Blueberries vs metabolic syndrome and heart disease

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A clinical study has shown that daily consumption of blueberries for 6 months leads to a notable improvement in the cardiovascular health of people affected by metabolic syndrome.

NOT ALL PLANTS ARE CREATED EQUAL

All of the organizations dedicated to chronic diseases, whether they are cardiovascular diseases, diabetes or cancer, have agreed that the consumption of a minimum of 5 portions of fruits and vegetables each day is absolutely essential for reducing the incidence and mortality associated with these diseases. This quantity is important but it must not be forgotten that the types of fruits and vegetables consumed also plays an important role: there are enormous differences between the biochemical compositions of different plants, with some containing very significant levels of molecules known to have positive effects on health, most notably the polyphenols. This is particularly true when it comes to blueberries: not only are these berries an excellent source of vitamins, minerals and fibre but they also stand out for containing exceptional quantities of a class of polyphenols called anthocyanines. This elevated content is important because several epidemiological studies have established an association between the intake of anthocyanines and a diminution in the risk of a heart attack, of type 2 diabetes and of premature death, these protective effects being observed with quantities that are easily attainable by diet, with 1 to 3 portions of blueberries per week. Blueberries thus seem to be very promising for the prevention of cardiometabolic diseases.

METABOLIC SYNDROME

A clinical study recently showed that the positive effect of blueberries on the cardiovascular system could be particularly important for people who have developed metabolic syndrome[1]. This syndrome is not a disease in itself, but rather a group of certain disorders in metabolism that, taken together, greatly increase the risk of cardiovascular diseases, particularly for someone of a greater than normal waistline (over 102 cm for a man and 88 cm for a woman), with an elevated fasting glucose level (>6.1 mmoles/L) and with hypertension (>135 mm Hg).

In this study,138 obese volunteers (average BMI of 31.2) who had metabolic syndrome were separated into 3 groups according to the quantity of blueberries that they were to consume daily over a period of 6 months: 150 g (364 mg anthocyanines), 75 g (182 mg anthocyanines) and a placebo group (0 mg anthocyanines). For practical reasons, the blueberry preparations were lyophilized and provided to the participants in the form of a powder that could be added to smoothies, desserts, yogurts, salad dressings etc.

Analysis of several cardiovascular parameters of the volunteers indicated that, compared to placebo, the daily consumption of 150 g of blueberries provoked a measurable improvement in vascular function (visualized as an increase in the dilation of an artery by the blood flow), an improvement in the elasticity of blood vessels, as well as an increase in the levels of HDL-cholesterol (often too low during metabolic syndrome). Overall, the authors estimated that these improvements resulted in a decrease of 15% in the risk of cardiovascular events.

These positive effects were due to the anthocyanines present in large quantities within blueberries because another study has shown that administration of purified anthocyanines to subjects increased the dilation of arteries[2]. The anthocyanines are rapidly metabolized after ingestion and it seems that it is the resulting twenty or so metabolites which are responsible for these effects on the function of the blood vessels.

Overall, these results show that blueberries are really in a class of their own due to their positive effects on the cardiovascular system, a property which could prove very useful not only for diminishing the risk of cardiovascular events in people at high risk due to metabolic syndrome, but also for the population in general. The blueberry season thus represents a golden opportunity to take full advantage of these wonderful berries.

(1) Curtis PJ et al. Blueberries improve biomarkers of cardiometabolic function in participants with metabolic syndrome-results from a 6-month, double-blind, randomized controlled trial. Am. J. Clin. Nutr. 2019; 109: 1535-1545.

(2) Rodriguez-Mateos A et al. Circulating anthocyanin metabolites mediate vascular benefits of blueberries: insights from randomized controlled trials, metabolomics, and nutrigenomics. J. Gerontol. A Biol. Sci. Med. Sci. 2019; 74: 967-976.

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