

Chocolate consumption in relation to blood pressure and risk of cardiovascular disease in German adults.

1. Brian Buijsse*, 2. Cornelia Weikert, 3. Dagmar Drogan, 4. Manuela Bergmann and 5. Heiner Boeing
+ Author Affiliations

1. Department of Epidemiology, German Institute of Human Nutrition (DIfE) Potsdam-Rehbrücke, Arthur-Scheunert-Allee 114-116, 14558 Nuthetal, Germany
1. *Corresponding author. Tel: +49 33200 88 723, Fax: +49 33200 88 721, Email: brian.buijsse@dife.de

* Received September 28, 2009., * Revision received January 26, 2010., * Accepted February 2, 2010.

Aims To investigate the association of chocolate consumption with measured blood pressure (BP) and the incidence of cardiovascular disease (CVD).

Methods and results Dietary intake, including chocolate, and BP were assessed at baseline (1994–98) in 19 357 participants (aged 35–65 years) free of myocardial infarction (MI) and stroke and not using antihypertensive medication of the Potsdam arm of the European Prospective Investigation into Cancer and Nutrition. Incident cases of MI (n = 166) and stroke (n = 136) were identified after a mean follow-up of ~8 years. Mean systolic BP was 1.0 mmHg [95% confidence interval (CI) –1.6 to –0.4 mmHg] and mean diastolic BP 0.9 mmHg (95% CI –1.3 to –0.5 mmHg) lower in the top quartile compared with the bottom quartile of chocolate consumption. The relative risk of the combined outcome of MI and stroke for top vs. bottom quartiles was 0.61 (95% CI 0.44–0.87; P linear trend = 0.014). Baseline BP explained 12% of this lower risk (95% CI 3–36%). The inverse association was stronger for stroke than for MI.

Conclusion Chocolate consumption appears to lower CVD risk, in part through reducing BP. The inverse association may be stronger for stroke than for MI. Further research is needed, in particular randomized trials.

<http://eurheartj.oxfordjournals.org/content/early/2010/03/18/eurheartj.ehq068.abstract>

Chocolate consumption in relation to blood pressure and risk of cardiovascular disease in German adults.

A Little Bit of Chocolate May Help Keep BP Low

By Kristina Fiore, Staff Writer, MedPage Today

Published: March 30, 2010

Reviewed by Robert Jasmer, MD; Associate Clinical Professor of Medicine, University of California, San Francisco and Dorothy Caputo, MA, RN, BC-ADM, CDE, Nurse Planner

Chocolate appears to protect against hypertension and stroke, researchers found.

Patients who consumed the greatest amount of chocolate -- about 7.5 grams per day or a little over one and a half Hershey kisses -- had significantly lower blood pressure and risk of stroke than those who ate the least -- about 1.7 grams per day, according to Brian Buijsse, PhD, of the German Institute of Human Nutrition in Nuthetal, Germany, and colleagues.

They reported their findings online in the European Heart Journal.

"It's a little early to make recommendations [about chocolate consumption]," Buijsse told MedPage Today, cautioning that more studies are needed. "But a future recommendation could be that if people eat a small amount of chocolate, they can replace it for something else, maybe leaving out a snack or another sweet."

Action Points

* Explain that patients who consumed the greatest amount of chocolate -- about 7.5 grams per day -- had significantly lower blood pressure and risk of stroke than those who ate the least -- about 1.7 grams per day.

Chocolate has been studied extensively over the past decade for its potential benefits on the heart and vasculature. Just last month, a study found that chocolate reduces the risk of stroke (See AAN: Chocolate May Have Benefit Against Stroke)

For the present study, the researchers followed 19,357 patients in the European Prospective Investigation into Cancer (EPIC) Study 1994-2006, who were between the ages of 35 and 65.

Dietary habits and health outcomes were assessed via questionnaire, and the cohort was followed for a mean of eight years.

The researchers also asked a subset of 1,568 patients to recall their chocolate intake over a 24-hour period to determine which type of chocolate they ate -- white, milk, or dark (57% ate milk chocolate, 24% ate dark, and 2% ate white chocolate).

Overall, they found that patients who ate the most chocolate -- about 7.5 grams per day -- had significantly lower blood pressure and heart attack or stroke risk compared with those who ate the least chocolate (about 1.7 grams per day).

Chocolate consumption in relation to blood pressure and risk of cardiovascular disease in German adults.

Their blood pressure was about 1 mm Hg systolic and 0.9 mm Hg diastolic lower than those in the bottom quartile of chocolate consumption.

During follow-up, participants had a total of 166 heart attacks and 136 strokes.

Those who ate the most chocolate had a 39% lower risk of the combined outcome of heart attack and stroke (95% CI 0.44 to 0.87, P=0.014).

The association appeared to be stronger for stroke than heart attack.

Those in top quartile had a 27% reduced risk of heart attack (95% CI 0.47 to 1.15) compared with those in the bottom quartile -- but they had nearly half the risk of stroke (RR 0.52, 95% CI 0.30 to 0.89).

"The association was stronger for stroke," Buijsse said. "That's logical because high blood pressure is a stronger risk factor for stroke than for heart disease."

Baseline blood pressure explained just 12% of this lower risk, the researchers added.

Buijsse said that a "healthy user" effect is unlikely in this study because consumption of fruits, vegetables, and dairy was inversely related to chocolate consumption.

"Despite lower intakes of fruits and vegetables, they still had a lower risk of heart disease," he said.

The researchers said dark chocolate may hold more benefit over all other types of chocolate, because it is particularly high in flavonols. These compounds may improve endothelial function by improving the elasticity of blood vessels, Buijsse said.

Yet he cautioned that people shouldn't increase their overall caloric intake by adding chocolate to their diet.

"Chocolate is very calorie rich," Buijsse said. "Studies show that if people eat 25 grams a day, they will gain weight. Weight gain will lead to overweight and obesity, which has detrimental effects on blood pressure, heart disease, and even cancer, so we don't want that."

But if chocolate can replace other snacks in the diet, that should be beneficial, he added.

The researchers said they need more randomized controlled trials before they can make definite recommendations about chocolate intake.

The study was limited by the fact that chocolate consumption was estimated by only one item in the questionnaire, and thus may have been underestimated.

Chocolate consumption in relation to blood pressure and risk of cardiovascular disease in German adults.

Also, the researchers acknowledged, dietary intake, risk factors, and blood pressure were assessed at baseline only, so the study assumes these variables remained stable over time.

Finally, it was limited by self-reported data.

The EPIC study was supported by the German Ministry of Science, the European Union, the German Cancer Aid, and the European Community.

The researchers reported no conflicts of interest.

Primary source: European Heart Journal

Source reference:

Buijsse B, et al "Chocolate consumption in relation to blood pressure and risk of cardiovascular disease in German adults" Euro Heart J 2010; DOI: 10.1093/eurheartj/ehq068.