

## Dry Beans Recommended as 'Food to Increase' In Recently Published Dietary Guidelines

By Joanne Slavin, PhD, RD

The goal of the Dietary Guidelines for Americans (DGA) is to improve health by promoting healthy eating and physical activity choices. The recommendations contained in the 2010 DGA are intended for healthy Americans two years and older, including those at increased risk of chronic disease.

The DGA is developed in three stages. First, an external scientific Dietary Guidelines Advisory Committee (DGAC) is appointed to review the new science on diet and health. I was fortunate to serve on the 2010 DGAC. The 2010 DGAC used a systematic, evidence-based review process to address scientific questions. The questions relevant to dry beans are summarized below. Secondly, USDA and HHS develop the policy document, Dietary Guidelines for Americans.<sup>1</sup> 2010 DGA was released on January 31, 2011. Finally, USDA/HHS develop material to communicate the DGA to the general public. This stage is currently in process.

### DGA 2010

Dry beans and peas get positive press in the 2010 Dietary Guidelines for Americans.<sup>1</sup> Chapter 4 in the 2010 DGA says that "beans and peas are unique foods. Beans and peas are the mature forms of legumes. They include kidney beans, pinto beans, black beans, garbanzo beans, lima beans, black-eyed peas, split peas, and lentils. Beans and peas are excellent sources of protein. They also provide other nutrients, such as iron and zinc, similar to seafood, meat, and poultry. They are excellent sources of dietary fiber and nutrients such as potassium and folate, which also are found in other vegetables. Because of their high nutrient content, beans and peas may be considered both as a vegetable and as a protein food." Dry beans are also listed in "foods and nutrients to increase"—Choose a variety of protein foods, which include seafood, lean meat and poultry, eggs, beans and peas, soy products, and unsalted nuts and seeds.



## About This Issue

The first edition of Dietary Guidelines for Americans (DGA) was released in 1980. Every five years since then, the federal government has established and released updated dietary guidelines.

The 7th edition of Dietary Guidelines for Americans was released January 31, 2011. Because more than one-third of children and more than two-thirds of adults in the United States are either overweight or obese, this set of guidelines places stronger emphasis on reducing calorie consumption and increasing physical activity.

In this issue of *Dry Bean Quarterly*, we focus on how dry beans fared in the 2010 Dietary Guidelines.

Dry beans and peas were included in the evidence-based review done as part of the protein chapter in the Dietary Guidelines Advisory Committee (DGAC) report published in June 2010.<sup>2</sup> The strength of the evidence is listed for all questions asked by

the DGAC. Evidence is either strong, moderate, or limited. Limited evidence reflects either a small number of studies, studies of weak design, and/or inconsistent results. The following discussion summarizes the results of the evidence-based review of dry beans in the 2010 DGAC.

The protein subcommittee asked the following question:

*What is the Relationship between the Intake of Cooked Dry Beans and Peas and Selected Health Outcomes?*

Conclusion: Limited evidence exists to establish a clear relationship between intake of cooked dry beans and peas and body weight. There is limited evidence that cooked dry beans and peas lower serum lipids. Limited evidence is available to determine a relationship between the intake of cooked dry beans and peas and type 2 diabetes.

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## References

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## Implications

Legumes and soybeans, including dry beans and peas, are typically recommended foods because of their content of dietary fiber, protein, vitamins, and minerals. Legumes are promoted as a complementary protein source to grains since legumes are low in methionine and grains are low in lysine. Thus, legumes play an important role in vegan diets for enhancing protein quality. They may also provide a beneficial contribution to the general population in part to increase total vegetable consumption and dietary fiber intake.

## Background

Beans and peas are sources of protein, dietary fiber, minerals, and vitamins. As dietary fiber is linked to lower body weight, intake of beans and peas would be expected to also be linked to lower body weight. Consumption of dry beans, peas, and lentils is low in the US, with only eight percent of adults consuming dry beans and peas on any one day,<sup>3</sup> making it difficult to see relationships in existing cohorts. Dry beans and peas are concentrated sources of soluble dietary fiber, which is known to lower serum lipids. Unfortunately, few consumers include cooked dry beans and peas in their daily diet. This makes it difficult to determine the protectiveness of intake of cooked dry beans and peas when most prospective cohort studies include few subjects that are consuming these products.

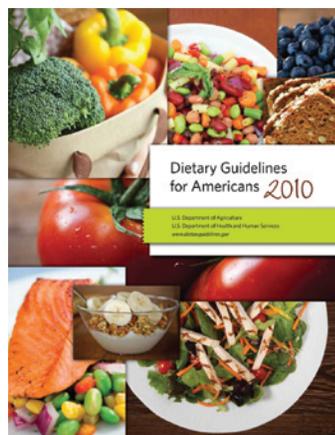
Soluble fibers are thought to slow absorption of carbohydrates and lower the glycemic index of foods. In the original studies of glycemic index, intake of legumes was associated with the lowest glucose response. Thus, dry beans and peas show promise for use in control of blood glucose for individuals with type 2 diabetes.

## Beans and Body Weight

The few intervention studies on the relationship between intake of cooked dry beans and peas and body weight find mixed results. This conclusion

is based on the review of one meta-analysis,<sup>4</sup> one systematic review,<sup>5</sup> four trials,<sup>6-9</sup> and one cross-sectional study<sup>10</sup> for beans and peas. In a meta-analysis of 11 studies, Anderson and Major<sup>4</sup> found that the intake of non-soy legumes was associated with decreased body weight. A systematic review examining the role of whole grains and legumes in preventing and managing obesity<sup>5</sup> concluded that weight loss is achievable with energy-controlled diets high in legumes, but insufficient evidence exists on the protective effect of legumes on weight.

Results from feeding trials with beans and peas are mixed, but diet treatments with beans and peas are generally no more successful in weight loss than the control or comparison treatment. In two randomized crossover trials comparing chickpea- to wheat-supplemented diets, no significant differences between dietary interventions was observed.<sup>7,8</sup> In a study that included chickpea-supplemented ad libitum, a non-significant decrease in body weight was observed during the chickpea phase compared to the control phase.<sup>9</sup> A comparison of bean eaters from NHANES 1999–2002 suggest that bean consumers had lower body weights and waist circumferences in comparison to non-consumers.<sup>10</sup>



## Beans and Cardiovascular Outcomes

Limited evidence exists that dry beans and peas have unique abilities to lower serum lipids; most of the lipid lowering seen in studies is related to the soluble fiber content of these products. The conclusion reached for this question is based on the review of one meta-analysis,<sup>4</sup> five trials,<sup>6,7,8,9,11</sup> two prospective cohort studies,<sup>12,13</sup> one case-control study,<sup>14</sup> and one cross-sectional study.<sup>10</sup>

Anderson and Major<sup>4</sup> quantitatively analyzed changes in serum lipoprotein levels resulting from intake of non-soya pulses. The authors concluded that regular consumption of pulses may have important protective effects on risk for CVD, including decreases in serum

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*Dry Bean Quarterly* is published four times a year by the Northarvest Bean Growers Association. An electronic version of this newsletter, with complete references, can be found at [www.beaninstitute.com](http://www.beaninstitute.com).

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### Soaking Dry Beans

By **Jill Nussinow, MS, RD**

As more people cook beans, more questions arise about the necessity of soaking them. The cooking method often determines if beans need presoaking.

#### Three soaking methods

Before soaking, be sure to sort through the beans to eliminate any errant sticks or small stones. Rinse them in a strainer or colander and they're then ready to soak.

- Soak overnight or morning to evening (at least eight hours) in plain water. Put the beans in a large bowl or pot and cover beans with at least a few inches of water.
- You can also do the same soak with salt, which results in saltier and firmer beans. Add 2½ teaspoons salt to each quart (4 cups) of water that you use.
- My favorite method is the "quick soak." Place beans in a pot and cover them with at least three inches of water. Bring to a boil for one minute. Let sit, covered, for an hour.

Always drain before cooking in fresh water.

[www.theveggiequeen.com](http://www.theveggiequeen.com)

#### About the Author

**Jill Nussinow** is a culinary educator, a Registered Dietitian and a freelance writer with a Master's Degree in Nutrition and Dietetics. She has been teaching cooking classes that focus on healthful, seasonal and organically grown foods since 1985.

## Roasted Salmon with Black Bean-Quinoa Salad

The 2010 Dietary Guidelines for Americans recommend increasing our intake of nutrient-dense foods like whole grains, seafood, and beans. This recipe incorporates all three into one fantastic dish with wonderful contrasting textures, colors, and flavors.

#### *Black Bean-Quinoa Salad*

¾ cup quinoa  
1½ cups water  
1½ cups black beans, canned, drained, and rinsed  
1½ tablespoons red wine vinegar  
¼ teaspoon kosher salt  
¼ teaspoon freshly cracked black pepper  
1 large red pepper, roasted,

seeded, peeled and diced (okay to use canned)  
1 medium red onion, diced  
2 tablespoons picked jalapeño chiles, diced  
½ cup fresh cilantro, finely chopped

#### *Salmon*

1½ pounds salmon, cut into six 4-oz. fillets

#### *Greens*

3 cups watercress or baby spinach

#### *Dressing*

6 tablespoons fresh lime juice  
½ teaspoon kosher salt  
1 teaspoon ground cumin  
¼ teaspoon cayenne pepper  
½ cup extra virgin olive oil

### PREPARATION

1. Preheat oven to 400 degrees.
2. In a bowl, wash the quinoa in 3 changes of cold water, rubbing the grains and letting them settle, pouring off most of the water until water runs clear; drain in a large fine sieve.
3. Bring 1½ cups of water to a boil in a medium-sized pot, add quinoa. Lower heat and cover; cook for 15 minutes. Remove from the heat, let stand for 20 minutes. Fluff with a fork to break up clumps.
4. Place salmon fillets on a baking sheet skin-side down and roast for 10–15 minutes.
5. While the quinoa is cooking and the salmon is roasting, toss the beans with vinegar, salt, and pepper to taste in a small bowl. Let stand for 30 minutes before draining off excess liquid.
6. Transfer quinoa to a large bowl and allow to cool to room temperature. Add drained beans, red bell pepper, red onions, jalapeños, and cilantro; toss gently to combine.
7. In a small bowl whisk together lime juice, salt, cumin, and cayenne pepper. Add the oil in a stream, whisking continuously. Use 2 tablespoons of the dressing to lightly dress your watercress or spinach. Use the rest of the dressing in the black bean-quinoa mixture.
8. Mound a ½ cup of watercress or spinach on a plate and top with 1 cup of black bean-quinoa salad. Top with roasted salmon and serve.



**YIELD:** 6 servings

#### **SERVING SIZE:**

one 4-oz. piece of roasted salmon with ½ cup watercress or spinach and 1 cup of the black bean-quinoa salad

#### **NUTRIENT INFORMATION PER SERVING:**

Calories: 475, saturated fat: 5g, monounsaturated fat: 17g, polyunsaturated fat: 5 g, cholesterol: 58 mg, protein: 31g, carbohydrate: 27g, dietary fiber: 5g, sodium: 500 mg, potassium: 975mg



## Dry Beans Recommended as ‘Food to Increase’ in Dietary Guidelines *continued from pg. 2*

cholesterol, LDL-cholesterol, and triacylglycerols and increases in HDL-cholesterol.

In the intervention studies, dry beans and peas lowered serum lipids as expected based on soluble fiber content. In a series of studies including the daily consumption of more than 100 g of chickpeas per day for 5 to 12 weeks, Pittaway et al.<sup>7,8,9</sup> observed improvements in serum total cholesterol and LDL-cholesterol compared to a control diet without legumes. Similar improvements in total cholesterol were observed following an 8-week weight loss intervention that included non-soybean legumes four days each week, and the decrease in total cholesterol was directly correlated with increased fiber intake.<sup>6</sup>

Bazzano et al.<sup>12</sup> found a strong and independent inverse association between dietary intake of legumes and risk of CHD in the Nutrition Examination Survey Epidemiologic Follow-up Study (NHEFS), which is a prospective cohort study of the First National Health and Nutrition Examination Survey (NHANES I) from 1971 to 1975. Legume consumption four or more times per week compared with less than once a week was associated with a 22 percent lower risk of CHD and an 11 percent lower risk of CVD. In the Coronary Artery Risk Development in Young Adults (CARDIA) Study,<sup>13</sup> tertiles of legume intake were less than 0.1, 0.1 to 0.2, and more than 0.2 times per day, supporting extremely low usual intake of legumes. The authors noted that limited consumption of legumes and insufficient statistical power precluded definitive conclusions from being drawn about the relationship between intake of legumes and elevated blood pressure.

### Beans and Type 2 Diabetes Mellitus

Evidence is insufficient to determine a relationship between dry beans and peas and T2D. Only one study was found that measured

the relationship between dry beans and peas and T2D. The association between the consumption of legume and soy foods and T2D was examined over an average follow-up of approximately five years in the Shanghai Women’s Health Study.<sup>15</sup> Average daily intake of individual food items was combined for the following food groups: total legumes and three mutually exclusive groups (soybeans [dried and fresh], peanuts, and other legumes). The median intake of total legumes was 30.5 g/d, for soybeans was 11.0 g/d, for peanuts was 0.7 g/d, and for other legumes was 15.5 g/d. Total legume consumption and consumption of soybeans and other legumes were each associated with a decrease in risk of T2D.

### Summary

Protein quality varies greatly and is dependent on the amino acid composition of the protein and the digestibility. Plant proteins can be combined to form more complete proteins if combinations of legumes and grains are consumed. Dry beans are listed as recommended protein foods in the 2010 Dietary Guidelines for Americans. Still, the 2010 DGAC found limited scientific support for the relationship between intake of dry beans and health outcomes. Thus, controlled feeding trials with dry beans and additional prospective, cohort studies on dry bean consumption and health outcomes are needed to move the science ahead to support the role of dry beans in health. 

#### About the Author

Joanne Slavin, PhD, RD, is a professor in the Department of Food Science and Nutrition at the University of Minnesota in St. Paul. She served on the 2010 Dietary Guidelines Advisory Committee.

