

Special diets and Post-COVID Condition

Currently, there is no evidence that following a particular diet or dietary pattern will cure post-COVID Condition (PCC) and its symptoms. The information below summarizes some of the common diets or dietary patterns some have reported to improve or alleviate PCC symptoms. This information is not a guide to implementing the diets. Please consult with a Registered Dietitian for individualized nutrition recommendations and guidance.

No matter which dietary pattern you wish to follow, ensure that you are eating a well-balanced diet to make sure you are getting enough energy, protein, fibre, vitamins and minerals to promote recovery.

Diets reviewed in this handout include:

- Intermittent Fasting
- Anti-inflammatory diets
- Low histamine diet

Intermittent Fasting

What is Intermittent Fasting?

Intermittent Fasting (IF) is a dietary pattern that involves cycling between periods of fasting and eating. There are several different methods of IF, but the most common ones include:

1. **Time-restricted feeding:** This method involves limiting your daily eating window to a specific number of hours. For example, you might choose to eat all your meals within an 8-hour window (e.g., from 12 pm to 8 pm) and fast for the remaining 16 hours.
2. **Alternate-day fasting:** With this approach, you alternate between fasting days and regular eating days. On fasting days, you consume very few calories (typically around 500) or no food at all, while on non-fasting days, you eat normally.
3. **5:2 fasting:** This method involves eating normally for five days of the week and restricting calorie intake to around 500-600 calories on the other two non-consecutive days.



How does Intermittent Fasting help with Post-COVID Condition symptoms?

Research has suggested that fasting stimulates autophagy, a process in which the body clears out damaged cells to regenerate newer and healthier cells. Some animal and human studies have suggested that IF and the autophagy process may help to remove the damaged cells and lowering the inflammatory response as a result of a COVID infection (Gnoni, Beas, Vasquez-Garagatti, 2021; Horne et al, 2022). Further human studies are needed to evaluate IF regimens on PCC and its symptoms.

Is Intermittent Fasting right for me?

Intermittent fasting is not recommended for everyone. Intermittent fasting is not appropriate for those that have experienced unintentional weight loss, are at risk for malnutrition, or those who are pregnant or breastfeeding. Those living with a medical condition such as diabetes should consult with a healthcare professional before trying to fast. If you are experiencing a low appetite and are having difficulty getting enough nutrition, intermittent fasting is not recommended as limiting the timeframe for eating could put those individuals at further risk for malnutrition.

For more information on Intermittent Fasting:

<https://www.todaysdietitian.com/newarchives/ND21p40.shtml>

<https://covid19criticalcare.com/tools-and-guides/guide-to-intermittent-fasting/>

Sources:

Gnoni M, Beas R, Vásquez-Garagatti R. Is there any role of intermittent fasting in the prevention and improving clinical outcomes of COVID-19?: intersection between inflammation, mTOR pathway, autophagy and calorie restriction. *Virusdisease*. 2021 Dec;32(4):625-634. doi: 10.1007/s13337-021-00703-5. Epub 2021 Jun 4. PMID: 34104708; PMCID: PMC8177033.

Horne BD, May HT, Muhlestein JB, *et al*. Association of periodic fasting with lower severity of COVID-19 outcomes in the SARS-CoV-2 prevaccine era: an observational cohort from the INSPIRE registry. *BMJ Nutrition, Prevention & Health* 2022;e000462. doi: 10.1136/bmjnph-2022-000462

Anti-inflammatory diets

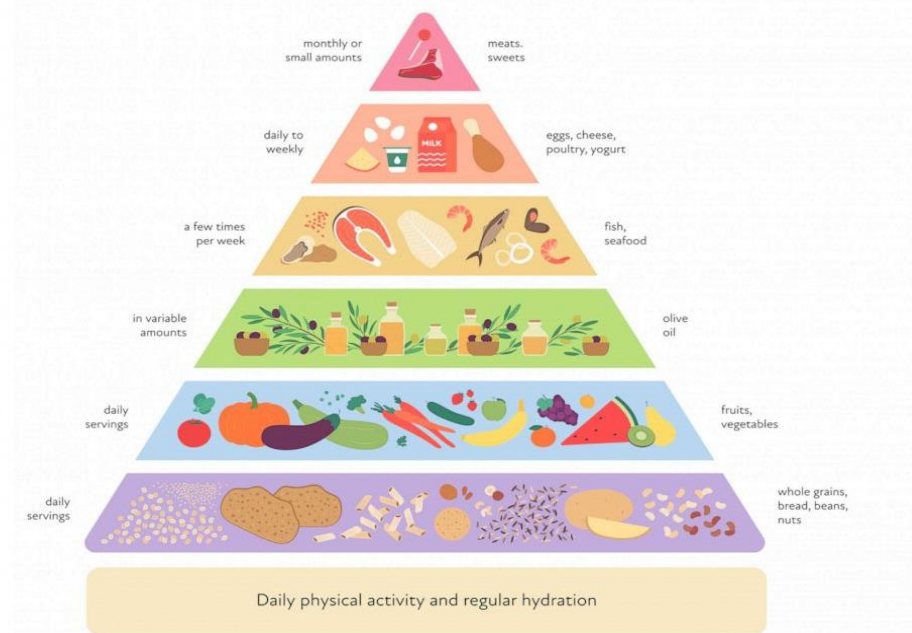


What is an Anti-inflammatory diet?

Anti-inflammatory diets focus on consuming more foods that work to reduce inflammation, and avoiding foods that cause inflammation.

Foods that help to reduce inflammation are a variety of fruits and vegetables, whole grain foods, nuts and seeds, fatty fish and healthy oils. Foods that elicit inflammation are fried foods, refined carbohydrates, sugar, red meats and processed meats.

A dietary pattern that is considered to be an anti-inflammatory diet is the Mediterranean diet. The Mediterranean diet is a dietary pattern that is high in plant foods such as vegetables, fruit, whole grains, nuts and seeds, olive oil and legumes (beans, peas and lentils). Fish, seafood, eggs, low fat milk and milk products are eaten in moderate amounts. Meat and meat products, and sweets (e.g. cakes and pastries) are eaten occasionally.



How does an Anti-inflammatory diet help with Post-COVID Condition symptoms?

Inflammation is a natural process of the body that protects us from harmful pathogens. Some of the symptoms associated with Post-COVID Condition, such as brain fog, fatigue, dizziness and shortness of breath have been linked to chronic [inflammation](#).

It has been suggested that an anti-inflammatory diet that promotes the consumption of foods that reduce inflammation, while avoiding foods that elicit inflammation, assists in reducing the chronic inflammation in the body that is associated with PCC symptoms.

In addition to its anti-inflammatory properties, these foods are nutrient-dense, meaning they have essential vitamins, minerals, fibre, omega-3 fatty acids, antioxidants and other phytochemicals to aid in recovery.

Whether an anti-inflammatory dietary pattern might be useful in alleviated PCC and its symptoms has yet to be studied in clinical trials. Evidence from other research in the pre-pandemic era demonstrate that an anti-inflammatory diet may show general benefit for some PCC symptoms, such as fatigue, brain fog and musculoskeletal pain (Storz, 2021).

Is an Anti-inflammatory diet right for me?

Following an anti-inflammatory dietary pattern, such as the Mediterranean diet, is an easy to adopt style of eating. It is not a restrictive dietary pattern, meaning it does not follow strict rules about calories, portion sizes or timing. Additionally, following a Mediterranean dietary pattern can help to reduce the risk of heart disease, stroke, dementia and certain cancers (Rees et al, 2019; Farinetti et al, 2017; Swingshackl et al 2017).

For more information on anti-inflammatory diets:

Unlock Food: <https://www.unlockfood.ca/en/Articles/Heart-Health/What-is-the-Mediterranean-Diet-Is-it-Good-for-Me-2>

Harvard Health: <https://www.health.harvard.edu/staying-healthy/foods-that-fight-inflammation>

EatRight: <https://www.eatright.org/health/health-conditions/arthritis-and-inflammation/can-diet-help-with-inflammation>

Sources:

Angelidi AM, Kokkinos A, Katechaki E, Ros E, Mantzoros CS. Mediterranean diet as a nutritional approach for COVID-19. *Metabolism*. 2021 Jan;114:154407. doi: 10.1016/j.metabol.2020.154407. Epub 2020 Oct 17. PMID: 33080270; PMCID: PMC7833284.

Farinetti A, Zurlo V, Manenti A, Coppi F, Mattioli AV. Mediterranean diet and colorectal cancer: A systematic review. *Nutrition*. 2017 Nov-Dec;43-44:83-88. doi: 10.1016/j.nut.2017.06.008. Epub 2017 Jul 8. PMID: 28935150.

Rees K, Takeda A, Martin N, Ellis L, Wijesekara D, Vepa A, Das A, Hartley L, Stranges S. Mediterranean-style diet for the primary and secondary prevention of cardiovascular disease. *Cochrane Database Syst Rev*. 2019 Mar 13;3(3):CD009825. doi: 10.1002/14651858.CD009825.pub3. PMID: 30864165; PMCID: PMC6414510.

Schwingshackl L, Schwedhelm C, Galbete C, Hoffmann G. Adherence to Mediterranean Diet and Risk of Cancer: An Updated Systematic Review and Meta-Analysis. *Nutrients*. 2017 Sep 26;9(10):1063. doi: 10.3390/nu9101063. PMID: 28954418; PMCID: PMC5691680.

Storz MA. Lifestyle Adjustments in Long-COVID Management: Potential Benefits of Plant-Based Diets. *Curr Nutr Rep*. 2021 Dec;10(4):352-363. doi: 10.1007/s13668-021-00369-x. Epub 2021 Sep 10. PMID: 34506003; PMCID: PMC8429479

Low Histamine Diet

What is a Low Histamine Diet?

Histamine is a compound that is released by the body's immune system, usually in response to injury or an allergic reaction. An excess of histamines in the body that is not broken down can lead to inflammation, thus worsening of PCC symptoms.

Some of the symptoms associated with a histamine reaction include:

- Nausea, cramping, diarrhea, bloating or vomiting after eating
- Headaches, irritability or fatigue after meals
- Skin rashes or hives
- Shortness of breath after meals.

The Low Histamine Diet is a dietary pattern that involves eliminating foods that are high in histamines for several weeks and then adding them back into the diet gradually to test tolerance.

Some examples of foods high in histamines:

- Old/ food stored in the fridge
- Canned foods, such as tuna, salmon, soups
- Pickled or fermented foods such as pickles, miso, kimchi, aged cheese, yogurt
- Cured or processed meats such as salami, bacon, ham, luncheon meats, sausages
- Most breads
- Alcohol
- Some fruits and vegetables such as citrus fruits, strawberries, raspberries, spinach, eggplant, avocado, tomato
- Some nuts and seeds such as walnuts, pumpkin seeds, sunflower seeds

NOTE: There are many lists on the internet with conflicting and opposing information. Please consult with a Registered Dietitian for more information on following a low histamine diet.

How does the Low Histamine Diet help with Post-COVID Condition symptoms?

It has been proposed that the inflammation seen in those with Post-COVID Condition is caused by dysfunctional mast cells, which release histamines, and/or a histamine intolerance where the body is not able to break it down (Afrin et al, 2020).

Increasing hydration, managing stress and gentle movement can reduce these symptoms but for some, avoiding foods that can be a "trigger" can reduce symptom severity.

While the evidence for a low histamine diet and the treatment of PCC symptoms is not clear, some individuals have reported that eliminating foods that are high in histamines have reduced symptom severity (Comas-Basté et al, 2020).

Is the Low Histamine Diet right for me?

Currently, there is not enough evidence to suggest that following a low histamine diet will be helpful for everyone. The low histamine diet can be overly restrictive, and can lead to nutritional deficiencies if not supported by a healthcare provider. The low histamine diet can be difficult to follow due to other symptoms associated with PCC including low appetite and fatigue.

If you do choose to try a low histamine diet, it is important to ensure that you are not overly restricting and compromising your nutrition. A Registered Dietitian can advise if you may benefit from a low histamine diet, while ensuring you get all the nutrients you need for your recovery.

Sources:

Afrin LB, Weinstock LB, Molderings GJ. COVID-19 hyperinflammation and post-COVID-19 illness may be rooted in mast cell activation syndrome. *Int J Infect Dis.* 2020;100:327-32

Comas-Basté O, Sánchez-Pérez S, Veciana-Nogués MT, Latorre-Moratalla M, Vidal-Carou MDC. Histamine Intolerance: The Current State of the Art. *Biomolecules.* 2020 Aug 14;10(8):1181. doi: 10.3390/biom10081181. PMID: 32824107; PMCID: PMC7463562.