

Choosing a Dietary Pattern With Dry Beans Could Lower Risk of Cardiovascular Disease

By Dawn C. Schwenke, PhD

Until recently, little if any information was available concerning the relationship between cardiovascular disease and consumption of legumes, other than soybeans and peanuts. Only a few years ago, the first study to investigate whether dry beans were related to risk of heart attack was reported.¹ That study evaluated the relationship between consumption of dry mature beans and the risk of a nonfatal heart attack in individuals living in Costa Rica. By carefully comparing patients who had survived a first heart attack with a random sample of people from the same community, and mathematically adjusting for differences between them, the investigators determined that consumption of one ½ cup serving of cooked dry beans per day was associated with a 38% lower risk of first nonfatal heart attack.¹

Importantly, risk of nonfatal heart attack was not significantly reduced in those who consumed less than one ½ cup serving of cooked beans per day. Consumption of more than one serving of cooked dry beans per day was not associated with any further reduction in risk of nonfatal

heart attack. The investigators performing this study also noticed that persons who consumed more

than one serving of dry beans each day consumed fewer fruits and vegetables and more palm oil, a source of saturated fat. Potentially such adverse differences in the diets of those who consumed more beans might have countered any potential increased benefit of the greater consumption of dry beans.

More recent reports of the relationship between legume consumption and cardiovascular disease are limited to studies that did not evaluate dry beans separately from other legumes. However, two recent reports from the European Prospective Investigation into Cancer and Nutrition (EPIC) study^{2,3} are worthy of mention. In one of these studies,² as part of determining the relationship between a

One-third cup of cooked dry beans was associated with a 38 percent lower risk of first non-fatal heart attack.

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How Do Beans Reduce Risk of CVD?

By Maureen Murtaugh, PhD, RD

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Mediterranean diet and risk of heart disease in the Spanish participants of the EPIC study, the investigators considered the relationship between risk of heart disease and individual food groups that were included in the numeric score that was used to assess conformity with a Mediterranean diet. One of the food groups that the investigators considered represented legumes. In that study involving healthy volunteers, the authors could not detect any reduction of heart disease with higher legume intake.²

In comparison with those observations for healthy volunteers, another report from the EPIC study that evaluated the relationship between legume intake and heart disease in EPIC participants with diabetes provided differing results.³ Among EPIC participants with diabetes, the authors found that the one-quarter of participants who consumed the most legumes had a 28% lower risk of death due to cardiovascular disease than the one-quarter of the participants who consumed the least legumes.³

There are several possible explanations for the differences between the results of these two reports from the EPIC study. First, legume consumption varied less between healthy Spanish EPIC participants² than it did between the EPIC participants with diabetes.³ With a narrow range of legume consumption, it is more difficult to identify the benefit of higher consumption even if legumes do protect against heart disease. Second, it is possible that in the context of a healthful Mediterranean diet consumed by healthy Spanish individuals, legumes may confer only a modest incremental reduced heart disease benefit. It is possible that a different result might have

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Consumption of beans is associated with improved dietary quality which is associated with reduced mortality due to CVD.

been obtained in healthy participants from the entire EPIC population, which includes persons from ten European countries,³ most in Northern Europe where few follow a Mediterranean diet. Third, it is possible that the benefit of legumes may indeed be greater for those with diabetes who have higher risk of heart disease than healthy persons. Finally, it should be noted that the study endpoint of the report for healthy Spanish EPIC participants² was a combination of nonfatal heart attack, fatal heart attack, or angina that required surgical treatment, while the study endpoint in the EPIC participants with diabetes³ was death due to heart disease. Further study will be needed to determine whether legumes might be more effective in promoting survival among those having a heart attack than in preventing a heart attack.

Other studies provide evidence that consumption of the common bean, *Phaseolus vulgaris L.*, can improve modifiable risk factors for cardiovascular disease. For example, one small study tested the effect of feeding subjects one-half cup serving of pinto beans, black-eyed peas or carrots as a reference food that contained the same number of calories.⁴ That study demonstrated that the subjects who were fed pinto beans experienced a 19% improvement in total cholesterol and 14% improvement in LDL cholesterol.⁴ Interestingly, the benefits that participants gained from consuming pinto beans were not realized by the participants who were fed black-eyed peas, even though the macronutrient composition of these two legumes are relatively similar.⁵ The results of this study indicate that it will be important for future studies to evaluate

the relationship between cardiovascular disease and consumption of *Phaseolus vulgaris L.* separately from consumption of other legumes. While evidence that consumption of *Phaseolus vulgaris L.* reduces risk of cardiovascular disease is limited, the available evidence is sufficiently strong to justify recommending the consumption of one or more servings of beans daily. In addition to the suggestive results from observational studies and the effects of beans on risk factors for cardiovascular disease that can be demonstrated in experimental studies, there are other reasons that support the recommendation to increase consumption

of dry beans. First, dry beans are rich sources of dietary fiber, protein, folate, potassium and other nutrients⁵ that have been linked to reduced risk of cardiovascular disease and reduced risk of elevated blood pressure,^{6,7} a strong risk factor for cardiovascular disease. Second, observations from the National Health and Nutrition Examination Survey completed in 1999–2002⁸ suggest that bean consumption may help control obesity, a risk factor for cardiovascular disease. Third, beans are components of

Mediterranean and prudent dietary patterns, dietary patterns that have been associated with reduced risk of cardiovascular disease.^{2,9} Fourth, consumption of beans is associated with improved dietary quality¹⁰ and improved dietary quality is associated with reduced mortality due to cardiovascular disease.¹¹

To reduce risk of cardiovascular disease, individuals might consider reducing part of the animal protein that they are currently consuming (particularly foods that are highest in saturated fat) with dry beans so that they may benefit not only from the nutrients provided by the beans but also by reducing saturated fat in their overall diet. 🌱



About the Author

Dawn C. Schwenke, PhD, is an adjunct professor in the College of Nursing and Health Innovation at Arizona State University. Her particular interests are in the contribution of diet and lifestyle to cardiovascular disease. She has previously served as chair of the Behavioral Science Epidemiology and Prevention review committee of the American Heart Association.

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Roasted Halibut with Spicy Black Bean Cakes

Recipe created by
The Culinary Institute of America

This dish has all the nutrient attributes of a heart healthy dish. It is low in saturated fat and sodium and rich in dietary fiber and potassium. Consuming foods that contain more potassium than sodium is a smart way to maintain healthy blood pressure levels. Halibut is the richest source of potassium when it comes to fish, and all beans are excellent sources of potassium.

Black Bean Cakes

- ¼ cup extra virgin olive oil
- 1 cup (1 medium) white onion, peeled and diced
- 2 tablespoons (about 6) garlic cloves, crushed and chopped
- ¼ cup (1 large) jalapeño pepper, stemmed and minced
- 2 teaspoons cumin, ground and toasted
- 4 cups black beans, cooked (if using canned beans, drain and rinse before using)
- ¼ teaspoon kosher salt
- ½ teaspoon fresh ground black pepper
- 2 cups sweet potato, peeled and grated
- 2 eggs, lightly beaten
- ¾ cup whole wheat bread crumbs, toasted (plus extra for coating finished cakes)

Roasted Halibut

- 2 pounds halibut fillets, portioned into 4-ounce pieces
- ¼ cup extra virgin olive oil
- ¼ teaspoon kosher salt
- ½ teaspoon freshly ground black pepper
- 1 tablespoon fennel seed, toasted and ground
- 2 limes, quartered
- Cilantro sprigs, for garnish

YIELD:

8 servings

NUTRIENT INFORMATION PER SERVING:

Calories: 420, total fat: 15g, saturated fat: 2g, monounsaturated fat: 9g, polyunsaturated fat: 2.5g, cholesterol: 90mg, protein: 35g, carbohydrate: 35g, dietary fiber: 10g, sodium: 275mg, potassium: 1050mg



PREPARATION

1. Heat 2 tbsp. olive oil in a medium skillet over medium heat. Cook onions until softened, about 1 minute. Stir in garlic, jalapeño, and toasted cumin; cook until fragrant, about 2 minutes.
2. Transfer contents of skillet to a large bowl. Stir in 2 cups cooked black beans and mash with a fork. Season with salt and pepper. Mix in sweet potatoes, eggs, 1 cup of the cooked black beans, and bread crumbs. Mix again carefully just to combine and chill for 30 minutes.
3. Divide into 16 small balls and flatten into patties. Lightly grease baking sheet with 2 tbsp. olive oil. Dip patties into bread crumbs to coat and place on oiled sheet pan; chill for 20 minutes.
4. Preheat the oven to 450 degrees. Place bean cakes in the oven and roast for 10 minutes, or until the cakes start to lightly brown.
5. Meanwhile, pat the halibut fillets dry with paper towels. Season the halibut portions with salt, pepper, and toasted fennel seed. Heat the ¼ cup olive oil over medium-high heat in a large oven-proof frying pan until hot but not smoking. Slip the halibut pieces skin side up into the pan and cook until the bottom is golden and the edges of the fish start to look opaque, about 3 minutes. Flip the fish fillets over and place in the 450 degree oven for 2–3 minutes or until the fillets are just opaque in the center.
6. Warm remaining 1 cup of black beans and season with salt and pepper. Serve the fish with warm black bean cakes, a small spoonful of black beans, and garnish with fresh lime wedges and cilantro.



DBQUICK BITE

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Reasons Dry Beans Promote Heart Health

1. Dry beans contain no sodium.
2. Dry beans are a rich source of potassium.
3. Dry beans contain no cholesterol.
4. Dry beans are a fat-free food.
5. Dry beans are a rich source of dietary fiber, including cholesterol-binding soluble fiber.
6. Dry beans contain heart-healthy vegetable protein.
7. Dry beans are an excellent source of folic acid.
8. Dry bean consumption may help with weight management.
9. People with diabetes who consume cooked, dry beans have a lower risk of heart disease.
10. Dry beans pair well with other heart health-promoting foods like fish and extra virgin olive oil.

