WALNUTS & GUT HEALTH

EMERGING RESEARCH ON THE GUT MICROBIOME suggests walnuts may be one food to consider for gut health due to their prebiotic potential and possible role in providing a variety of associated health benefits.

A STUDY FROM THE USDA AND UNIVERSITY OF ILLINOIS found that walnut consumption was associated with positive changes to the gut microbiome.[1] A small sample of 18 healthy adults (ages 35-68) who ate 42 grams (about 1.5 ounces) of walnuts each day for three weeks experienced a decrease in secondary bile acids, which may play a role in colon cancer, inflammation, and gastrointestinal diseases. The study also found that eating walnuts resulted in an increase in gut bacteria that is thought to be beneficial for health.

Walnut "Chorizo" Tacos with Pickled Vegetables

CONSUMING A WALNUT-ENRICHED DIET POSITIVELY IMPACTED THE GUT MICROBIOME by enhancing good probiotic- and butyric acid-producing bacteria in another study.[2] Butyric acid is thought to be useful for digestive health by helping to maintain the health of the colon. The study included 194 healthy German adults (mean age of 63 years old) randomized into two different diet phases, each lasting for eight weeks. One group ate 43 grams (about 1.5 ounces) of walnuts per day and then switched to a nut-free diet. The other group followed the diets in reverse order. During the walnut diet, participants were also randomized to reduce their intake of carbohydrates, fat, or both under the advisory of a nutritionist.

A CLINICAL TRIAL REVEALED THERE MAY BE A CONNECTION BETWEEN HEART AND GUT HEALTH aided by the consumption of walnuts.[3] Findings showed that consuming walnuts may enrich certain gut bacteria in the digestive system that are associated with improvements in blood pressure and cholesterol. Study participants included 42 overweight or obese (BMI: 25.0 – 39.9 kg/m^2) individuals aged 30-65 and at risk for heart disease. All participants first followed an average American diet and then they were randomly assigned to a diet that replaced some saturated fat with either walnuts, a vegetable oil blend that included the same fatty acids as walnuts (including omega-3 ALA, a type of polyunsaturated fat), or a vegetable oil blend higher in monounsaturated fat. Individuals who consumed walnuts and the vegetable oil with the same fatty acid profile as walnuts had favorable changes in gut bacteria, suggesting a positive impact of omega-3 ALA. Those following the walnut diet only, had a unique enrichment of bacteria – one that plays an important role in metabolizing ellagitannins, a bioactive component of walnuts that may be associated with cardiovascular benefits.

Larger and longer-term studies are needed to clarify these effects in broader populations, and more research is needed to understand how specific bacterial species may be associated with favorable health effects, such as heart health.

WALNUT CONSUMPTION MAY BE BENEFICIAL FOR DIGESTIVE HEALTH by increasing the amount of probiotic-type bacteria in the gut, as evidenced in an animal study.[4] In this study, rats were randomly assigned an isocaloric and isonutrient diet containing ground walnuts (equivalent to about 2 ounces per day in humans) or a diet without walnuts for up to ten weeks. Calorie and nutrient intake were similar between the two groups. Compared to those that did not consume walnuts, rats that ate a walnut-enriched diet saw an increase in beneficial bacteria including Lactobacillus, Roseburia, and Ruminococcaceae.

WALNUTS CAN PLAY A ROLE IN LIMITING GASTROINTESTINAL DAMAGE, like stomach ulcers, caused by commonly consumed non-steroidal anti-inflammatory drugs (NSAIDs), according to a study.[5] These animal study findings set the stage for future studies to explore the role of walnuts as a functional food for gut health in humans.

ANOTHER STUDY SUGGESTS regular walnut consumption may be a promising intervention for reducing negative outcomes associated with *Helicobacter pylori (H. pylori)* infection, a widespread bacterial infection that affects more than half of the world's population.[6] Using mice models, researchers from the CHA Cancer Prevention Research Center in Korea found preliminary evidence that eating a diet rich in walnuts may help protect against negative outcomes associated with *H. pylori* infection. Specifically, the research found that walnut extracts, formed from whole walnuts, may help create protective proteins and anti-inflammatory actions in the gut that may safeguard against *H. pylori* infection and resulting cancer in mice.

Animal studies provide background that can be used to inform future studies needed to understand the effect on humans.[4,5,6] Researchers studied mice that had colon cancer, which may have altered the normal function of the gut microbiome.[4] Mice have different microbiota than humans, so further research is needed to determine how observed results may translate.[4,5,6]

[1]Holscher HD, Guetterman HM, Swanson KS, et al. Walnut Consumption Alters the Gastrointestinal Microbiota, Microbially Derived Secondary Bile Acids, and Health Markers in Healthy Adults: A Randomized Controlled Trial. *J Nutr.* 2018, 148, 861. [2]Bamberger C, Rossmeier A, Lechner K, et al. A Walnut-Enriched Diet Affects Gut Microbiome in Healthy Caucasian Subjects: A Randomized, Controlled Trial. *Nutrients*. 2018, 10, 244. [3]Tindall AM, McLimans CJ, Petersen KS, et al. Walnuts and Vegetable Oils Containing Oleic Acid Differentially Affect the Gut Microbiota and Associations with Cardiovascular Risk Factors: Follow-up of a Randomized, Controlled, Feeding Trial in Adults at Risk for Cardiovascular Disease [published online ahead of print December 18, 2019] *J Nutr.* [4]Byerley LO, Samuelson D, Blanchard E, et al. Changes in the Gut Microbial Communities Following Addition of Walnuts to the Diet. *J Nutr Biochem*. 2017, 48, 94. [5]An JM, Kim EH, Lee H, Lee HJ, Hahm KB. Dietary walnut as food factor to rescue from NSAID-induced gastrointestinal mucosal damages. *Archives of Biochemistry and Biophysics*. 2020; 687:108466. [6]Park JM, Han YM, Park YJ, et al. Dietary intake of walnut prevented Helicobacter pylori-associated gastric cancer through rejuvenation of chronic atrophic gastritis. *J Clin Biochem Nutr.* 2021;68(1):37-50.

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