

Sodium: There's More to the Story

Can the potassium in dairy help mitigate sodium's effects on blood pressure?

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With much attention today on sodium reduction and hypertension, a fact often overlooked is that sodium is only one piece of the hypertension puzzle. Other nutrients can come into play. Potassium, for instance, which plays a role in water balance and blood flow, can blunt the effects of sodium on blood pressure.¹ Further, a whole diet and lifestyle approach that includes recommended nutrient intakes has been shown to be more effective than simply lowering dietary sodium to control blood pressure.²

Many consumers are concerned about high blood pressure and its effects on heart disease. According to the HealthFocus International Trend Study (2009), 43% of consumers say they now check products for "low sodium" claims.³ Additionally, one-third of consumers looking for heart-healthy foods say they also look for potassium in foods.³

Sodium and Potassium in the Diet

The 2005 Dietary Guidelines for Americans recommends keeping sodium intake below 2300 mg/day and under 1500 mg/day for hypertensive individuals, adults middle-aged and older, and African-Americans.¹ Almost 70% of the population fits the more-restrictive category.⁴

Yet, the average intake in the United States is above 3400 mg/day.⁵ The Dietary Guidelines Advisory Committee (DGAC) report released in June recommends a gradual reduction to 1500 mg/day.⁶

Only about 10% of sodium is naturally occurring in foods. Another 5 to 10% may be added during cooking or at the table. This means that up to 80 to 90% of dietary sodium is from manufactured, processed, or restaurant foods.⁷ Sodium is present in much of the food supply.

The 2005 Dietary Guidelines¹ and the 2010 DGAC report⁶ both advise increasing potassium in the diet. Potassium is naturally found in fruits, vegetables, dairy, beans, and certain types of fish. Given the variety of foods providing potassium in the diet, it's surprising that only one in 20 Americans are currently getting the recommended 4700 mg of potassium daily.⁸ Figure 1 on pages 64–65 illustrates the large gap between current and recommended intakes of both sodium and potassium across different age groups.

The Dietary Approaches to Stop Hypertension (DASH) eating plan provides currently recommended amounts of sodium and potassium and is nutritionally balanced overall. Supported by many health organizations, the DASH eating plan includes eight to 10 servings of fruits and



vegetables; two to three servings of low-fat or fat-free milk and milk products, which include reduced-fat cheese; and whole grains.⁹ The DASH eating plan is specifically designed to meet potassium needs by strategically including fruits and vegetables especially high in potassium and the recommended amounts of dairy.⁶ This plan has been shown to lower blood pressure and takes into account many dietary factors—not just sodium.¹⁰

Opportunities in the Market

It is clear that potassium is important for healthy blood pressure; however, public health efforts to date have focused primarily on sodium. With 77% of consumers looking at food labels for nutrition information,¹¹ there are many opportunities for promoting potassium in foods. FDA-authorized nutrient-content and health claims can be used to help consumers realize the benefits of getting more potassium in their diets and make informed decisions about their food purchases.

How many consumers know that one cup of fluid milk has the same amount of potassium as one small banana?¹² Or that milk is the number-one food source of potassium in the American diet, with potatoes, fruit, and fruit juices the other top sources?^{5,6} FDA food-labeling regulations

require that the content and percent Daily Value of sodium in foods and beverages be listed on the Nutrition Facts Panel, but listing potassium is voluntary.^{13,14} For health-conscious consumers looking to increase potassium in their diet, listing the potassium content of foods on the Nutrition Facts Panel is one way to highlight the less-well-known food sources of potassium.

Nutrient-content claims can help showcase a product's nutrients on the food label. There is a multitude of products in the market with "reduced sodium" or "low sodium" claims, but very few products feature potassium on their labels. Marketing opportunities may have yet to reach their potential. Some products will qualify for both "reduced (or low) sodium" and "good source" of potassium claims.^{13,14} For example, low-fat and fat-free milk are both low-sodium foods and good sources of potassium.¹⁴ Many yogurts also are low in sodium and good sources of potassium.

While some consumers are more aware of healthy food choices, others may benefit from additional information on the food label. In

addition to nutrient-content claims, FDA-authorized health claims can be used to highlight the health benefits of a nutrient or nutrients in foods that meet the qualifying criteria.^{13,14} Eligible products may feature the claim "Diets low in sodium may reduce the risk of high blood pressure, a disease associated with many factors." Another way of qualifying products to help guide consumer choices is the health claim "Diets containing foods that are good sources of potassium and low in sodium may reduce the risk of high blood pressure and stroke."

Potassium Innovation

So why is potassium not getting the attention it deserves? With all the buzz surrounding sodium, potassium often is overlooked. Reducing sodium in foods certainly has its challenges. Sodium plays multiple roles, which include enhancing taste and palatability, acting as a preservative, and numerous functional roles in food manufacturing.¹⁵ Getting consumers to accept lower-sodium foods can be a significant challenge for manufacturers. Most important,



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Food-Label Claims That Can Highlight Sodium and Potassium^{13, 14}

Claim	Partial List of Qualifying Criteria*
<i>Nutrient-Content Claims[†]</i>	
Low Sodium	140 mg or less per reference amount or per 50 g if reference amount is 30 g or less
Reduced or Less Sodium	At least 25% less sodium per reference amount than comparison product
Unsalted or No Salt Added	None added during processing (does not mean sodium-free)
Excellent Source of Potassium	At least 20% or more of the Daily Value [‡]
Good Source of Potassium	10 to 19% of the Daily Value
Added/Fortified with Potassium	Contains at least 10% more of the Daily Value than comparison product
<i>Health Claims</i>	
Diets low in sodium may reduce the risk of high blood pressure, a disease associated with many factors	Products meeting the requirements for a low-sodium claim; 140 mg or less per reference amount or per 50 g if reference amount is 30 g or less
Diets containing foods that are a good source of potassium and that are low in sodium may reduce the risk of high blood pressure and stroke	Products containing at least 10% of the Daily Value for potassium and less than 140 mg of sodium (exact wording must be used)

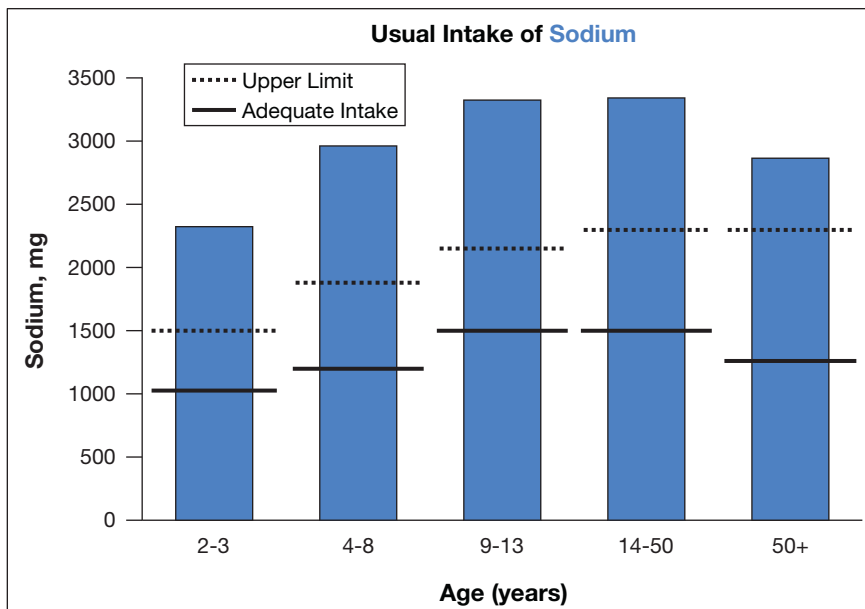
* FDA REGULATIONS FOR FOOD LABELING ARE PUBLISHED IN THE CODE OF FEDERAL REGULATIONS AND ARE AVAILABLE ONLINE AND IN BOOK FORMAT FROM THE SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE. SEE ALSO "GUIDANCE FOR INDUSTRY, A FOOD LABELING GUIDE" (APRIL 2008) AVAILABLE ONLINE FROM THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES FOOD AND DRUG ADMINISTRATION, CENTER FOR FOOD SAFETY AND APPLIED NUTRITION, OFFICE OF NUTRITION, LABELING AND DIETARY SUPPLEMENTS.

[†] IF THE PRODUCT EXCEEDS 13 G OF FAT, 4 G OF SATURATED FAT, 60 MG OF CHOLESTEROL, OR 480 MG OF SODIUM PER REFERENCE AMOUNT, A DISCLOSURE STATEMENT MUST BE USED.

[‡] DAILY VALUE FOR POTASSIUM IS 3500 MG, BASED ON A 2000-CALORIE DIET.

Hypertension

Figure 1
Food sources of sodium and potassium were determined using NHANES 2005-2006 data. Dietary intakes are shown for all subjects two years and older, with complete, reliable 24-hour recall interviews on Day 1 (n=16,822)



The adequate intake and upper limit for sodium by age, as established by the Institute of Medicine.¹⁶

when reducing sodium in foods, sodium's role as a preservative cannot be disregarded from a food-safety perspective.

Potassium salts can be used to some extent as an alternative to sodium in food manufacturing and may be used to fortify foods. Potassium, however, is more expensive than sodium, and potassium-based salt substitutes can leave a metallic taste in foods. The good news is that flavor companies are developing masking agents to help make potassium-based alternatives to sodium in products more acceptable to consumers. In fact, for many foods, 25 to 35% of the sodium chloride can be replaced with potassium chloride (1:1 molar ratio) and still maintain consumer acceptance. Additionally, the processed-cheese industry has seen progress with potassium-based emulsifying agents to maintain structure and flavoring agents to enhance the taste with lower sodium.¹⁵ Research and development to date are promising, with more work needed for widespread use of potassium as alternatives to sodium or to fortify foods.

Looking Forward

Dietary sodium will continue to draw the spotlight. As the food industry faces the challenges of reducing sodium in food, it is important not to lose sight of the importance of dietary potassium and the role of diet and lifestyle in managing hypertension. Nutrition

information is more widely available to the curious Web surfer—providing opportunities to inform consumers about food sources of potassium and how they fit in a whole-diet and lifestyle approach. Despite existing challenges, market growth can be envisioned for new and existing products through innovation, marketing, and label claims targeted at health-savvy shoppers.

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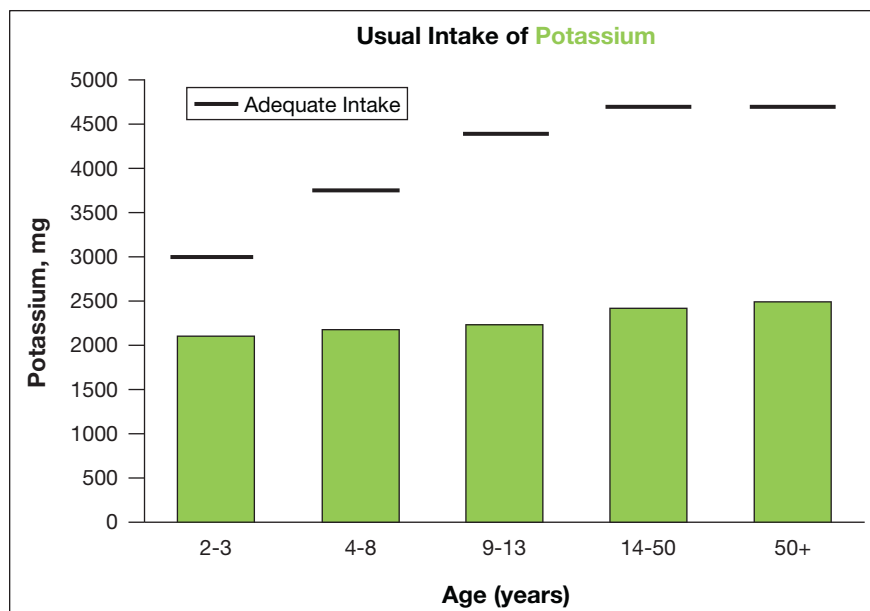
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