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## **A literature review on non-pharmacological treatments for irritable bowel syndrome (IBS)**

Wojciech Urban

Wojewódzki Szpital Specjalistyczny im. Stefana Kardynała Wyszyńskiego SPZOZ w  
Lublinie wojtekurban17@gmail.com

Orcid ID: <https://orcid.org/0009-0009-1565-0595>

Kornelia Karamus

Uniwersytecki Szpital Kliniczny nr 4 w  
Lublinie kornelia.karamus@interia.pl

Orcid ID: <https://orcid.org/0000-0001-7453-1427>

Rafał Wojciech Rejmak

Uniwersytecki Szpital Kliniczny nr 4 w  
Lublinie rrejmak@gmail.com

Orcid ID: <https://orcid.org/0009-0002-9422-8550>

Jan Biłogras

1 Wojskowy Szpital Kliniczny z Polikliniką SPZOZ w

Lublinie janbilogras@gmail.com

Orcid ID: <https://orcid.org/0009-0002-6038-9217>

Martyna Borowska-Łygan

Mazowiecki Szpital Specjalistyczny w

Radomiu borowskamartyna123@gmail.com

Orcid ID: <https://orcid.org/0009-0001-9402-7444>

Konrad Strużek

Wojewódzki Szpital Specjalistyczny im. Stefana Kardynała Wyszyńskiego SPZOZ w

Lublinie konradstruzek@gmail.com

Orcid ID: <https://orcid.org/0009-0000-3146-5132>

Jakub Tomaszewski

Uniwersytecki Szpital Kliniczny nr 4 w

Lublinie jakub.t.tomaszewski@gmail.com

Orcid ID: <https://orcid.org/0009-0009-9384-4643>

## **ABSTRACT**

### **Introduction**

Irritable bowel syndrome (IBS) is a prevalent condition involving the gut–brain interaction where individuals commonly experience recurring abdominal pain, changes in bowel movements, and frequently bloating.

## Aim

The aim of this study was to review literature studies on IBS and non-pharmacological methods for treating this condition.

## Method

Data for the article were retrieved by using Pub Med setting the time descriptor to 2019-2024.

## Conclusions

Treating irritable bowel syndrome (IBS) continues to be challenging, as each patient needs a tailored approach. Once the correct IBS subtype is diagnosed, treatment should target the primary symptoms, such as bloating or diarrhea. Non-pharmacological treatment plays a initial, crucial and rapidly developing role in IBS therapy.

## Keywords

Irritable bowel syndrome, non-pharmacological treatment, dietary, brain-gut axis, FODMAP

# INTRODUCTION

Irritable bowel syndrome (IBS) is a chronic functional gastrointestinal disease of unknown origin. IBS is a common condition affecting from 10 to 20% of the general population, with a slightly higher incidence in women [1]. Its main symptoms are abdominal pain and alteration of bowel habits, both diarrhea and constipation. Based on the primary pattern of bowel habit changes, The Rome IV criteria categories IBS into four types: IBS with constipation (IBS-C), IBS with diarrhea (IBS-D), IBS with a mixed pattern of constipation and diarrhea (IBS-M), and unclassified IBS [2].

This clinical review will focus on the pathophysiology and latest non-pharmacological ways to treat IBS.

## **PATHOGENESIS OF IBS**

The development of IBS is influenced by both host and environmental factors, but the exact mechanisms are still not fully understood. Irritable bowel syndrome (IBS) is classified as brain-gut disorders, among other functional gastrointestinal conditions [3]. The brain-gut axis allows emotions to influence the gastrointestinal functions such as motility or barrier integrity. Conversely, gastrointestinal stimuli can also affect mental processes [4]. Researches have shown that IBS sufferers have increased secretion of dopamine and serotonin [5]. Regarding intestinal microbiota, their role in pathogenesis of IBS is uncertain, even though they are probably involved in barrier function alteration and mucosal inflammation [6,7]. Several studies tried to characterize the gut microbiota in IBS patients but the results remain unclear. Probably such factors as diet and geographic location have a big part in gut microbiota composition [6-9]. Environmental factors including stress, infections, diet and food intolerance play a big role in IBS pathophysiology.

Importance of psychological impact in IBS is certain, as conditions such as depression and anxiety are often linked to IBS syndromes [8,10].

## **DIAGNOSIS**

IBS is diagnosed by ruling out other potential organic causes. Considering that so many different factors may lead to this disorder, treatment of IBS is multidisciplinary, complex and tough including both pharmacological and non-pharmacological therapies. Person - centered approach to the patient is crucial [8].

## **BASIC DIETARY RECOMMENDATIONS**

Most important non-pharmacological ways of treating IBS are physical exercises, stress reduction and appropriate diet. According to the publication of the British Gastroenterological Society [11] and updated guidelines from the American College of Gastroenterology dietary advice should be considered as first line treatment. The National Institute for Health and Care Excellence offers

several dietary recommendations for IBS patients, including regular meal patterns, avoiding large meals, consuming nearly two liters of liquid daily, reducing alcohol and fizzy drinks and limiting fat, caffeine, alcohol, carbonated beverages and gas-producing foods [12].

## **FODMAP DIET**

Diet low in FODMAP (which limits fermentable oligosaccharides, disaccharides, monosaccharides, polyols and LFD) is currently considered the most effective dietary approach for IBS patients [13]. FODMAP trigger IBS symptoms by influencing the gut-brain axis [14]. The American College of Gastroenterology recommends implementing diet low in FODMAP in three stages. First phase is a strict diet lasting no more than four to six weeks. During the second stage we gradually reintroduce the FODMAP food. The last step is personalized approach based on the results of the previous phase [15]. The short-term effectiveness and safety of LFD, when compared to a Western or conventional diet, in alleviating symptoms in IBS patients are well-established [16]. Of course, healthy well balanced diet should form the foundation of nutrition.

## **FOOD INTOLERANCE**

There are no conclusive results in terms of using gluten-free diet in IBS treatment. Concededly some benefits of gluten-free diet were observed in a few studies but it is probably because of low FODMAP components [17]. The role of lactose intolerance is also not certain. However some studies show that decreased amount of lactose intake can help with some of IBS syndromes [18].

## **FIBERS**

When it comes to fiber intake, the type of fiber, daily consumption, and IBS subtype are crucial factors [19]. For example insoluble fibers (such as those found in wheat, corn) have no positive impact on treating IBS syndromes and can even worsen the symptoms and cause such side effects as constipation, bloating or pain [20-24]. Soluble fibers on the other hand are much more beneficial for IBS sufferers. The best in IBS therapy among all other soluble

fibers are viscous low fermentable fibers like ispaghula and psyllium. They reduce such syndromes as bloating, abdominal distention and flatulence [23-26]. The American Academy of Nutrition and Dietetics suggests the daily intake of the psyllium of 25 g for women and 38 g for men. Such recommendations are advisable not only for IBS suffering patients but also for the healthy ones [27]. Bulking polymers are a good alternative for soluble fibers in IBS treatment. They improve stool consistency by absorbing water [28]. Linseeds are other type of food that have positive impact on IBS suffering patients. The daily intake of them are two tablespoons taken with fluids [29].

## **PROBIOTICS, FECAL MICROBIOTA TRANSPLANTATION**

Probiotics are live nonpathogenic microorganisms (bacterias, yeasts) that administered can have beneficial effect on hosts health mainly over digestive system. To achieve the desired results of probiotics use, appropriate dose of them is required [30]. IBS patients have a different gut microbiota than healthy individuals, and this understanding helps guide treatment strategies [31].

Healthy people's microbiome is more varied then IBS suffering patients. Many different factors like genetics, smoking, diet, depression and past surgeries affects bacterial composition [32]. Scientific researches showed that IBS suffering individuals have low amount of some bacterias especially *Lactobacillus* sp. and *Bifidobacterium* sp [32]. Therefore, products containing these bacteria, as well as *Saccharomyces* species, significantly reduce IBS symptoms by modulating metabolism and reducing low-grade inflammation [33]. Changes in intestinal microbiota is promising new treatment option in IBS therapy. The fact that there are not many datas about using certain species of bacterias, duration of the treatment or side effects of probiotics therapy is a big disadvantage [34,35]. Despite these limitations, probiotics are still regarded as a strong recommendation for managing IBS [36,19]. The newest guidelines on the use of probiotics recommend taking them for a period of 12 weeks and discounting if there is no improvement [11]. Fecal microbiota

transplantation (FMT) is a emerging treatment for IBS sufferers. This method is currently approved only for resistance *Clostridium difficile* infection [42]. The effectiveness in the treatment of IBS is contradictory. In an RTC involving 90 patients with IBS-D or IBS-M, FMT administered to 55 patients via colonoscopy demonstrated significant clinical effectiveness compared to placebo [43]. However, another RTC, which included 52 IBS

patients who received either active FMT or placebo capsules for 12 months, did not reveal any beneficial effect in favor of FMT [44]. Considering the results of above mentioned results, further research is necessary to explore the use of FMT in the treatment of IBS.

## **COMPLEMENTARY MEDICINE METHODS**

Considering the fact that IBS syndromes are strictly related to psychosocial factors, alternative and complementary medicine has found a role in the treatment of this disorder. Hypnotherapy, relaxation and cognitive - behavior therapy could be helpful for IBS sufferers. However the use of this methods is restricted due to high costs, lengthy treatment duration and limited acceptance by both patients and clinicians [8, 37]. Traditional Chinese Medicine (TCM) treatments such as acupuncture and moxibustion are another approaches for managing IBS disease. Although they are still considered as complementary methods, recent studies have shown their significant potential. The mechanisms through which they may work include regulating the enteric nervous system, enhancing gastrointestinal motility, reducing visceral hypersensitivity, balancing intestinal microbiota, and modulating the immune system to help alleviate IBS symptoms [38]. Finally Chinese herbal treatments were shown to be effective in symptom control but with no statistical difference than pharmacological therapy based on antispasmodics. However these methods have a lot more side effects including skin rash and elevated level of liver enzymes than the conventional methods [39].

## **PHYSICAL ACTIVITY**

Systematic physical activity is beneficial to overall body functioning and lowers chronic diseases such as heart disorders, diabetes or cancers. Beyond its physical benefits, regular exercises enhance mental condition improving cognitive functions like thinking and learning. It also reduces anxiety and depression. The World Health Organization recommends that adults participate in moderate - intensity aerobic exercise for at least 150-300 minutes per week, or at least at 75-150 minutes of vigorous aerobic exercise weekly, or combination of both of them. Additionally adults should perform muscle-strengthening exercises at least two times a week to achieve more health benefits [40]. The National Institute for Health and Care Excellence reminds the importance of educating IBS sufferers about physical activity for the

prevention and treatment for IBS syndromes. IBS patients should receive specific advises about physical activities that are suitable for them.

According to the latest researches slow, gentle and low-intense activity like yoga, walking, cycling or swimming seems to be the best option for IBS sufferers. Such recommendations are specifically important to patients who have led relatively sedentary lifestyle before [41].

## **SUMMARY**

Irritable bowel syndrome (IBS) is a common, idiopathic disease that poses a challenge both in terms of diagnosis and treatment. Diagnosing IBS involves ruling out other organic conditions by thoroughly reviewing the medical history, conducting a physical examination, and performing specific diagnostic tests. The treatment of IBS is also challenging. Two treatment paths are possible: pharmacological and non-pharmacological. As for non-pharmacological one, appropriate, well-balanced diet with regular meal patterns and an avoidance of large meals seems to be the most important. LFD diet has promising results in the latests studies in terms on alleviating IBS syndromes. However, long-term use of low FODMAP diet requires further research. Additional studies are also required to investigate the effect of gluten and lactose in IBS syndromes. The benefits of soluble fiber intake are well-established, especially ispaghula and psyllium. Probiotics, prebiotics and synbiotics are common utilized therapeutic option. Complementary medicine methods like hypnotherapy, cognitive behavioral therapy is increasingly used in IBS treatment. The use of Traditional Chinese Medicine (TCM) and fecal microbiota transplantation (FMT) treatments are promising but additional research is needed. The key role of regular physical activity in IBS therapy is undoubted.

## **DISCLOSURES**

Conceptualization: Wojciech Urban and Konrad Strużek

Methodology: Wojciech Urban, Jakub Tomaszewski and Kornelia Karamus

Software: Jan Biłogras and Martyna Borowska- Eygan

Check: Wojciech Urban and Konrad Strużek

Formal analysis: Martyna Borowska-Eygan and Kornelia Karamus

Investigation: Konrad Strużek

Resources: Wojciech Urban and Rafał Wojciech Rejmak

Data curation: Jan Biłogras and Jakub Tomaszewski

Writing - rough preparation: Wojciech Urban and Konrad Strużek

Writing - review and editing: Konrad Strużek and Jan Biłogras

Visualization: Martyna Borowska-Eygan;

Supervision: Wojciech Urban

Project administration; Jan Biłogras and Rafał Rejmak

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