

# PLANT-BASED DIETS AND HEART DISEASE FACT CHECK



**Q:** Does consuming potatoes increase your risk of heart disease?

**A:** A single study found that a higher intake of a plant-based diet emphasizing “less-healthy” plant foods was associated with higher CHD (coronary heart disease) risk.<sup>1</sup>

## CONTEXT

A study in the *Journal of the American College of Cardiology* examined the association between plant-based diet indices and CHD incidence. The authors created a healthful plant-based diet index (hPDI) which included whole grains, fruits/vegetables, nuts/legumes, oils and tea/coffee) and a less-healthy plant food index (uPDI) which included juices, sweetened beverages, refined grains, potatoes/fries and sweets). The results indicated that a higher intake of a plant-based diet index rich in healthier plant foods is associated with substantially lower CHD risk, whereas a plant-based diet index that emphasizes less-healthy plant foods is associated with higher CHD risk.<sup>1</sup>

## FACTS

The study has several limitations and makes a number of unsubstantiated assumptions particularly with regards to potatoes. For example:

- **Aprior construction of plant-based diet indices based on invalid consumption modeling.** The authors created the healthy and unhealthy plant –based diet indices (hPDI and uPDI) “apriori” (i.e., before collecting the dietary data) based on largely on their own previous research as opposed to the body of existing scientific evidence. In addition, the indices were developed using a non-validated scoring system and do not represent standard food frequency data reporting methods seen in most epidemiological studies.
- **Delineating potatoes as “unhealthy” and a risk factor for cardiovascular disease (CVD) is without scientific support.** To the contrary several studies have shown that potatoes, as part of a plant-based diet are associated with a reduced risk of CVD. For instance, Larsson et. al<sup>2</sup> found no association between the intake of boiled potatoes and CVD amongst two large prospective cohorts of Swedish adults.<sup>3</sup> Similarly, a recent systematic review concluded that the limited existing data (does not support an association between potato intake and CVD. To the contrary, a systematic review and meta-analysis of 8 prospective studies among Seventh-day Adventists (who follow vegetarian diets that include potatoes) showed that vegetarian diets were associated with a 40% reduced risk of coronary heart disease events compared with non-vegetarians. And, a review paper published in *Annals of Medicine* concluded that results from animal studies and limited existing human trials suggest that potato components may favorably impact cardiometabolic health.<sup>5</sup> Nonetheless, results from animal studies cannot be generalized to humans, and more human research is needed to provide definitive conclusions.
- **All risk was created equal:** In this study, the researchers treated all foods in the unhealthy group equally when it came to risk for heart disease. Thus, high intake of baked potatoes would carry the same risk score as high intake of foods with added sugars (e.g. sugar-sweetened beverages) or excess sodium (e.g., refined grains). It was also implied that all foods in the unhealthy group were associated with an increased risk of several diseases; however, the researchers did not report data to support this implication.
- **Confounding and multicollinearity:** When there are multiple variables being examined altogether and at the same time, it is difficult to identify which variable was responsible for the “significant” association. The unhealthy diet group is made up of six different foods/food groups. It is unknown which food or foods in the overall eating patterns were responsible for the positive association with CHD. And, as described below, it is very likely that some of the foods/food groups in the “unhealthy category” are only causing others to be mistakenly associated.
- **Association NOT causation:** As a cross-sectional, epidemiological study, the data can only suggest an association; they cannot show cause and effect

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## REFERENCES

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