


Love Your Gut with:

Cranberries

The 
CRANBERRY
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Gut Microbiota and You




PACs found in cranberries, cranberry juice and certain cranberry supplements have anti-adhesion effects that help gut and urinary tract microbiota.^{6,9}

Gut microbiota are key to many aspects of human health and are involved in numerous functions that are essential for our survival.¹ A typical Western diet, which often includes processed foods, high amounts of fat and low amounts of fiber, is connected to disruption in the gut microbiota and promotion of inflammation. A healthful diet with increased fiber and unsaturated fats helps promote healthy gut microbiota.^{2,3,4}

A healthy diet can help maintain a beneficial population of gut microbiota to help protect the body against pathogens, assist in immunity, inhibit inflammatory lipopolysaccharide (LPS) production and produce healthful short-chain fatty acids (SCFA).^{4,5} SCFA provide energy to intestinal cells to strengthen the gut barrier and prevent leaky gut, helping to inhibit LPS from stimulating the immune system and causing inflammation, which can lead to a variety of chronic diseases.⁶

In fact, gut microbiota changes can be seen within days of changing the diet. What we eat shapes our gut microbiota. Choosing healthy foods elicits positive changes, including increases in the abundance and diversity of gut microbiota.¹



According to the 2020-2025 Dietary Guidelines for Americans, more than 80% of Americans don't consume enough fruit.

The goal is to have about two cups of fruit daily, mostly as whole fruit. Meet your fruit intake goals and reap the many health benefits of cranberries by tossing dried cranberries into pasta and salads, having a glass of cranberry juice anytime, or using fresh or frozen cranberries in baked goods, cranberry salsa or smoothies.⁷



**Goal:
2 Cups of
Fruit Daily**

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Cranberries Help Gut Microbiota

Cranberries contain fiber & other healthful compounds that help gut microbiota grow and flourish.

Anti-Adhesion Effects of PACs in Cranberries

Significant amount of the research on much of the research on proanthocyanidins (PACs) found in cranberries has focused on their anti-adhesion effects that benefit urinary tract health. Biofilm formation is an early step in the development of an infection. PACs, and possibly flavonols, found in cranberries act to prevent biofilm formation, an antimicrobial action which benefits gut and urinary tract microbiota.⁶

Dried Cranberries Benefit Gut Bacteria

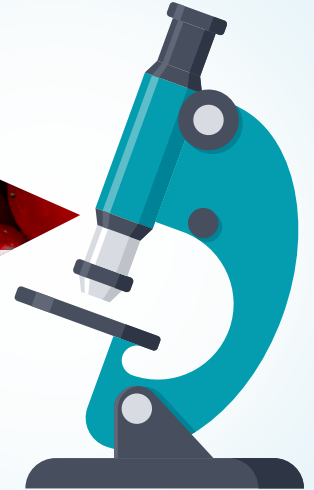
A small study of 10 subjects found that sweetened dried cranberries had a positive impact on the natural bacteria in the gut. Sixty percent of the participants had an increase in Bacteroidetes, a category of healthy bacteria, and 70% had a reduction in the Firmicutes to Bacteroidetes ratio indicating an increase in Bacteroidetes and a decrease in Firmicutes, or both.⁸ A high level of Firmicutes is not healthy and can contribute to obesity. SCFAs (short-chain fatty acids) have benefits including decreasing the Firmicutes to Bacteroidetes ratio.⁹

Emerging Evidence About Cranberry Oligosaccharides

Probiotics are one of the most well studied dietary factors linked to improvements in gut microbiota, and cranberries supply oligosaccharides, carbohydrates found in the berries, that are thought to exert prebiotic effects on both gut and urinary tract microbiota.^{4,10} Stay tuned for more research on this connection.

Cranberries under the microscope – the research continues.

Exciting new research has proposed that the dynamic effects of various cranberry compounds and their interactions with gut microbiota may lead to a wide range of health benefits.¹⁰



Cranberries Are Fiber-Full

Cranberries are a good source of fiber and can help you meet your daily fiber goals. One cup of chopped cranberries supplies 5 g fiber, and ¼ cup of dried, sweetened cranberries supplies 2 g fiber.¹¹

Adequate Fiber Intake Guidelines

- **Age 31 to 50:** 38 grams per day for men and 25 grams per day for women
- **Age 50 and over:** 30 grams per day for men and 21 grams per day for women.¹²

PACs in Cranberry Supplements

Cranberry supplements can be one easy way to get PACs. Be sure to check with your health care provider before starting any new supplement. For certain supplements, the content varies from what is stated on the label. Due to this variability, consumers can look for independent verification of supplement identity, quantity and quality to be sure their cranberry supplement supplies what the label states.^{10,13} NSF International, a public health and safety organization, provides independent examination and certification for supplement manufacturers.¹⁴

Cranberry Compounds Can Help Reduce *H. pylori* Rates

In the US, 30 million people can expect to be infected with *H. pylori*.^{15,16}

A randomized, placebo-controlled trial published in The Journal of Gastroenterology and Hepatology, a top tier international gastroenterology journal, found that a twice daily dose of 44 mg PAC in cranberry juice resulted in 20% reduction in *H. pylori* infection rate in Chinese adults when compared to lower amounts of juice and a placebo.

While more research is needed, a half cup serving of 100% pure cranberry juice contains 44 mg PAC, and when taken twice daily in the morning and evening, should be equivalent to the levels in the clinical study needed to achieve *H. pylori* suppression.¹⁷

Dr. Amy Howell's Webinar on Cranberries and *H. pylori* Suppression

Dr. Howell is an associate research scientist at the Marucci Center for Blueberry and Cranberry Research at Rutgers University. Her work includes isolating natural products from cranberries that benefit health.

Dr. Amy Howell's Webinar on Cranberries and *H. pylori* Suppression

1. Valdes AM, Walter J, Segal E, Spector TD. Role of the gut microbiota in nutrition and health. *British Medical Journal* 2018; 13:361-k2179. doi: 10.1136/bmj.k2179.
2. Estrada JA, Contreras I. Nutritional modulation of immune and central nervous system homeostasis: the role of diet in development of neuroinflammation and neurological disease. *Nutrients* 2019; 11. doi: 10.3390/nu11051076
3. Wolters M, Ahrens J, Romani-Perez M, Watkins C, Sanz Y, et al. Dietary fat, the gut microbiota, and metabolic health – a systematic review conducted within the MyNewGut project. *Clinical Nutrition* 2019; 38:2504-2520. https://doi.org/10.1016/j.clnu.2018.12.024
4. Telle-Hansen VH, Holven KB, Ulven SM. Impact of a Healthy Dietary Pattern on Gut Microbiota and Systemic Inflammation in Humans. *Nutrients* 2018; 10:1783. doi: 10.3390/nu10111783
5. Wong X, Madrid AM, Talma K, Castillo R, Carrasco-Pozo C, et al. Polyphenol extracts interfere with bacterial lipopolysaccharide in vitro and decrease postprandial endotoxemia in human volunteers. *Journal of Functional Foods* 2016; 26:406-417. http://dx.doi.org/10.1016/j.jff.2016.08.011
6. Blumberg J, Basu A, Krueger CG, Lila MA, Neto CC, et al. Impact of cranberries on gut microbiota and cardiometabolic health: proceedings of the Cranberry Health Research Conference 2015. *American Society for Nutrition. Advances in Nutrition* 2016; 7(Suppl):759S-70S. doi:10.3945/an.116.012583
7. U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025*. 9th Edition. December 2020. Available at: https://www.dietaryguidelines.gov/
8. Bekiaris N, Krueger C, Mead J, Shanmuganayagam D, Reed JD. Effect of sweetened dried cranberry consumption on urinary proteome and fecal microbiome in healthy human subjects. *OMICS: A Journal of Integrative Biology* 2018; 22(2):145-153. doi: 10.1089/omi.2016.0167.
9. Rinnella E, Raouf P, Gintoni M, Franceschi F, Miuggiano GAD, et al. What is the healthy gut microbiota composition? A changing ecosystem across age, environment, diet, and diseases. *Microorganisms* 2019; 7(14). doi:10.3390/microorganisms7010014
10. Coleman CM, Ferreira D. Oligosaccharides and complex carbohydrates: a new paradigm for cranberry bioactivity. *Molecules* 2020; 25:861. doi:10.3390/molecules25040861
11. Nutrition Facts: FoodWorks. The Nutrition Company. Available at: http://nutritionco.com/, accessed 4/30/2021
12. Institute of Medicine of the National Academies. *Dietary Reference Intakes. Table S-3. Criteria and Dietary Reference Intake Values for Total Fiber by Life Stage Group*. Available at: https://www.nal.usda.gov/sites/default/files/tnic_uploads/energy_full_report.pdf, accessed 4/30/2021
13. Bailey RL. Current regulatory guidelines and resources to support research of dietary supplements in the United States. *Critical Reviews in Food Science and Nutrition* 2020; 60(2): 298-309. doi:10.1080/10408398.2018.1524364
14. NSF International. *Certifications. Nutritional Supplements, Personal Care Products and Over-the-Counter Drugs*. Available at: https://www.nsf.org/testing/health/nutritional-supplements-personal-care-products, accessed 4/10/2021.
15. Open Access Publications. *Peptic Ulcer*. Available at: https://www.omicsonline.org/united-states/peptic-ulcer-peer-reviewed-pdf-pat-articles/, accessed 5/1/2021.
16. Medscape.com. *What is the prevalence of Peptic Ulcer Disease (PUD) in the U.S.?* Available at: https://www.medscape.com/answers/181753-13868/what-is-the-prevalence-of-peptic-ulcer-disease-pud-in-the-us, accessed 5/1/2021
17. Zhe-Xuan L, Jun-Ling M, Yang G, Wei-Dong L, Ming L, et al. Suppression of Helicobacter pylori infection by daily cranberry intake: A double-blind, randomized, placebo-controlled trial. *Journal of Gastroenterology and Hepatology* 2021; 36(4):927-935. doi: 10.1111/jgh.15212.