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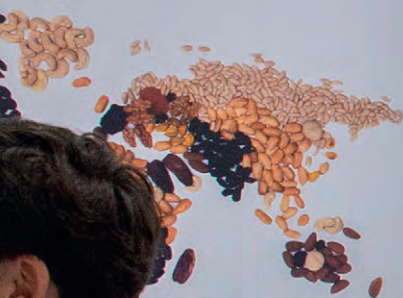
FOR THE NUT AND DRIED FRUIT WORLD

Edition 78. N° 3 November 2019

NUTFRUIT

Edition 78. N° 3

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p. 54

November 2019

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# Research Update on Nuts and Cardiovascular Disease Incidence and Mortality



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“The latest systematic review and meta-analysis of all published studies concludes that the consumption of nuts may help reduce the risk of incidence of cardiovascular disease and mortality.”

According to the World Health Organization, cardiovascular disease (CVD) is the leading cause of death worldwide, affecting more than 17 million people in 2015<sup>1</sup>. Fortunately, CVDs could be prevented and delayed through lifestyle modifications.

In this sense, a healthy diet<sup>2</sup>, such as the Mediterranean diet (MedDiet), has been associated with a lower risk of CVD<sup>3</sup>. Nuts are a key food component of this dietary pattern, therefore in recent years interest in studying the effect of this group of foods on health has been increasing.

In order to update and summarize the available scientific evidence on the relationship between nut consumption and the incidence or mortality due to CVD and its different causes, a research group<sup>4</sup> recently conducted a systematic review and meta-analysis (complex statistical analysis that attempts to summarize the results of different studies and provides the highest level of scientific evidence).

After evaluating 2,992 potential studies for inclusion in the meta-analysis (all the studies published until now), 19 were selected for quantitative analysis. The included studies were conducted in different parts of the world such as in Europe, America, Asia and Oceania. For this study, we analyzed not only the total nut consumption, but also the association between the different types of nut (almonds, walnuts, hazelnuts, peanuts, etc.) and various types of cardiovascular events such as coronary heart disease (CHD), stroke, heart failure and atrial fibrillation (the most common heart rhythm disorder).

We observed that subjects with the highest total nut consumption versus those with the lowest consumption presented a 15%, 23%, 18%, 24% and 15% reduced risk of CVD incidence, CVD mortality, CHD incidence, CHD mortality, and atrial fibrillation, respectively. However, no association was observed between total nut consumption and the incidence of mortality due to stroke (neither hemorrhagic nor ischemic stroke) or heart failure incidence.



In addition, we analyzed whether there was a possible dose-response relationship between nut consumption and various CVD outcomes. We observed a reduction in the risk of CVD incidence, CVD and CHD mortality up to a consumption of 10 g/day and 15–20 g/day, respectively, with no further reduction with higher consumption. Furthermore, the reduction in the risk of stroke mortality was observed up to consumption of 5 g/day, with no significant reductions above this amount.

Regarding specific types of nuts, tree nut consumption (nuts, almonds, hazelnuts, pistachios) was associated with a lower risk of incidence and mortality from CVD and CHD. The consumption of peanuts was associated with a lower incidence and mortality of CVD, stroke and CHD, and walnut consumption was associated with a lower incidence of CVD, stroke and CHD. In addition, an association was found between the frequency of peanut consumption and a lower incidence and mortality due to stroke. Regarding peanut butter consumption, no association with CVD outcomes was observed.

The exact mechanisms by which the consumption of nuts reduces the risk of suffering some type of CVD is unclear. It seems that their high content of healthy fats (monounsaturated and polyunsaturated)<sup>5</sup>, and their content of protein, minerals (such as potassium and magnesium), vitamins (including vitamins C and E) and phenolic compounds<sup>6</sup> could act synergistically, modulating different factors of cardiovascular risk such as the lipid profile, blood pressure, glucose levels and body weight. In fact, the ability to lower levels of total cholesterol and LDL cholesterol is probably one of their best known properties, as has been demonstrated in various clinical trial analyses<sup>7,8</sup>. Other proposed possible mechanisms include the reduction in circulating levels of inflammatory cytokines (especially C-reactive protein), the modulation of nitric oxide levels, inducing an improvement in endothelial function, and reducing the oxidative stress<sup>9,10</sup>.

These results are in line with previous studies<sup>11</sup> showing an inverse association between nut consumption and different CVD outcomes. There is strong scientific evidence to suggest that the inclusion of nuts in the diet of the general population could promote cardiovascular health. In addition, these results will be useful in order to update the clinical practice guidelines of the European Association for the Study of Diabetes (EASD) and other worldwide recommendations. ■

#### References

1. World Health Organization. WHO | Cardiovascular diseases (CVDs). <http://www.who.int/mediacentre/factsheets/fs317/en/>. Published 2017. Accessed March 27, 2018.
2. Yu E, Malik VS, Hu FB. Cardiovascular Disease Prevention by Diet Modification. *J Am Coll Cardiol*. 2018;72(8):914–926. doi:10.1016/j.jacc.2018.02.085
3. Willett WC, Sacks F, Trichopoulos A, et al. Mediterranean diet pyramid: a cultural model for healthy eating. *Am J Clin Nutr*. 1995;61(6):1402S–1406S. doi:10.1093/ajcn/61.6.1402S
4. Becerra-Tomas N, Paz-Graniel I, W C Kendall C, et al. Nut consumption and incidence of cardiovascular diseases and cardiovascular disease mortality: a meta-analysis of prospective cohort studies. *Nutr Rev*. 2019 Jul 30. doi: 10.1093/nutrit/nuz042
5. Ros E, Mataix J. Fatty acid composition of nuts—implications for cardiovascular health. *Br J Nutr*. 2006;96 Suppl 2:S29–35.
6. Segura R, Javierre C, Lizarraga MA, Ros E. Other relevant components of nuts: phytosterols, folate and minerals. *Br J Nutr*. 2006;96 Suppl 2:S36–44.
7. Sabaté J, Oda K, Ros E. Nut consumption and blood lipid levels: a pooled analysis of 25 intervention trials. *Arch Intern Med*. 2010;170(9):821–827. doi:10.1001/archinternmed.2010.79
8. Del Gobbo LC, Falk MC, Feldman R, Lewis K, Mozaffarian D. Effects of tree nuts on blood lipids, apolipoproteins, and blood pressure: systematic review, meta-analysis, and dose-response of 61 controlled intervention trials. *Am J Clin Nutr*. 2015;102(6):1347–1356. doi:10.3945/ajcn.115.110965
9. Coates A, Hill A, Tan S. Nuts and Cardiovascular Disease Prevention. *Curr Atheroscler Rep*. 2018;20(10):48. doi:10.1007/s11883-018-0749-3
10. Bitok E, Sabaté J. Nuts and Cardiovascular Disease. *Prog Cardiovasc Dis*. 2018;61(1):33–37. doi:10.1016/j.PCAD.2018.05.003
11. Mayhew AJ, de Souza RJ, Meyre D, Anand SS, Mente A. A systematic review and meta-analysis of nut consumption and incident risk of CVD and all-cause mortality. *Br J Nutr*. 2016;115(02):212–225. doi:10.1017/S0007114515004316

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