

## The White Potato

### An Affordable, Nutrient-Dense Vegetable

“Make half your plate  
fruits and  
vegetables.”

– USDA’s *MyPlate*

“Consume vegetables  
and fruit at all meals  
and snacks.”

– Canada’s  
Food Guide

***Intakes of potassium and dietary fiber are low enough in the United States to be a public health concern, and most Canadians do not consume sufficient amounts of potassium or dietary fiber to meet their needs.***

***The white potato is one of the best sources of potassium and dietary fiber compared to other frequently consumed fruits and vegetables and is also among the lowest-cost sources of potassium.***

### Background

In an effort to assist Americans in adopting the healthy eating habits promoted in the 2010 Dietary Guidelines for Americans (DGA), the U.S. Department of Agriculture (USDA) released its new food icon, *MyPlate* (1). One of the tips in *MyPlate* to promote a healthier lifestyle is to “make half your plate fruits and vegetables” (2).

Canada’s Food Guide recommends a pattern of eating that will help meet nutrient needs and reduce the risk of nutrition-related chronic diseases (3). One of the tips in Canada’s Food Guide includes consuming vegetables and fruit at all meals and snacks. Canadians are also encouraged to explore the variety of colors, tastes, and textures that the vegetables and fruit group offers (4).

### The Myths

Some researchers have criticized the white potato by concluding that consumption of this vegetable leads to weight gain (5). Some members of the public health community also claim that the complex carbohydrate content of this vegetable may be a contributing factor to the increase in type 2 diabetes and other health problems in the United States, while marginalizing the critical nutrient contributions the white potato in all forms makes to the American diet. A causal relationship between white potato consumption and weight gain, diabetes, and other health problems has not been demonstrated (6,7), yet these individuals ardently discourage consumption of the white potato in any form (8).

### The Facts

The facts concerning the white potato tell a different story. A medium skin-on baked white potato (148 g) is an excellent source of potassium (23% DV), vitamin C (24% DV), and vitamin B<sub>6</sub> (23% DV) and a good source of dietary fiber (13% DV) and magnesium (10% DV) based on a 2000 kcal/day diet (9-12). According to the 2010 DGA, intakes of potassium and dietary fiber are low enough in the United States to be a public health concern (13). Most Canadians also do not consume sufficient amounts of potassium or dietary fiber to meet their needs (14,15).





Most Americans and Canadians do not consume sufficient amounts of potassium or dietary fiber to meet their needs.

The white potato is naturally low in nutrients associated with an increased risk of cardiovascular disease (saturated fat, *trans* fat, and cholesterol) and hypertension (sodium) (9). In addition, changes in packaged food formulations and commercial cooking methods have substantially decreased the *trans* fat content of supermarket and restaurant foods without increasing their saturated fat content (16). The Centers for Disease Control and Prevention (CDC) is crediting these changes in packaged food formulations and commercial cooking methods with the reduction of blood levels of *trans* fat in the United States (17).

### Role of Potassium in Human Health

Potassium helps to balance the effects of high sodium intake on blood pressure and may also reduce the risk of developing kidney stones and prevent bone loss. However, few Americans or Canadians consume sufficient amounts of potassium to meet the Adequate Intake (AI) for this nutrient (13,14). Because of the critical role of potassium in human health, the 2010 DGA advise “increased intake of dietary potassium from food sources is warranted” (13, pg. 40).

### Role of Dietary Fiber in Human Health

Dietary fiber helps provide a feeling of fullness (satiety) and is important in promoting healthy bowel function. Dietary fiber may also help reduce the risk of cardiovascular disease, obesity, and type 2 diabetes. Because most Americans greatly underconsume dietary fiber, the 2010 DGA state “Americans should increase their consumption of beans and peas, other vegetables, fruits, whole grains, and other foods with naturally occurring fiber” (13, pg. 41). Canada’s Food Guide encourages increased consumption of fiber-rich foods since many Canadians consume less than half of the recommended daily amount of fiber (18).

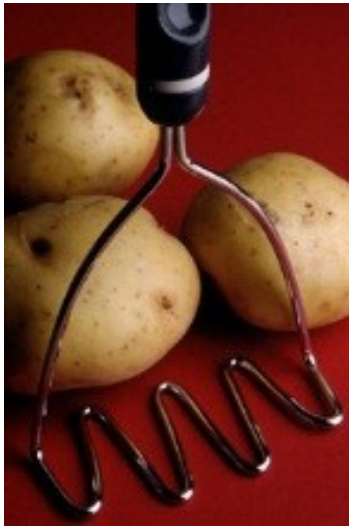
### Energy, Potassium, and Dietary Fiber Comparison of Fruits and Vegetables

The energy, potassium, and dietary fiber content in Nutrition Labeling and Education Act (NLEA) serving sizes of frequently consumed fruits and vegetables are compared in Table 1 (9,10,19,20). One medium skin-on baked white potato (148 g) and one 2.5-oz serving (70 g or about 10 strips) of oven-heated French fried potatoes provide 792 mg and 330 mg of potassium, 3.3 g and 1.6 g of dietary fiber, and 138 kcal and 116 kcal, respectively. Table 1 illustrates that no other frequently consumed fruits and vegetables can match the potassium content of a medium skin-on baked white potato, and four other frequently consumed fruits and vegetables (broccoli, banana, cantaloupe, and red tomato) exceed the potassium content of a 2.5-oz serving of oven-heated French fried potatoes.

Table 1 also shows that a large skin-on apple is the best source of dietary fiber (5.8 g) among frequently consumed fruits and vegetables, but the amount of dietary fiber provided by a medium skin-on baked white potato is similar to the amount of dietary fiber provided by a medium stalk of broccoli (3.8 g), a medium orange (3.4 g), and a medium banana (3.3 g).



The white potato is one of the best sources of potassium and dietary fiber compared to other fruits and vegetables.



**Table 1. Energy, Potassium, and Dietary Fiber Content of Fruits and Vegetables Frequently Consumed by Americans<sup>†</sup> per Nutrition Labeling and Education Act (NLEA) Serving Size<sup>‡</sup>**

Food Item	NLEA Serving Size (NSS)	Energy (kcal)/NSS (g)	Potassium (mg)/NSS (g)	Dietary Fiber (g)/NSS (g)
Baked White Potato	1 medium, with skin (148g)	138	792	3.3
Broccoli	1 medium stalk (148g)	50	468	3.8
Banana	1 medium (126g)	112	451	3.3
Cantaloupe	1/4 medium (134g)	46	358	1.2
Red Tomato	1 medium (148g)	27	351	1.8
Oven-Heated French Fried Potatoes	2.5 oz (70g)	116	330	1.6
Watermelon	2 cup, diced (280g)	84	314	1.1
Celery	2 medium stalk (110g)	18	286	1.8
Apple	1 large, with skin (242g)	126	259	5.8
Green Bell Pepper	1 medium (148g)	30	259	2.5
Orange	1 medium (154g)	75	256	3.4
Carrot	1 large (78g)	32	250	2.2
Yellow Sweet Corn	1 medium ear, kernels only (90g)	77	243	1.8
Red/Green Grapes	3/4 cup, seedless (126g)	87	241	1.1
Strawberries	8 medium (147g)	47	225	2.9
Onion	1 medium (148g)	59	216	2.5
Romaine Lettuce	1 1/2 cup, shredded (85g)	14	210	1.8
Cucumber	1/3 medium, with skin (99g)	15	146	0.5
Cabbage	1/12 medium head (84g)	21	143	2.1
Iceberg Lettuce	1/6 medium head (89g)	12	125	1.1

<sup>†</sup> The fruits and vegetables included in Table 1 are limited to those with per capita availability greater than 5 pounds (fresh retail weight) in 2009.

<sup>‡</sup> Unless otherwise noted, the values for the fruits and vegetables included in Table 1 are for the raw, edible weight portion.

## The White Potato: An Affordable, Nutrient-Dense Vegetable



A medium baked potato with skin provides the same amount of potassium as about 2 medium bananas.

To match the amount of potassium provided by a medium skin-on baked white potato, an individual would have to consume about 2 medium bananas, 3 medium oranges, 3 medium green bell peppers, 28 medium strawberries, or 6 cups of shredded romaine lettuce (Table 2) (9,10,19).

**Table 2. Amount and Energy Content of Fruits and Vegetables Frequently Consumed by Americans<sup>†</sup> Needed to Equal Potassium Content (792 mg) of Medium Skin-On Baked White Potato**

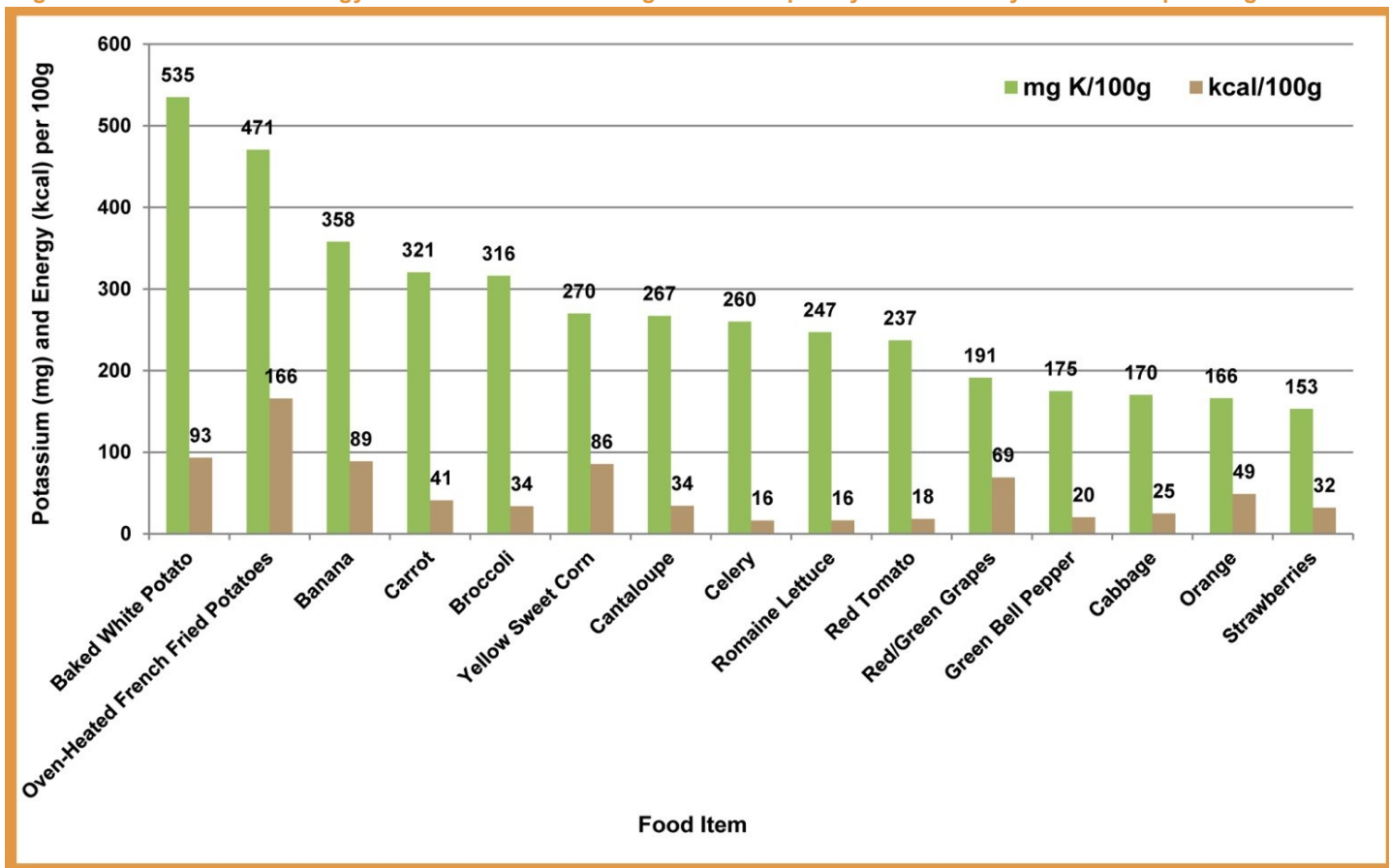
Food Item	Amount/792mg Potassium	Amount (g)/792mg Potassium	Energy (kcal)/792mg Potassium
Potato, Baked White	1 medium, with skin	148	138
Apple	4.8 medium, with skin	864	449
Banana	1.8 medium	221	197
Broccoli	1.7 medium stalk	250	85
Cabbage	0.5 medium head	465	116
Cantaloupe	0.6 medium	296	102
Carrot	3.2 large	247	101
Celery	5.5 medium stalk	305	50
Corn, Yellow Sweet	3.3 medium ear, kernels only	293	251
Cucumber	1.8 medium, with skin	537	81
Grapes, Red/Green	2.5 cup, seedless	414	286
Lettuce, Iceberg	1.1 medium head	564	76
Lettuce, Romaine	5.7 cup, shredded	320	53
Onion	3.7 medium	543	216
Orange	3.1 medium	476	232
Pepper, Green Bell	3.1 medium	452	92
Potatoes, Oven-Heated French Fried	6.0 oz	168	278
Strawberries	28 medium	517	165
Tomato, Red	2.3 medium	334	61
Watermelon	5 cup, diced	706	212

<sup>†</sup> The fruits and vegetables included in Table 2 are limited to those with per capita availability greater than 5 pounds (fresh retail weight) in 2009.



Figure 1 includes the potassium and energy content of frequently consumed fruits and vegetables per 100 grams and illustrates that a skin-on baked white potato and oven-heated French fried potatoes remain the best dietary sources of potassium (9).

Figure 1. Potassium and Energy Content of Fruits and Vegetables Frequently Consumed by Americans<sup>†</sup> per 100g



<sup>†</sup> The fruits and vegetables included in Figure 1 are limited to those with per capita availability greater than 5 pounds (fresh retail weight) in 2009 and with mg K/100g greater than 150.



Increasing consumption of potassium could increase food costs by \$380/year for the average consumer.

### Affordability of the White Potato

In addition to the nutrient contributions that specific fruits and vegetables make in the American diet, the cost of those fruits and vegetables must be taken into account. Access by all people at all times to enough food for an active, healthy life (food security) plays an important role in the well-being of individuals and communities. At least sometime during 2010, however, 14.5% of U.S. households were food insecure (21), while 7.7% of Canadian households were food insecure at least some time during 2007-2008 (22). Many households that experience food insecurity may not have the resources to comply with the *MyPlate* recommendation to “make half your plate fruits and vegetables.” A study published in 2011 suggests that increasing consumption of potassium could increase food costs by \$380/year for the average consumer (23).

As well as being an important source of potassium, dietary fiber, magnesium, vitamin C, and vitamin B<sub>6</sub>, the white potato is also an affordable vegetable. Using a scoring system that integrates the USDA Center for Nutrition Policy and Promotion (CNPP) food price database with the Nutrient Rich Foods (NRF) index, one study gave white potatoes the fifth-highest nutrients-per-cost rating of the 21 selected food subgroups analyzed (24). Additionally, research presented during the 2011 Annual Meeting of the American Dietetic Association found that white potatoes are among the lowest-cost sources of potassium in the American diet (25). The white potato excels in two other factors—ease of preparation and a long shelf life—that are important to many consumers, especially those with limited budgets and/or busy schedules.

### Conclusion

The positive qualities of the widely-consumed white potato—nutritious, affordable, easy to prepare and store—are clear. The critical nutrients provided by the white potato in all forms make this vegetable an important part of USDA’s *MyPlate* and Canada’s Food Guide.



## OUR MISSION STATEMENT

The Alliance for Potato Research and Education (APRE) is 100% dedicated to expanding and translating scientific research into evidence-based policy and education initiatives that recognize the role of all forms of the potato—a nutritious vegetable—in promoting health for all age groups.

## OUR PHILOSOPHY

APRE is committed to informing the conversation that white potatoes in all forms are affordable, nutrient-dense vegetables; provide critical nutrients; and are an important part of USDA's *MyPlate*. Two of the nutrients provided by white potatoes—potassium and dietary fiber—have been identified by the Institute of Medicine's Food and Nutrition Board and the 2010 Dietary Guidelines Advisory Committee as nutrients that are underconsumed by both children and adults.

## OUR ORGANIZATION

APRE is a not-for-profit organization funded by the potato industry, including potato growers and potato food manufacturers. APRE's research program is guided by APRE's Scientific Advisory Council (SAC) and Economics Advisory Council (EAC), both of which include a blue ribbon panel of experts from prominent universities in the United States and Canada. APRE does not lobby or further any political or partisan interest.

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