

White Paper

Menu Modeling Demonstrates Feasibility, Nutritional Value and Affordability of Frozen Foods

Betsy Hornick, MS, RD

Summary

Frozen foods fit the way people live and eat today. Results from menu modeling show that realistic, balanced and affordable menus featuring mostly frozen foods can meet energy, nutrient and cost goals based on recommendations from the 2015-2020 *Dietary Guidelines for Americans* (DGAs), MyPlate, and the U.S. Department of Agriculture's (USDA) Moderate Cost Food Plan. Consumers often believe that fresh foods are the most nutritious, yet recent research reveals that the nutritional value of frozen fruits and vegetables is generally equal to, and in some cases better than, their fresh counterparts. Evidence also suggests that consumers of frozen meals tend to eat more vegetables, beans and whole grains. To evaluate the feasibility, nutritional value and affordability of a weekly menu consisting primarily of frozen foods, menu modeling was used to bring recommended USDA food patterns to life with frozen foods. Seven days of menus featuring frozen foods were developed to meet the needs of an adult woman 19-50 years (1,800-2,000 calories), based on recommendations from the 2015-2020 DGAs, MyPlate food group guidelines and Dietary Reference Intakes (DRIs). Meals and snacks included prepared frozen food items or were based on simple recipes using frozen foods. Menus were analyzed for energy and key nutrients, including fat, saturated fat, sodium, potassium, carbohydrates, dietary fiber, protein, vitamins A, C, and D, calcium, and iron. Daily and weekly menu cost was calculated based on cost per serving data obtained from retail stores.

Introduction

Today's frozen food aisles offer a wide variety of easy-to-prepare, nutritious and affordable foods representing all five recommended food groups. Over the past 50 years, as the amount of time Americans spend in meal preparation has steadily declined(1), frozen foods have become a staple with convenience as a major factor in their popularity. Frozen foods can be used as ingredients or meal components, as well as ready-to-cook foods appropriate for any meal and eating occasion, including main dishes, side dishes, snacks, complete meals, and desserts. Frozen food makers

are continually offering new, innovative food options to meet evolving consumer needs and desires. Many products now contain less fat, sugar and sodium. Others make use of whole wheat grains, added fiber and contain no *trans* fat. Single-serve frozen dishes or meals help to support portion control and may assist in weight management.(2) Frozen meals can be more sustainable by minimizing food waste, and are often more affordable compared to equivalent restaurant meals.(2,3)

A menu modeling study was conducted to assess the feasibility, nutritional value and affordability of a weekly menu consisting primarily of frozen foods. Menu modeling is a tool for bringing daily food patterns to life with foods available to consumers. It was used in this analysis to evaluate the nutritional profile of realistic menus that demonstrate how specific frozen foods can be included in a healthy, balanced eating plan. The primary objective of this study was to determine if a practical and realistic weekly menu using primarily frozen foods could meet recommended nutrition guidelines. A secondary objective was to evaluate cost of the menu for comparison with USDA Food Plan costs.(4)

Methods

Daily menus that included a variety of frozen food items were developed to meet the energy and nutrient goals of an adult female, and comply with recommended food group amounts from the Healthy U.S.-Style Eating Pattern for a 2,000 calorie diet.(5) Menus were analyzed using the ESHA Nutrition Analysis and Product Labeling Software. Nutrition and cost information were collected for frozen food items from several retail stores in the Chicago/Northern Illinois region, including Walmart, Aldi, and Woodman's. Nutrient data from product labels and cost per serving were entered into the ESHA Food Processor database, which includes both manufacturer nutrient data as well as data from the most current USDA National Nutrient Database for Standard Reference.(6)

Major brands used in the menus included Nestlé, ConAgra, Kellogg's, General Mills, Kraft Heinz, Pinnacle Foods Group, Hillshire/Tyson's, Dole and The Schwan Food Company, as well as private labels from Walmart and Aldi food stores. Efforts were made to include a variety of food items representative of a typical market basket, including national brands and some "better-for-you" products (1-3 items per day) available in retail stores and

accessible to a wide range of consumers. "Better-for-you" products were defined for this study as items available with fewer calories, fat, or sodium, or fortified with additional nutrients or containing whole grains, as compared to a regular version. Frozen food items appropriate for breakfast, lunch, dinner, and snacks made it possible to feature primarily frozen foods in all meals and snacks. To help meet energy and nutrient requirements in some of the daily menus, frozen yogurt and a few non-frozen food items (milk, yogurt, spreads, oil, coffee and tea) were included.

Results

A weekly menu comprised of nearly all (~95%) frozen foods met most DGA and MyPlate food group recommendations for an adult woman (19-50 years). This translated to an average of 90 percent of the calories coming from frozen foods in the 7 days of menus, with daily calories from frozen foods ranging from 84-100 percent. The weekly menus met, on average, at least two-thirds of daily requirements for nutrients identified in the DGAs as falling short in typical diets (calcium, vitamin D, potassium, fiber, iron).(5) The average daily cost of the frozen food menu was \$8.52 with a weekly cost of \$59.6 (Table 1) which is within limits for the USDA weekly moderate-cost food plan for an adult female 19-50 years of age as of June 2015 (\$59.70).(4)

Daily menus met recommended guidelines (+/- 10%) for the primary targets for a 2,000-calorie diet, including most MyPlate food groups, as well as nutrient needs when averaged over the seven days (Tables 2 and 3). Daily sodium ranged between 2,240 and 2,450 milligrams over the 7 days, with an average (2,383 mg) below the Daily Value of 2,400 milligrams. Energy and other key nutrients, including total fat, saturated fat, *trans* fat, carbohydrates, and fiber were within Daily Value goals. Secondary targets to meet at least two-thirds of the Daily Value for reported vitamins and minerals (vitamin A, vitamin C, calcium, and iron)

were met when averaged over the seven days. The recommended daily vitamin D intake would be easier to achieve (average of 67% DV in this

analysis) if the three servings/day from the dairy group were met, although the average calcium provided did meet the requirement for an adult woman (1,000 mg/day). Nutrients of public health concern—potassium and vitamin D—were included in the analysis; however, the amounts were extrapolated from USDA data since these nutrients are not consistently reported on food labels, and should be considered estimates.

Table 1: Weekly costs for frozen food menus

	COST
Daily Average	\$8.52
Weekly Total	\$59.66

Table 2: Weekly averages for energy and nutrients in the frozen food daily menus

NUTRIENT	WEEKLY AVERAGE	%DV
Calories	1,916	-
Fat (g)	55	85
Saturated fat (g)	16	81
Trans fat (g)	0	-
Cholesterol (mg)	182	61
Sodium (mg)	2,383	99
Potassium (mg)*	3,219	92
Carbohydrates (g)	280	93
Dietary Fiber (g)	26	106
Sugars (g)	114	-
Protein	77	-
Vitamin A (IU)	5,483	109
Vitamin C (mg)	143	263
Calcium (mg)	1,007	103
Iron (mg)	12.2	70
Vitamin D (IU)*	268	67

*Data extrapolated from USDA database for nutrients not reported on label

Table 3: Weekly averages for food group amounts in frozen food daily menus

MYPLATE FOOD GROUPS	WEEKLY AVERAGE	GOALS FOR 2,000 CALORIE DIET	PERCENT OF GOAL
Grains/ whole grains	6.5 oz	6 oz	108
	2.8 oz	3 oz	93
Fruits	2.2 cups	2 cups	110
Vegetables	2.5 cups	2.5 cups	100
Dairy	1.9 cups	3 cups	63
Protein	5.4 oz	5.5 oz	98

Discussion

Key Findings

Several observations and challenges were noted in the evaluation of study results.

- A weekly menu comprised of nearly all (~95%) frozen foods met most DGA recommendations for an adult woman (19-50 years), including at least 2/3 of nutrients that typically fall short in the American diet.
- All food groups are well represented in frozen foods. However, meeting daily food group recommendations for dairy foods that are not desserts can be challenging if using the 2015-2020 Healthy U.S.-Style Eating Pattern. Additional servings of milk and yogurt may be needed to meet recommended daily dairy group amounts, which would also help to meet vitamin D goals. However, if using the new Healthy Mediterranean-Style Eating Pattern, dairy food group recommendations are more easily met.
- Frozen foods are typically easy to prepare and serve. Many frozen prepared foods are ready-to-cook and serve, while others require only simple assembly and heating. Although not measured in this study, there may be significant time saved in preparing a frozen food, such as lasagna or other main dish items, compared to the home-cooked versions.
- “Better-for-you” options are available in most frozen food categories, making it easier for consumers to control intakes of calories, fat, sugar, saturated fat and sodium, and help to improve intakes of typically under-consumed nutrients, including calcium, fiber, potassium, vitamin D, and iron. Daily sodium was below 2,400 milligrams, which is the most current and available regulatory requirement for the Daily Value of sodium.
- Comparing the Nutrition Facts Panel on varying brands and food items for amounts of nutrients to limit, including fat, saturated fat, cholesterol, and sodium, makes it possible to meet daily recommendations, which is especially important for individuals needing to address certain health conditions, such as diabetes or heart disease. For example, the selection of foods lower in sodium, such as frozen vegetables without sauces or seasonings, helps to balance out foods higher in sodium.
- Sodium in frozen food items can vary considerably by the type of dish, ingredients and level of preparation completed. Similar products were compared in this analysis to select frozen food items with lower amounts of sodium. In addition to adding flavor, it should be noted that sodium has other functional roles in processed foods, including improving texture, inhibiting growth of microorganisms that cause spoilage and stabilizing ingredients with high water content.
- Frozen foods containing sugars used in the menus were considered ‘nutrient-rich’ because they also contributed to meeting food group servings and nutrient requirements. For example, frozen oatmeal provided a key source of fiber, and frozen yogurt helped to meet daily calcium requirements. Other menu examples of nutrient-rich foods with sugars included frozen fruit and bars, smoothies, bagels, and waffles. Sugars provided an average of 24 percent of daily calories, which included both naturally occurring sugars from fruit and milk products, and sugar added to certain foods.
- The menu costs fell within the goal for USDA’s Moderate Cost Meal Plan of \$59.70 per week. This was possible using a combination of private label and major brands. This research project did not rely on coupons; however, the use of coupons and monitoring for store specials also would help to control costs.

- A potential limitation in the feasibility of a frozen food menu may include frozen storage space, which will vary by individual freezer and the frequency of grocery shopping.

Implications

Freezing as a means of safely preserving food has been utilized for thousands of years. Today, a wide variety of single ingredient and prepared frozen foods has greatly improved the accessibility of safe, nutritious, and affordable foods. With the rise in availability of many different frozen foods and the recognition that Americans do not meet recommended daily intakes of fruits and vegetables⁽⁷⁾, has come heightened interest in the potential nutritional advantages of frozen foods, especially frozen fruits and vegetables. The 2015-2020 DGA recommends increasing intakes of fruits and vegetables in any form, including fresh, frozen, and canned, dried and 100 percent juice products.⁽⁵⁾ Other food groups to encourage, including whole grains and dairy foods, are also available in the frozen food aisle. A recent analysis of the nutrient intakes of consumers of frozen meals compared to consumers of quick service restaurant meals found that those who consumed frozen meals had lower calorie intakes (253 calories on average) and better Healthy Eating Index (HEI) scores, which included higher intakes of vegetables, beans, and whole grains.⁽⁸⁾

The belief that fresh foods have significantly greater nutritional value compared to their frozen counterparts has been disproven, with evidence that some frozen fruits and vegetables are nutritionally superior compared to their fresh counterparts.⁽⁹⁻¹¹⁾ Fresh produce can spend several weeks in the chain of producers, wholesalers, and retailers before reaching consumers. Once in the home, surveys show that Americans may, on average, store perishable fruits and vegetables for up to five days or more, based on bi-weekly grocery shopping habits.⁽¹²⁾ Over this extended period from farm to table, varying levels of deterioration of certain nutrients occurs. Frozen fruits and vegetables are

picked and frozen at their peak ripeness, often within four to six hours of harvest, locking in the nutrient value and flavor at the point of freezing. Additionally, there may be greater consistency and uniformity in the quality of frozen produce compared to fresh.

A “market basket” study by the University of Georgia mimicked consumer purchasing and storage habits for blueberries, strawberries, corn, broccoli, cauliflower, green beans, green peas and spinach and analyzed the nutrient content under three conditions: frozen; fresh (on the day of purchase); and fresh-stored (after five days of storage in a kitchen refrigerator).⁽⁹⁾ The study results revealed that the nutritional value of many frozen fruits and vegetables are generally equivalent to that of their fresh counterparts, and levels of some nutrients in frozen fruits and vegetables, including vitamins A and C and B-vitamin, folate, is actually greater than that of fresh-stored produce. This is likely due to the nutrient degradation that occurs in fresh produce during storage.

Similarly, two recent studies from the University of California-Davis compared the retention of vitamins, minerals, fiber and total phenolics (health-promoting plant compounds) of eight commonly purchased fruits and vegetables (blueberries, strawberries, carrots, corn, broccoli, green beans, green peas and spinach) in refrigerated and frozen storage.^(10,11) Locally grown, harvested and stored fruits and vegetables were analyzed under the following conditions: frozen (analyzed within 24 hours of harvest and after 10 and 90 days of storage in a freezer) and fresh-stored (analyzed within 24 hours of harvest and after three and 10 days of storage in a refrigerator). The nutritional value of water-soluble vitamins, namely the amount of riboflavin (vitamin B2) and vitamin C (ascorbic acid), was found to be generally the same or greater in frozen versus fresh produce. Additionally, the nutrient value of five minerals (calcium, magnesium, zinc, copper, and iron), fiber and total phenolics were, for the most part, well-

conserved in frozen fruits and vegetables as compared to fresh. Overall, these studies confirm that the nutritional value of frozen fruits and vegetables are generally equal to, and in some cases better than, their fresh counterparts.

The affordability of frozen food compared to eating out has also been recognized as a potential advantage.(2) Frozen foods are often lower in cost per serving than their fresh counterparts, and prices are typically stable and projectable, especially for frozen produce.(13) Compared to refrigerated foods, frozen foods have much greater shelf life by their very nature. Frozen fruits and vegetables can be more easily portioned and stored for later use, which reduces spoilage and food waste, further increasing consumer value. A recent study of the sustainability of frozen and fresh food in the United Kingdom found that the significant reduction in food waste associated with frozen foods (5.9 percent) vs. fresh food (10.4 percent) may have important implications in developing strategies for sustainable dietary options.(3)

The wide variety of frozen food items available to consumers makes it easy to find food items that can be combined to create realistic and appealing menus that fit within dietary guidelines. Convenient frozen prepared meal and snack items were used in the menus, as well as frozen food ingredients, to create simple and healthful meals. In addition to affordability and nutritional value, other advantages of frozen foods include accessibility, convenience, food safety, quality, and reduced waste.

Disclosures

Written by Betsy Hornick, MS, RD, LDN who is an Illinois-based food and nutrition communications consultant and also serves as the Academy of Nutrition and Dietetics Manager of Acquisitions and Development. At the time of publication, Ms. Hornick was a member of FoodMinds' expert network. FoodMinds is a food and nutrition affairs company that represents a range of food, nutrition, and wellness organizations, including the American Frozen

Foods Institute. Financial support for the menu modeling study was provided by the American Frozen Food Institute.

References

1. Hamrick KS, Andrews M, Guthrie J, Hopkins D, McClelland K. How much time do Americans spend on food? U.S. Department of Agriculture, Economic Research Service, 2011. <http://www.ers.usda.gov/media/149404/eib86.pdf>
2. American Frozen Foods Institute. Frozen Food Myths. <http://howfreshstaysfresh.com>
3. Martindale W. Using consumer surveys to determine food sustainability. *Br Food J.* 2014;116:1194-1204.
4. USDA. Official USDA Food Plans: Cost of Food at Home at Four Levels, U.S. Average, May 2015. <http://www.cnpp.usda.gov/sites/default/files/CostofFoodJun2015.pdf>
5. U.S. Department of Agriculture, and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2015-2020. 8th Edition. <http://health.gov/dietaryguidelines/2015/guidelines/>
6. U.S. Department of Agriculture, Agricultural Research Service. 2014. USDA National Nutrient Database for Standard Reference, Release 27. Nutrient Data Laboratory Home Page. <http://www.ars.usda.gov/nutrientdata>
7. Krebs-Smith SM, Guenther PM, Subar AF, Kirkpatrick SI, Dodd KW. Americans do not meet federal dietary recommendations. *J Nutr.* 2010;140:1832-38.
8. Fulgoni VI, Comerford KB, Krumhar KC. Consumption of frozen meals as compared to quick service restaurant meals is associated with better nutrient intakes in adult participants of the National Health and Examination Survey (2001-2010). *J Acad Nutr Diet.* 2014;114(Suppl 2):A-48.
9. University of Georgia. Potential Nutritional Effects of Replacing Fresh Fruits and Vegetables in the Diets of Americans with Frozen Counterparts. <http://www.frozenfoodfacts.org/assets-foundation/misc/images/UGA%20Extended%20abstract.pdf>
10. Bouzari A, Holstege D, Barrett DM. Vitamin retention in eight fruits and vegetables: A comparison of refrigerated and frozen storage. *J Agric Food Chem.* 2015;63:957-62.
11. Bouzari A, Holstege D, Barrett DM. Mineral, fiber, and total phenolic retention in eight fruits and vegetables: A comparison of refrigerated and frozen storage. *J Agric Food Chem.* 2015;63:951-6.
12. Food Marketing Institute U.S. Grocery Shopper Trends 2012 Executive Summary; http://www.icn-net.com/docs/12086_FMIN_Trends2012_v5.pdf
13. Stewart, Hayden, Jeffrey Hyman, Jean C. Buzby, Elizabeth Frazão, and Andrea Carlson. *How Much Do Fruits and Vegetables Cost?* EIB-71, U.S. Department of Agriculture, Economic Research Service. February 2011.

Daily Menus

Day 1

MENU	MEASURE
Breakfast	
Smart Ones Maple & Brown Sugar Oatmeal	1 cup
Kellogg's Waffle Bites Maple Flavor	1 pouch (62g)
Season's Choice* Blueberries	.5 cup
Great Value** Lowfat Vanilla Yogurt	1 cup
Coffee or tea	
Lunch	
Stouffers Mac & Cheese Cup	1 bowl
Jimmy Dean Pulled Chicken Sandwich	1 each
Season's Choice* Sweet garden peas	.5 cup
Water	
Edy's Outshine Strawberry Bar	1 each
Dinner	
Sea Queen* Pink Salmon Fillet	4 oz
Alexia Harvest Sauté Red Potatoes and Vegetables	1 cup
Rhodes Multigrain Roll	1 each
Fleishman's Original Soft Spread	2 tsp
Snack	
Totino's Pizza Rolls Combination	6 pieces
Old Orchard Calcium-Fortified Orange Juice	1 cup

*Aldi store brand

**Walmart store brand

TOTAL COST

\$8.74

Nutrition

DAY 1 TOTALS	%DV	
Calories	1950	
Fat (g)	59	91
Saturated fat (g)	14	70
Trans fat (g)	0	
Cholesterol (mg)	130	43
Sodium (mg)	2360	98
Potassium (mg)	2908	83
Carbohydrates (g)	294	98
Dietary Fiber (g)	24	96
Sugars (g)	129	
Protein	76	
Vitamin A (IU)	7548	150
Vitamin C (mg)	108	180
Calcium (mg)	1155	120
Iron (mg)	12.4	70
Vitamin D (IU)	545	136

MYPLATE TOTALS	ESTIMATED	
Grains	7	oz
Whole grains	3	oz
Fruits	2	cups
Vegetables	1.5	cups
Dairy	1.5	cups
Protein	6	oz

Daily Menus

Day 2

MENU	MEASURE
Breakfast	
Aunt Jemima Ham & Cheese Omelet with Home Fries	1 serving
Lender's Cinnamon Raisin Bagel	1 each
Fleishman's Original Soft Spread	2 tsp
Dole Shakers Smoothie- Mixed Berry	1 serving
Coffee or tea	
Lunch	
Ball Park Turkey Patty	1 patty
Rhodes Multigrain Roll	1 each
Alexia Sweet Potato Fries	3 oz
Nature's Nectar* Apple Juice	1 cup
Dinner	
Tombstone Original Vegetable Pizza	1 slice
Alexia Sauté Reds with Portabella Mushrooms, Green Beans, Onions	1 cup
Season's Choice* Strawberries and Blueberries	1 cup
Low-fat milk	1 cup
Snack	
Edy's Simply Yogurt Blueberry Bar	1 bar

*Aldi store brand

TOTAL COST
\$8.42

Nutrition

DAY 2 TOTALS	%DV	
Calories	1860	
Fat (g)	62	95
Saturated fat (g)	17	85
Trans fat (g)	0	
Cholesterol (mg)	310	103
Sodium (mg)	2350	98
Potassium (mg)	2634	75
Carbohydrates (g)	252	84
Dietary Fiber (g)	21	84
Sugars (g)	99	
Protein	77	
Vitamin A (IU)	5180	100
Vitamin C (mg)	168	280
Calcium (mg)	1005	100
Iron (mg)	10.2	60
Vitamin D (IU)	161	40

MYPLATE TOTALS	ESTIMATED	
Grains	6	oz
Whole grains	2	oz
Fruits	2.5	cups
Vegetables	2.5	cups
Dairy	2.5	cups
Protein	4.5	oz

Daily Menus

Day 3

MENU	MEASURE
Breakfast	
Great Value** Lowfat Vanilla Yogurt	1 cup
Special K Egg with Vegetables & Pepper Jack Cheese Flatbread Breakfast Sandwich	1 sandwich
Dole Peaches	1 cup
Coffee or tea	
Lunch	
Lean Cuisine Philly Style Steak & Cheese Panini	1 sandwich
Season's Choice* Extra Fine Green Beans	1 cup
Dole Banana Dippers with Almonds	1 pkg
Nature's Nectar* Apple Juice	1 cup
Dinner	
Stir-fry made with Tyson Chicken Breast, boneless, skinless	4 oz
Season's Choice* Broccoli Stir-Fry	1 cup
Canola oil	1 tsp
Bird's Eye Steamfresh Brown Rice	1 cup
Rhodes Dinner roll	1 each
Dean's Frozen Greek Yogurt	.5 cup
Bird's Eye Raspberries in syrup	.5 cup
Snack	
Pagoda Vegetable Egg Roll with Sweet Chili Dipping Sauce	1 each
*Aldi store brand	TOTAL COST
**Walmart store brand	\$10.65

Nutrition

DAY 3 TOTALS	%DV	
Calories	1930	
Fat (g)	47	72
Saturated fat (g)	15	75
<i>Trans</i> fat (g)	0	
Cholesterol (mg)	215	72
Sodium (mg)	2320	97
Potassium (mg)	3657	102
Carbohydrates (g)	292	97
Dietary Fiber (g)	30	120
Sugars (g)	140	
Protein	84	
Vitamin A (IU)	4902	100
Vitamin C (mg)	150	420
Calcium (mg)	1000	100
Iron (mg)	12	70
Vitamin D (IU)	144	36
MYPLATE TOTALS ESTIMATED		
Grains	7	oz
Whole grains	3	oz
Fruits	2.5	cups
Vegetables	2.5	cups
Dairy	2.5	cups
Protein	6.5	oz

Daily Menu

Day 4

MENU	MEASURE
Breakfast	
Red Baron Biscuit Style Sausage Scrambler	1 each
Ore Ida Hash Browns	.75 cup
Fleishmann's Original Soft Spread	2 tsp
Tropicana Calcium & Vitamin D-Fortified Orange Juice	1 cup
Lunch	
Healthy Choice Sesame Chicken w Linguine & Vegetables	1 meal
Libby's Steam n Go Edamame	1 cup
Dole Sunshine Blend- oranges, strawberries, pineapple	1 cup
Water	
Dinner	
Shepherds Pie made w/ 85% lean ground beef	3 oz
Bird's Eye Recipe Ready Mirepoix	.5 cup
Mareta Marinara Sauce	.5 cup
Ore Ida Steam n Mash Potatoes	.75 cup
Rhodes Dinner roll	1 each
Low-fat milk	1 cup
Snack	
TGI Friday's Spinach Artichoke Dip	.25 cup
Rhodes Multigrain roll	1 each
TOTAL COST	
\$8.82	

Nutrition

DAY 4 TOTALS	%DV	
Calories	1930	
Fat (g)	69	106
Saturated fat (g)	20	100
<i>Trans</i> fat (g)	0	
Cholesterol (mg)	165	55
Sodium (mg)	2410	100
Potassium (mg)	3871	110
Carbohydrates (g)	243	81
Dietary Fiber (g)	34	136
Sugars (g)	95	
Protein	93	
Vitamin A (IU)	7492	150
Vitamin C (mg)	174	290
Calcium (mg)	1175	120
Iron (mg)	12.9	70
Vitamin D (IU)	261	65

MYPLATE TOTALS	ESTIMATED	
Grains	6	oz
Whole grains	2	oz
Fruits	2	cups
Vegetables	2.5	cups
Dairy	1.5	cups
Protein	5	oz

Daily Menus

Day 5

MENU	MEASURE
Breakfast	
Jimmy Dean Breakfast Bowl Garden Blend	1 bowl
Lender's Cinnamon Raisin Bagel	1 each
Fleishmann's Original Soft Spread	2 tsp
Tropicana Calcium & Vitamin D-Fortified Orange Juice	1 cup
Lunch	
State Fair 100% Beef Corn Dog	1 each
Ore Ida Waffle Fries	1 cup
Libby's Steam n Go Corn on the Cob	1 each
Dole Banana Dippers with Almonds	1 pkg
Water	
Dinner	
Rosetta Chicken & Herb Ravioli	9 pieces
Mareta Marinara Sauce	.5 cup
Bird's Eye Steamfresh Italian Blend	1 cup
Rhodes Multigrain roll	1 each
Fleishmann's Original Soft Spread	2 tsp
Nature's Nectar Apple Juice	1 cup
Snack	
Great Value Lowfat Vanilla Yogurt**	1 cup
Season's Choice Sliced Strawberries	.5 cup

**Walmart store brand

TOTAL COST
\$7.94

Nutrition

DAY 5 TOTALS	%DV	
Calories	1940	
Fat (g)	58	89
Saturated fat (g)	19	95
Trans fat (g)	0.5	
Cholesterol (mg)	80	27
Sodium (mg)	2450	102
Potassium (mg)	3036	87
Carbohydrates (g)	291	97
Dietary Fiber (g)	22	88
Sugars (g)	122	
Protein	60	
Vitamin A (IU)	5485	110
Vitamin C (mg)	140	230
Calcium (mg)	956	100
Iron (mg)	10.1	60
Vitamin D (IU)	224	56

MYPLATE TOTALS	ESTIMATED	
Grains	6.5	oz
Whole grains	2	oz
Fruits	2.5	cups
Vegetables	3	cups
Dairy	1.5	cups
Protein	4.5	oz

Daily Menus

Day 6

MENU	MEASURE
Breakfast	
Lean Cuisine Turkey Sausage Scramble	1 bowl
Lender's Cinnamon Raisin Bagel	1 each
Fleishmann's Original Soft Spread	2 tsp
Smoothie made with Great Value** Lowfat Vanilla Yogurt	1 cup
Season's Choice Berry Medley	.5 cup
Tropicana Calcium & Vitamin D-Fortified Orange Juice	.5 cup
Lunch	
Van de Camps Fish Sandwich Fillet	1 each
Rhodes Multigrain roll	1 each
Season's Choice* Veggie Fries	3 oz
Nature's Nectar Apple Juice	1 cup
Dinner	
Tyson Chicken Drumsticks, baked	4 oz
Green Giant Steamers Broccoli Florets	1 cup
Bremer* Pasta Shells with Pesto Sauce	1 cup
Water	
Snack	
Dole Banana Dippers with Almonds	1 pkg

*Aldi store brand

**Walmart store brand

TOTAL COST

\$7.94

Nutrition

DAY 6 TOTALS	%DV	
Calories	1880	
Fat (g)	51	78
Saturated fat (g)	14	70
Trans fat (g)	0	
Cholesterol (mg)	140	47
Sodium (mg)	2350	98
Potassium (mg)	3210	92
Carbohydrates (g)	276	92
Dietary Fiber (g)	24	96
Sugars (g)	108	
Protein	76	
Vitamin A (IU)	1752	35
Vitamin C (mg)	131	220
Calcium (mg)	795	80
Iron (mg)	11.7	70
Vitamin D (IU)	400	100

MYPLATE TOTALS	ESTIMATED	
Grains	6	oz
Whole grains	2	oz
Fruits	2	cups
Vegetables	3	cups
Dairy	1.5	cups
Protein	6	oz

Daily Menus

Day 7

MENU	MEASURE
Breakfast	
Jimmy Dean Egg White, Spinach & Mozzarella Flatbread	1 sandwich
Good Food Made Simple Steel Cut Oats w Maple Syrup	1 bowl
Season's Choice* Sliced Strawberries	.5 cup
Tropicana Calcium & Vitamin D-Fortified Orange Juice	1 cup
Lunch	
El Monterey Burrito Chicken, Rice, Beans	1 each
Bird's Eye Steamfresh Southwestern Corn	1 cup
Nature's Nectar* Apple Juice	1 cup
Dinner	
Reames Homestyle Egg Noodles	1 cup
Fit & Active* Turkey Meatballs	3 oz
Libby's Maui Blend with Pineapple Glaze	1 cup
Dean's Frozen Greek Yogurt	.5 cup
Bird's Eye Raspberries in syrup	.5 cup
Water	
Snack	
Lean Pocket Whole Grain Chicken & Broccoli	1 each

*Aldi store brand

TOTAL COST
\$7.15

Nutrition

DAY 7 TOTALS	%DV	
Calories	1920	
Fat (g)	40	62
Saturated fat (g)	15	75
Trans fat (g)	0	
Cholesterol (mg)	235	78
Sodium (mg)	2440	102
Potassium (mg)		
Carbohydrates (g)	314	105
Dietary Fiber (g)	30	120
Sugars (g)	106	
Protein	73	
Vitamin A (IU)	6022	120
Vitamin C (mg)	131	220
Calcium (mg)	960	100
Iron (mg)	16	90
Vitamin D (IU)	144	36

MYPLATE TOTALS	ESTIMATED	
Grains	7	oz
Whole grains	3	oz
Fruits	2	cups
Vegetables	2.5	cups
Dairy	2	cups
Protein	5.5	oz