

Enhancing Nutritional Value with Fortified Foods: *A Resource for Professionals*



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Enhancing Nutritional Value with Fortified Foods

Introduction

This special edition is a review of nutrition interventions to boost calories, protein and other nutrients for those who cannot get enough nutrition from their meals and snacks. The suggestions in this document may be beneficial for people who cannot consume enough volume, who have poor appetites, or have experienced unintended weight loss or other nutrition related concerns.

Our goal is to focus on food first! Assure that the individual is receiving foods that are acceptable to them personally. Try to provide the individual's favorite foods and cater to preferences as much as possible. Also, be sure that the individual is being provided with the assistance they need at mealtime (assistive feeding devices, encouragement, assistance with eating, etc.).

Next, enhance the nutritional value of the food being served. Start with the individual's favorite and most accepted foods, and boost the nutritional value of these favorite foods by using the suggestions presented here.

Calorie dense foods such as butter or margarine, mayonnaise, half and half or sour cream can be added to lower calorie foods to boost the impact of each bite of food. The goal is to **power pack** each bite of food or fluid for those who cannot consume a large volume. See the Calorie Boosters chart on page 2 for more ideas.

High protein items can also be added to foods to boost the protein value. Powdered milk, cheese, eggs, and peanut butter are a few examples. See the Protein Boosters chart on page 3 for more ideas.



As always, it is important to monitor individual acceptance, tolerance to interventions, and weight status. It may be necessary to alter interventions if they are not well accepted or tolerated by the individual. And you may need to reduce the number of interventions if the individual is gaining too much weight.

Included in this document are samples of fortified recipes for commonly well- accepted foods such as hot cereal, pudding and shakes. See pages 5-10 for some easy fortified recipes!

We hope these suggestions will assist you in helping your clients to achieve their nutrition and health goals!

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Calorie Boosters

The following suggestions are intended for people who need to increase their calories in order to maintain or gain weight. These recommendations are not intended for people on low fat or carbohydrate controlled diets. Try various ways to boost calories in the diet based on what is acceptable to the individual.

Margarine or Butter	Add to casseroles, hot cereals, vegetables, potatoes, rice and noodles, soups. Spread on bread, sandwiches, toast, crackers, rolls, and muffins.																						
Mayonnaise	Spread on bread, sandwiches, toast, crackers, rolls and muffins. Use in egg, chicken, tuna or meat salad.																						
Peanut Butter (and other nut butters)	Spread on bread, sandwiches, toast, crackers, rolls, muffins, apples, bananas.																						
Sour Cream	Use on baked potatoes or as a dip.																						
Half-and-half or Cream	Add to milk shakes, hot chocolate, and other beverages; pour over cereals; use in cream soups and puddings.																						
Other Calorie Dense Foods:	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Casseroles with added cream</td> <td>*Maple Syrup</td> </tr> <tr> <td>Cheese</td> <td>*Marshmallows</td> </tr> <tr> <td>*Corn Syrup</td> <td>Oils</td> </tr> <tr> <td>Cream cheese</td> <td>*Pudding</td> </tr> <tr> <td>Evaporated milk</td> <td>Salad dressings</td> </tr> <tr> <td>Fried foods</td> <td>Soups (made with whole milk or half-and-half)</td> </tr> <tr> <td>Gravy</td> <td>*Syrup</td> </tr> <tr> <td>*Hard Candy</td> <td>Whipped cream</td> </tr> <tr> <td>*Honey</td> <td></td> </tr> <tr> <td>*Ice Cream floats and sundaes</td> <td></td> </tr> <tr> <td>*Jam and jelly</td> <td></td> </tr> </table>	Casseroles with added cream	*Maple Syrup	Cheese	*Marshmallows	*Corn Syrup	Oils	Cream cheese	*Pudding	Evaporated milk	Salad dressings	Fried foods	Soups (made with whole milk or half-and-half)	Gravy	*Syrup	*Hard Candy	Whipped cream	*Honey		*Ice Cream floats and sundaes		*Jam and jelly	
Casseroles with added cream	*Maple Syrup																						
Cheese	*Marshmallows																						
*Corn Syrup	Oils																						
Cream cheese	*Pudding																						
Evaporated milk	Salad dressings																						
Fried foods	Soups (made with whole milk or half-and-half)																						
Gravy	*Syrup																						
*Hard Candy	Whipped cream																						
*Honey																							
*Ice Cream floats and sundaes																							
*Jam and jelly																							
Commercially Prepared High Calorie/Protein Supplements	*Bars *Beverages Fortified or enhanced foods Juices *Milkshakes *Puddings																						
Meal Frequency	Offer three meals and two or more snacks each day.																						

*These foods are high in simple sugars and/or added sugars and must be counted into the day's total carbohydrate if on a carbohydrate controlled diet. Liberal use of these foods to increase calories available will increase the added sugar content of the diet.

Note: There are commercial products available that allow for easy creation of enhanced foods. These products may be in the form of powders or liquids that mix into certain foods or beverages, thus boosting calories.

Source: Dorner, B. *Diet Manual: A Comprehensive Nutrition Care Guide*. Becky Dorner & Associates, Inc. Dunedin FL. 2021.

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Protein Boosters

The following suggestions are intended for people who have difficulty consuming enough protein. Here are a few suggestions for boosting protein intake. Try various ways to boost protein in the diet based on what is acceptable to the individual.

Skim Milk Powder (for cooking use only)	Mix 1 cup of skim milk powder into 1 quart of whole milk and use in recipes for creamed soups, hot cocoa, cooked cereals, cooked custard or pudding, casseroles, and mashed potatoes. Skim milk powder can also be added to scrambled eggs, soups, casseroles, meat loaf or meat balls, cookies, and muffins. Start by adding 1 tablespoon of skim milk powder per serving.
Milk or Half-and-Half	Use instead of water for soups, cereals, and instant cocoa.
Cheese or Cheese Sauce	Add grated or melted cheese to vegetables, casseroles, soups.
Eggs (fully cooked only)	Plain or in mixed dishes or casseroles.
Peanut Butter or other nut butters	Use on bread, crackers, or celery, apples, and bananas.
Instant Breakfast Milk Shake	Combine and mix well; 1 packet instant breakfast mix, 1 cup whole milk or half-and-half, ½ cup ice cream.
Other High Protein Foods	Cottage cheese Yogurt, Greek yogurt Meat, fish, poultry

Note: There are commercial products available that allow for easy creation of enhanced foods. These products may be in the form of powders or liquids that mix into certain foods or beverages, thus boosting protein.

Sample Nutritional Supplement Schedule

In order to avoid flavor fatigue, it is important to offer variety and to rotate types and flavors of high calorie/high protein supplements. Here is an example of how nourishments and supplements may be varied to achieve these goals.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2 PM ½ Egg Salad Sandwich 4 oz Milk	2 PM 4 oz Vanilla Pudding 4 Short- bread Cookies	2 PM ½ Chicken Salad Sandwich 4 oz Milk	2 PM 4 oz Chocolate Cream Pie 6 Vanilla Wafers	2 PM ½ Tuna Salad Sandwich 4 oz Milk	2 PM 4 oz Butterscotch Pudding 6 Vanilla Wafers	2 PM ½ Peanut Butter & Jelly Sandwich 4 oz Milk
PM 8 oz Cherry Vanilla Shake ½ Cheese Sandwich	PM 8 oz Peach Shake ½ Tuna Salad Sandwich	PM 8 oz Orange Cream Shake ½ Peanut Butter & Jelly Sandwich	PM 8 oz Strawberry Shake ½ Egg Salad Sandwich	PM 8 oz Chocolate Shake ½ Peanut Butter/Jelly Sandwich	PM 8 oz Strawberry Banana Shake ½ Cheese Sandwich	PM 8 oz Vanilla Shake 4 Lorna Doones

Source: Dorner, B. *Diet Manual: A Comprehensive Nutrition Care Guide*. Becky Dorner & Associates, Inc., Dunedin, FL. 2021.

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Increasing Calories and Protein in the Diet

Sample Daily Meal Plan for a Well Balanced High Calorie/High Protein Diet

** Standard Menu Item	Calories	** Fortified Menu Item	Calories
Breakfast		Breakfast	
¾ c Orange Juice	91	¾ c Orange Juice	91
½ c Oatmeal	133	¾ c Fortified Oatmeal	321
¼ c Scrambled Egg	82	¼ c Scrambled Egg Made with Whole Milk & 1 oz Cheese	300
1 slice/1 tsp WW Toast/Margarine	123	1 slice/ 1 Tbs WW Toast & Margarine	191
1 Tbs Jelly	56	1 Tbs Jelly	56
1 c Low Fat Milk	105	1 c Whole Milk	149
Condiments as Desired+ Coffee, Tea or Beverage*		Condiments as Desired+ Coffee, Tea or Beverage*	
Subtotal	590	Subtotal	1108
Lunch		Lunch	
2 oz Roast Beef/1 oz Gravy	184	3 oz Roast Beef/1 oz Gravy	207
½ c Seasoned Rice	176	½ c Seasoned Rice	176
½ c Seasoned Peas	72	½ c Seasoned Peas	72
1 c/1Tbs Green Salad/Dressing	108	½ c Green Salad/ 2 Tbsp Dressing	162
1 slice/1 tsp WW Roll and Marg.		1/1 Whole Wheat roll and Margarine	
½ c Fruit Sorbet/¼ c Strawberries	100	½ c Ice Cream	143
¼ c Strawberries	12		
1 c Low Fat Milk	105	1 c Whole Milk	149
Condiments as Desired+ Beverage of Choice*		Condiments as Desired+ Beverage of Choice*	
Subtotal	757	Subtotal	909
Afternoon Snack		Afternoon Snack	
None	0	1 oz Cheese	114
		6 Crackers	80
Subtotal	0	Subtotal	194
Dinner		Dinner	
3 oz Baked Fish/1 Tbs Tartar Sauce		3 oz Baked Fish w/ 2Tbs Tartar Sc	173
½ c Mashed Potatoes	143	½ c/1 oz Bu Mashed Potatoes/ Marg.	237
½ c Green Beans Almondine	174	½ c Green Beans Almondine	174
1 slice/1 tsp WW Bread w/Marg.	50	1 sl/ 1 Tbs WW Bread and Margarine	135
1 Baked Apple	108	1 Baked Apple	149
1 c Low Fat Milk	135	1 c Whole Milk	170
	105	½ c Fortified Pudding	
Condiments as Desired+ Beverage of Choice*		Condiments as Desired+ Beverage of Choice*	
Subtotal	715	Subtotal	1038
H.S.		H.S.	
Beverage of Choice: ½ c Apple Jc	60	½ c Orange Creamsicle Shake	264
2 Squares Graham Crackers	60	2 Choc Sandwich Cookies (1½ oz)	108
Subtotal	120	Subtotal	372
Totals	2182	Totals	3621

Bold/italicized items indicate differences from the Regular Diet menu. This menu increases protein by approximately 20 grams.

*Beverage and sugar or creamer may add additional calories.

+May include pepper or other spices, sugar, sugar substitute, salt, coffee creamer, etc. based on nutrition goals. Additional condiments and garnishes (i.e., margarine, gravy, sauces, ketchup, etc.) may round out the menu and make it more appealing and palatable. These add additional calories, added sugars, micro- and macronutrients (i.e., calories, fat, carbohydrates, sodium, etc.) and may not be appropriate for some individuals.

Source: Dorner, B. *Diet Manual: A Comprehensive Nutrition Care Guide*. Becky Dorner & Associates, Inc. Dunedin, FL. 2021.

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Fortified Oatmeal

½ Cup Portion

Ingredients	Measurement	Serves 10
Oatmeal	cup	3 1/3
Half-and-half	cup	5
Water	cup	2 1/2
Salt	tsp	1 1/4
Margarine	Tbs	3 1/3
Brown Sugar	Tbs	10

Directions:

1. Measure half-and-half, water, salt and margarine into saucepan. Bring to a boil.
2. Add oatmeal and cook until thick.
3. Serve with brown sugar on top.
4. Hold at $\geq 135^{\circ}$ F until service.

Calories	Protein, gm
331	6.6

Note: Oatmeal must be pureed for level 1 pureed diets.

Orange Creamsicle

½ Cup Portion

Ingredients	Measurement	Serves 10
Orange Sherbet	cup	3 1/3
Half-and-half	cup	2 1/2
Light Corn Syrup	cup	5/8
Oil	Tbs	3 1/3

Calories	Protein, gm
264	2.5

Directions:

1. Measure ingredients and blend together.
2. Maintain temperature $\leq 41^{\circ}$ F.
3. Serve immediately.



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Calorie Dense Pudding

½ Cup Portion

Ingredients	Measurement	Serves 10
Dry Instant Pudding Mix	cup	1 1/4
Half-and-half	cup	5

Directions:

1. Measure ingredients and blend together.
2. Refrigerate to set.
3. Maintain temperatures $\leq 41^{\circ}$ F until service.

Calories	Protein, gm
240	4.4

Ice Cream Delight

½ mCup (4 oz) Portion

Ingredients	Measurement	Serves 10
Ice Cream	cup	5
Half-and-half	cup	2 1/2
Light Corn Syrup	Tbs	10
Vanilla Extract	Tbs	5

Directions:

1. Blend all ingredients together.
2. Maintain temperature $\leq 41^{\circ}$ F until service.
3. Serve immediately after producing.

Calories	Protein, gm
283	4.1

Super Soup

¾ Cup (6 oz) Portion

Ingredients	Measurement	Serves 10
Condensed Cream Soup*	10¾ oz cans	3
Half-and-half	10¾ oz (1 can)	3

*Cream of Celery, Cream of Chicken, Cream of Mushroom, Cream of Potato, or Cream of Onion

Directions:

1. Measure ingredients into an appropriate size pan and whisk together. (Use soup can to measure the half-and-half). Heat to boiling stirring constantly.
2. Maintain temperature $\geq 135^{\circ}$ F for holding and service.
3. Cool any leftovers to $< 41^{\circ}$ F within 4 hours for storage. Reheat leftovers to 165° F for a minimum of 15 seconds prior to serving (hold at $\geq 135^{\circ}$ F for service).

Calories	Protein, gm
217	5.3

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Power Potatoes

½ Cup Portion

Ingredients	Measurement	Serves 10
Mashed Potato Flakes	cup	3 1/3
Water	cup	1 ¼
Powdered Skim Milk	cup	1 ¼ ??
Half-and-Half Cream	cup	3 1/3
Margarine	Tbs	5
Salt	tsp	1 ½

Directions:

1. Heat water, half-and-half cream, margarine and salt in a sauce pan just to boiling. (Do not overheat or cream will curdle.)
2. Remove from heat. Stir in powdered milk and mashed potato flakes until moistened. Let stand 30 seconds or until liquid is absorbed.
3. Whip with spoon until fluffy. Add additional hot liquid if potatoes are too stiff.
4. Serve with margarine or gravy to moisten.
5. Hold at $\geq 135^{\circ}$ F for service.

Calories	Protein, gm
226	

Variations: Sour Cream: Serve with 1-2 Tbsp. sour cream per serving.
 Cheesy: Mix in 1 Tbsp grated cheddar cheese per serving.
 Garlic: Substitute garlic salt for salt in the recipe.

Cherry Vanilla Drink

¾ Cup (6 oz) Portion

Ingredients	Measurement	Serves 10
Cherry Sherbet	cup	3 1/3
Half-and-Half Cream	cup	1 2/3
Almond Extract Flavoring	tsp	1

Calories	Protein, gm
216	3

Directions:

1. Process cherry sherbet in blender.
2. Add other ingredients and blend until smooth.
3. Maintain temperatures $\leq 41^{\circ}$ F.



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Key Lime Shake

³/₄ Cup (6 oz) Portion

Ingredients	Measurement	Serves 10
Lime Sherbet	cup	3 3/4
Light Corn Syrup	cup	1/2
Half-and-half	cup	2 3/4
Limeade Concentrate	Tbs	3 1/3

Directions:

1. Place ingredients in blender.
2. Blend until smooth and serve immediately.
3. Maintain temperature < 41° F.

Calories	Protein, gm
250	3

Orange Ale

¹/₂ Cup (4 oz) Portion

Ingredients	Measurement	Serves 10
Orange Sherbet	cup	3 1/3
Ginger ale	cup	2 1/2
Light Corn Syrup	cup	1/2
Oil	Tbs	3 1/3

Directions:

1. Measure ingredients and blend together.
2. Maintain temperature < 41° F.
3. Serve immediately.

Calories	Protein, gm
208	1

Other flavors of sherbet may be substituted.



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Strawberry-Banana Frost

³/₄ Cup (6 oz) Portion

Ingredients	Measurement	Serves 10
Banana, ripe, frozen, sliced	each	3 1/3
Strawberries, frozen in syrup	cup	2 1/4
Light Corn Syrup	Tbs	3 1/3
Vanilla Ice Cream	cup	1 1/2
Half-and-half	cup	3 1/3
Vanilla Extract	tsp	3/4 tsp

Directions:

1. Slice bananas and freeze overnight.
2. Place ingredients in blender and blend until smooth.
3. Maintain temperature $\leq 41^{\circ}$ F.
4. Serve immediately.

Calories	Protein, gm
255	4

Chocolate Dream

³/₄ Cup (6 oz) Portion

Ingredients	Measurement	Serves 10
Chocolate Syrup	Tbs	2 1/2
Light Corn Syrup	Tbs	2 1/2
Chocolate Ice Cream	cup	5
Half-and-half	cup	2 1/2

Directions:

1. Blend all ingredients together in blender until smooth.
2. Maintain temperature $\leq 41^{\circ}$ F.
3. Serve immediately.

Calories	Protein, gm
246	4



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Strawberry Frost

6 oz Portion

Ingredients	Measurement	Serves 10
Strawberries, sweetened, frozen, sliced	cup	2 1/4
Light Corn Syrup	Tbs	3 1/3
Vanilla Ice Cream	cup	1 1/2
Half-and-half	cup	3 1/3
Vanilla Extract	Tsp	3/4 tsp

Directions:

1. Thaw strawberries and process in blender until smooth.
2. Add remaining ingredients and blend until smooth.
3. Maintain temperature $\leq 41^\circ$ F.
4. Serve immediately.

Calories	Protein, gm
280	4

Peach Cooler

3/4 Cup (6 oz) Portion

Ingredients	Measurement	Serves 10
Peaches, canned in heavy syrup	cup	3 1/3
Light Corn Syrup	Tbs	3 1/3
Vanilla Ice Cream	cup	3 1/3
Half-and-half	cup	2 1/4
Almond Extract	Tsp	1/2

Calories	Protein, gm
208	1

Directions:

1. Puree peaches.
2. Add half-and-half, almond extract and corn syrup. Process in blender to liquefy.
3. Add ice cream and blend until smooth.
4. Maintain temperature $\leq 41^\circ$ F.
5. Serve immediately.



Nutritional Supplement Schedule

Sample Nutritional Supplement Schedules

In order to provide variety and avoid flavor fatigue, it is important to rotate types and flavors of high calorie/high protein supplements. Here is an example of how nourishments and supplements may be varied to achieve these goals.

Regular Diet: Sample Enhanced/Fortified Food Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2 PM ½ Egg Salad Sandwich 4 oz Milk	2 PM 4 oz Vanilla Pudding 4 Short-bread Cookies	2 PM ½ Chicken Salad Sandwich 4 oz Milk	2 PM 4 oz Chocolate Cream Pie 6 Vanilla Wafers	2 PM ½ Tuna Salad Sandwich 4 oz Milk	2 PM 4 oz Butterscotch Pudding 6 Vanilla Wafers	2 PM ½ Peanut Butter & Jelly Sandwich 4 oz Milk
PM 8 oz Cherry Vanilla Shake ½ Cheese Sandwich	PM 8 oz Peach Shake ½ Tuna Salad Sandwich	PM 8 oz Orange Cream Shake ½ Peanut Butter & Jelly Sandwich	PM 8 oz Strawberry Shake ½ Egg Salad Sandwich	PM 8 oz Chocolate Shake ½ Peanut Butter & Jelly Sandwich	PM 8 oz Strawberry Banana Shake ½ Cheese Sandwich	PM 8 oz Vanilla Shake 4 Lorna Doones

NOTE: All items must be at the consistency ordered by the physician for diet level and liquid thickness.

Source: Dorner, B. *Diet Manual: A Comprehensive Nutrition Care Guide*. Becky Dorner & Associates, Inc. Naples, FL. 2016.

Food Fortifiers and Oral Nutritional Supplements

There are many food fortifiers and oral nutritional supplements available for purchase. For more information, please contact these manufacturers:

- Abbott Nutrition, www.abbottnutrition.com
- Hormel Health Labs, www.hormelhealthlabs.com
- Nestle Nutrition, www.nestle.com/brands/healthcarenutrition
- Lyons Magnus, <http://www.lyonsmagnus.com/>

