

## Dry Beans: A Lifestyle Change That Could Reduce Cancer Risk

By Henry J. Thompson, PhD

Epidemiological studies have found links between the incidence of cancer and consumption of bean. Correa examined data from 41 countries and found a significant inverse relationship between bean consumption and morbidity due to breast, prostate, and colon cancer.<sup>1</sup>

The Nurses Health Study II was used to evaluate the hypothesis that intake of dietary flavonols and flavonol-rich foods including apples, blueberries, broccoli, onions, peppers, pulses, and tea, would be inversely related to breast cancer risk.<sup>2</sup> While no overall association between intake of flavonols and risk of breast cancer was observed, the intake of common beans (*Phaseolus vulgaris* L.) and lentils, which are categorized as pulses, was associated with reduced breast cancer risk (RR = 0.76,  $p < 0.03$ ). From this it was concluded that further investiga-



tion of the effects of pulses on breast cancer was warranted.

The Four-Corners Breast Cancer study also reported a relationship between pulse consumption and reduced breast cancer risk in Hispanic women who consumed a native Mexican diet (characterized by high pulse intake) was two thirds that of non-Hispanic white population whose diet was characterized as high in red meat, sugar, and processed foods.<sup>3</sup>

My laboratory decided to pursue these observations in a preclinical

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*"I now recommend daily bean consumption as a simple, affordable lifestyle habit that could reduce cancer risk while improving food security and creating a sustainable global ecology."*

## Research Program Seeks to Identify Health Benefits

Top researchers from colleges and universities around the country have begun to explore the human health benefits of dry beans.

In 2008, the Northharvest Bean Growers Association developed the Dry Bean Health Research Program (DBHRP), which has as its primary goal to encourage top researchers to focus on the human health benefits of dry bean consumption.

Through the program, researchers can receive awards of \$10,000 to assist them with their

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## A Personal Note from the Author

I conduct some of my research in a cancer clinic and am frequently asked for practical advice on things that a person can do to reduce either their risk for the initial occurrence of cancer or for cancer recurrence following the diagnosis of cancer and its treatment. While my guidance continues to be to eat a balanced, plant food rich diet in moderation, to maintain a physically active life style, and to keep body weight in what is considered the healthy range for one's height, I now suggest that individuals consume at least one half cup of cooked beans daily, and more if they are willing, perhaps as much as 1.5 cups of cooked beans per day.

This is a simple suggestion that may do a lot for personal health as well as the health of our planet; and yet, few Americans come close to following this suggestion. Should you try? In this issue's lead article, a brief summary is provided of why I have added bean guidance to my list of lifestyle recommendations.

—Henry J. Thompson



model for breast cancer. We did this not only because of the epidemiological findings but also because pulses, such as common bean, are a stable food crop for many regions of the world where they are eaten in large quantities on a daily basis as a rich source of protein, resistant starch, and dietary fiber.<sup>4</sup> Common bean is quite distinct from soybeans which are an oil seed legume and generally are not used as a staple food crop.<sup>5</sup>

Moreover, whereas common bean is consumed in quantities up to 360g dry weight per day in some regions of the world, typical consumption in the United States is less than 10g dry weight per day and less than 7% of the U.S. population eats common bean on any given day.<sup>6-7</sup> Thus, common bean, consumed as a food, could represent an immediately available, affordable approach that is not widely used for cancer prevention.

Our laboratory has reported a pre-clinical investigation in which it was shown that incorporation of cooked, canned, freeze-dried common bean powder, into a purified laboratory diet, caused a remarkable inhibition of the post initiation stage of chemically induced mammary carcinogenesis in a well characterized model for breast cancer.<sup>8</sup> Cancer inhibitory activity was bean dose dependent and observed at dietary concentrations similar to those recommended in the United States food guide pyramid but that

are not usually attained in the majority of the population in the United States.<sup>9</sup>

*“... common bean, consumed as a food, could represent an immediately available, affordable approach that is not widely used for cancer prevention.”*

Our initial work was extended to address the question of whether distinct gene pools of common bean, which are referred to as market classes,<sup>10</sup> differed in their cancer inhibitory activity in the same model system for breast cancer and it was observed that the magnitude of cancer inhibitory activity depended on the genetic heritage of common bean and that cancer inhibitory activity was not associated with seed coat pigment.<sup>11</sup> Given the congruence of our observations with not only the NHS-II and Four Corners studies, but also several other epidemiological and laboratory studies evaluating the effect of dietary factors on colon cancer<sup>12-14</sup> or prostate cancer<sup>15-16</sup> in which reduced cancer risk was found to be associated with increased common bean consumption, I now recommend daily bean consumption as a simple, affordable lifestyle habit that could reduce cancer risk while improving food security and creating a sustainable global ecology. 🌱

### About the Author

Henry J. Thompson, PhD is professor in the College of Agricultural Sciences and director of the Cancer Prevention Laboratory at Colorado State University in Fort Collins, Colorado. From 1988 to 2002 he was the head of the Center for Nutrition in the Prevention of Disease at AMC Cancer Research Center, Denver, Colorado. Working with several medical oncologists, Thompson currently directs a clinical research program in which various lifestyle interventions are being investigated in women at risk for breast cancer and in breast cancer survivors.

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## Three Bean Minestrone

Recipe created by  
The Culinary Institute of America

Minestrone is a light, flavorful Italian soup whose ingredients are inspired by the seasons. The name comes from the Italian term *minestra*, meaning soup. This recipe is meant to be a guide; you can change the vegetables as the seasons change, using cabbage in place of baby spinach in the fall, using canned tomatoes when fresh aren't available, or adding fresh peas in the summer. Likewise, choose any three beans you prefer. Using multiple varieties of beans adds a multitude of colors, shapes, sizes, and textures that make the soup not only comforting and satisfying but also very appealing to the eye.

### Ingredients

4 tablespoons extra virgin olive oil  
1 large white onion, peeled and diced  
2 medium carrots, peeled and diced  
2 celery stalks, diced  
1 cup cooked (or canned, drained & rinsed) pinto beans  
1 cup cooked (or canned, drained & rinsed) white kidney, cannellini or Great Northern beans  
1 cup cooked (or canned, drained & rinsed) cranberry beans  
8 cups water  
Rind from a small piece of Parmigiano-Reggiano (optional)  
1 cup Yukon Gold potatoes, diced  
2 zucchini, diced  
2 medium red tomatoes, diced  
4 cups baby spinach  
1 teaspoon kosher salt  
1 teaspoon black pepper  
6 teaspoons extra virgin olive oil  
6 tablespoons Parmigiano-Reggiano, freshly grated



### PREPARATION

1. In a large stock pot over low heat, combine the olive oil and onions. Sweat the onions until wilted and soft, about 10 minutes. Add carrots and cook 3 minutes. Add celery, beans, water, and Parmigiano rind and cook for about 20 minutes.
2. Add diced potatoes and zucchini and cook for another 20 minutes. Add tomatoes and their juices, cover, and cook at a low simmer for at least 30 more minutes.
3. Add spinach, season with kosher salt and black pepper, and cook 2–3 minutes longer.
4. Serve with a drizzle of extra virgin olive oil and grated Parmigiano-Reggiano cheese.

### YIELD:

6 servings

### NUTRIENT INFORMATION PER SERVING:

Calories: 345, total fat: 16g, saturated fat: 3g, monounsaturated fat: 10g, polyunsaturated fat: 2g, cholesterol: 4mg, protein: 13g, carbohydrate: 41g, dietary fiber: 11g, sodium: 534mg, potassium: 1153mg

*A New Resource for RDs*

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Check it out for research, health news, and recipes!



## Research Program Seeks to Identify Health Benefits *continued from pg. 1*

research and their application for further funding through the National Institutes of Health.

Below is the list of researchers whose applications to the DBHRP have been selected for receipt of awards since the inception of the program in 2008. Not all awards were made, however, due to submission delays or inability of some researchers to fulfill the requirements of the program.

An experienced group of researchers serve on the peer review panel for the Dry Bean Health Research Program. That panel consists of Nikhil Dhurandhar, PhD, Louisiana State University; Penny Kris-Etherton, PhD, RD, Penn State University; Kalidas Shetty, PhD, University of Massachusetts; and Joanne Slavin, PhD, University of Minnesota. David Allison, PhD, University of Alabama, Birmingham serves as an advisor for the DBHRP program. 

Researcher	University/Affiliation	Research Focus
D. Enette Larson-Meyer	University of Wyoming	Obesity
David Henderson	Massachusetts General Hospital, Harvard Medical School	CVD, Obesity, Diabetes
Dawn Schwenke	Arizona State University	CVD, Obesity, Diabetes
Donna Winham	Arizona State University	CVD
Gary Goldberg	University of Medicine and Dentistry of New Jersey	Colon and other cancers
Irwin Goldstein	University of Michigan	GI Health
Joan Sabaté	Loma Linda University	Diabetes, Metabolic Syndrome
Joe Vinson	University of Scranton	CVD, Obesity, Diabetes
John Finley	Louisiana State University	CVD, Obesity, Diabetes
Joseph Wu	New York Medical College	CVD
Maureen A. Murtaugh	University of Utah	CVD, Obesity, Diabetes
Megan A. McCrory	Purdue University	CVD, Obesity, Diabetes
Nanette Steinle	University of Maryland School of Medicine	CVD, Obesity, GI Health, Immune System, Diabetes
Pathmaja Paramsothy	University of Washington/Harborview Medical Center	Obesity, CVD
Patrick O'Neil	Medical University of South Carolina	Obesity
Pier Paolo Claudio	Marshall University	Colon Cancer
Rita Basu	Mayo Clinic	Obesity, Diabetes
Salman Azhar	Stanford University	CVD, Obesity, Diabetes
Sibylle Kranz	Purdue University	Obesity, CVD
Tze-chen Hsieh	New York Medical College	Prostate and Colon Cancer
Yunsheng Ma	University of Massachusetts	Diabetes
Zhanguo Gao	Louisiana State University	Obesity, CVD

