Nutritious, Affordable and Accessible Foods: It's in the Can

A menu model on canned foods as part of a healthful eating plan

Helping Americans understand the benefits of canned foods can empower them to make better, healthier choices in the grocery aisle and feel confident about serving meals at home using canned foods.

Americans' Fruit and Vegetable Intake is Below Recommended Levels

At a time when only 33 percent of adults are meeting their dietary requirements for fruits and only 27 percent are meeting recommendations for vegetables,¹ increasing intake in any form is strongly encouraged. Experts agree that eating more fruits and vegetables, whether canned, frozen, fresh or juiced, is an essential part of a healthy diet.² Canned options are comparable to and in some cases better options nutritionally³⁻⁶ and economically.^{3,7} They are also an excellent option for the 23.5 million Americans who live in "food deserts" where they have little or no access to healthy and nutritious foods.⁸

The current food environment places an emphasis on fresh, unprocessed foods. But science does not always support the "fresh is best" message and, in fact, there is ample evidence to show that fruits and vegetables, picked at its peak and preserved within hours of harvesting seals in nutrients. In fact, the can is one of the best ways to get food from the farm to the family table – sealing in freshness, flavor and nutrition. With canned foods it's easy and delicious to reach daily consumption goals for fruits and vegetables to support overall health and well-being.

To illustrate the important role canned foods can play in a healthy diet, the Can Manufacturers Institute commissioned a modeling exercise in which a week's worth of menus were developed using commonly available and consumed foods in a typical American diet.

About the Menu Model

- All menus were designed to meet energy and nutrient goals for a standard 2,000-calorie diet based on recommendations from the 2010 Dietary Guidelines for Americans and MyPlate food group guidelines.
- For the modeling, canned foods replaced fresh and frozen items in some of the meals. Substitutions were made only if a canned food item would be a suitable replacement in the final dish (for example, fresh garden salad had no substitution, whereas frozen corn was swapped with canned corn).
- Nutrition analyses were then run to compare calorie and nutrients provided in the original versus the modified menu for each day.

This menu model showed that canned fruits and vegetables, as part of an overall healthy diet, provided similar calories and nutrients as menus using fresh and frozen produce. For example:

- Sugar content in many drained canned fruits is comparable to the sugar content of the same fruit served fresh.
- Choosing unsalted or lower-sodium canned foods considerably reduces sodium content.
- Canned asparagus supplies nearly three times as much folate as fresh (1/2 cup fresh asparagus: 34.84 mcg folate, 1/2 cup unsalted canned asparagus: 103.70 mcg folate; data not shown).
- Other canned vegetables such as corn, snap peas and spinach provide more folate compared to an equivalent portion of frozen or fresh of the same food.

For people struggling to reach daily goals for fruits and vegetables, the convenience, affordability and accessibility of canned foods can help people boost their intake.



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Canned Foods Are a Practical Option for Meeting Fruit and Vegetable Recommendations

Cans are one of the best kitchen tools for every cook and occasion. That's because cans seal in freshness, flavor and nutrition for a wholesome and satisfying meal, in addition to offering convenient and, in many cases, affordable solutions:

Cans Seal in Nutrients

- Fruits and vegetables destined for canning are picked at the peak of freshness and processed quickly to capture the flavor and lock in nutrients. So the amount of vitamins in a can of fruits or vegetables would be the same on the day it was canned as it would be months after the canning date.
 - In fact, a review of the research found that canned fruits and vegetables are nutritionally similar to fresh and frozen and in some cases even better.³ For example, canned tomatoes have more lycopene, which is associated with reducing cancer risk, and has more B vitamins than fresh tomatoes.
 - A more recent study on peaches found that the nutritional content of canned peaches is comparable to fresh peaches, even when those peaches have been stored for three months.⁶

Canned Foods Are Affordable

- According to research, canned foods provide nutritious foods at lower cost compared to fresh, frozen and dried.^{3,7}
 - Taking into consideration the time spent preparing foods and the amount of waste (such as rinds, cobs or stems in fresh foods, or liquid in cans), the total cost per edible portion and the cost per nutrient of most canned foods is less than their frozen, fresh or dried counterparts.⁷
 - One study found that canned vegetables can be as low as 50 percent of the costs of frozen alternatives and as low as 20 percent of the cost of fresh with virtually no sacrifices in nutritional quality.³
- The cost between fresh, frozen and canned fruits and vegetables varies depending on the type of fruit or vegetable, but overall canned fruits and vegetables offer an economic advantage. For example, a Michigan State University analysis found that fresh green beans are about 500 percent more



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- Rickman JC, Barrett DM and Bruhn CM. Nutritional comparison of fresh, frozen and canned fruits and vegetables. Part 1. Vitamins C and B and phenolic compounds. J Sci Food Agric 2007. 87:930–944.
- Rickman JC, Bruhn CM and Barrett DM. Nutritional comparison of fresh, frozen and canned fruits and vegetables. II. Vitamin A and carotenoids, vitamin E, minerals and fiber. J Sci Food Agric 2007. 87:1185–1196.



expensive than canned.³ In addition, according to a recent study, Americans waste approximately 15 percent to 20 percent of fresh fruits and vegetables every year.⁹

A Wholesome Option Anytime, Anywhere

- Canned fruits and vegetables are not subject to seasonality or refrigeration requirements, making them accessible to everyone.
- Canned produce is an excellent option for the 23.5 million Americans who live in "food deserts" where they have little or no access to healthy and nutritious foods.⁸
- Preparing most canned fruits and vegetables require very few kitchen tools beyond a can opener. Popping open and draining a can of beans takes less time and equipment than soaking or boiling dry beans, for the same nutrition.
- 6. Durst RW and Weaver GW. Nutritional content of fresh and canned peaches. J Sci Food Agric 2013. 93: 593–603.
- Kapica C and Weiss W. Canned Fruits, Vegetables, Beans and Fish Provide Nutrients at a Lower Cost Compared to Fresh, Frozen or Dried. J Nutr Food Sci 2012. 2(4).
- USDA Economic Research Service. Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and Their Consequences. Report to Congress. Washington, DC: U.S. Department of Agriculture, 2009. Available at http://www.ers.usda.gov/Publications/AP/AP036/AP036.pdf.
- 9. Buzby, et al. The Value of Retail and Consumer Level Fruit and Vegetable Losses in the United States. Journal of Consumer Affairs Fall 2011: 492-515.



	Original Menu	Modified Menu
Breakfast	 scrambled egg whole wheat English muffin with 2 tbsp of 100% fruit spread 1/2 med grapefruit cup café latte w/ 1/2 cup low-fat milk 	 1 scrambled egg 1 whole wheat English muffin with 2 tbsp of 100% fruit spread 1/2 cup grapefruit canned in juice 1 cup café latte w/ 1/2 cup low-fat milk
Lunch	 Tuna salad pita sandwich: 2 oz tuna, canned in water 1 tbsp mayonnaise 2 slices tomato and lettuce 1/2 whole wheat pita pocket bread 	 Tuna salad pita sandwich: 2 oz tuna, canned in water 1 tbsp mayonnaise 2 slices tomato and lettuce 1/2 whole wheat pita pocket bread
	 Tomato spinach soup: 1 cup reduced sodium tomato soup made with 1/2 cup low-fat milk 1 cup chopped baby spinach 	 Tomato spinach soup: 1 cup reduced sodium tomato soup made with 1/2 cup low-fat milk 1/2 cup canned spinach, unsalted
	1 cup apple juice	1 cup apple juice
Dinner	Beef stir-fry: • 2.5 oz lean top sirloin • 1/2 cup carrots • 1/2 cup asparagus • 1/2 cup bell pepper slices • 2 tsp olive oil	Beef stir-fry: • 2.5 oz lean top sirloin • 1/2 cup canned carrots, unsalted • 1/2 cup canned asparagus, unsalted • 1/2 cup bell pepper slices • 2 tsp olive oil
	1 cup rice 1 cup low-fat milk 1 oz whole wheat dinner roll 1 tsp soft margarine	1 cup rice 1 cup low-fat milk 1 oz whole wheat dinner roll 1 tsp soft margarine
Snack	1 cup low-fat vanilla yogurt 1 medium peach	1 cup low-fat vanilla yogurt 1/2 cup peaches canned in juice

Daily Nutrient Totals	Original Menu	% Daily Value	Modified Menu	% Daily Value
Calories	1,940	-	1,940	-
Total Fat (g)	55	85%	55	85%
Saturated fat (g)	17	85%	17	85%
Trans fat (g)	0.5	-	0.5	-
Cholesterol (mg)	295	98%	295	98%
Sodium (mg)	1,860	78%	1,960	82%
Potassium (mg)	3,895	111%	3,988	114%
Total carbohydrates (g)	275	92%	274	91%
Fiber (g)	24	96%	23	92%
Sugar (g)	146	-	148	-
Protein (g)	94	-	96	_
Vitamin A (IU)	19,521	390%	21,954	439%
Vitamin C (mg)	148	247%	170	283%
Calcium (mg)	1,455	146%	1,524	152%
Iron (mg)	13.7	76%	14.5	81%



	Original Menu	Modified Menu
Breakfast	1 cup raisin bran cereal 1 cup fat-free milk 1 small banana 1 slice whole wheat toast w/ 1 tsp margarine 1 cup orange juice	1 cup raisin bran cereal 1 cup fat-free milk 1 small banana 1 slice whole wheat toast w/ 1 tsp margarine 1 cup orange juice
Lunch	Turkey & Swiss sandwich: • 2 oz turkey breast • 1 oz Swiss cheese • 2 tsp mustard • 2 slices whole grain bread 1/2 cup baby carrots 1 cup fruit salad 1 cup lemonade	Turkey & Swiss sandwich: • 2 oz turkey breast • 1 oz Swiss cheese • 2 tsp mustard • 2 slices whole grain bread 1/2 cup baby carrots 1 cup fruit cocktail canned in juice 1 cup lemonade
Dinner	3 oz lean pork chop 1 medium baked potato w/ 1 tbsp sour cream 1 cup green beans 1 slice French bread 1 tsp soft margarine water	3 oz lean pork chop 1 cup roasted canned potatoes w/ 1 tsp olive oil 1 cup canned green beans, unsalted 1 slice French bread 1 tsp soft margarine water
Snack	1/2 oz almonds 1 cup low-fat chocolate milk	1/2 oz almonds 1 cup low-fat chocolate milk

Daily Nutrient Totals	Baseline	% Daily Value	Canned	% Daily Value
Calories	2,000	-	1,970	-
Total Fat (g)	46	71%	48	74%
Saturated fat (g)	15	75%	14	70%
Trans fat (g)	0.0	-	0.0	-
Cholesterol (mg)	140	47%	130	43%
Sodium (mg)	2,100	88%	2,090	87%
Potassium (mg)	4,438	127%	3,771	108%
Total carbohydrates (g)	322	107%	310	103%
Fiber (g)	34	136%	33	132%
Sugar (g)	152	-	155	_
Protein (g)	92	-	90	-
Vitamin A (IU)	11,598	232%	11,878	238%
Vitamin C (mg)	150	250%	118	197%
Calcium (mg)	1,165	117%	1,139	114%
Iron (mg)	17.8	99%	18.9	105%



	Original Menu	Modified Menu
Breakfast	3 oz whole wheat bagel 2 tbsp peanut butter 1 cup pineapple chunks 1 cup fat-free milk	3 oz whole wheat bagel 2 tbsp peanut butter 1 cup pineapple canned in water 1 cup fat-free milk
Lunch	Navy bean-vegetable soup: • 1 cup chunky vegetable soup • 1/2 cup cooked navy beans 2 oz breadstick 6 oz low-fat fruit yogurt 1 cup iced tea	Navy bean-vegetable soup: • 1 cup chunky vegetable soup • 1/2 cup canned navy beans, unsalted 2 oz breadstick 6 oz low-fat fruit yogurt 1 cup iced tea
Dinner	3 oz roasted white meat chicken 1/2 cup mashed sweet potatoes	3 oz roasted white meat chicken 1/2 cup canned sweet potatoes, mashed
	Spinach salad: • 2 cups baby spinach • 1/2 cup orange sections • 1/2 oz walnuts • 2 tbsp olive oil/red wine vinegar	 Spinach salad: 2 cups baby spinach 1/2 cup mandarin oranges, canned in juice 1/2 oz walnuts 2 tbsp olive oil/red wine vinegar
Snack	1/2 cup grapes6 whole wheat crackers1 oz part-skim mozzarella string cheese	1/2 cup grapes6 whole wheat crackers1 oz part-skim mozzarella string cheese

Daily Nutrient Totals	Baseline	% Daily Value	Canned	% Daily Value
Calories	1,980	_	1,980	-
Total Fat (g)	64	98%	64	98%
Saturated fat (g)	13	65%	13	65%
Trans fat (g)	0.0	_	0.0	-
Cholesterol (mg)	120	40%	120	40%
Sodium (mg)	1,860	78%	1,900	79%
Potassium (mg)	2,806	80%	2,832	81%
Total carbohydrates (g)	278	93%	277	92%
Fiber (g)	30	120%	29	116%
Sugar (g)	125	-	127	-
Protein (g)	93	_	94	-
Vitamin A (IU)	34,116	682%	29,631	593%
Vitamin C (mg)	106	177%	106	177%
Calcium (mg)	1,265	127%	1,296	130%
Iron (mg)	11.5	64%	13.2	73%



	Original Menu	Modified Menu
Breakfast	 1 hard-boiled egg 1 whole grain English muffin with 2 tbsp of 100% fruit spread 1 cup strawberries 1 cup low-fat milk 	1 hard-boiled egg 1 whole grain English muffin with 2 tbsp of 100% fruit spread 1 cup strawberries 1 cup low-fat milk
Lunch	Grilled ham & cheese sandwich: • 2 slices American cheese • 1 oz lean ham • 2 slices whole wheat bread • 1 tbsp soft margarine	Grilled ham & cheese sandwich: • 2 slices American cheese • 1 oz lean ham • 2 slices whole wheat bread • 1 tbsp soft margarine
	1 pear 1-1/2 cups iced sweet tea	1 cup pears, canned in juice 1-1/2 cups iced sweet tea
Dinner	4 oz broiled salmon 1/2 cup frozen peas & carrots	4 oz broiled salmon 1/2 cup canned peas & carrots, unsalted
	1/2 cup brown rice with:1/4 cup red beans	1/2 cup brown rice with:1/4 cup canned red beans, unsalted
	 1 cup mixed salad greens with: 1/2 cup tomatoes and cucumbers 1 tbsp olive oil/red wine vinegar 	 1 cup mixed salad greens with: 1/2 cup tomatoes and cucumbers 1 tbsp olive oil/red wine vinegar
	1 cup low-fat milk	1 cup low-fat milk
Snack	1/2 cup sugar snap peas 1 tbsp ranch dip 3 cups low-fat popcorn	1/2 cup sugar snap peas 1 tbsp ranch dip 3 cups low-fat popcorn

Daily Nutrient Totals	Baseline	% Daily Value	Canned	% Daily Value
Calories	1,880	_	1,880	-
Total Fat (g)	62	95%	62	95%
Saturated fat (g)	19	95%	19	95%
Trans fat (g)	1.0	-	1.0	_
Cholesterol (mg)	335	112%	335	112%
Sodium (mg)	2,330	97%	2,290	95%
Potassium (mg)	3,040	87%	2,941	84%
Total carbohydrates (g)	247	82%	245	82%
Fiber (g)	31	124%	29	116%
Sugar (g)	126	-	128	-
Protein (g)	89	_	88	-
Vitamin A (IU)	14,167	283%	15,263	305%
Vitamin C (mg)	144	240%	141	235%
Calcium (mg)	1,319	132%	1,321	132%
Iron (mg)	9.8	54%	9.7	54%



	Original Menu	Modified Menu
Breakfast	1 cup instant oatmeal with: • 1/2 cup fat-free milk • 2 tbsp raisins	1 cup instant oatmeal with: • 1/2 cup fat-free milk • 2 tbsp raisins
	1 small banana 1 cup café latte w/ 1/2 cup fat-free milk	1 small banana 1 cup café latte w/ 1/2 cup fat-free milk
Lunch	Mushroom Swiss burger: • 4 oz 90% lean beef burger • 1/4 cup sautéed mushrooms • 1 slice Swiss cheese • 1 whole grain hamburger bun 1/2 cup coleslaw 3 oz baked sweet potato fries	Mushroom Swiss burger: • 4 oz 90% lean beef burger • 1/4 cup canned mushrooms • 1 slice Swiss cheese • 1 whole grain hamburger bun 1/2 cup coleslaw 3 oz baked sweet potato fries
	1 cup apple juice	1 cup apple juice
Dinner	Chicken & fettuccine alfredo with peas: • 1 cup fettucine • 1/4 cup light alfredo sauce • 2 oz grilled chicken strips • 1/2 cup frozen peas	 Chicken & fettuccine alfredo with peas: 1 cup fettucine 1/4 cup light alfredo sauce 2 oz grilled chicken strips 1/2 cup canned peas, unsalted
	1 cup fat-free milk	1 cup fat-free milk
Snack	1 cup low-fat cottage cheese 1 apricot 2 graham cracker squares	1 cup low-fat cottage cheese 1/2 cup apricots canned in juice 2 graham cracker squares

Daily Nutrient Totals	Baseline	% Daily Value	Canned	% Daily Value
Calories	1,910	-	1,900	_
Total Fat (g)	47	72%	47	72%
Saturated fat (g)	19	95%	19	95%
Trans fat (g)	1.0	-	1.0	-
Cholesterol (mg)	200	67%	200	67%
Sodium (mg)	2,220	93%	2,340	98%
Potassium (mg)	3,273	94%	3,276	94%
Total carbohydrates (g)	251	84%	249	83%
Fiber (g)	24	96%	24	96%
Sugar (g)	91	-	88	-
Protein (g)	124	-	123	_
Vitamin A (IU)	4,307	86%	3,968	79%
Vitamin C (mg)	56	93%	51	85%
Calcium (mg)	959	96%	958	96%
Iron (mg)	13.5	75%	12.8	71%



	Original Menu	Modified Menu
Breakfast	1 scrambled egg 2 whole grain waffles 2 tbsp maple syrup 1 cup melon cubes 1 cup café latte w/ 1/2 cup low-fat milk	1 scrambled egg 2 whole grain waffles 1/2 cup canned cherries in heavy syrup 1 cup melon cubes 1 cup café latte w/ 1/2 cup low-fat milk
Lunch	 Vegetarian chili on a baked potato: 1 medium baked potato 1/2 cup canned kidney beans, rinsed 1/2 cup tomato sauce, unsalted 1/2 cup chopped onion and peppers cooked in 1 tsp olive oil, chili powder 1/2 cup frozen corn 2 tbsp shredded cheddar cheese 	 Vegetarian chili on a baked potato: 1 medium baked potato 1/2 cup canned kidney beans, rinsed 1/2 cup tomato sauce, unsalted 1/2 cup chopped onion and peppers cooked in 1 tsp olive oil, chili powder 1/2 cup canned corn, unsalted 2 tbsp shredded cheddar cheese 1/2 cup peopher conped in juice
	1 small peach Water	1/2 cup peaches canned in juice Water
Dinner	Hawaiian pizza: • 2 slices cheese pizza • 1 oz lean ham • 1/4 cup pineapple	Hawaiian pizza: • 2 slices cheese pizza • 1 oz lean ham • 1/4 cup pineapple canned in water
	1 cup mixed salad greens 1 tbsp olive oil & vinegar dressing 1 cup low-fat milk	1 cup mixed salad greens 1 tbsp olive oil & vinegar dressing 1 cup low-fat milk
Snack	1 cup low-fat vanilla frozen yogurt 1/2 oz slivered almonds 1/2 cup frozen sweetened blueberries	1 cup low-fat vanilla frozen yogurt 1/2 oz slivered almonds 1/2 cup canned blueberries in light syrup

Daily Nutrient Totals	Baseline	% Daily Value	Canned	% Daily Value
Calories	2,000	-	1,970	-
Total Fat (g)	62	95%	62	95%
Saturated fat (g)	18	90%	18	90%
Trans fat (g)	1.5	-	1.5	-
Cholesterol (mg)	245	82%	245	82%
Sodium (mg)	2,220	93%	2,200	92%
Potassium (mg)	4,416	126%	4,365	125%
Total carbohydrates (g)	297	99%	294	98%
Fiber (g)	33	132%	35	140%
Sugar (g)	127	-	129	-
Protein (g)	77	-	78	-
Vitamin A (IU)	11,695	234%	9,052	181%
Vitamin C (mg)	198	330%	173	288%
Calcium (mg)	1,364	136%	1,370	137%
Iron (mg)	15.8	88%	16.3	91%



	Original Menu	Modified Menu	
Breakfast	1 cup shredded wheat cereal 1 cup fat-free milk 1 cup tropical fruit salad (pineapple & papaya) 6 oz vanilla low-fat yogurt	1 cup shredded wheat cereal 1 cup fat-free milk 1 cup tropical fruit salad, canned in juice 6 oz vanilla low-fat yogurt	
Lunch	Peanut butter & jelly sandwich: • 2 slices whole wheat bread • 2 tbsp peanut butter • 2 tbsp 100% fruit spread	Peanut butter & jelly sandwich: • 2 slices whole wheat bread • 2 tbsp peanut butter • 2 tbsp 100% fruit spread	
	1 oz baked potato chips 1 clementine Water	1 oz baked potato chips 1/2 cup mandarin oranges, canned in juice Water	
Dinner	Spaghetti with meat sauce: • 1 cup enriched pasta • 2 oz 90% lean ground beef • 1/2 cup marinara sauce • 1 tbsp parmesan cheese	Spaghetti with meat sauce: • 1 cup enriched pasta • 2 oz 90% lean ground beef • 1/2 cup marinara sauce • 1 tbsp parmesan cheese	
	1/2 cup frozen French-cut green beans	1/2 cup canned French-cut green beans, unsalted	
	Side salad: • 2 cups romaine lettuce • 1/2 cup chopped tomatoes & cucumbers • 2 tbsp olive oil & vinegar dressing	 Side salad: 2 cups romaine lettuce 1/2 cup chopped tomatoes & cucumbers 2 tbsp olive oil & vinegar dressing 	
	1 cup fat-free milk	1 cup fat-free milk	
Snack	Trail mix with 1/2 oz peanuts, 1/4 cup cereal, 2 tbsp raisins 1/2 cup cran-raspberry juice	Trail mix with 1/2 oz peanuts, 1/4 cup cereal, 2 tbsp raisins 1/2 cup cran-raspberry juice	

Daily Nutrient Totals	Baseline	% Daily Value	Canned	% Daily Value
Calories	2,030	_	2,050	-
Total Fat (g)	63	97%	63	97%
Saturated fat (g)	14	70%	14	70%
Trans fat (g)	1.0	-	1.0	-
Cholesterol (mg)	100	33%	100	33%
Sodium (mg)	1,820	76%	1,840	77%
Potassium (mg)	3,620	103%	3,581	102%
Total carbohydrates (g)	288	96%	293	98%
Fiber (g)	26	104%	27	108%
Sugar (g)	137	-	146	-
Protein (g)	90	-	90	-
Vitamin A (IU)	11,619	232%	12,196	244%
Vitamin C (mg)	150	250%	126	210%
Calcium (mg)	1,306	131%	1,320	132%
Iron (mg)	29.0	161%	30.5	169%