



FRESH | FROZEN | CANNED | DRIED | 100% JUICE

IT ALL MATTERS!

Know the Facts



Today's busy shoppers are looking for convenient, tasty food choices that provide good nutrition at a good price. All of this can be found with fruits and vegetables, whether fresh, frozen, canned, dried, or 100% juice products. Unfortunately, however, Americans are not eating even half of their recommended amount of fruits and vegetables,¹ despite continued research outlining their health benefits.² Confusion about pesticides, microbiological contamination, food preservation, or the cost of fruits and vegetables abounds and does not help in the effort to increase consumption. The real crisis is that Americans are simply not eating enough of them. Health professionals, scientists, and the media have a responsibility to share information, based on sound science, to minimize confusion. Having answers to common misperceptions about fruits and vegetables may help overcome some barriers to their consumption.

Why All Forms Matter

The call for increased fruit and vegetable consumption often emphasizes fresh produce, grown locally. There is a misperception that the preservation or processing of fruits and vegetables diminishes nutritional quality. This is often cited as the rationale for the focus on fresh, despite research that shows the nutritional equivalent or, in some cases, superiority of preserved fruits and vegetables compared to cooked or raw produce.

Our advice: Buying a combination of fresh, canned, frozen, dried, and 100% juice maximizes nutrition, minimizes waste, saves money, and assures that there is always a variety of fruits and vegetables available.

Exclusively recommending one form of fruit or vegetable over another ignores the benefits of each form and limits consumer choice.^{3,4}



Key Barriers to Greater Consumption

When primary shoppers were asked what factors made it most difficult for them to include more fruits and vegetables in meals and snacks, cost was among the highest concerns. In fact, 44% said fruit was too expensive and 35% said vegetables were too expensive.⁵ Fresh fruits and vegetables in particular were perceived as most costly, while frozen and canned were favored because they were less costly.

When asked why shoppers don't purchase some forms of fruits and vegetables, concern about artificial ingredients or added preservatives prevailed, with a general perception that canned fruits and vegetables in particular weren't as healthy as other forms.

In a separate survey, 4% of primary shoppers rated concern about pesticide residues as a reason they were eating less produce.⁶ While not a large percentage, anything that might stop a consumer from eating fruits and vegetables is of concern.

Ultimately, consumers believe they can actually achieve their fruit and vegetable consumption goals when they know that they can 'count' all forms toward their daily goal.⁷

All forms of fruits and vegetables provide needed nutrients



From a nutrition and sensory standpoint, recipes prepared with canned and/or frozen ingredients have been rated as comparable to those prepared with cooked fresh ingredients.^{8,9}

Fruits and vegetables that are to be canned or frozen are packed within hours of harvest, so their peak flavor and nutritional value are preserved. Due to minimal deleterious oxygen during storage, the nutrients in canned and frozen fruits and vegetables remain relatively stable for consumption, allowing for a longer shelf-life.⁹ The way to keep surplus product that is harvested during peak season—a season that may only last a few days or weeks—is to ‘preserve’ it by canning or freezing it. Commercial preservation methods today are even better than grandmother’s, because the industry has learned to optimize conditions so that time and temperature exposures are better than that of grandmother’s kitchen.

Dried fruits are a particularly significant source of dietary potassium and fiber. Depending on the specific fruit, they provide other important nutrients like vitamin A and carotenoids (dried peaches and apricots), vitamin K (dried plums), calcium (dried figs), manganese (dried figs), and boron (raisins and dried plums).¹⁰

When it comes to fruits and vegetables, think all forms and include a colorful variety! Eating and drinking colorful fruits and veggies in all forms provides a wide range of natural vitamins, minerals, phytochemicals, and fiber important to overall good health. With hundreds of different kinds of fruits and vegetables and thousands of different ways to prepare them, there’s bound to be something to please everyone. So, what are the best fruits and vegetables for consumers to buy? Quite simply, it’s the ones they enjoy, and the forms that best fit into their lifestyle.

Fresh, frozen, dried, and canned fruits and vegetables contain similar amounts of fiber and minerals. Cooking fruits or vegetables does not destroy fiber or minerals.^{4,11}

Research shows that children and teens who drink 100% juice have higher usual intakes of vitamins A and C, magnesium, folate, phosphorus, calcium, and potassium—all nutrients that have been identified as frequently under-consumed by these age groups.^{12,13}

Some packaged fruits and vegetables may actually contribute more health-promoting antioxidants than their fresh counterparts



Most fat-soluble nutrients, including carotenoids, Vitamin A, and Vitamin E, are higher in processed fruits and vegetables. This is true, in part, because the mild heat treatment in processed products allows for greater bioavailability of lipid-soluble nutrients. Processed fruits and vegetables may also contain greater nutritional value because some processing cultivars are more nutritious than fresh cultivars, as is the case with tomatoes.⁴

The absorption of lutein found in corn, an antioxidant that may reduce the risks of cataracts and macular degeneration, is also enhanced by heat from the canning process.¹⁵

Dried fruit is an excellent source of phenolic compounds which contribute to the antioxidant capacity of fruits and vegetables. In fact, the antioxidant capacity is much higher for dried fruit than corresponding values for fresh because the antioxidants are concentrated into a smaller volume during the dehydration process.¹⁰

One study demonstrated increased amounts of some key anthocyanins in canned blueberries, a powerful antioxidant, compared to the amounts found in fresh and frozen blueberries.¹⁴

Mom’s Reported Uses of Different Forms of Fruits & Vegetables¹⁶

How do you use frozen and canned fruits and vegetables? (Please check all that apply.)

	% Respondents				
	FRUITS			VEGETABLES	
	Frozen	Canned	Dried	Frozen	Canned
Snacks	39%	64%	79%		
Dessert	54%	46%			
Smoothies/Beverages	69%	16%			
Fruit Salads	29%	37%			
As is	33%	67%			
Baking			38%		
Trail mix			39%		
On cereal			31%		
In salads			30%	15%	16%
Side dish				89%	89%
Casseroles				52%	51%
Soups/stews				54%	49%
Stir-fry				49%	20%
Add to sauces				18%	13%
Other	4%	4%	1%	2%	1%
Don’t use	1%	0%	5%	0%	0%

(n=390) (n=687) (n=399) (n=854) (n=814)

Empty boxes indicate the category was not presented to the respondent.

Multiple forms of fruits and vegetables mean added convenience and optimal nutrition



Today’s consumers are pressed for time, so healthy products in convenient packages are perfect for busy schedules. Having all forms of fruits and vegetables on hand—fresh, frozen, canned, dried, and 100% juice—makes them accessible, convenient, and ready-to-use when preparing meals and snacks at home.



Some frozen foods come in resealable, easy open/reclose packaging, allowing for longer storage and portion control without waste. Microwaveable vegetables, frozen or fresh, also provide added convenience by allowing food to be cooked right in the package.



Canned foods are cooked during processing, so they are ready to heat and eat or use in a recipe. Similarly, frozen foods require little preparation—they are pre-washed and pre-cut. Both fresh pro-

duce and 100% juice can be consumed immediately after purchase with minimal, if any, preparation. Dried fruits and vegetables are easily stored and quickly accessible from the pantry. Dried fruit comes in convenient packages that can be stored and eaten on the go. They are nutritionally dense and provide a perfect healthy boost.



Using more than one form of fruit or vegetable for a meal or side dish can mean less preparation and cooking time for today’s busy cooks. For example, here’s how to make a quick chili dish: add frozen corn to canned tomatoes and beans, season with fresh herbs, and top with fresh avocado. For a nutritious and easy-to-make beverage in seconds, add 100% juice to frozen berries, along with milk and yogurt, and blend until smooth. Use 100% juice as an ingredient in sauces and marinades, adding variety and nutrition to favorite recipes.

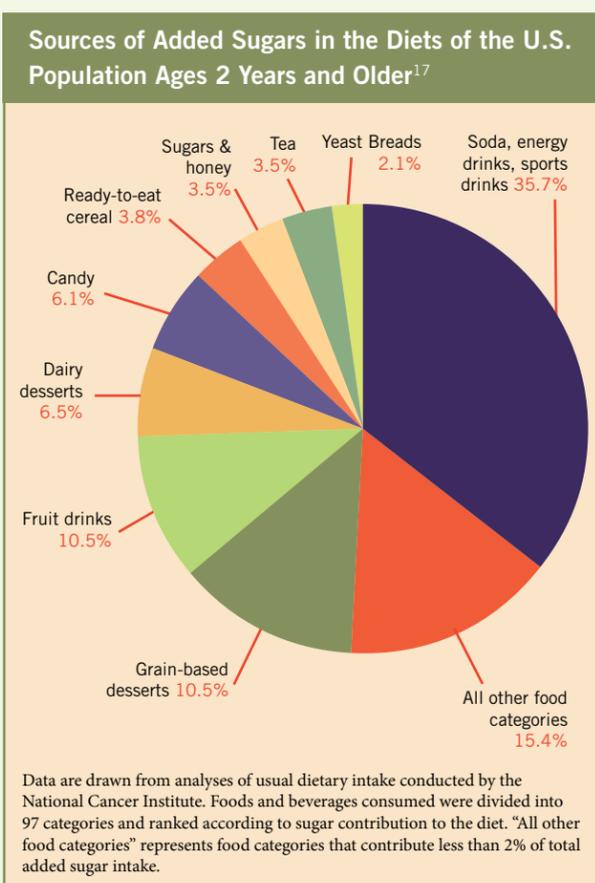


The real sugar culprits

Canned fruit contributes less than two percent of the added sugar in most American diets. Top sources of added sugar in the diet come from soda, energy drinks and sports drinks, grain-based desserts, fruit drinks, dairy desserts, candy, ready-to-eat cereals, sugars and honey, tea, and yeast breads.¹⁷

To avoid the added sugar found in some canned fruits, consumers can drain and rinse the fruit to reduce sugar content, or select fruit packed in water or 100% juice.

100% fruit juices do not contain added sugar.



Drain your vegetables

Canned vegetables contribute less than one percent of the sodium intake in the American diet. Top sources of sodium in the diet come from breads and rolls, cold cuts and cured meats, pizza, poultry, soups, sandwiches, cheese, pasta dishes, meat dishes, and snacks.¹⁸

The Nutrition Facts panel on canned vegetables must list all of the sodium in the can, despite the fact that much of the sodium is in the water surrounding the vegetables and isn't consumed. Draining the vegetables reduces sodium by 36%, and draining and rinsing lowers sodium by 41%.¹⁹ When purchasing canned vegetables, consumers can also look for labels that say 'reduced sodium,' 'low sodium,' or 'no salt added.'

Drink 100% juice, not 'juice drinks'



There are some general misconceptions about the appropriateness of 100% fruit juice as part of a diet, especially for children. The current scientific evidence strongly supports the nutritional benefits of 100% juice and does not support a relationship between overweight and juice consumption.^{20, 21, 22, 23} In fact, 100% fruit juice consumption has been associated with improved nutrient adequacy in children and adolescents.^{22, 23} Drinking 100% juice can help children and adults reach daily fruit and vegetable consumption goals.

Remember, there are no added sugars in 100% juice—just the natural sugars found in whole fruit. Helping consumers learn how to read a label and understand the difference between 100% fruit juice and 'fruit drinks,' which do contain added sugar, is critical.

**American Academy of Pediatrics
100% Juice Guidelines for Children²⁴**

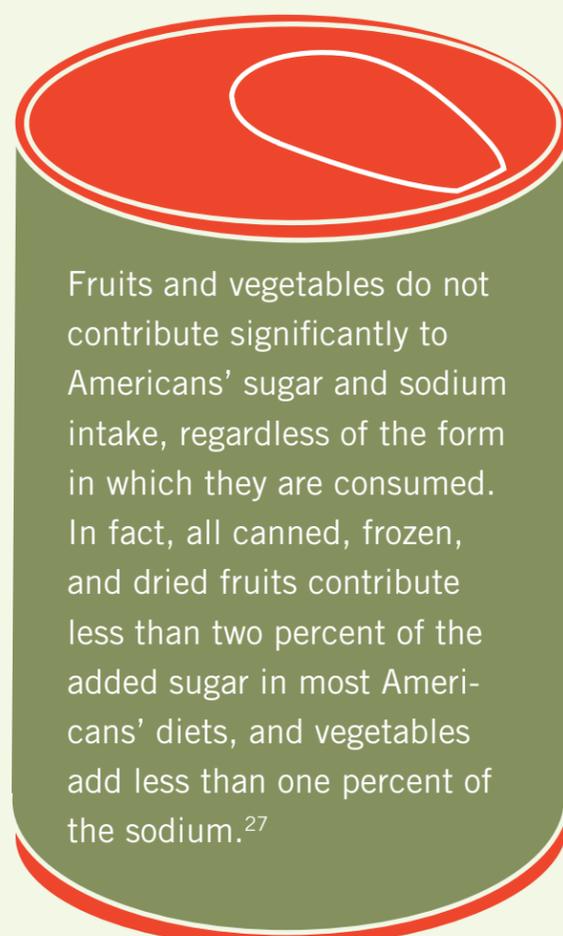
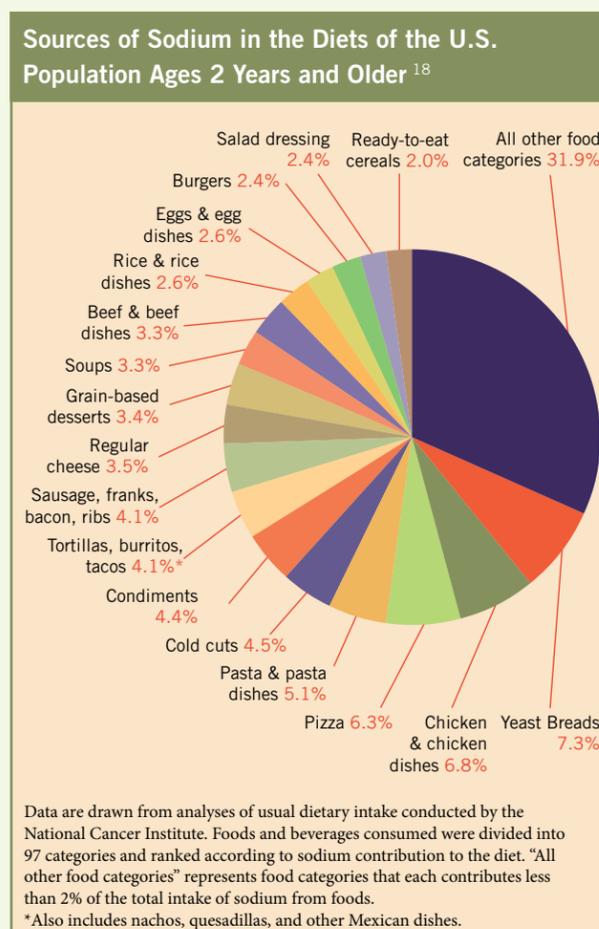
Age Group	Amount Daily
Infants six months of age and under	No Juice
Older infants (when able to drink from a cup) plus children 1-6 years	4-6 ounces
Children 7-18 years	8-12 ounces

Note: Juice should not be fed by bottle to small children

Concerns about canned fruits and vegetables are unfounded

Shoppers who don't purchase canned fruits and vegetables say it is because they are less healthy and have 'added preservatives or artificial ingredients.' In reality, added sugar or sodium are the primary added ingredients to these products and 'no-sodium' or 'packed 100% juice' versions are readily available.

Concern has also been expressed about the use of bisphenol-A (BPA) found in the lining of canned food containers, despite FDA stating that BPA is safe to use in food-contact materials.²⁵ In response to consumer concerns, however, many can manufacturers have already discontinued their use of BPA.²⁶





Organic is not healthier than conventionally grown



Organic fruits and vegetables are not more nutritious than conventionally grown. An analysis of 46 studies published in 2009 determined that “there is no evidence of a difference in nutrient quality between organically and conventionally produced foodstuffs.” The authors reported that a small number of differences in nutrient content existed between organically and conventionally produced foods, but were unlikely to be of public health relevance.²⁸

Conventionally grown fruits and vegetables are safe! The U.S. EPA’s current process for evaluating the potential risks of pesticides on food is rigorous and health-protective. The EPA’s testing requirements for pesticides used on food are more extensive than for chemicals in any other use category, and include testing targeted specifically to assess the potential risks to fetuses, infants, and children. The 2010 Pesticide Data Program Annual Summary confirms that pesticide residues in food do not pose

a safety concern. Specifically, any residues found in fruits and vegetables are at levels that do not pose risk to consumers’ health.²⁹ This nation’s food supply continues to be among the safest in the world.

Visit SafeFruitsAndVeggies.com to determine just how many fruits and vegetables would need to be consumed to even come close to any pesticide residues that might be harmful. Also visit FoodDialogues.com to learn where our food comes from.

The bottom line? The benefits of eating fruits and vegetables far outweigh any risks from pesticide residues! Inadequate consumption among Americans is the much bigger concern. So, whether conventionally grown or organic, the important thing to remember is, the benefits of eating fruits and vegetables are indisputable.

Food Miles?

Food miles is a concept relating to the distance food travels as a measure of its impact on the environment. This definition only includes distance food travels and does not consider total energy use in the production of the product. Growing a product in its ideal location with the best production techniques generally produces the best product with fewer overall energy inputs.

Locally Grown?

Bananas, oranges, grapefruit, lemons, limes, mangoes, kiwifruit, cranberries, figs, papayas, persimmons, dates, jicama, avocados, sweet cherries, raisins, and artichokes are a sampling of items that are grown only in a few U.S. states, if grown in the U.S. at all.

Eat Seasonally?

This is a terrific way to find the best tasting produce at the best price, but recognize that a season may only last a few weeks. This is why preserving foods through canning, freezing, juicing, or drying helps provide these same terrific products year-round.

Healthy foods are not more expensive

When you compare the price of foods by weight or average portion size, vegetables and fruits are less expensive than most dairy, protein, and moderation foods. It’s only when you compare price per calorie that less healthy foods are cheaper than fruits and vegetables.³⁰

Getting the recommended amount of fruits and vegetables costs as little as \$2-\$2.50 per day. Researchers found no significant difference between the average prices of 153 fresh, frozen, canned, and dried fruits and vegetables. Average prices ranged from under 20 cents to over \$2 per edible cup equivalent, depending on the specific fruit or veggie.³¹

What you can do to help

Consumers need assurance that the most important thing they can do is eat more fruits and vegetables, regardless of whether they are fresh, canned, frozen, dried, or 100% juice.

To find tips and ideas on preparing fruits and vegetables in healthful ways, look to FruitsAndVeggiesMoreMatters.org.



For More Information:

FruitJuiceFacts.org • mealtime.org • FrozenFoodFacts.org • nutfruit.org • PBHFoundation.org

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