WALNUTS & DIABETES AND METABOLIC SYNDROME

INDIVIDUALS WITH DIABETES OR METABOLIC SYNDROME often have conditions such as elevated blood pressure, cholesterol, or triglycerides, which can increase the risk for heart disease and stroke. Research on the association between walnut consumption and these conditions demonstrate the importance of walnuts as part of a healthy diet to help manage complications associated with diabetes and metabolic syndrome.

DIABETES

IN A NOVEL RESEARCH APPROACH, investigators from the Harvard T.H. Chan School of Public Health in collaboration with investigators from Rovira i Virgili University and the University of Navarra, Spain, used machine learning models, a subset of artificial intelligence, to identify more precisely the components in walnuts that may be responsible for potentially reducing the risk of type 2 diabetes and cardiovascular diseases.[1]

The study used a novel machine learning model to identify 19 markers in the body that were associated with walnut consumption - a "walnut signature." The body forms specific metabolites based on what food is consumed. Researchers examined data from 1,833 participants from the PREvención con DIeta MEDiterránea (PREDIMED) study, who were at high cardiovascular risk, and found the "walnut signature" was associated with a 17% lower risk of type 2 diabetes and 29% lower risk of cardiovascular disease.

Though findings do not prove causality, new tools as used in this epidemiological study will help identify links between diet and disease.

AN EPIDEMIOLOGICAL STUDY representing more than 34,000 American adults suggests that those who consume walnuts may have about half the risk of developing type 2 diabetes compared to adults who do not eat nuts.[2] Researchers from the University of California Los Angeles looked at data from the National Health and Nutrition Examination Survey (NHANES), in which adults (ages 18-85) were asked about their dietary intake over the course of one to two days and assessed for diabetes. According to the study, the average intake among walnut consumers was approximately one and a half tablespoons per day. Doubling walnut consumption (eating three tablespoons) was associated with a 47 percent lower prevalence of type 2 diabetes. The study did not look at the impact of increasing walnut consumption beyond doubled intake.

RESEARCHERS FROM HARVARD found that walnut consumption was associated with a significantly lower risk of type 2 diabetes in women who regularly consumed walnuts compared with women who never/rarely consumed walnuts.[3] The study looked at two large prospective cohorts of U.S. women: The Nurses' Health Study (NHS) and NHS II, which followed 58,063 women (ages 52-77) in NHS (1998-2008) and 79,893 women (ages 35-52) in NHS II (1999-2009) without diabetes, cardiovascular disease or cancer at baseline. They found two or more servings (1 serving is equivalent to 30 grams) of walnuts per week, as part of a healthy diet, was associated with a 21 percent and 15 percent lower risk of incident type 2 diabetes before and after adjusting for body mass index (BMI), respectively.

Research has found that including the right type of fats, like those found in walnuts, can be beneficial to people with diabetes.

METABOLIC SYNDROME

A STUDY found that short-term consumption of walnuts may improve blood lipids, by increasing apolipoprotein A concentration.[4] Apolipoprotein A is the primary protein component of HDL, and is one of many factors that may be considered in a complete lipid profile when estimating cardiovascular disease risk. For this study, 15 obese subjects (ages 56-61) with metabolic syndrome were enrolled in a randomized, double-blinded, placebo-controlled crossover study in which they consumed two different isocaloric diets, one with 48 grams of walnuts daily (50 grams) and one without walnuts for four days each. The results suggest that eating walnuts may have a beneficial effect on lipid metabolism even within short-term consumption.

Larger and longer-term studies, as well as studies in more diverse populations, are needed to clarify population-wide effects. In some cases, residual confounding cannot be ruled out (i.e., other lifestyle factors which are more common in adults who eat walnuts could contribute to the study results).[1,2,4]

[1]Guasch-Ferré M, Hernández-Alonso P, Drouin-Chartier JP, et al. Walnut Consumption, Plasma Metabolomics, and Risk of Type 2 Diabetes and Cardiovascular Disease. *J Nutr.* 2021;151(2):303-311. [2]Arab L, Dhaliwal SK, Martin CJ, et al. Association between walnut consumption and diabetes risk in NHANES [published online ahead of print June 21, 2018]. *Diabetes Metab Res Rev.* doi.org/10.1002/dmrr.3031. [3]Pan A, Sun Q, Manson JE, et al. Walnut consumption is associated with lower risk of type 2 diabetes in women. *J Nutr.* 2013;143(4):512-8. [4]Aronis KN, Vamvini MT, Chamberland JP, et al. Short-term walnut consumption increases circulating total adiponectin and apolipoprotein A concentrations, but does not affect markers of inflammation or vascular injury in obese humans with the metabolic syndrome: data from a double-blinded, randomized, placebo- controlled study. *Metabolism.* 2012;61(4):577-82.

Thai Walnut BBQ Chicken Bowl

CALIFORNIA WALNUT BOARD & COMMISSION

101 Parkshore Drive, Suite 250
Folsom, CA 95630

info@walnuts.org
www.walnuts.org

Follow us @CAWalnuts

© California Walnut Board & Commission 2025