



# Blueberries for National Fruits & Veggies Month

## Celebrate the Roots of our Food with Blueberries

Fruits and veggies are the foundations of our diets. They are the root of all health and wellbeing. Food is also a form of connectivity – whether that is connecting with the farmers and growers who care for our food from the ground up or using food as a means to connect with our loved ones. **September is National Fruits & Veggies Month (NFVM), a time to celebrate all the goodness that fruits and veggies – particularly blueberries – bring to our tables for our minds, our souls, our health and our happiness.**

This NFVM, the U.S. Highbush Blueberry Council (USHBC) is proud to partner with the Produce for Better Health Foundation (PBH) to help elevate fruit and vegetable consumption to a national priority while Celebrating the Roots of our Food. **Throughout September, we'll shine a spotlight on the rich legacy in every boost of blue.** Indeed, for more than a century, blueberry growers have poured their passion into producing delicious, high-quality fruit, to help people eat and enjoy more fruits and vegetables for better health and happiness. The cultivated highbush blueberries we enjoy today bring a signature pop of color, flavor and nutrition – upgrading any dish, at any time of day, all year long. **From the first seed to the first delicious bite, the blueberry journey is carefully planned and supported by dedicated professionals throughout the supply chain who ensure everyone can grab a boost of blue year-round.**

### A Boost of Blueberries: Food for Thought

Blueberries fit perfectly and colorfully into USDA's MyPlate recommendation to "make half your plate fruits and vegetables."

We invite you to join us in getting back to our roots this NFVM and take a moment to celebrate what makes blueberries nutritious and delicious – starting with the science.



## What the Science Says: Flavonoid-Rich Foods & Risk of All-Cause Mortality<sup>1</sup>

Flavonoids are bioactive compounds found in foods such as tea, red wine, and fruits and vegetables like blueberries, apples, spinach and onions. Meta-analyses illustrate that consuming flavonoid-rich foods are associated with reduced risk of cause-specific mortalities, like those attributable to cancer, diabetes and cardiovascular disease. Despite the demonstrated importance of flavonoid-rich foods in reducing disease specific mortality, the importance of flavonoid and flavonoid-rich foods in preventing all-cause mortality remains unknown. **This study explored the relationship between the consumption of flavonoid rich foods, and flavonoid-compounds, and the risk of all-cause mortality in a cohort of 93,145 young and middle-aged US women (mean age: 36.1 ±4.7 years).** Participants were enrolled in the Nurses' Health Study II.

Starting at baseline in 1991, and every subsequent 4 years until 2007, subjects completed a semi-quantitative food-frequency questionnaire (FFQ). The FFQ detailed habitual daily intake, in mg/d, of total flavanoids and flavanoid classes (e.g., flavanols, flavan-3-ols, proanthocyanins, flavones, flavanones and anthocyanins). Frequency of consumption of flavonoid-rich foods was recorded as number of servings per day, week, or month. At baseline, and every two years following, participants completed questionnaires in lifestyle, medical conditions, medications and family history. **The results of this prospective cohort study found that those subjects with higher intakes of specific flavonoid-rich foods, particularly blueberries, strawberries, peppers, red wine and tea, were associated with reduced risk of all-cause mortality, as they are a rich source of flavan-3-ols, proanthocyanins and anthocyanins.** These results are also supported by clinical trial data illustrating the effects of these foods in improving endothelial function, nitric oxide status, blood pressure and platelet function and by helping to protect cells from damage and reducing inflammation. Future prospective association studies are warranted, and it is worth noting that these associations did not apply to total-flavonoids or flavonoid subclasses.

<sup>1</sup> Ivey KL, Jensen MK, Hodgson JM, Eliassen AH, Cassidy A, Rimm EB. Association of flavonoid-rich foods and flavonoids with risk of all-cause mortality. Br J Nutr. 2017;117(10):1470-1477.

## What the Science Says: Fruit & Vegetable Consumption and Breast Cancer Survival<sup>2</sup>

Fruits and vegetables contain many bioactive components, including potential anticarcinogenic substances, which may help reduce mortality. Despite this positive association, previous research concluded that data were insufficient to recommend high postdiagnostic fruit and vegetable consumption for breast cancer survival. **Therefore, this study prospectively assessed the associations of postdiagnostic fruit and vegetable consumption with breast cancer-specific and all-cause mortality among 8,927 women with stage I-III breast cancer identified during follow-up of the Nurses' Health Study (NHS; 1980-2010) and NHSII (1991-2011).**

A validated food frequency questionnaire (FFQ) was completed every 4 years after diagnosis. Post diagnostic fruit, vegetable, and fruit juice consumption was collected from FFQ's completed at least 12 months after diagnosis. Breast cancers were identified through self-report on biennial questionnaires and deaths were reported by family members, the postal service or search of the National Death Index. During follow up of the 8,927 eligible women diagnosed with stage I-III breast cancer, 2,521 deaths were documented (1,070 were breast cancer specific). Post diagnostic total fruit and vegetable consumption was associated with lower all-cause mortality but not total breast-cancer specific mortality. Changes in fruit and vegetable consumption from before to after diagnosis was also examined. Intake of green leafy vegetables and cruciferous vegetables were associated with lower risk of all-cause mortality. **Additionally, each 2 servings/week of blueberries was associated with a 25% lower breast cancer-specific and a 17% lower all-cause mortality.** This indicates that post diagnostic berry consumption may be important in improving survival. In contrast, higher fruit juice consumption was found to be associated with higher breast cancer-specific and all-cause mortality. Future studies should control for residual confounding variables and be generalizable to a variety of racial and ethnic groups.

<sup>2</sup> Farvid MS, Holmes MD, Chen WY, et al. Postdiagnostic Fruit and Vegetable Consumption and Breast Cancer Survival: Prospective Analyses in the Nurses' Health Studies. Cancer Res. 2020;80(22):5134-5143. doi:10.1158/0008-5472.



## Food for Thought

"A growing body of evidence shows that **blueberries can help improve overall health**, when incorporated into a healthy lifestyle. Researchers are currently exploring **the role that blueberries may play in supporting cardiovascular health, insulin response, brain health, exercise performance, and the potential importance of the gut microbiome** in unlocking the health promoting constituents naturally present in blueberries."

– Aedin Cassidy, PhD, Chair of Nutrition & Preventive Medicine and Director of Interdisciplinary Research Institute for Global Food Security, Queen's University, Belfast, Ireland

## Recipes to Celebrate the Roots of our Food & Grab a Boost of Blue



For recipes, health information, and all things blueberry, visit [blueberry.org](https://blueberry.org).



Blueberry Greek Salad In A Jar



Easy Blueberry Quesadilla



Blueberry Zucchini Bread



Tuscan Kale Salad with Blueberries



Blueberry Pumpkin Smoothie



Blueberry Granola Cups

### ONE SERVING, OR A CUP OF BLUEBERRIES:

- 1 Is considered one serving of fruit.
- 2 Contains just 80 calories and is a good source of fiber.
- 3 Contributes essential nutrients, including vitamin C, vitamin K, manganese, dietary fiber and phytonutrients called polyphenols.
- 4 Contains anthocyanins (163.3mg/100 g), which are compounds that give blueberries their blue color.
- 5 Is a good source of fiber and vitamin C, containing ~ 4g and 14 mg, respectively.
- 6 Is an excellent source of manganese and vitamin K, containing 0.5 mg and 0.25 mcg, respectively.

