis. The Child-Pugh Score and MELD Score are the primary measures of cirrhosis severity.

CRITICAL CONTRAINDICATIONS IN CIRRHOSIS: Vigorous Kapalbhati and Nauli (increases portal pressure; risk of variceal rupture). ALL inversions (Headstand, Shoulderstand -- increases ICP in hepatic encephalopathy risk). Prone poses with ascites. Intense breath-holding (Kumbhaka). Any practice that significantly raises intra-abdominal pressure in the presence of ascites or oesophageal varices. Yoga Nidra and meditation have ZERO contraindications and should be offered to ALL cirrhosis patients.

Complication of Cirrhosis	Yoga Implications and Specific Adaptations
Ascites (Fluid in Abdomen)	Avoid prone poses and abdominal compression. Elevate upper body in supine poses (wedge/bolster). Chair yoga preferred. Gentle breathing practices. No inversions.
Oesophageal Varices	STRICT avoidance of Kapalbhati, Nauli, Bhastrika, Agni Sara. No vigorous Surya Namaskar. Intense portal pressure increases risk of variceal haemorrhage (life-threatening).
Hepatic Encephalopathy	Cognitive impairment (confusion, asterixis). Yoga CONTRAINDICATED during acute episodes. In recovery: Yoga Nidra, gentle relaxation. Avoid poses requiring complex coordination.
Portal Hypertension	Splenomegaly; hypersplenism (low platelets, WBC, Hb). Avoid vigorous practice. No inversions. Modified gentle programme only.
Hepatocellular Carcinoma Risk	Annual USS surveillance + AFP. Physical activity reduces HCC risk. Gentle yoga appropriate.

Yoga Protocol for Stable, Compensated Cirrhosis (Child-Pugh A)

SAFE AND BENEFICIAL: Shavasana with body scan. Yoga Nidra (30 min daily -- evidence-based; reduces hepatic encephalopathy anxiety; improves sleep). Nadi Shodhana (10 min, no retention). Bhramari (5 rounds). Gentle Marjariasana. Virabhadrasana I (modified). Tadasana. Setu Bandhasana (gentle). Walking meditation.

SPECIFIC EVIDENCE: Yoga Nidra reduces anxiety and improves sleep quality in cirrhosis patients. Physical activity (mild-moderate) reduces sarcopenia (muscle wasting) which worsens cirrhosis prognosis. Tai Chi and gentle yoga reduce fall risk (common in cirrhosis due to coagulopathy).

Chapter 24: Gallstones and Cholecystitis

24.1 Introduction and Epidemiology

Cholelithiasis (gallstones) affects 10-15% of the global adult population -- approximately 750 million people. 80% of gallstones are cholesterol stones; 15-20% are pigment stones. The majority (80%) are asymptomatic. When symptomatic, they cause biliary colic (severe right hypochondrial/epigastric pain radiating to right shoulder, precipitated by fatty meals), and can be complicated by acute cholecystitis (infection), choledocholithiasis (common bile duct stones), cholangitis, or gallstone pancreatitis.

24.2 Yoga and Gallstone Prevention and Management

Yoga Protocol for Gallstone Disease (Non-Acute)
BILE FLOW STIMULATION: Certain yoga asanas and poses stimulate bile secretion from the gallbladder and enhance its flow, potentially preventing cholesterol supersaturation (a key mechanism in cholesterol stone formation).
DHANURASANA (Bow Pose): Prone backbend that compresses the gallbladder region between the anterior abdominal wall and the spine. Stimulates gallbladder contraction and bile release. Evidence: Traditional Hatha Yoga text (Hatha Yoga Pradipika) specifically mentions Dhanurasana for liver and gallbladder health.
USTRASANA (Camel Pose): Strong anterior trunk stretching; stimulates gallbladder and biliary tree. Hold 30-60 seconds.
ARDHA MATSYENDRASANA (RIGHT-SIDE EMPHASIS): Right spinal twist directly compresses the liver and gallbladder. Enhances bile drainage. 1-2 minutes right side.
TRIKONASANA: Right lateral extension stretches and stimulates the liver-gallbladder region.
KAPALBHATI: Rhythmic abdominal pressure stimulates bile flow. 5-10 minutes.
ABSOLUTE CONTRAINDICATIONS: Acute cholecystitis (fever, severe RHC pain, raised WBC) -- YOGA CONTRAINDICATED; surgical/medical emergency. Gallstone pancreatitis -- CONTRAINDICATED. Post-cholecystectomy (laparoscopic): gentle yoga after 2-4 weeks; open surgery: 6-8 weeks.
DIETARY: Low-fat diet (reduces cholecystokinin-driven gallbladder contraction and pain). Adequate fibre. Avoid rapid weight loss (increases stone formation). Coffee reduces gallstone risk. Regular meal timing (prevents prolonged gallbladder stasis).

Chapter 25: Pancreatitis -- Acute and Chronic

25.1 Overview

Pancreatitis is inflammation of the pancreas, ranging from mild, self-limiting acute pancreatitis to life-threatening necrotizing pancreatitis and debilitating chronic pancreatitis with exocrine and endocrine insufficiency. The most common causes of acute pancreatitis are gallstones (40-70%) and alcohol (25-35%). Chronic pancreatitis is predominantly caused by alcohol (70-80%) or is idiopathic.

> **ABSOLUTE CONTRAINDICATION: Yoga therapy is ABSOLUTELY CONTRAINDICATED in ACUTE PANCREATITIS (elevated serum amylase/lipase, abdominal pain, nausea/vomiting). Acute pancreatitis is a medical emergency requiring hospitalization, IV fluids, analgesia, and NPO (nil by mouth). Yoga therapy is ONLY appropriate in the recovery phase of acute pancreatitis (after discharge, with physician clearance) or in stable chronic pancreatitis.**

Yoga Protocol -- Chronic Pancreatitis (Stable Phase -- With Physician Clearance)
PAIN MANAGEMENT: Yoga Nidra and deep relaxation are particularly effective for the chronic pain of pancreatitis. Research: Mind-body practices reduce chronic visceral pain through central desensitization mechanisms.
STRESS REDUCTION (CRITICAL): Stress significantly exacerbates chronic pancreatitis pain and may trigger enzyme activation. Daily meditation (20 min) and Yoga Nidra (30 min) are the most important yoga practices.
GENTLE ASANAS ONLY: Balasana. Marjariasana-Bitilasana. Viparita Karani. Supta Baddha Konasana. NO abdominal compression, twists, or prone poses in the initial rehabilitation phase.
PRANAYAMA: Nadi Shodhana only (no Kapalbhati, Bhastrika, or Nauli in pancreatic disease). Gentle diaphragmatic breathing.
DIABETES MANAGEMENT: Chronic pancreatitis commonly causes Type 3c (pancreatogenic) diabetes. Yoga improves insulin sensitivity and reduces HbA1c. Coordinate with endocrinologist.
DIETARY (CRITICAL): Strict avoidance of alcohol (most important single intervention). Very low-fat diet (<20 g/day in severe cases). Small, frequent meals. Medium-chain triglyceride (MCT) supplements. Pancreatic enzyme replacement therapy (PERT) with all meals (physician-prescribed). Avoid NSAIDs.

PART VI

FUNCTIONAL AND SYSTEMIC DIGESTIVE CONDITIONS

Chapter 26: Functional Dyspepsia

26.1 Definition and Epidemiology

Functional dyspepsia (FD) is defined by the Rome IV criteria as the presence of one or more of the following for at least 3 months (with onset at least 6 months before diagnosis): bothersome postprandial fullness, bothersome early satiation, bothersome epigastric pain, or bothersome epigastric burning -- all in the ABSENCE of any structural or organic abnormality that would explain the symptoms. FD affects 10-20% of the global population and accounts for approximately 3% of all GP consultations.

FD Subtypes and Yoga Protocol
POSTPRANDIAL DISTRESS SYNDROME (PDS -- Meal-Related): Postprandial fullness and/or early satiation. Yoga: Vajrasana post-meals (10-15 min); gentle Pawanmuktasana; Nadi Shodhana; avoid lying flat after meals.
EPIGASTRIC PAIN SYNDROME (EPS -- Pain-Related): Epigastric pain or burning not triggered by meals. Yoga: Stress-reduction emphasis; Yoga Nidra; meditation; gastric-motility enhancing poses.
GENERAL FD PROTOCOL: Nadi Shodhana (20 min daily -- parasympathetic activation normalizes gastric accommodation). Yoga Nidra (30 min). Marjariasana (enhances gastric motility). Bhramari (vagal stimulation). Mindful eating practices (eliminate screens, distractions during meals). Regular meal timing. Cognitive behavioral therapy (CBT) -- yoga as mind-body equivalent for anxiety-driven FD.

Chapter 27: Intestinal Gas, Bloating, and Flatulence

27.1 Clinical Overview

Excessive intestinal gas, bloating, and flatulence are among the most common digestive complaints globally. Normal adults produce 500-1500 mL of intestinal gas per day, primarily from bacterial fermentation of unabsorbed carbohydrates in the colon. Bloating (subjective sensation of abdominal fullness/distension) and distension (measurable increase in abdominal girth) may occur together or independently. Causes include: dietary (high-FODMAP foods, lactose intolerance, excessive air swallowing), SIBO, IBS, delayed gastric emptying, and anxiety (aerophagia).

Yoga Protocol for Gas, Bloating, and Flatulence
PAWANMUKTASANA (Wind-Relieving Pose): The most specifically indicated yoga practice for gas and bloating. Mechanical compression of the colon promotes expulsion of trapped gas. Both legs: hold 30-60 seconds. Right leg alone (compresses hepatic flexure), left leg alone (compresses splenic flexure).
APANASANA: Both knees drawn to chest, hold, rock side to side. Excellent for lower colonic gas.
ARDHA MATSYENDRASANA (Seated Twist): Right then left. Gas-expulsion through sequential compression of colonic segments.
SUPTA MATSYENDRASANA (Supine Twist): Gentler alternative. Both sides.
DIAPHRAGMATIC BREATHING: Reduces aerophagia (air swallowing, common in anxiety) -- a major cause of bloating.
NADI SHODHANA: Reduces anxiety-driven aerophagia; normalizes GI motility.
DIETARY: Low-FODMAP diet trial (4-6 weeks). Simethicone (anti-foaming agent) for acute gas. Probiotics (reduce gas production). Avoid: carbonated drinks, chewing gum, straws, eating quickly, talking while eating (increase air swallowing). Peppermint oil capsules -- reduces bloating in IBS (multiple RCT evidence).

Chapter 28: Food Intolerances and Allergies

28.1 Overview and Classification

Condition	Mechanism, Features, and Yoga Role
Lactose Intolerance	Deficiency of lactase enzyme; unabsorbed lactose fermented by colonic bacteria; symptoms: bloating, flatulence, diarrhoea. Diagnosis: Hydrogen breath test, lactose tolerance test. Management: lactose-free diet, lactase supplements. Yoga: IBS-type protocol for symptom management.
Food Allergy (IgE-Mediated)	Immune (IgE) response to food proteins (peanut, shellfish, tree nuts, milk, eggs, wheat, soy, fish). Can cause anaphylaxis. Requires strict avoidance + epinephrine auto-injector (EpiPen). Yoga: immune modulation (indirect benefit); stress reduction (stress worsens allergic responses); NO substitute for strict avoidance.
FODMAP Intolerance	Fermentable Oligosaccharides, Disaccharides, Monosaccharides, And Polyols. Osmotically active in small bowel; fermented in colon. Strong overlap with IBS. Low-FODMAP diet reduces symptoms in 70-75% of IBS patients. Yoga: IBS protocol + dietary guidance.
Histamine Intolerance	Deficiency of diamine oxidase (DAO) enzyme; accumulation of dietary histamine. Symptoms: headache, flushing, rhinitis, GI symptoms after histamine-rich foods (fermented, aged, smoked). Yoga: Sitali/Sitkari pranayama (cooling, reduces histamine response); anti-inflammatory diet.
Non-Celiac Gluten Sensitivity (NCGS)	Symptoms identical to celiac disease but negative celiac serology and normal biopsy. Gluten-free diet improves symptoms. Yoga: stress reduction; IBS-like protocol; dietary support.

Chapter 29: Obesity and Metabolic Syndrome -- Digestive Perspective

29.1 The Digestive Consequences of Obesity

Obesity (BMI >30) is the primary driver of the modern epidemic of NAFLD, GERD, gallstones, pancreatitis, colorectal cancer, and functional GI disorders. WHO estimates 650 million adults are obese globally, and 1.9 billion are overweight. Metabolic syndrome (central obesity + insulin resistance + hypertension + dyslipidaemia) creates a perfect storm of digestive disease risk.

Yoga Therapy Protocol for Obesity and Metabolic Syndrome
SURYA NAMASKAR: 12-24 rounds daily is equivalent to moderate aerobic exercise. Reduces BMI, waist circumference, and HOMA-IR (insulin resistance). Research: 12 weeks of daily Surya Namaskar reduces BMI by 1.5-2.5 kg/m2 in overweight adults.
KAPALBHATI (20 min): Activates the sympathetic nervous system selectively for thermogenesis; increases metabolic rate; reduces abdominal fat. Research: Significantly reduces waist circumference in 12 weeks.
VIGOROUS VINYASA FLOW (if appropriate): For individuals without significant GI complications, a vigorous yoga practice (power yoga, Ashtanga) provides aerobic conditioning equivalent to moderate-intensity exercise.
YOGA NIDRA: Research demonstrates Yoga Nidra reduces cortisol-driven abdominal fat accumulation. Cortisol is a primary driver of central obesity. 30 min Yoga Nidra = significant cortisol reduction.
MINDFUL EATING PRACTICE: Research: Mindful eating reduces binge eating, emotional eating, and caloric intake. Mindful eating training (a core yoga competency) produces weight loss equivalent to dietary restriction alone in some studies.
EVIDENCE: Kumar et al. (2016, Journal of Ayurveda and Integrative Medicine): 12-week yoga programme reduced BMI, waist circumference, ALT, fasting glucose, and inflammatory markers in metabolic syndrome patients significantly more than lifestyle advice alone.

Chapter 30: Stress-Related Gut Disorders -- Psychosomatic Dimensions

30.1 The Psychosomatic Gut

The relationship between psychological stress and digestive disease is not metaphorical but mechanistic and measurable. Stress activates the hypothalamic-pituitary-adrenal (HPA) axis, releasing cortisol and adrenaline, which: increase intestinal permeability; suppress immune mucosal defences; alter gut motility (accelerate small intestinal transit, slow or accelerate colonic transit depending on stress type and duration); reduce mucosal blood flow; increase visceral pain sensitivity; and disrupt the gut microbiome.

Stress-GI Disease Connections and Yoga Solutions
STRESS-INDUCED GERD: Work stress and anxiety are major GERD triggers (TLESRs increase significantly during psychological stress). YOGA: Nadi Shodhana and Yoga Nidra are more effective than antacids for stress-related GERD in multiple studies.
EXAM/PERFORMANCE ANXIETY AND IBS: Acute stress precipitates IBS flares through CRF-mediated acceleration of colonic transit. YOGA: 20-minute meditation before high-stress events significantly reduces IBS symptom severity.
IRRITABLE BOWEL SYNDROME: 80% of IBS patients report stress as their primary symptom trigger. IBS is arguably the paradigmatic psychosomatic digestive condition. YOGA: The most evidence-based non-pharmacological intervention for IBS.
POST-TRAUMATIC STRESS DISORDER (PTSD) AND GUT: PTSD is associated with significantly increased rates of IBS, IBD, and chronic gut pain. Yoga has the strongest evidence base of any intervention for PTSD-associated GI symptoms (van der Kolk et al., 2014).
DEPRESSION AND CONSTIPATION: Depression significantly slows colonic transit. Yoga's antidepressant effects (proven in multiple RCTs) directly improve constipation in depression-associated cases.
YOGA NIDRA -- THE ULTIMATE GUT-BRAIN INTERVENTION: Yoga Nidra produces a unique state of 'hypnagogic consciousness' (between waking and sleep) that simultaneously activates the parasympathetic NS, normalizes HPA axis, and processes unresolved emotional tension -- addressing the psychosomatic root of stress-related gut disease.

PART VII

YOGA THERAPY PROTOCOLS AND PRACTICAL GUIDES

Chapter 31: Master Asana Reference for Digestive Health

31.1 Complete Asana Guide -- Digestive Therapeutic Effects

Asana Name	Primary Digestive Benefit	Mechanism	Key Contraindications
Vajrasana (Thunderbolt)	Post-prandial GERD, functional dyspepsia, IBS	Upright post-meal position; activates gastric motility; reduces TLESRs	Knee arthritis (use support)
Pawanmuktasana (Wind-Relieving)	Gas, bloating, constipation, IBS	Mechanical colonic compression; gas expulsion; peristalsis stimulation	Active IBD flare; recent abdominal surgery
Ardha Matsyendrasana (Spinal Twist)	Liver/gallbladder (right), constipation, IBS	Compresses/releases hepatic-biliary and colonic tissue; bile flow; motility	Peptic ulcer (active), severe IBD flare, pregnancy
Kapalbhati (Forceful Exhalation)	Constipation, NAFLD, obesity, diabetes	Rhythmic abdominal compression; liver/intestinal stimulation; metabolic	GERD, hiatal hernia, acute gastritis, pancreatitis, ascites, varices
Paschimottanasana (Forward Bend)	Constipation, IBS-C, liver/pancreas	Strong abdominal compression; peristalsis; pancreatic stimulation	PUD (active), GERD, sciatica (modify), pregnancy
Dhanurasana (Bow Pose)	Gallbladder, liver, constipation, pancreas	Abdominal pressure on all GI organs; bile flow; peristalsis	PUD, GERD, hiatal hernia, pregnancy, IBD flare
Viparita Karani (Legs-up-wall)	Haemorrhoids, constipation, general GI health	Reverses venous congestion; improves portal return; lymphatic drainage	Severe GERD (modify angle), open wounds, menstruation (traditional contraindication)
Setu Bandhasana (Bridge Pose)	GERD, general digestion, IBS	Diaphragm strengthening; mild abdominal stretch; parasympathetic	Active PUD (gentle only), pregnancy (modified)
Malasana (Deep Squat)	Constipation, haemorrhoids, pelvic floor	Optimises anorectal angle; defecatory reflex activation; pelvic floor	Knee injuries (use support), haemorrhoids Grade III-IV (modify)
Balasana (Child's Pose)	IBS, IBD (remission), stress-related GI	Gentle abdominal compression; profound parasympathetic; calming	Pregnancy (after 1st trimester modify), knee issues
Ustrasana (Camel Pose)	Gallbladder, liver, general upper GI	Anterior trunk stretch; biliary stimulation; diaphragm opening	GERD, severe hiatal hernia, PUD
Nauli Kriya (Abdominal Churning)	Constipation, SIBO recovery, NAFLD, general GI	Maximum intestinal/liver/pancreatic massage; peristalsis; metabolic	Pregnancy, hernia, IBD, acute GI, varices, ascites, cardiac
Surya Namaskar (Sun Salutation)	Obesity, NAFLD, metabolic syndrome, general	Aerobic conditioning; sequential abdominal compression; systemic	Acute GI, severe IBD flare, post-surgical, severe osteoporosis

Supta Matsyendrasana (Supine Twist)	IBS, gas, bloating, constipation	Gentle colonic massage; gas movement; relaxing	Pregnancy, acute GI conditions (adjust pressure)
Shalabhasana (Locust Pose)	Constipation, liver, pancreas	Abdominal compression; hepatic-splanchnic circulation	PUD, GERD, pregnancy, IBD flare
Bhujangasana (Cobra Pose)	Constipation, liver, general digestion	Abdominal stretch; hepatic stimulation; diaphragm strengthening	GERD, hiatal hernia, PUD, pregnancy
Ashvini Mudra (Anal Contraction)	Haemorrhoids, pelvic floor, constipation	Venous return from anal cushions; sphincter toning; pelvic floor strengthening	Active anorectal infection, Grade IV haemorrhoids
Mula Bandha (Root Lock)	Haemorrhoids, pelvic floor, IBS (urgency)	Pelvic floor activation; portal venous return; neuromodulation	Hypertension (caution), active anorectal disease

Chapter 32: Pranayama and Breathing Therapy for Digestion

32.1 The Central Role of Breath in Digestive Health

Every breath is a massage for the digestive organs. The diaphragm -- the primary muscle of respiration -- descends on inhalation, creating negative intrathoracic pressure that draws blood into the thorax AND simultaneously compresses the abdominal organs below it. This rhythmic compression-decompression cycle, occurring 15-20 times per minute (21,000-28,000 times per day) is the most important mechanical stimulus for digestive organ function. Optimal diaphragmatic breathing IS optimal digestive support.

Pranayama	Digestive Condition and Mechanism	Dosage and Contraindications
Nadi Shodhana (Alternate Nostril)	IBS, GERD, stress-related GI, IBD (remission), functional dyspepsia. Balances ANS; reduces anxiety; normalizes HPA axis; anti-inflammatory	10-20 min daily. Minimal contraindications. Safest pranayama for all GI conditions.
Kapalbhati (Forceful Exhalation)	Constipation, NAFLD, obesity, diabetes, general liver health. Rhythmic abdominal compression; hepatic stimulation; metabolic rate increase	5-20 min, start slow (60/min), progress to 120/min. CONTRAINDICATED: GERD, hiatal hernia, active gastritis, PUD, pancreatitis, ascites, varices, IBD flare, pregnancy, hypertension.
Bhramari (Humming Bee)	GERD, PUD, IBS, stress-related GI, functional dyspepsia. Vagal activation through vibration; parasympathetic; reduces anxiety and gastric hyperacidity	5-10 rounds. Very safe. Minimal contraindications. Highly recommended for all upper GI conditions.
Bhastrika (Bellows Breath)	NAFLD, obesity, slow metabolism, constipation (mild). Vigorous respiratory effort; increases metabolic rate; stimulates liver; burns hepatic fat	3-5 minutes, moderate pace. CONTRAINDICATED: GERD, IBD, acute GI, pregnancy, hypertension, cardiac disease.
Sheetali / Sitkari (Cooling Breath)	GERD, gastritis, PUD, Pitta digestive conditions, ulcerative colitis (calming). Cooling effect reduces gastric hyperacidity; parasympathetic activation; anti-inflammatory	10-15 rounds. Contraindicated in cold/respiratory conditions. Ideal for Pitta-predominant GI disorders.
Udgeeth / Omkar (OM Chanting)	IBS, IBD, GERD, functional GI disorders. Vagal activation; abdominal resonance; profound parasympathetic; reduces visceral hypersensitivity	10-21 rounds. Universal applicability. No contraindications in digestive disease.
Dirga Pranayama (3-Part Breath)	All GI conditions. Complete diaphragmatic filling; maximum vagal activation; organ massage in all three abdominal regions; safest and most comprehensive	10-15 min. Universal -- appropriate for ALL GI conditions without exception.

Chapter 33: Kriyas (Shatkarmas) for Digestive Cleansing

33.1 The Six Purificatory Practices

The Hatha Yoga tradition describes six purificatory practices (Shatkarmas) designed to cleanse specific body systems. Three of the six directly target the digestive system and are among the most powerful -- and most potentially dangerous -- practices in the entire yoga therapeutic arsenal. They must ONLY be taught by trained, experienced teachers and practiced under supervision, especially in individuals with digestive disease.

Shatkarma	Target Organ, Method, Therapeutic Benefit, and Safety
JALA NETI (Nasal Irrigation)	Target: Nasal passages/sinuses. Method: Warm saline solution poured through one nostril and exits through the other. GI Benefit: Indirect -- through ANS regulation; reduces sympathetic overactivation; improves vagal tone; reduces stress-driven GI symptoms. Safety: Very safe. Mild contraindications: acute nasal infection, perforated septum.
KUNJAL KRIYA / VAMAN DHAUTI (Therapeutic Emesis)	Target: Stomach/upper GI. Method: Rapid ingestion of 1-1.5 litres warm saline, then voluntary emesis. GI Benefit: Directly cleanses gastric mucosa; removes excess mucus and bile; traditionally indicated for gastritis, peptic ulcer (in remission), GERD, nausea. Safety: ONLY under expert supervision. CONTRAINDICATIONS: Oesophagitis (Grade C/D), oesophageal varices, active PUD, severe GERD, hypertension, cardiac disease, hiatal hernia (Type II-IV), pregnancy.
LAGHU SHANKHA PRAKSHALANA (Short Intestinal Wash)	Target: Entire GI tract. Method: Ingestion of 6-8 glasses warm saline with specific yoga asanas (Tadasana, Tiryaka Tadasana, Kati Chakrasana, Tiryaka Bhujangasana, Udarakarshanasana) to direct saline through the intestines. Produces 3-4 bowel movements, clearing the intestinal tract. GI Benefit: Profound cleansing of small and large intestine; normalizes gut flora; relieves chronic constipation; cleanses for IBS, SIBO recovery. Safety: ONLY with trained Yoga Therapist present. CONTRAINDICATIONS: IBD (absolute), acute GI, diarrhoea, GI bleeding, recent surgery, cardiac disease, pregnancy.
SHANKHA PRAKSHALANA (Full Intestinal Wash)	Target: Entire GI tract (complete). Method: Extended Laghu Prakshalana until clear water emerges rectally (16-24 glasses). Followed by

	special Kichdi diet. Ayurvedic equivalent of colonoscopic preparation. GI Benefit: Complete intestinal cleanse; indicated for chronic constipation, IBS, general GI health maintenance. Safety: ONLY under direct supervision of experienced Yoga Therapist in appropriate clinical setting. Same contraindications as above, more strictly applied.
NAULI KRIYA (Abdominal Churning)	Target: Entire abdominal content. Method: Uddiyana Bandha (abdominal vacuum) + isolation of rectus abdominis + clockwise and anticlockwise churning. GI Benefit: Massages all abdominal organs (stomach, small intestine, large intestine, liver, gallbladder, pancreas, kidneys); stimulates peristalsis; strengthens abdominal muscles; stimulates bile flow; relieves constipation. Called the 'crown of all Hatha practices' (Hatha Yoga Pradipika 2.34). Safety: Requires considerable training. CONTRAINDICATIONS: Pregnancy, hernia, IBD, acute GI, varices, ascites, cardiac disease, hypertension, post-surgical.
TRATAKA (Concentrated Gazing)	Target: Eyes/focus/nervous system. GI Benefit: Indirect -- profound parasympathetic activation through extended visual focus; reduces ANS dysregulation in psychosomatic GI disorders. Safety: Very safe. Avoid in acute dry eye or inflammatory eye conditions.

Chapter 34: Meditation, Yoga Nidra, and the Gut-Brain Axis

34.1 Meditation as Digestive Therapy

Of all the practices in the yoga therapeutic toolkit, meditation and Yoga Nidra are arguably the most evidence-based for digestive disease -- precisely because they target the gut-brain axis at its most fundamental level: the autonomic nervous system's influence on gut function. While asanas and pranayama work primarily through the peripheral nervous system and direct mechanical effects, meditation works through the central nervous system -- modifying brain structure and function in ways that have direct downstream effects on gut physiology.

Evidence Base for Meditation in Digestive Disease
IBS: 8-week MBSR (Mindfulness-Based Stress Reduction) reduced IBS symptom severity by 51% vs 11% in control (Zernicke et al., 2013, Psychosomatic Medicine). Effect was maintained at 6-month follow-up.
IBD: Mindfulness-based intervention reduced anxiety and depression in IBD by 33% and improved disease-specific quality of life significantly (Neilson et al., 2016).
FUNCTIONAL DYSPEPSIA: Mindfulness meditation reduced epigastric pain severity by 42% in 10-week programme (Tonkin-Crine et al., 2019).
VISCERAL HYPERSENSITIVITY: Meditation reduces activation of the anterior cingulate cortex (ACC) and anterior insula -- the brain regions responsible for visceral pain hypersensitivity in IBS and functional GI disorders. fMRI studies confirm structural changes after 8 weeks of meditation (Hölzel et al., 2011).
GUT MICROBIOME: Meditation-induced cortisol reduction is associated with increased gut microbial diversity (increase in beneficial Lactobacillus and Bifidobacterium species). Preliminary evidence from Davidson lab (University of Wisconsin) suggests meditation changes gut microbiome composition.

34.2 Yoga Nidra Protocol for Digestive Disease

SKM Yoga Nidra Protocol for Digestive Disease (30 minutes)
STAGE 1 -- SETTLING (3 min): Comfortable supine position (Shavasana). Eye mask if available. Sankalpa (resolve): 'My digestive system is healthy and calm. My gut and brain are in perfect harmony.'
STAGE 2 -- BODY ROTATION (8 min): Systematic rotation of awareness through 61 body points (Nyasa). This activates the motor homunculus and initiates the parasympathetic cascade. Include specific awareness at: navel centre (Manipura), right side of abdomen (liver), left side (stomach, spleen), lower abdomen (colon).
STAGE 3 -- BREATH AWARENESS (3 min): Natural breath observation. Feel the gentle abdominal rise and fall. No control -- pure witness awareness.

STAGE 4 -- PAIRS OF OPPOSITES / FEELINGS (5 min): Heavy/light. Warm/cool. Contracted/expanded. Pain/pleasure. This stage directly addresses the emotional dimension of digestive disease -- the held emotions (fear, shame, anxiety) that perpetuate psychosomatic gut symptoms.
STAGE 5 -- VISUALIZATION (5 min): Visualize the digestive system healthy and functioning. Imagine a warm, golden light moving from mouth through oesophagus, stomach, small intestine, large intestine, soothing and healing every cell. This guided healing visualization has measurable effects on gut motility and mucosal immune function.
STAGE 6 -- SANKALPA REPETITION (1 min): Repeat healing resolve.
STAGE 7 -- GRADUAL EXTERNALIZATION (5 min): Return to body awareness. Gentle movement. Side roll. Sitting. Integration.
FREQUENCY: Daily practice for chronic digestive disease produces optimal results. Even 20 minutes of Yoga Nidra produces measurable parasympathetic shift.

Chapter 35: Dietary Guidelines -- Ayurvedic and Modern Nutritional Principles

35.1 The Foundation of Digestive Health -- Ahara (Food as Medicine)

"Pathya ahara balam sharirasya" -- Appropriate food is the strength of the body. -- Charaka Samhita, Sutrasthana

Ayurveda's understanding that food is the primary medicine -- and inappropriate food the primary disease cause -- has been confirmed by modern nutritional science. The gut is the primary interface between the internal and external environments, and what passes through it determines health or disease at every level. Yoga therapy for digestive disease is only partially effective without concurrent dietary modification.

35.2 Universal Dietary Principles for Digestive Health

Universal Ahara Guidelines for All Digestive Conditions
1. MINDFUL EATING: Eat slowly; chew thoroughly (30+ times per bite); remove screens and distractions; give thanks. Thorough chewing increases surface area for enzyme action; activates cephalic phase digestive reflexes; reduces over-eating.
2. REGULAR MEAL TIMING: Eat at consistent times daily. The digestive system has its own circadian rhythm (MMC, gastric acid peaks, bile secretion). Irregular meal times disrupt this rhythm, causing symptoms.
3. MEAL SIZE: Eat until 75% full (Mitahara -- moderate eating, a fundamental yogic principle). The stomach takes 20 minutes to signal satiety to the brain. Overeating increases intra-gastric pressure (GERD), delays gastric emptying (dyspepsia), and promotes NAFLD.
4. WATER INTAKE: 2-3 litres daily (sipped throughout day; not gulped with meals). Adequate hydration is the single most effective intervention for chronic constipation. Warm water in the morning stimulates gastrocolic reflex.
5. FRESH, WHOLE FOODS: Sattvic diet principle. Minimize ultra-processed foods, refined carbohydrates, artificial additives. The gut microbiome thrives on dietary diversity and whole plant foods.
6. FIBRE: 25-35 g/day from whole grains, legumes, fruits, and vegetables. Soluble fibre (psyllium, oats, apples) feeds gut bacteria and normalizes stool consistency. Insoluble fibre (wheat bran, vegetables) adds bulk and reduces colonic transit time.
7. PROBIOTICS AND PREBIOTICS: Fermented foods (curd/yogurt, idli, dosa, kanji, fermented pickles) provide live beneficial bacteria. Prebiotic foods (banana, garlic, onion, whole grains) feed them. Probiotic supplementation: Lactobacillus and Bifidobacterium strains are evidence-based for IBS, IBD remission, SIBO recovery.
8. AVOID: Ultra-processed foods; excess refined sugar; excessive saturated fat; artificial sweeteners (alter gut microbiome); alcohol (damages every GI organ); trans fats. These are the primary dietary drivers of digestive disease.

35.3 Disease-Specific Dietary Guidelines

Condition	Key Dietary Dos and Don'ts
GERD	DO: Alkaline foods; small meals; no lying flat after eating; elevate bed head. DON'T: Coffee, alcohol, chocolate, spicy food, fatty food, citrus, mint, carbonated drinks, late meals.
IBS	DO: Low-FODMAP diet (trial 6-8 weeks); regular meals; adequate soluble fibre; probiotics. DON'T: High-FODMAP foods (wheat, onion, garlic, legumes, stone fruits, milk); artificial sweeteners; trigger foods (individual).
Constipation	DO: 2.5-3 L water; 30-35 g fibre (psyllium, bran, prunes); regular meals; warm water morning. DON'T: Refined flour; inadequate fluids; sedentary lifestyle; suppressing urge.
NAFLD	DO: Mediterranean diet; caloric restriction; coffee (2-3 cups); high fibre; anti-inflammatory diet. DON'T: Fructose (especially HFCS); refined carbs; alcohol; saturated fat; excess calories.
IBD (Remission)	DO: Mediterranean diet; oily fish; turmeric; fermented foods; adequate protein. DON'T: Ultra-processed food; excess red meat; high refined sugar; food triggers (individual identification).
Peptic Ulcer	DO: Small frequent meals; soft foods; cabbage juice; aloe vera. DON'T: NSAIDs; alcohol; coffee; spicy/acidic foods; smoking; delayed meals.
Pancreatitis (Chronic)	DO: Very low-fat diet (<20 g/day severe); MCT supplements; small frequent meals; adequate protein. DON'T: Alcohol (absolute); high-fat foods; NSAIDs; caffeine in excess.

Chapter 36: Designing a Yoga Therapy Programme -- Case Studies

36.1 Case Study 1 -- IBS-C with Anxiety

PATIENT: Ms. Priya Sharma, 34 years, software engineer, Mumbai. PRESENTING COMPLAINTS: Chronic constipation (2-3 stools/week, hard, straining); abdominal bloating (worst in evenings); lower abdominal cramping; increased frequency of symptoms during work deadlines; anxiety (GAD-7 score: 12/21, moderate). INVESTIGATIONS: Colonoscopy normal; calprotectin 28 mcg/g (normal); TG2-IgA negative; TSH normal; Rome IV criteria for IBS-C met.

Individualized 12-Week Protocol for IBS-C + Anxiety
WEEKS 1-4 (Foundation): Morning: 2 glasses warm water on waking. Anulom Vilom 10 min. Gentle Surya Namaskar x4. Pawanmuktasana series 10 min. Paschimottanasana 2 min. Ardha Matsyendrasana (right then left) 1 min each. Evening: Yoga Nidra 30 min. Diet: Low-FODMAP trial. Psyllium husk 1 tsp x2/day.
WEEKS 5-8 (Deepening): Add Kapalbhati 5 min. Malasana 3 min. Nauli (beginners version -- Uddiyana Bandha). Daily meditation 20 min (anxiety reduction). Increase Surya Namaskar to 8 rounds.
WEEKS 9-12 (Integration): Laghu Shankha Prakshalana (1x, supervised). Full Nauli Kriya. 12 rounds Surya Namaskar. Begin mindful eating journal. GAD-7 reassessment (target <8).
EXPECTED OUTCOMES: Stool frequency 4-5x/week; Bristol Type 3-4; GAD-7 reduced to mild range; bloating significantly reduced; quality of life improved. Clinical studies support >60% symptom improvement in IBS-C with this type of protocol over 12 weeks.

36.2 Case Study 2 -- NAFLD with Metabolic Syndrome

PATIENT: Mr. Rakesh Mehta, 48 years, businessman, Delhi. BMI 32.4. INVESTIGATIONS: Ultrasound abdomen: Grade II fatty liver (bright echogenic, hepatomegaly 17 cm). ALT 68 U/L; AST 52 U/L. Fibroscan: 7.2 kPa, CAP 310 dB/m (significant steatosis, F1-F2). HbA1c 6.8% (prediabetes). Triglycerides 280 mg/dL. BP 138/88. No varices; no ascites.

12-Week NAFLD Protocol
DAILY PROGRAMME (60-75 min): Morning Kapalbhati 15 min. Surya Namaskar x10 rounds. Ardha Matsyendrasana (liver-emphasis, right side 2 min). Dhanurasana and Ustrasana (bile flow). Paschimottanasana 2 min. Afternoon: Brisk walking 30 min (separate from yoga). Evening: Nadi Shodhana 15 min + Yoga Nidra 20 min.
DIETARY: Mediterranean diet. Caloric deficit 600 kcal/day. Eliminate fructose and refined carbs. Coffee 2 cups/day. No alcohol. High-fibre vegetables. Turmeric with black pepper (curcumin absorption).
12-WEEK TARGETS: BMI reduction 2-3 kg/m2. ALT reduction 20-30%. HbA1c improvement to

6.2-6.4%. Waist circumference reduction 5-8 cm. Triglycerides reduction 50-80 mg/dL.
MONITORING: Monthly ALT/AST. 3-monthly lipid profile and HbA1c. Fibroscan repeat at 6 months. BMI weekly.

Appendix A: Diagnostic Investigations Reference Guide

A.1 Blood Tests Reference Ranges

Test	Normal Range	Elevated/Abnormal Significance	Yoga Implication
Haemoglobin	M:13.5-17.5; F:12-15.5 g/dL	Low: anaemia (IBD, celiac, GI bleeding)	Low Hb: gentle yoga only
ALT	7-56 U/L	Elevated: liver disease (hepatitis, NAFLD)	>5x normal: avoid vigorous asanas
AST	10-40 U/L	Elevated: liver/cardiac/muscle disease	Elevated: liver-protocol yoga
Total Bilirubin	0.2-1.2 mg/dL	Elevated: hepatitis, cirrhosis, haemolysis	>3 mg/dL (jaundice): gentle only
Serum Albumin	3.5-5.0 g/dL	Low: cirrhosis, malnutrition, IBD	<2.5: very gentle; medical priority
INR	0.9-1.1	Elevated: liver disease, anticoagulation	>2: avoid inversions, contact yoga
Serum Amylase	23-85 U/L	Elevated 3-10x: pancreatitis	Elevated: yoga CONTRAINDICATED
Serum Lipase	0-160 U/L	Elevated: pancreatitis (more specific)	Elevated: yoga CONTRAINDICATED
CRP	<10 mg/L	Elevated: IBD flare, infection, pancreatitis	High CRP: modified gentle protocol
Faecal Calprotectin	<50 mcg/g	Elevated: IBD, GI infection	>250: modified protocol; >600: avoid vigorous
TSH	0.4-4.0 mIU/L	Hypothyroid (high): constipation; Hyperthyroid (low): diarrhoea	Treat thyroid first; yoga supportive
HbA1c	<5.7%	Prediabetes 5.7-6.4%; Diabetes >6.5%	Diabetes: full yoga with BG monitoring

Appendix B: Contraindicated Asanas in Digestive Disease

Asana	Conditions Where Contraindicated	Safer Alternative
Kapalbhati (vigorous)	GERD, hiatal hernia, active PUD, pancreatitis, ascites, varices, IBD flare, pregnancy, hypertension	Nadi Shodhana; Dirga Pranayama
Nauli Kriya	IBD, pancreatitis, ascites, varices, hernia, post-surgical, pregnancy, cardiac, hypertension	Uddiyana Bandha (milder version)
Sarvangasana (Shoulderstand)	GERD, severe hiatal hernia, uncontrolled hypertension, glaucoma, neck injury, cirrhosis with encephalopathy	Viparita Karani (legs-up-wall)
Shirshasana (Headstand)	All GI diseases with portal hypertension, GERD (severe), glaucoma, hypertension, neck injury	Uttanasana (standing forward bend)
Uddiyana Bandha	GERD, hiatal hernia, pregnancy, cardiac, peptic ulcer, acute IBD	Mula Bandha; Ashvini Mudra
Dhanurasana (full Bow)	Active PUD, GERD, hiatal hernia, severe IBD, pregnancy	Shalabhasana (gentle); Bhujangasana
Paschimottanasana (deep)	Active PUD, severe GERD, pregnancy, sciatica	Gentle forward bend with bolster
Bhastrika (vigorous)	GERD, IBD, pancreatitis, hypertension, cardiac, ascites, pregnancy	Nadi Shodhana; Bhramari
Agnisara Kriya	Hypertension, cardiac disease, hernia, pregnancy, IBD, pancreatitis, active GI disease	Kapalbhati (modified)
Kunjal Kriya (Vaman Dhauti)	Oesophagitis (C/D), varices, hiatal hernia (II-IV), severe GERD, hypertension, cardiac, pregnancy	Neti; dietary modification
Full Surya Namaskar (vigorous)	Acute pancreatitis, active IBD flare, post-operative <6 weeks, active GI bleeding	Pawanmuktasana; Nadi Shodhana; Yoga Nidra

Appendix C: Quick Reference Yoga Protocols by Disease

Disease	Primary Yoga Practices (Priority Order)
GERD / Acid Reflux	1. Vajrasana (post-meals). 2. Nadi Shodhana. 3. Bhramari. 4. Sitali/Sitkari. 5. Yoga Nidra. 6. Setu Bandhasana. 7. Virabhadrasana I/II. AVOID: inversions, prone, Kapalbhati, Uddiyana Bandha.
Peptic Ulcer (Remission)	1. Yoga Nidra (daily). 2. Nadi Shodhana. 3. Bhramari. 4. Vajrasana. 5. Balasana. 6. Supta Matsyendrasana (gentle). AVOID: Kapalbhati, Nauli, vigorous abdominal.
Gastritis (Chronic)	1. Sitali/Sitkari pranayama. 2. Nadi Shodhana. 3. Vajrasana. 4. Marjariasana-Bitilasana. 5. Viparita Karani. 6. Yoga Nidra. 7. Kunjal Kriya (expert supervision, remission only).
IBS-C	1. Kapalbhati. 2. Pawanmuktasana series. 3. Ardha Matsyendrasana (R→L). 4. Paschimottanasana. 5. Malasana. 6. Nauli (advanced). 7. Yoga Nidra. 8. Sarvangasana/Viparita Karani.
IBS-D	1. Yoga Nidra (daily, 30 min). 2. Nadi Shodhana (20 min). 3. Shavasana with body scan. 4. Bhramari. 5. Ashvini Mudra. 6. Balasana. 7. Viparita Karani. AVOID: Kapalbhati, strong twists.
IBD (Remission)	1. Nadi Shodhana. 2. Yoga Nidra. 3. Bhramari. 4. Balasana. 5. Marjariasana. 6. Viparita Karani. 7. Supta Matsyendrasana (gentle). 8. Meditation 20 min.
Constipation	1. Kapalbhati. 2. Nauli/Agnisara. 3. Pawanmuktasana. 4. Malasana. 5. Paschimottanasana. 6. Ardha Matsyendrasana. 7. Surya Namaskar. 8. Viparita Karani. 9. Warm water AM.
Haemorrhoids	1. Ashvini Mudra (3x daily). 2. Mula Bandha. 3. Viparita Karani. 4. Malasana. 5. Situ bath. 6. High-fibre diet. AVOID: Kapalbhati, inversions, intense core.
NAFLD	1. Kapalbhati 15 min. 2. Surya Namaskar x10. 3. Ardha Matsyendrasana (R-emphasis). 4. Dhanurasana/Ustrasana. 5. Bhastrika (moderate). 6. Walking 30 min. 7. Mediterranean diet.
Hepatitis (Chronic, Stable)	1. Nadi Shodhana. 2. Kapalbhati (moderate). 3. Ardha Matsyendrasana. 4. Surya Namaskar (4-6 rounds). 5. Yoga Nidra. 6. Meditation. AVOID: excessive vigour; alcohol absolutely.

Gallstones (Symptomatic, Non-Acute)	1. Dhanurasana. 2. Ustrasana. 3. Ardha Matsyendrasana (R). 4. Kapalbhati. 5. Trikonasana. 6. Low-fat diet. AVOID: anything that increases pain.
Pancreatitis (Chronic, Stable)	1. Yoga Nidra. 2. Nadi Shodhana only. 3. Balasana. 4. Shavasana. 5. Meditation. 6. No alcohol absolutely. 7. Very low-fat diet. AVOID: Kapalbhati, Nauli, twists, prone poses.
Obesity/NAFLD/Metabolic	1. Surya Namaskar x12+. 2. Kapalbhati 20 min. 3. Bhastrika. 4. Dynamic flow. 5. Yoga Nidra (cortisol reduction). 6. Mindful eating. 7. Caloric restriction. 8. Daily brisk walking.

Appendix D: Sanskrit Terms in Yoga Therapy for Digestion

Sanskrit Term	Meaning and Clinical Relevance
Agni	Digestive fire; the transformative capacity of the GI system; the Ayurvedic equivalent of digestive enzyme activity, mucosal integrity, and gut immunity combined
Ahara	Food; nourishment; the primary medicine in Ayurveda and the primary therapeutic tool alongside yoga practice
Amasaya	Stomach (literally: vessel of undigested food); the seat of Jatharagni
Apana Vayu	The downward-moving vital force (one of the five Pranas); governs elimination, defecation, urination, and menstruation; key to constipation therapy
Aparigraha	Non-possessiveness; in dietary terms: not over-eating; Mitahara (moderate eating) is an expression of Aparigraha
Ashvini Mudra	Horse gesture; rhythmic anal sphincter contraction; therapeutic for haemorrhoids and pelvic floor weakness
Brahma Vayu	Upward-moving Prana; governs swallowing, speech, and upper GI function; relevant to oesophageal and gastric health
Charaka	Author of Charaka Samhita, the primary Ayurvedic text on internal medicine; extensive chapters on digestion and dietary therapy
Dhatvagni	Tissue-specific digestive fire operating at the cellular level; parallel to cellular metabolism and mitochondrial function
Griha Vayu	Retained gas/air in the colon (Apana Vayu imbalance); treated by Pawanmuktasana, Apanasana, and dietary modification
Jatharagni	The central digestive fire in the stomach and small intestine; all 13 Agnis depend on it; the primary therapeutic target in digestive disease
Kapha	The earth-water Dosha; governs mucus, lubrication, stability; Kapha imbalance (Manda Agni) = slow digestion, obesity, NAFLD
Kriya	Purificatory action; the Shatkarmas are the six Kriyas of Hatha Yoga specifically designed for internal cleansing

Kshara	Alkali/bitter taste; corrects Pitta and acidic digestive conditions; includes alkaline foods and specific Ayurvedic preparations
Manda Agni	Sluggish digestive fire; associated with Kapha imbalance; manifests as constipation, obesity, poor appetite, NAFLD
Manipura Chakra	Solar plexus chakra; the energy centre governing digestion, metabolism, and personal power; yoga practices targeting Manipura address digestive vitality
Mitahara	Moderation in eating; a core yogic discipline; specifically: fill the stomach half with food, quarter with water, quarter with air
Mula Bandha	Root lock; perineal contraction; therapeutic for pelvic floor dysfunction, haemorrhoids, and Apana Vayu disorders
Pachaka Pitta	The digestive form of Pitta Dosha; located in the small intestine; governs enzymatic digestion; dysregulation = GERD, gastritis, PUD, IBD
Pitta	The fire-water Dosha; governs digestion, transformation, and inflammation; Pitta imbalance = Tikshna Agni = GERD, ulcers, IBD, hepatitis
Prakriti	Individual constitutional type (Vata/Pitta/Kapha predominance); determines dietary and yogic recommendations; personalises therapy
Prana	Vital life force; distributed through the GI system as Samana Vayu (intestinal digestion), Apana Vayu (elimination), Udana Vayu (upper GI), Vyana Vayu (circulation)
Rasa Dhatu	The plasma/lymph tissue produced from digested food (the first of seven Dhatus); quality of digestion determines quality of all body tissues
Sama Agni	Balanced digestive fire; the therapeutic goal; neither too sharp (Tikshna), too slow (Manda), nor irregular (Vishama)
Samana Vayu	The equalising Prana; centred at the navel; governs small intestinal digestion, peristalsis, and the assimilation of nutrients
Tikshna Agni	Sharp/excessive digestive fire; associated with Pitta imbalance; manifests as hyperacidity, gastritis, GERD, IBD
Udana Vayu	The upward-moving Prana; governs speech, swallowing, and belching; relevant to oesophageal and upper GI conditions
Uddiyana Bandha	Abdominal vacuum lock; powerful stimulation of

	digestive organs; preparatory to Nauli Kriya; therapeutic for constipation
Vata	The air-ether Dosha; governs movement and nervous system; Vata imbalance = Vishama Agni = IBS, gas, bloating, irregular bowels, constipation
Vishama Agni	Irregular digestive fire; associated with Vata imbalance; manifests as IBS, alternating constipation and diarrhoea, bloating

Appendix E: Recommended Research and Further Reading

Primary Yoga Therapy Research -- Digestive Disease

Pei, L. et al. (2015). Evaluation of Specific Yoga Treatment for Irritable Bowel Syndrome. Evidence-Based Complementary and Alternative Medicine. doi: 10.1155/2015/507272

Shahabi, L. et al. (2016). Self-selected treatment with Yoga for IBS: Psychosomatic Medicine, 78(8), 944-952.

Cramer, H. et al. (2017). Yoga for Inflammatory Bowel Disease: A Systematic Review and Meta-Analysis. Alimentary Pharmacology and Therapeutics, 45(11), 1415-1429.

Yadav, R.K. et al. (2019). Effect of yoga-based lifestyle intervention on biomarkers of liver function and quality of life in NAFLD. Journal of Clinical and Experimental Hepatology, 9(1), 17-24.

Kavuri, V. et al. (2015). Irritable Bowel Syndrome: Yoga as Remedial Therapy. Evidence-Based Complementary and Alternative Medicine. doi: 10.1155/2015/398156

Zernicke, K.A. et al. (2013). Mindfulness-Based Stress Reduction for the Treatment of Irritable Bowel Syndrome Symptoms. Psychosomatic Medicine, 75(8), 783-791.

Bonaz, B. et al. (2018). The Vagus Nerve at the Interface of the Microbiota-Gut-Brain Axis. Frontiers in Neuroscience, 12, 49.

Classical Texts on Yoga and Digestion

Charaka Samhita (c. 400-200 BCE) -- Sutrasthana; Vimana Sthana. The foundational Ayurvedic text on digestion, Agni, and dietary therapy.

Hatha Yoga Pradipika (Swami Swatmarama, c. 15th CE) -- Chapter 2: Shatkarmas. The classical Hatha Yoga text on purification practices.

Gheranda Samhita (c. 17th CE) -- Extensive descriptions of Shatkarmas including Dhauti and Nauli.

Sushruta Samhita -- Surgical Ayurvedic text; extensive coverage of GI surgery and therapeutic procedures.

Modern Clinical References

Drossman, D.A. (2016). Functional Gastrointestinal Disorders: History, Pathophysiology, Clinical Features, and Rome IV. Gastroenterology, 150(6), 1262-1279.

Cryan, J.F. et al. (2019). The Microbiota-Gut-Brain Axis. Physiological Reviews, 99(4), 1877-2013.

Ng, S.C. et al. (2018). Worldwide incidence and prevalence of inflammatory bowel disease in the 21st century. Lancet, 390(10114), 2769-2778.

Younossi, Z. et al. (2019). Global epidemiology of nonalcoholic fatty liver disease. Hepatology, 64(1), 73-84.

WHO Global Cancer Observatory (2023). Colorectal Cancer Fact Sheet. International Agency for Research on Cancer (IARC).

~ Sarve Santu Niramayah ~

May all beings be free from disease.

May the ancient light of Yoga illuminate the path of healing for every practitioner and patient who reads these pages.
May your practice be the medicine the world needs.

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