

It is very common for patients with inflammatory bowel disease (IBD) to have questions about how their diet may worsen and/or help reduce inflammation in the gastrointestinal tract (gut).

These are important questions, as diet impacts the balance of “good” versus “bad” gut microorganisms (i.e., bacteria, fungi, and viruses - collectively referred to as the gut microbiota) as well as helps dampen down inflammation and support the protective cells that line the gut.

Consuming a well-balanced diet will promote a healthy gut and keep inflammation in check.

If you do experience a flare-up (i.e., gut symptoms due to active inflammation) then please refer to the **“Nutrition during an IBD Flare” handout** (<https://www.ibdcentrebc.ca/2023/03/nutrition-during-ibd-flare/>) and/or contact the IBD Centre of BC to arrange an appointment with an IBD Dietitian.

## Summary of the Key Nutritional Aspect to Consider:

- Increase fibre intake
- Regular vitamin D3 supplement
- Include rich sources of omega-3 fatty acids
- Choose high-quality protein sources
- Limit processed foods and food additives
- Add fermented foods to your diet
- Monitor nutritional status annually

## Increase Fibre

### What is fibre?

Fibre is an indigestible type of carbohydrate that offers many health benefits. A diet with adequate amounts of dietary fibre is associated with improved gut health, fewer metabolic diseases, and IBD symptom management.

### What is fibre?

Aim to incorporate  $\geq 25$  g/d of fiber for women and  $\geq 38$  g/d of fiber for men into your diet.

### What is the relationship between fibre and the gut microbiota?

Gut dysbiosis refers to the altered function and composition of the gut microbiota. It disrupts intestinal homeostasis, promoting immune activation and inflammation in the gut. Gut dysbiosis is often seen in patients with IBD and is marked by decreased microbial diversity and abundance of commensal or “good” bacteria, and increased levels of pathogenic or “bad” bacteria in the intestine. Fortunately, the consumption of fibre during remission can help reduce symptoms associated with IBD. A high-fibre diet can help promote intestinal homeostasis by improving microbial composition and diversity in the gut.

### What are some foods that contain fibre?

- Apples
- Pears
- Citrus fruits
- Carrots
- Broccoli
- Peas
- Whole nuts
- Barley
- Roots
- Chia seeds

If there are fibre-containing foods that have previously caused gut symptoms, you could try adding a “new” fibre-containing food back into your diet one at a time. It is best to wait 1-2 days between each new food that is tried so you can be sure you tolerate it.

An appointment with an IBD Dietitian at the IBD Centre of BC can be arranged to assist you in deciding on the amounts and types of foods to add back into your diet.

For some people, soluble fibre may be better tolerated than insoluble fibre. Soluble fibre dissolves in water and forms a gel-like substance as it passes through the digestive tract. Its gel-like property helps slow down the digestion of foods. Some foods that contain soluble fibres include oats, citrus fruits, barley, chia seeds, avocado, and chickpeas. Insoluble fibre does not dissolve in water and increases the bulk of the stool, decreasing the transit time. Some foods that contain insoluble fibres include wheat bran, beans, and most vegetables. If you would like to learn more about which foods contain each fibre type refer to the “**Low Insoluble Fibre Diet**” handout (<https://www.ibdcentrebc.ca/2021/02/low-insoluble-fibre-diet/>).

## Regular vitamin D3 supplement

### **What is vitamin D? And what is the difference between vitamin D2 and D3?**

Vitamin D is a fat-soluble vitamin that plays a significant role in maintaining bone health. It exists in two main forms: vitamin D2 (ergocalciferol) and D3 (cholecalciferol). These two forms differ chemically and are predominantly present in different food sources. Vitamin D2 is commonly found in mushrooms, some fortified foods, and supplements, while vitamin D3 is found in animal sources like fatty fish, egg yolk, fortified dairy products, and plant-based milk. Furthermore, our bodies also make vitamin D3 through exposure to sunlight.

### **Why is vitamin D3 important in IBD?**

Vitamin D provides many health benefits for patients with IBD. Not only does it possess anti-bacterial and anti-inflammatory properties, but it also plays a critical role in maintaining gastrointestinal barrier integrity. These properties allow vitamin D to improve symptoms associated with IBD. While both forms of vitamin D are adequately absorbed in the intestine, vitamin D3 appears to be the superior form in increasing serum vitamin D levels compared to vitamin D2. Therefore, vitamin D3 is the recommended form for consumption.

### **What amount of vitamin D3 should you aim for?**

As dietary sources of vitamin D are low and we are reliant on sun exposure to maintain adequate vitamin D levels in the blood, which can be difficult, especially during winter months, aim to take 2000 IU per day of vitamin D3 from a supplement.

## Include rich sources of omega-3 fatty acids

### **Why include foods high in omega-3 fatty acids?**

Omega-3 fatty acids are essential and healthy fats that your body is unable to make. They are known for their anti-inflammatory properties and may be helpful in the treatment of inflammatory disorders, such as IBD. Research suggests that omega-3 fatty acids may help reduce intestinal inflammation, decrease the frequency and severity of IBD symptoms, relieve pain associated with IBD, and potentially promote IBD remission.

### **What amount should you aim for?**

Aim to incorporate 400-500 mg of DHA and EPA combined per day. To achieve this eat at least 2 or more servings (~75 g per serving) of fatty fish, such as salmon, mackerel, sardines, and anchovies each week. Also include other rich food sources of omega-3 fatty acids in your diet such as walnuts, hemp heart, chia seeds, and flaxseeds. Omega-3 supplements can be consumed instead of food sources for those who are vegan/vegetarian, dislike fish, or cannot tolerate plant sources of omega-3.

### Why should you choose foods over supplements?

Omega-3 fatty acids are better absorbed in food-sources than supplements. Additionally, food sources, such as fatty fish, offer other healthy nutrients in addition to omega-3 fatty acids, such as protein, vitamin D, riboflavin, iron, zinc, iodine, magnesium, phosphorus, calcium, and potassium.

## Choose high-quality protein sources

### What is protein?

Protein is an essential macronutrient that plays many critical roles in your body such as participating in metabolic reactions, muscle and tissue development and repair, and synthesizing enzymes, hormones, and other essential molecules.

### What amount should you aim for?

Aim for 1g of protein per kilogram of body weight per day. For example, if you weigh 60 kg, you would require 60 g of protein daily.

### Limit processed foods and food additives

Red, processed, and smoked meats increase cancer risk and are pro-inflammatory. Limit red meats to less than 250g (approx. 1 cup) per week and processed and smoked meats to less than 30g (approx. 2 tablespoons) per week.

### What are some protein sources?

<b>Animal Protein Sources</b>	Eggs, lean meats (ie. chicken breasts), fish, low-fat dairy (ie. milk, cottage cheese, yogurt)*  *Use dairy alternatives if intolerant or sensitive to lactose or dairy products (ie. Soy milk)
<b>Plant Protein Sources</b>	Soybeans, silken tofu, textured soy products like chunks or granules, soy paneer/tofu, well-cooked legumes, pulses (ie. peas and lentils), nuts, and seeds

## Limit processed foods, ultra-processed foods, and food additives

### What are processed foods and ultra-processed foods?

<b>Processed foods</b>	Processed foods (PF) involve the addition of sugar, oil, salt, butter, honey, or starches to unprocessed or natural foods.  Examples of PF include canned or bottled vegetables, fruits, and legumes; salted or sugared nuts and seeds; salted, cured, or smoked meats; canned fish; fruit in syrup; cheese and unpackaged freshly made bread; alcoholic drinks produced via fermentation (ie. beer, cider, and wine).
<b>Ultra-processed foods (UPF)</b>	Ultra-processed foods (UPF) are foods that have undergone extensive levels of industrial processing through the addition of 5 or more of the following ingredients: salt, sugar, preservatives (ie. nitrites and sulfites), stabilizers, oils, fats, and additives.  Examples of UPFs include smoked meats, cakes, soft drinks, carbonated drinks, poultry or fish “nuggets” or “sticks”, pizza, shelf-stable foods, alcohol, and artificial sweeteners.

### Why limit these foods?

These foods contain nutrients (saturated fat, refined sugar) and food additives (sweeteners and emulsifiers) that are known to alter the gut microbiota and promote inflammation.

### List of additives and the foods they are commonly found in

- Maltodextrin - Dairy products, frozen desserts, cereal baked goods, meat products etc.
- Artificial sweeteners - sugar-free or diet soft drinks, baked goods, jams/jellies etc.
- Carboxymethylcellulose (emulsifier) - Instant soups, noodles, & mashed potatoes
- Carrageenan (emulsifier) - Chocolate milk, whipping cream, milk alternatives, cottage cheese
- Nanoparticles and sulfites (ie. Titanium dioxide and sulfites) - Candies, pastries, chewing gum, coffee creamers, cake decorations, chocolates etc.

## Aim to add fermented foods to your diet

### What are fermented foods?

Fermented foods are beverages or foods that are made through a process of creating or changing the properties of food using microbes.

### Why include fermented foods in your diet?

Fermented foods can benefit individuals with IBD as its fermentation processes allow for increased bioaccessibility and bioactivity of compounds found in food (ie. proteins and carbohydrates). Fermented foods are also a good source of **probiotics** and **postbiotics**.

- **Probiotics** are living microorganisms, such as bacteria and yeast, that offer many health benefits. There are two common strains of bacterial probiotics: Lactobacillus and Bifidobacterium.
- **Postbiotics** are byproducts produced through the fermentation process of probiotics in the gut. Examples of these byproducts include short-chain fatty acids (SCFAs), peptides, organic acids, and certain metabolites.

Incorporating fermented foods into your diet can help support probiotic growth and postbiotic production, which can beneficially modulate the gut microbiota. In other words, probiotics can support the restoration of intestinal microbial balance in individuals with gut dysbiosis. The consumption of probiotics or “good bacteria” can improve intestinal microbial composition by promoting the dominance of “good bacteria” in the gut. By improving microbial diversity in the gut, reduced inflammation and beneficial effects to the immune system can be seen.

It is also worth noting that fermented foods often produce more gas than other foods. If you experience bloating and discomfort after consuming fermented foods, please speak with your healthcare provider.

### Examples

- Kimchi
- Tempeh
- Miso
- Kombucha
- Sauerkraut
- Yogurt
- Kefir

## Monitor nutritional status annually

- Iron (ferritin)
- Vitamin B12
- Vitamin D

Some of the above nutritional biomarkers are affected by inflammation. It is helpful to get baseline lab readings of these biomarkers during remission. Monitor these biomarkers, especially if you're vegan, vegetarian, underwent small bowel resection, have blood in your stool, or have poor oral intake and have experienced weight loss.

If you are on methotrexate you should also be taking a folic acid supplement. If this hasn't been advised to start folic acid speak to your healthcare provider. You should be taking 5 mg of folic acid once per week on a different day from when you take methotrexate.

## Additional advice

If needed, speak with an IBD dietitian (ask for a referral to see an IBD Centre of BC Dietitian) on ways you can manage your GI symptoms during remissions (ie. Low FODMAP, the Mediterranean Diet).

Exercise, particularly strength training, during remission of IBD can help minimize loss of muscle function and is potentially associated with lower risks of future active IBD.

If you're experiencing anxiety or depression, the following resources may be helpful:

- **Mindfulness** - <https://crohnsandcolitis.ca/Support-for-You/Gutsy-Learning-series/Past-Gutsy-Learning-Presentations/Gutsy-Learning-Events/Mindfulness-in-Inflammatory-Bowel-Disease-1-1>
- **Counselling** - ask to be referred to the IBD Centre of BC clinical counselor if needed
- **HealthLink BC Resources** - <https://www.healthlinkbc.ca/health-topics/depression-anxiety-and-physical-health-problems>
- **Lyfe MD app** - provides novel diet and lifestyle therapies for people with IBD - <https://www.lyfemd.ca/professionals/ibd/>

## Recipe Ideas

- **Feasting at Home Best Mediterranean Diet Recipes** - <https://crohnsandcolitis.ca/Support-for-You/Gutsy-Learning-series/Past-Gutsy-Learning-Presentations/Gutsy-Learning-Events/Mindfulness-in-Inflammatory-Bowel-Disease-1-1>
- **Food Network Mediterranean Diet Recipes** - <https://www.foodnetwork.com/recipes/packages/global-flavors/weeknights/mediterranean-diet-recipes>

## Contact details

### Gina Almasan

IBD Centre of BC Dietitian  
[galmasan@ibdcentrebc.ca](mailto:galmasan@ibdcentrebc.ca)

### Genelle Lunken

IBD Centre of BC Dietitian  
[genelle@ibdcentrebc.ca](mailto:genelle@ibdcentrebc.ca)

## Resources Used

Alayed Albarri, E. M., Sameer Alnuaimi, A., & Abdelghani, D. (2022). Effectiveness of vitamin D2 compared with vitamin D3 replacement therapy in a primary healthcare setting: a retrospective cohort study. *Qatar medical journal*, 2022(3), 29. <https://doi.org/10.5339/qmj.2022.35>

Barbalho, S. M., Goulart, R.deA., Quesada, K., Bechara, M. D., & de Carvalho, A.deC. (2016). Inflammatory bowel disease: can omega-3 fatty acids really help?. *Annals of gastroenterology*, 29(1), 37–43. <https://pubmed.ncbi.nlm.nih.gov/26752948/>

Canada, H. (2019, January 22). Government of Canada. Canada.ca. <https://www.canada.ca/en/health-canada/services/nutrients/fibre.html>

Fletcher, J., Cooper, S. C., Ghosh, S., & Hewison, M. (2019). The Role of Vitamin D in Inflammatory Bowel Disease: Mechanism to Management. *Nutrients*, 11(5), 1019. <https://doi.org/10.3390/nu11051019>

Ioniță-Mîndrican, C. B., Ziani, K., Mititelu, M., Oprea, E., Neacșu, S. M., Moroșan, E., Dumitrescu, D. E., Roșca, A. C., Drăgănescu, D., & Negrei, C. (2022). Therapeutic Benefits and Dietary Restrictions of Fiber Intake: A State of the Art Review. *Nutrients*, 14(13), 2641. <https://doi.org/10.3390/nu14132641>

Loubet Filho, P. S., Dias, T. O., Reis, V. H., Moya, A. M., Santos, E. F., & Cazarin, C. B. (2022). Feed your gut: Functional Food to improve the pathophysiology of inflammatory bowel disease. *Journal of Functional Foods*, 93, 105073. <https://doi.org/10.1016/j.jff.2022.105073>

Narula, N., Chang, N. H., Mohammad, D., Wong, E. C. L., Ananthakrishnan, A. N., Chan, S. S. M., Carbonnel, F., & Meyer, A. (2023). Food Processing and risk of inflammatory bowel disease: A systematic review and meta-analysis. *Clinical Gastroenterology and Hepatology*, 21(10). <https://doi.org/10.1016/j.cgh.2023.01.012>

National Institute of Health. (2023, September 18). Office of dietary supplements - vitamin D. NIH Office of Dietary Supplements. <https://ods.od.nih.gov/factsheets/VitaminD-HealthProfessional/#:~:text=Vitamin%20D%20promotes%20calcium%20absorption,leading%20to%20cramps%20and%20spasms>

Nova Scotia Collaborative IBD Program. (n.d.). Omega-3 fatty acids. NSIBD. <https://www.nscibd.ca/resources/educational-modules/inflammatory-bowel-disease-and-omega-3-fatty-acids#:~:text=Can%20omega%2D3%20fatty%20acids,relieve%20IBD%2Drelated%20joint%20pain>

Washington State Department of Health (n.d.). Health benefits of fish. Washington State Department of Health. <https://doh.wa.gov/community-and-environment/food/fish/health-benefits#:~:text=Fish%20is%20filled%20with%20omega,iodine%2C%20magnesium%2C%20and%20potassium>

Yusuf, K., Saha, S., & Umar, S. (2022). Health Benefits of Dietary Fiber for the Management of Inflammatory Bowel Disease. *Biomedicines*, 10(6), 1242. <https://doi.org/10.3390/biomedicines10061242>

Zhou, P., Chen, C., Patil, S., & Dong, S. (2024). Unveiling the Therapeutic Symphony of Probiotics, prebiotics, and postbiotics in gut-immune harmony. *Frontiers in Nutrition*, 11. <https://doi.org/10.3389/fnut.2024.1355542>