

COVID-19 Support Program

Nutrition, Your Gut Microbiota, & COVID-19

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Your Gut Microbiota & Your Immune System

- Research out of China suggests that the gut microbiota may play a role in the risk of contracting COVID-19 and/or in the clinical course of the disease ([1](#))
 - Your gut microbiota has a major impact on your immune response to infectious threats ([2](#))
 - SARS-CoV-2 may enter the intestine via ACE2 receptors ([3](#))
- You can use nutrition to support a healthy gut microbiota; a healthy gut may, in turn, support your immune defenses.



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Boost Beneficial Bacteria with Fermented Foods

- Probiotic species in fermented foods may support the immune system.
 - Humans have cellular receptors that respond to metabolites produced by bacteria commonly found in fermented foods. (4) These metabolites trigger the movement of immune cells.
- Some probiotic species, such as *Lactobacillus plantarum*, may aid antiviral defenses. (5)
- Fermented foods to try:
 - Sauerkraut
 - Kimchi
 - Beet kvass
 - Yogurt (dairy-based or made with coconut or almond milk)
- **Bored at home? Try fermenting some vegetables or making your own yogurt! You can find starter cultures online – Etsy is a great place to look.**



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Prebiotic Foods

- Prebiotics may indirectly support the immune system by boosting the growth of beneficial gut bacteria ([6](#))
- Prebiotics may also inhibit the binding of pathogens to intestinal epithelial cells
- Prebiotic foods to include:
 - Garlic
 - Onion
 - Leeks
 - Asparagus
 - Dandelion greens
 - Oats and legumes, if tolerated



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Other Nutrients That Support the Gut Microbiota

- **Vitamin A:** Pre-formed vitamin A (as opposed to beta-carotene, a vitamin A precursor) is found in cod liver oil, pastured egg yolks, and full-fat pastured dairy products. ([7](#))
 - Vitamin A creates a strong intestinal barrier (the “soil” for your good gut bacteria to grow in)
- **Vitamin D:** Get outside for some sunshine, if possible! Also found in cod liver oil and fatty cold-water fish such as salmon.
 - Also important for the intestinal barrier ([8](#))
- **Quercetin** supports the intestinal barrier and preliminary research out of China suggests it inhibits SARS-CoV-2 protease (NOT saying it is a treatment, but it can’t hurt to add quercetin-rich foods to your diet!) ([9](#))
 - Found in onions, apples, leafy greens



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