



An Evidence-Based Yoga Therapy Module for the Management of Peptic Ulcers

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Abstract. Peptic ulcer disease (PUD) is a widespread gastrointestinal condition where psycho-social stress is now recognized as a critical contributing factor that can initiate the condition, hinder healing, and promote recurrence. While conventional medical treatments are essential for addressing primary etiological agents like *H. pylori*, they often do not manage the underlying, chronic stress components, leaving a significant gap in holistic patient care. This paper proposes a comprehensive, evidence-based yoga therapy module structured around the Integrated Approach of Yoga Therapy (IAYT) and its foundational Pancha Kosha framework for the integrated management of PUD. The module systematically addresses the five sheaths of human existence, prescribing specific, gentle interventions designed to restore balance at each level of being. The proposed interventions include diet and lifestyle modifications, restorative physical postures (asanas) to soothe the physical body; slow, mindful breathing techniques (pranayama) to calm the energetic systems; and deep relaxation practices like Yoga Nidra to process emotional and mental stress. The scientific rationale for this multi-layered approach is its ability to target the primary mechanisms of the psycho-somatic stress response. These mechanisms include down-regulating the hyper-reactive brain-gut axis, shifting the autonomic nervous system's balance from sympathetic 'fight-or-flight' activation toward a parasympathetic 'rest-and-digest' response, and reducing the biochemical load of stress hormones like cortisol via the HPA axis. By addressing the root causes of psycho-somatic imbalance, this integrated yoga module presents a structured, complementary framework designed to support primary medical treatment in effectively managing symptoms, while empowering patients with practical tools for sustainable, long-term health and well-being.

Keywords. Peptic Ulcer Disease, Yoga Therapy, Stress Management, Mind-Body Therapy, Pancha Kosha

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Introduction

Peptic ulcer disease (PUD) represents a major global health concern characterized by painful sores in the stomach or duodenum, with recent Global Burden of Disease data confirming it continues to affect millions of people worldwide [1]. Beyond physical symptoms, PUD has a considerable negative impact on patients' overall quality of life, often affecting their physical, mental, and social well-being [2]. While the pathophysiology involves primary agents like *Helicobacter pylori* and NSAIDs [3], a substantial body of evidence confirms that psychological stress irrespective of *H. pylori*, raises the risk of peptic ulcers [4]. Furthermore, the disease is strongly associated with mental health problems such as anxiety and depression, highlighting a clear mind-body connection [5].

Conventional medical management for PUD is effective and essential, primarily utilizing proton pump inhibitors to reduce gastric acid and antibiotic regimens to eradicate *H. pylori* [3]. However, this approach primarily targets the biochemical and microbial aspects of the disease. It often does not address the underlying lifestyle factors and chronic stress patterns that contribute to the disease's onset and recurrence. This creates a potential gap in care where patients, though physiologically treated, may not develop the resilience needed to prevent future episodes, highlighting the need for a more integrated, patient-centred approach.

Chronic stress disrupts gastrointestinal balance by triggering the "fight-or-flight" reaction in the body, which can alter gastric secretions and impair the stomach's natural defence and repair mechanisms [6]. Conventional medical treatments, while essential, often focus on the physical symptoms without addressing the underlying stress and lifestyle triggers that can lead to its recurrence. This creates a gap in its management that holistic practices are uniquely positioned to fill.

Yoga, as an ancient mind-body discipline, offers a holistic framework to address this gap. Unlike a purely symptomatic treatment, the yogic approach views disease not as an isolated issue, but as a manifestation of imbalance across the entire human system, from the physical body to the mental and emotional states. This perspective is well-documented in systematized yoga therapy literature, which prescribes specific, integrated practices for managing digestive and psycho-somatic ailments [7]. Through a combination of gentle postures or *asanas*, *pranayama* techniques, relaxation techniques and meditative practices, yoga therapy helps in restoring homeostatic balance and enhancing the body's innate healing capacities [8]. The efficacy of this multi-

pronged approach for stress-sensitive gut disorders is being increasingly validated by modern clinical research. For example, a recent randomized clinical trial demonstrated the effectiveness of yoga for Irritable Bowel Syndrome (IBS) [9], consistent with a broader body of work supporting yoga's therapeutic value for stress-sensitive gut disorders [10], suggesting its strong potential for PUD. Therefore, the purpose of this paper is to propose a structured, evidence-based yoga therapy module, rooted in the IAYT's *Pancha Kosha* framework, for the holistic management of peptic ulcers.

The Proposed Module for Peptic Ulcer Management

This paper utilizes the Integrated Approach of Yoga Therapy (IAYT) as its therapeutic framework. IAYT is a holistic and evidence-based system designed to address the multifaceted nature of modern, non-communicable diseases. The IAYT model operates on the principle that illness is a manifestation of imbalance across the entire human system, not just an isolated physical symptom. Its methodology is rooted in ancient yogic philosophy, particularly the concept of *Pancha Koshas* (five layers of existence), which views the human being as five interconnected layers, from the physical to the bliss sheath [11].

This five-layered model provides a comprehensive map for diagnosis and intervention. It proposes that any disturbance at a deeper, more subtle level (like the mental or wisdom sheaths) can manifest as a disease in the physical sheath. Therefore, for healing to be sustainable, therapy must be directed at all five levels simultaneously [11]. This proposed module applies the IAYT framework to peptic ulcer disease, systematically prescribing yogic tools and techniques to restore balance from the outermost physical layer to the innermost core of being. The interventions for each of the five koshas are detailed below.

Annamaya Kosha (The Physical Layer)

Following the IAYT framework, we begin at the most tangible level of the human system: the *Annamaya Kosha* or the physical "food" sheath. The core principle of intervention at this level for peptic ulcer disease is two-fold: first, to remove any kind of practices and dietary habits that aggravate the condition, and second, to introduce gentle activities that soothe the digestive system and promote a healing internal environment. The approach must be non-competitive and mindful, with an emphasis on relaxation and awareness over physical exertion, as recommended in the therapeutic yoga literature [7]. The in-

terventions focus on two main areas-*Ahar* (diet) and *Vihar* (lifestyle and physical practices)-which are detailed below (Table 1).

Beyond the practices that directly soothe the digestive system, it is also crucial to address the physical manifestations of stress held within the body. A

recent systematic review confirms that yoga asanas are effective for stress management based on biological evidence [12]. Therefore, the following asanas are included specifically for their proven benefits in reducing psycho-physiological tension (Table 2).

Practice	Details
Dietary Recommendations (Ahar)	The diet must be gentle on the gastric mucosa. Initially, a light liquid diet of vegetable broths or milk may be required. This should progress to a bland, non-acidic diet consisting of well-cooked grains and vegetables. At all costs, spicy, oily, fried, and heavy foods must be strictly avoided, as they directly irritate the ulcerated lining and can stimulate excess gastric acid secretion, thereby hindering the healing process [7].
Vajrasana	This is a unique meditative asana that can be performed immediately after meals for 5–10 minutes. The posture alters blood circulation in the legs and abdomen, increasing blood flow to the stomach and intestines. This enhanced circulation is believed to increase the efficiency of digestion and help alleviate issues like gas and indigestion [8].
Shashankasana	From a kneeling position, this posture involves gently bending forward to rest the forehead on the floor, which induces mental calmness and quiets the sympathetic nervous system. It gently stretches the back muscles without placing any compressive pressure on the abdomen, making it a safe and therapeutic resting pose specifically recommended for its relaxing effect in ulcer management [7].
Marjariasana-Bitilasana	This dynamic movement involves gently arching and rounding the spine in synchronization with the breath. This action provides a gentle massage to the entire abdominal region, including stomach and intestines, which can boost their functions and relieve stagnation. It is a foundational practice for improving digestive health and releasing tension in the spine [8].
Pawanmuktasana Series (Parts 1 & 2)	A systematic series of gentle movements designed to remove energy blockages. Part 1 (anti-rheumatic group) releases tension from the joints, reducing overall physical stress. Part 2 (digestive group) tones the abdominal organs, but must be practiced with extreme care and without strain to avoid any pressure on the ulcer [7, 8]. Asanas to be performed in Pawanmuktasana Series (Part 1 & 2): Part 1, the anti-rheumatic group, begins with mobilizing the lower extremities, starting with Padanguli Naman (toe bending), followed by flexion and extension of the ankle joint (Goolf Naman) and ankle rotation (Goolf Chakra). It progresses upward to the knees with Janu Naman (knee bending) and then to the hip joint with Ardha Titali Asana (half butterfly) and Shroni Chakra (hip rotation). The sequence then addresses the upper extremities, beginning with hand clenching (Mushtika Bandhana), wrist movements (Manibandha Naman), and elbow articulation (Kehuni Naman), culminating in shoulder rotations (Skandha Chakra) and comprehensive neck movements (Greeva Sanchalana). Part 2, the digestive/abdominal group, includes dynamic core and leg movements such as Padotthanasana (leg raises), Padachakrasana (leg rotation), and Pada Sanchalanasana (yogic cycling). This is followed by practices that directly engage the abdominal region, like Supta Pawanmuktasana (leg lock pose), Jhulana Lurhakanasana (rocking and rolling), and the gentle spinal twists of Supta Udarakarshanasana (sleeping abdominal stretch), concluding with Naukasana (boat pose) to tone the core muscles.

Table 1: Dietary Recommendations (Ahar) and Foundational Physical Practices (Vihar) for Annamaya Kosha in Peptic Ulcer Management

In essence, the practices of Annamaya Kosha work synergistically to calm the physical body. The dietary changes reduce direct chemical irritation, while the asanas release muscular tension and improve organ function. This combined approach reduces the overall physiological stress load, sending signals of safety and relaxation to the nervous system, which is a foundational step in healing.

Pranamaya Kosha (The Vital Energy Layer)

Pranamaya Kosha, or vital energy sheath, is closely related to breathing and the autonomic nervous system (ANS) operation. In the context of peptic ulcer management, at this level, the main therapeutic objective is to change the sympathetic "fight-or-flight" dominance of the ANS, which is known to worsen stress and hyperacidity [6]. Pranayama, the yogic science of breath control, serves as the principal tool for achieving this essential regulation. Therefore, this module selectively incorporates calming

and cooling breathing techniques designed to enhance parasympathetic "rest and digest" activity, creating a physiological environment conducive to healing [13].

To achieve this regulation, the following specific pranayama practices, which must be performed "without any strain" [7], are included in the module (Table 3):

Manomaya Kosha (The Mental Layer)

Manomaya Kosha, or mental sheath, is arguably the most critical layer to address in PUD, given the strong association between the disease and mental health challenges like anxiety and depression [5]. This

sheath is described in the IAYT model as the source of emotional disturbances that directly impact the physical body; therefore, calming the mind is considered a primary pathway to healing [11]. This sheath governs the constant stream of thoughts, feelings, and emotional reactions that make up our inner world. In a state of imbalance, this can become a source of relentless stress, directly disrupting the gut's physiology via the brain-gut axis [6]. The therapeutic goal here is therefore to calm the discursive mind, process unresolved emotional conflicts, and cultivate a state of inner quietude.

Practice	Details
Shavasana	The quintessential relaxation pose, performed by lying supine in a neutral position. The goal is to consciously relax every part of the body, systematically releasing muscular and nervous tension. This practice calms the brain and down-regulates the sympathetic nervous system, reducing the state of hyper-arousal associated with chronic stress and allowing for deep cellular restoration [8].
Makarasana	A prone posture where one lies on the stomach, which is exceptionally effective for promoting deep and natural diaphragmatic breathing. This style of breathing provides a gentle massage to the abdominal organs and directly stimulates the vagus nerve, which is a primary channel for activating the parasympathetic nervous system's 'rest-and-digest' functions, thereby alleviating anxiety and physical tension [8].
Balasana	A gentle forward-bending posture that calms the brain and helps to relieve stress and fatigue. By folding the body inward, it encourages introspection and provides a profound sense of safety and surrender, which can be deeply therapeutic for an overactive and anxious mind. It is a key restorative pose in yogic therapy [7].
Supported Setu Bandhasana	In this restorative variation, a block or bolster is placed under the sacrum while lying on the back with knees bent. This creates a gentle, passive opening in the chest and heart region without muscular effort. This can help alleviate the physical tightness in the chest and shoulders often associated with anxiety and promote a feeling of emotional release and ease [8].
Vrikshasana & Natarajasana	These standing balance poses are traditionally included in yoga therapy for their capacity to cultivate one-pointed attention and stability, though direct empirical evidence specific to balance postures and cognitive focus remains limited [12]. The one-pointed concentration required to hold the posture helps to quiet the constant stream of discursive thoughts, a key factor in the stress experience. These should be introduced gently and later in the therapy once initial healing and physical stability are established.

Table 2: Dietary Recommendations (Ahar) and Foundational Physical Practices (Vihar) for Annamaya Kosha in Peptic Ulcer Management

Practice	Details
Nadi Shodhana (Alternative Nostril Breathing)	In order to promote calmness and maintain the nervous system's equilibrium, this fundamental exercise is included. It is specifically recommended for ulcer management as it calms the mind and body, helping to break the stress-symptom cycle [7, 8].
Bhramari (Humming Bee Breath)	The gentle vibration and sound from this practice have a profound soothing effect on the brain and nervous system. It is highly effective in releasing mental tension, anxiety, and anger, which are key psychological triggers for PUD [7].
Sheetali / Sheetkari (Cooling Breaths)	These practices are included based on their strong traditional use for pacifying excess heat (pitta) in the body. The psycho-somatic cooling sensation is conceptually linked to soothing conditions like hyperacidity and gastric inflammation [14].

Table 3: Yogic Asanas for Reducing Psycho-Physiological Tension in Annamaya Kosha

- The primary tools for this are deep relaxation and meditative practices.
- The daily practice of **Yoga Nidra**, a systematic method of guided relaxation, is highly recommended. It works to release deep-seated mental and emotional tensions, making it essential for the "resolution of anxieties and inner conflicts" that contribute to PUD [7]. As a therapeutic tool, Yoga Nidra has been shown to be a powerful "mental health booster," effectively reducing anxiety, anger, and depression by inducing a profound state of restorative rest [15].
- **Mindfulness Meditation**, which trains the individual to observe their thought patterns without reaction, has shown to have a direct antidepressant effect and the ability to significantly reduce levels of the stress hormone cortisol [16, 17].

Vijnanamaya Kosha (The Wisdom Layer)

Vijnanamaya Kosha, known as the wisdom layer, represents a deeper layer of consciousness beyond the reactive mind, governing the higher functions of self-awareness and discernment. Whereas the Manomaya Kosha deals with managing emotional fluctuations, the Vijnanamaya Kosha offers the ability to comprehend their origins, thereby creating a pathway for lasting change. The IAYT model emphasizes that true healing requires understanding the root cause of one's suffering, a process that occurs at this level [11]. This is crucial for PUD because it allows the individual to address the foundational beliefs and subconscious thought patterns known to contribute to the anxiety and depression associated with the disease [5].

The primary practice here is **Svadyaya** (self-study), facilitated through guided journaling and introspective **yogic counselling**. This process encourages the individual to become an impartial witness to their own mind, exploring personal stress triggers and their habitual reactions without judgment. By consistently observing these deep-seated patterns, one can begin to cognitively reframe their relationship with stressors, moving from automatic negative thinking to a more balanced perspective. This cognitive shift is a key component of yoga's overall therapeutic and antidepressant effects [16]. It empowers the individual to move from passively reacting to life's challenges to consciously responding with wisdom, fostering a sense of personal agency and pro-

found resilience against the triggers of their illness [7].

Anandamaya Kosha (The Bliss Layer)

The final and most subtle sheath is the *Anandamaya Kosha*, representing the ultimate therapeutic goal of the IAYT framework: a return to a natural state of holistic health and inner peace. The cultivation of this state is a powerful long-term strategy for PUD management, as it serves as a profound antidote to the anxiety and distress so often linked to chronic illness [5]. This sheath is balanced not through intensive techniques, but through the active cultivation of joy, purpose, and connection with a broader sense of self.

A key practice for this is **Karma Yoga (selfless service)**, which is recommended as an "excellent prescription" for releasing mental tension by shifting focus from personal suffering to the well-being of others [7]. This cultivation of positive emotions is not merely a psychological distraction; prosocial, altruistic behavior has been linked to activation of the brain's dopaminergic reward circuitry, a mechanism that may help counter the body's stress-hormone cascade [18]. Fostering this profound sense of purpose is a vital component of the overall antidepressant effect of an integrated yoga practice, building sustainable resilience against the stressors that can trigger disease [16].

Discussion

The IAYT module detailed in this paper presents a holistic and multi-layered framework for the management of peptic ulcer disease. By structuring interventions across the five koshas—from physical dietary changes to the cultivation of self-awareness—the proposed module moves beyond mere symptom management. It aims to address the underlying psychosomatic imbalances that contribute to the disease, primarily by targeting the well-established links between psychological stress and gastrointestinal pathophysiology. The therapeutic efficacy of this integrated approach can be understood through its synergistic influence on the body's main stress-response systems, namely the brain-gut axis, autonomic nervous system, and the HPA axis of the endocrine system.

The module's effectiveness stems from its ability to target core mechanisms, beginning with the brain-gut axis. This axis is understood as the complex, two-way communication network linking the central nervous system with the gastrointestinal tract. This axis is not just neurological but also hormonal, involving a constant feedback loop that dictates gut

motility, secretion, and immune function. Psychological stress, a key focus of the Manomaya and Vijnanamaya koshas, is a major disruptor of this delicate balance. This is supported by significant clinical evidence showing that a strong association exists between mental health issues such as anxiety and depression and an increased incidence of peptic ulcer disease [5, 19]. The module's meditative practices, such as Yoga Nidra and mindfulness, are designed to directly intervene in this pathway by calming the limbic system in the brain. By reducing the volume of stress-induced signals sent from the brain to the stomach, these practices help to restore a more balanced and less reactive brain-gut dialogue, thereby reducing the central physiological drivers of the disease.

Furthermore, the module directly rebalances the Autonomic Nervous System (ANS). A state of chronic stress typically results in sympathetic dominance (the 'fight-or-flight' response), a condition that impairs proper digestion, reduces restorative blood flow to the stomach lining, and perpetuates a state of high alert. The module's emphasis on slow, mindful breathing exercises (pranayama) are specifically selected for this purpose, as they are known to engage the parasympathetic nervous system (PNS), also called the 'rest-and-digest' branch. A comprehensive review by Tyagi & Cohen [13] demonstrates that yoga practices significantly improve Heart Rate Variability (HRV). HRV is the primary clinical indicator of a healthy vagal tone, which is an indicator of the strength and reactivity of the vagus nerve. The vagus nerve serves as the primary pathway for the parasympathetic nervous system. By enhancing this vagal tone through practices like Nadi Shodhana and Bhramari, the module helps to increase restorative blood flow to the gastric mucosa, normalize digestive processes, and create the ideal physiological conditions for the ulcer to heal.

Finally, the module addresses the endocrine pathway of the stress response, with a focus on the hypothalamic-pituitary-adrenal (HPA) axis. This system is responsible for governing the release of cortisol. As a primary stress hormone, chronically elevated levels of cortisol can lead to suppression of the immune system, which increases inflammation and delays tissue repair, all of which hinder the healing of an ulcer [20]. The integrated nature of the yoga module, combining physical postures, breathing, and meditation, has a direct down-regulating effect on HPA axis activity. A consistent yoga practice can cause a significant decrease in circulating cortisol levels and has a measurable antidepressant effect, which is closely linked to HPA axis regulation [16, 17]. It

is important to note, however, that this module is a complementary framework, not a standalone cure for primary causes like *H. pylori*. Its main role is to manage the stress component and create an environment where medical treatment can be more effective. To validate this specific protocol and more clearly define the role of integrated yoga therapy for psychosomatic disorders, future clinical trials are therefore necessary.

Conclusion

In conclusion, this paper has addressed the critical need for a more integrated approach to managing peptic ulcer disease, a condition where psychosocial stress is a significant contributing factor. To meet this need, a comprehensive, evidence-based yoga therapy module structured around the IAYT Pancha Kosha model was proposed. By systematically incorporating practices that target the brain-gut axis, regulate the autonomic nervous system, and reduce the biochemical load of stress hormones, this holistic module aims to treat the individual as a whole, moving beyond a purely symptom-based model to address the root psycho-somatic imbalances of the disease.

The broader implication of this work underscores a necessary evolution in the management of chronic, lifestyle-influenced diseases. Integrating mind-body therapies like yoga into mainstream healthcare represents a vital step towards a more effective, patient-centered, and sustainable model of care. Such an approach not only supports primary medical treatments but also empowers individuals with the practical tools and self-awareness needed to participate in their own healing process. The future of effective healthcare lies in this synergy between modern science and ancient wisdom, ultimately fostering true, long-term well-being.

Ultimately, the true value of a therapeutic module like this lies in its empowering and educational nature. It is not merely a set of prescribed exercises, but a system of self-care that provides individuals with lifelong skills to manage their own stress and listen to their body's signals. This shifts the paradigm from passive patient to active participant, a cornerstone of sustainable health. By teaching individuals how to regulate their own internal state, this yogic approach offers a path not just to recovery from a specific ailment, but to a more resilient and consciously maintained state of overall health, long after the immediate symptoms have subsided.

COMPLIANCE Not required.

CONFLICT OF INTEREST None.

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