

Efficacy of a Low FODMAP Diet and Probiotics in the Treatment of Irritable Bowel Syndrome in Adults

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Introduction

Irritable bowel syndrome (IBS) is characterized by abdominal pain in relation to altered bowel habits in the absence of organic disease, and it affects 5-10% of the US population¹.

Pharmacological treatments target intestinal motility and symptoms such as diarrhea and constipation. However, many individuals require additional measures². A diet low in FODMAPs and adjuvant therapy with probiotics are shown to be helpful in the management of IBS¹. Though not routinely recommended yet, newer evidence shows that probiotics may be helpful for certain individuals. This presentation reviews the efficacy of a low FODMAP diet (LFD), supplementation with probiotics, and a combination of the two in the treatment of IBS in adults.

Causes of IBS

It is thought that abnormal GI motility, altered brain-gut communication, visceral hypersensitivity, low-grade inflammation, and other factors contribute to the development of IBS³. Certain foods also cause IBS symptoms. Fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAPs) are poorly absorbed and cause gas build up^{4,5}.

These foods also lead to increased fluid secretion and fermentation, causing symptoms such as bloating and pain⁵.

In addition, it has been shown that there is a higher permeability in the intestinal barriers of individuals with IBS⁶. This can lead to an overgrowth of pathogenic bacteria that contribute to fermentation of certain foods, worsening gas production and affecting intestinal motility⁶.

Rome IV Criteria for Diagnosis of IBS⁷

Recurrent abdominal pain on average of ≥ 1 day per week in the last 3 months, associated with two or more of the following criteria:

1. Relation to defecation
2. Associated with a change in frequency of stool
3. Associated with a change in the form (appearance) of stool

Treatment Options

For the control of symptoms of IBS, the American College of Gastroenterology (ACG) currently recommends laxatives or antibiotics, a trial of a low FODMAP diet, soluble fiber, and peppermint⁸. The ACG currently suggests against probiotics, antispasmodics, insoluble fiber, and fecal transplants⁸.

Results

LFD

- High FODMAP foods are correlated with increases in IBS symptoms³
- LFD is effective in reducing bloating and abdominal pain associated with IBS⁹
- LFD correlates with an improvement in stool consistency and appearance across all subtypes of IBS, especially IBS-D⁹
- LFD is superior in reducing IBS symptoms compared to traditional dietary advice⁴
- Reintroduction of high FODMAP foods correlated with an increase in quality of life compared to baseline³

Probiotics

- Of various strains of bacteria used in probiotics, *Lactobacillus*, *Bifidobacterium*, and *Bacillus* are the most effective¹
- Those using probiotic supplementation in 4-week treatment periods over the course of 1 year had a decrease in symptoms while being treated and an increase when not³
- Over the course of 1 year, periodic probiotic treatment was as effective as a LFD with reintroduction of foods³
- Probiotics may normalize stool compared to placebo^{9, 10}
- There is more evidence showing the effectiveness of probiotics than a LFD in treating IBS¹

Combination of LFD and Probiotics

- Studies suggest that probiotic supplementation in combination with the LFD has greater benefit for IBS symptom relief than the LFD alone¹¹
- The LFD reduces levels of *Bifidobacterium* species². Reduced levels of this bacterium can lead to increases in abdominal pain and other IBS symptoms². Supplementation with *Bifidobacterium* in addition to the LFD may have better efficacy in the improvement of IBS symptoms².

Conclusion

Both a LFD and probiotics reduce IBS symptoms such as abdominal pain, bloating, and normalization of stool in many individuals. However, results are not consistent among studies. Each treatment type was superior to the other in some cases, and other times equal in efficacy. There was also a high placebo response rate in several instances. This suggests that simply keeping a food diary and increasing awareness of dietary and lifestyle choices may improve symptoms.

Those trialing a LFD should be guided by a dietician to maintain healthy levels of nutrients such as fiber, to identify certain foods that worsen symptoms, and to tailor the diet to an individual's culture and food availability³.

Multiple approaches, including medications, dietary changes, increased quality of sleep, and physical activity will often be needed¹².

Future Directions

More double-blind studies in the same individuals comparing the LFD to probiotics are needed. In addition, treatment over longer periods of time would be beneficial to analyze whether efficacy of either treatment changes. Probiotic dosing should be standardized. Treatments for isolated subtypes of IBS should also be examined.

Sources

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