



## REVIEW ON EFFECT OF YOGA AND LIFESTYLE MODERATION ON GASTROINTESTINAL DISEASES

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**Abstract:** Unnatural lifestyle and dietary habits have caused life threatening Gastrointestinal Diseases (GIDs) such as Acid Peptic Disease (APDs). About 7 lakh people died in 2002 due to stomach cancer and 60 to 70 million people are suffering from various GIDs in US. The aim of the study is to review and discuss researches on yoga therapy and lifestyle moderation to prevent and moderate APDs like Gastro Esophageal Reflux Disease (GERD), hyperacidity, gastric and duodenal ulcers by accessing the databases- Google Scholar, PubMed, Medline, Elsevier and Willey and the relevant research journals, books and online sources. Lastly the paper will stress significance of yoga and natural lifestyle practices to prevent and moderate APDs as compared to pharmacological treatments.

**Key Words:** GERD, APDs, Yoga Therapy, Hyperacidity, Duodenal and Gastric Ulcers.

**Introduction:** The digestive system plays an important role in the absorption of nutrients and the nourishment of the overall body.<sup>23</sup> The risk factors such as stress, impaired sleep, use of antibiotics, improper water intake, and poor dietary habits impair digestive system and cause Gastro Intestinal Diseases (GIDs). The severity of GIDs varies as per specific disease types. Some GIDs like indigestion are mild while Acid

Peptic Diseases (APDs) such as hyperacidity, Gastro Esophageal Reflux Disease (GERD), gastric and duodenal ulcers are life threatening and may cause malignant conditions like adenocarcinoma and other stomach cancers.<sup>12</sup> APDs are most commonly associated with Helicobacter pylori (H. pylori) infection and non-steroidal anti-inflammatory drugs(NSAIDs).<sup>24</sup> Over the last decades it has been estimated that 50 per cent of people in the world are infected by spiral shaped gram-negative bacteria called H. pylori.<sup>5</sup> More than 1 million cases of ulcers due to H. pylori are found in India.<sup>1</sup> Most of the patients are consuming Proton Pump Inhibitors (PPIs)

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such as Omeprazole, Lansoprazole, pantoprazole etcetera and antibiotics to control APDs but these PPIs are known to cause neuropathy, ischemic heart disease, dementia and acute kidney injury,<sup>7</sup> indigestion, drowsiness, constipation and reduction in efficacy of some anti-fungal drugs.<sup>9</sup> And overuse of PPIs are not only the reason for adverse effects but also have been problematic for concerned authorities and stakeholders due to its cost.<sup>22</sup> *H. pylori* is the root cause of APDs and its prevalent therapies failed in 20% of cases due to its antimicrobial resistance<sup>2</sup> thereby warranting the further clinical researches to assess efficacy of Complementary and Alternative Medicine (CAM) to inhibit *H. pylori* induced GIDs. Healthy lifestyle and yoga therapy are found helpful in prevention and curing APDs without side effects.<sup>10</sup> Balanced diet is very important as evidence says that consumption of excessive salt, nitrites and fatty acids increase the risk of APDs while fruits and vegetable diet reduce the same.<sup>27</sup> According to various studies moderate physical activity decreases bacterial infection and controls duodenal ulcer.<sup>4</sup> Researches have suggested that intake of polyphenol in diet help in reduction of various chronic illnesses including APDs.<sup>9</sup> *Vatasara Dhauti* (Yogic gut aeration technique) as mentioned in yogic classical text *Gheranda Samhita* (GS) is helpful in curing all GIDs and stimulating digestive fire.<sup>21</sup>

*H. pylori* is an anaerobic bacterium which dies in longer presence of oxygen.<sup>13</sup> Sucking air through *Kaki Mudra* (yogic gesture of sucking air by making mouth like crow's beak) one should move the air in pyloric region by adopting inverted postures. Regular practice of the same can be helpful in inhibiting it.<sup>14</sup> This paper will critically review the available evidences from published scientific literatures to see analyze efficacy of yoga and natural

lifestyle treatments on APDs. If the hypothesis: maneuvering oxygen in the pyloric region of the stomach by yogic technique inhibits *H. pylori* induced GIDs as proposed by Malshe<sup>15</sup> will come to be clinical trials, this will be of great importance for the patients of APDs concerned government and other stakeholders to reduce the medical cost and untimely deaths and improve quality of life and work performance especially among the patients.

**Method:** Researches using non-pharmacological treatments- yoga therapy, lifestyle, and diet modification for managing APDs were reviewed. And researches on rats and non-humans were excluded. To identify available studies on APDs and its CAM modalities like diet, lifestyle and yoga therapy with the least side effects were accessed by using the key terms: effect of diet, lifestyle, alternative management and yoga on APDs, cost & side effects of PPIs, and inexpensive treatments of APDs from the databases (Google Scholar, Pub Med, Medline, Elsevier and Willey). Firstly, the downloaded research papers were read to understand their appropriateness for inclusion in this study. To find the intensity and magnitude of the APDs and their widely used CAMs worldwide, we reviewed 4 books (2 yogic classical texts, 1 to understand the pathophysiology of APDs and 1 book on yoga therapy from a medical point of view), 19 research papers (1 cohort study, 2 randomized trials, 1 case study, 3 exploratory researches, 5 review papers, 1 meta-analysis, 1 research paper on diet therapy, 1 paper on exercise therapy, 3 papers on pharmacological approach and 1 medical hypothesis on the yogic management of APDs) published from 2000 to 2017.

### Results and Discussion

**Pharmacological Approach:** The PPI treatment of APDs is not reducing the risk factors of ulcer patients taking NSAIDs and the paradigms have shown the need of new medicines after looking at the speed and

duration of PPIs' treatment.<sup>16</sup> APDs induced stomach cancer is quite common and around 700,000 died because of stomach cancer in year 2002 despite the PPI treatment.<sup>19</sup>

**Stress, Gastric Ulcers and Yoga:** A registered based cohort study showed stress as a risk factor for further progression of disease in patients with peptic ulcer even after receiving triple treatment (PPI or H<sub>2</sub>-receptor antagonistic with 2 antibiotics).<sup>6</sup> Secretion of GIT hormones is regulated by Autonomic Nervous System (ANS) and Central Nervous System (CNS) so disorders of CNS and ANS are said to be responsible for causing GIDs.<sup>11</sup> According to these studies, yoga and meditation can be helpful in reducing stress caused sympathetic dominance, the level of stress hormones and severity of GIDs. Regular practice of yoga was found beneficial to overcome symptoms of GIDs.<sup>17</sup>

**Other Alternative Treatments:** A randomized trial on APD's management program in a managed care environment has shown reduction in use of PPI therapy.<sup>18</sup> Dietary intake of polyphenol in management of peptic ulcer showed no side effects and oral consumption of polyphenol caused a very few side effects as compared to PPIs and showed pharmacological effects in the treatment of APDs.<sup>9</sup> Review on alternative treatments for H. pylori showed that treatment through plants, probiotics, and nutraceuticals lessens side effects of PPIs and promotes health without eradicating H. pylori.<sup>2</sup> Moderate physical activities and regular exercise reduce H. pylori infections but excess of the same can adverse the condition.<sup>4</sup>

**Yoga Therapy for GIDs:** Yoga practice like Kapalbhati (conscious forceful exhalations) and *Agnisar Kriya*<sup>8</sup> (abdominal) are beneficial for GERD.<sup>3</sup> Use of PPIs with *Kapalbhati* and *Agnisara Kriya* helped control GERD symptoms in patients of hiatus hernia which were resistant to the use PPIs alone.<sup>26</sup>

Indigestion, acidity and gastric troubles depend on way of feeling and thinking. *Paschimottanasana*<sup>21</sup> (seated head to knees pose with hands holding respective feet) and *Mayurasana* (peacock pose) stimulate digestive fire<sup>8</sup>; *Dhauti* and *Basti*<sup>21</sup> clean GIT; *Pranayamas* like *Shitali* and *Ujjayi*<sup>8</sup> help overcome APDs. H. Pylori- the root cause of APDs dies in exposure of oxygen and *Vatasara*<sup>21</sup> is the yogic technique of ingesting air through *kaki mudra* and retaining it into pyloric region and moving it downward part of the gut. And oxygen ingested with air is helpful to inhibit the H. pylori. Practicing an inverted posture immediately after ingesting air through *kaki mudra* can be helpful to inhibit H. pylori.<sup>15</sup>

APDs are common cause for stomach cancers which is the 3<sup>rd</sup> leading cause of cancer death in the worldwide.<sup>25</sup> Around 700,000 people died in 2002 due to the same problem. H. pylori induces APDS and stress can aggravate them. Pharmacological treatments for the same are not only costly but leave the patient with various side effects. The long-term use of these treatments by the patient develop resistant towards the medicines. And among CAMs, some therapies were useful with medications while some showed minor side effects. Yogic techniques with medication were also enabled to reduce PPIs' intake according to some of the reviewed articles. But if any technique which challenges to cure APDs without using PPIs would be a boon for the APDs' patients and the concerned care providers. And the yogic gut aeration technique medically hypothesized and argued by Malshe<sup>15</sup> has potential to treat APDs without side effects and medicines. This warrants the need of further clinical trials to justify Malshe's medical hypothesis regarding yogic gut aeration technique to inhibit H. pylori and treat APDs induced by it.

**Conclusion:** The intensity and magnitude of APDs among the Indian population is notable and employed pharmacological treatments like

antacids, PPIs and antibiotics are insufficient for their cure and induce side effects. The CAM modalities like yoga, meditation, diet and exercise with medications may be supportive to moderate them. Interestingly, yogic gut aeration technique as published by Malshe<sup>15</sup> in Medical Hypotheses to inhibit H. pylori and APDs caused by it seems really captivating to be tested in further RCTs. If its efficacy will be evidenced as advocated by him in RCTs, that will be of great value and hope for the APDs' patients and all care providers.

**Limitations:** The research papers included in this review are lacking comparative experimental research designs to conclude superiority of CAM modalities over usual pharmacological treatment. RCTs on CAM modalities to manage APDs were unavailable which shows the need of the same in future. Researches made till now on yoga for APDs could not show efficacy of yoga therapy to treat them without PPIs. This review lacks meta-analysis to be more informative.

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