



Adjusting Recipes to Meet Dietary Guidelines

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You may be one of the millions of Americans trying to make some healthier food choices but are finding that time-honored traditions and habits get in the way. Possible and acceptable changes take time and consideration and should focus on the key recommendations of the 2010 Dietary Guidelines for Americans.

Dietary Guidelines for Americans — Key Recommendations

Balance Calories

- Calorie balance refers to the relationship between calories consumed from foods and beverages and calories expended in normal body function and through physical activity.
- Achieve and sustain appropriate body weight across the lifespan to maintain good health and quality of life.
- To address current calorie imbalance in the United States, individuals are encouraged to become more conscious of what, when, why, and how much they eat.

Foods to Reduce

- Certain foods and food components are consumed in excess and may increase the risk of certain chronic diseases. These include sodium, saturated fat, trans fats, added sugars, and refined grains.
- Eating less of these foods and food components can help Americans meet their nutritional needs within appropriate calorie levels and help to reduce risk of chronic diseases such as cardiovascular disease, diabetes, and certain types of cancer.

Foods to Increase

- Many Americans do not eat enough of a variety of foods that will provide all the needed nutrients while staying within calorie needs.

- Intakes of vegetables, fruits, whole grains, and milk and milk products are lower than recommended. As a result, lower intake of several key nutrients — potassium, dietary fiber, calcium, and vitamin D — are a public health concern for adults and children.
- More emphasis should be placed on food choices that are nutrient dense (food that provides substantial amounts of nutrients for relatively fewer calories) and from the fruits, vegetables, whole grains, and low-fat and fat-free milk and milk products food groups. These foods can help Americans close nutrient gaps and move toward healthful eating patterns.

This publication provides tips to help you adjust recipes to make the Dietary Guidelines work for you.

Is It Time for a Change?

If you have ever tried to make changes in any habit, you realize that gradual changes tend to be the most successful. Quick change can lead to discouragement and failure when we take on too many tasks at once. It is no different when it comes to changing recipes and the way we prepare food. “Easy does it” are words to remember. Before you plunge into making home food preparation changes, think through the following questions:

- **Does this recipe need to be changed?** Many recipes already may meet nutritional goals. To make further changes in those recipes might alter their acceptance by you and your family.
- **How often do you use the recipe?** Favorite recipes used only on special occasions do not always need changing. Their purpose is for celebration or to add a special touch to a meal. If you are concerned they will not fit into your nutritional goals when you do eat them, cut down on serving size instead. On the other hand, certain recipes are family favorites and you prepare them frequently. It may help your nutritional goals to adjust recipes that you will be eating several times a month.
- **Will the recipe changes be acceptable to you and your family?** Once you start making changes in recipes, you will find that many are easy to accomplish. Family members and others may not even notice the changes. Too many changes or extreme changes in a recipe can make the dish unacceptable or even unsafe. If that happens, back up a step. An unacceptable recipe will not serve your purpose for designing wholesome and enjoyable meals.

- **Do you or members of your family have specific dietary concerns?** Suggestions for adjusting recipes discussed in this guide are for people who are making changes to meet general nutrition recommendations. If you are following a specific diet for a medical condition or a chronic disease, please consult a registered dietitian for directions and guidance. You may have special needs that should be taken into consideration.

How to Adjust Recipes



Many recipes can be adjusted by reducing an ingredient or substituting another ingredient. Changes made to an original recipe result in a different product. This new product may look different and may have a different texture and flavor. Adjust favorite

recipes gradually to help family members accept the new product. With small changes your family may not know you altered the recipe! Guidelines for adjusting fiber, fat, sugar, and salt in recipes include:

Fiber. Whole-grain flours, fruits, vegetables, dry beans, dry peas, nuts, and seeds add fiber to prepared foods.

- **Bread recipes** — Several whole-grain flours, such as whole wheat, rye, oat, barley, and corn, are available. To increase fiber, whole-grain flour can be substituted for one-fourth to one-half of white flour in bread recipes. For example, if a recipe requires 3 cups of all-purpose flour, use 1½ cups all-purpose and 1½ cups whole wheat flour. Nuts and seeds can also be used to increase fiber content of breads.
- Using whole-grain flour will change the final flavor, appearance, and texture of the product. If your family is not familiar with the flavor of whole-grain products, substitute only one-fourth of the white flour with whole-grain flour. Gradually increase the amount of whole-grain flour as family members accept the new product. You may want to start out with white whole wheat flour and transition gradually to whole-grain flour when making substitutions. By using these light wheat varieties, often called white wheat, you can introduce the full range of vitamins, minerals, trace elements, dietary fiber, and phytochemicals included in whole wheat products without introducing the phenolic substances that induce the unpleasant bitter whole meal flavor.

- **Yeast breads** — The large, sharp grain pieces in whole wheat flours interfere with gluten development during kneading. The final loaf volume of whole-grain breads will be less than white flour products. Whole-grain products may have a drier texture because the extra fiber takes longer to absorb moisture during the mixing or kneading stages. The dough or batter of a whole-grain product should be slightly sticky in comparison to its original counterpart. A 100 percent whole-grain product results in a very heavy, compact, low-volume product. For increased loaf volume, add about $\frac{1}{3}$ cup of wheat gluten for two loaves of bread.
- **Dry beans and peas** — Cooked dry beans and peas added to mixed dishes such as casseroles, soups, and stews increase the fiber content. Nuts and seeds add fiber to products that contain them, but they also add fat. Some people are allergic to nuts, so make sure no one has allergies before adding nuts.
- **Fruits and vegetables** — Fruits and vegetables contain fiber, and by adding them to dishes you can add flavor, nutrients, and texture. Shred carrots or zucchini into meatloaf or casseroles; include chopped vegetables in pasta sauce or lasagna; or use pureed, cooked vegetables such as potatoes to thicken stews, soups, and gravies. Try oven-roasted vegetables; season them in a variety of ways and use a minimum amount of fat. At dinner, add crushed pineapple to coleslaw, or include orange sections or grapes in a tossed salad. Try meat dishes that incorporate fruit, such as chicken with apricots or mangoes. Add fruit such as pineapple or peaches to kabobs as part of a barbecue meal.
- **Change the type of fat.** To change the type of fat in a recipe from saturated to monounsaturated or polyunsaturated fat, substitute fat from an animal source with fat from a plant source. This substitution will also reduce the cholesterol content. An example of this type of recipe adjustment is substituting lard with a vegetable shortening or oil, such as canola or olive oil.
- **Baked goods.** Cakes adjusted for lower fat may have only a slight flavor change. Quick breads may be dry and less tender. Muffins have a tendency to tunnel more easily. In baking, the term “tunneling” refers to tunnels and very large air pockets that form inside of muffins and quick breads as a result of overmixing a batter. Small reductions of fat in yeast breads will yield acceptable products but may not keep as long. Large adjustments in the amount of fat in yeast breads will decrease the volume of the loaf. In pastry products, fat is responsible for the flakiness and lightness of the product. A small reduction in fat may not produce a noticeable change in pastry products. Low-fat margarines usually have an increased water content, which may yield an inferior baked product. For this reason, they are not usually recommended for baked products.
- **Sauces, gravies, and mixed dishes.** These products will have a milder flavor when you reduce fat. Try spices and herbs, in small amounts at first, to add flavor. Fat separates the flour or cornstarch used to thicken gravies or sauces and prevents lumping. If you remove all the fat, mix flour or cornstarch with a cold liquid before adding to the hot liquid.

Fat and Cholesterol.

Fat contributes to the texture and flavor of many products. Reducing the fat or changing the type of fat may result in a product that has different characteristics. In many recipes, the total fat content can be reduced by one-third. If a recipe uses 1 cup shortening, cut the amount to $\frac{2}{3}$ cup. In other recipes, substitute some lower-fat ingredients for higher-fat ingredients.



- **Trim visible fat on meat and poultry.** Chill gravy, soups, and stews until the fat solidifies on the top, and then lift it off. If you are in a hurry, skim the surface with an ice cube.

- **Candy and ice cream.** In candy and ice cream, fat is responsible for a smooth texture. Reducing fat in candy and frozen products results in a slightly coarser texture.
- **Eggs.** Egg yolks are one of the richest cholesterol sources. To reduce the cholesterol content of a recipe, use two egg whites in place of one egg. In baked products, eggs act as leavening agents, and provide structure and tenderness. In salad dressings, puddings, and custards, eggs are thickeners and emulsifiers. Egg substitutes such as Egg Beaters® and Egg Scramblers® can substitute for eggs in many recipes. *Table I* lists some options to reduce fat and cholesterol in recipes.

Table I. Options for substitutions to lower the fat and cholesterol content in recipes.

If Your Recipe Calls for:	Substitute:
Sour cream	Yogurt or cottage cheese
High-fat cheese	Low-fat cheese
Whole milk	2%; 1%, or skim milk
Cream for whipping	Evaporated milk or whipped nonfat dry milk
Heavy cream (36-40% fat)	Light cream (18-20% fat) or half-and-half; evaporated skim milk
Regular fat meats	Lean or extra lean meats
Butter, margarine	Applesauce / prune puree*
Whole egg	¼ cup egg substitute 1 egg white plus 2 teaspoons vegetable oil 2 egg whites
Egg yolk	1½ Tablespoons of egg substitute

***Prune puree** can be substituted for ½ of the fat in baked products. If a recipe calls for 1 cup of butter, use ½ cup of butter and ¼ cup of prune puree. To make prune puree, combine 1½ cups (8 ounces) pitted prunes and 6 tablespoons hot water in the container of a food processor. Pulse on and off until the prunes are finely chopped. Makes 1 cup. To store, cover and refrigerate up to one month.

Note: Even if a food product containing prunes is baked, the prunes will have a laxative effect.

Sugar. Sugar can be successfully reduced in many recipes by one-fourth to one-third. If a recipe calls for 1 cup of sugar, reduce the amount to ¾ cup or ⅔ cup. A product made with reduced sugar may be less sweet. Besides providing a sweet taste to food items, sugar has other functions. Reducing the sugar may also affect these functions:



- **Baked items.** In baked items, such as breads, quick breads, cakes, and cookies, sugar gives a moist, tender, browned product. Sugar also causes cookies to spread during baking. In yeast bread, a small amount of sugar increases the fermentation rate. Reducing the sugar in baked items will result in a lighter-colored product that may be less tender.
- **Pies.** In pie fillings, the liquid in fruit juices is “tied up” by sugar and starches such as cornstarch. Reducing sugar may result in a soggy crust. Starch, such as cornstarch, added to the filling may help make the crust less soggy. Drain fruits or reduce the amount of liquid to prevent a soggy crust.

- **Food safety.** When sugar binds water, the water is not available for disease-causing microorganisms to grow and multiply. Reducing sugar in high-moisture foods requires careful handling and storage to prevent microbial contamination and growth. Refrigerate these items and avoid leaving them at room temperature for more than two hours.
- **Frozen desserts and ice cream.** In frozen desserts and ice cream, sugar lowers the freezing point. The original product will be softer at a given temperature when compared to its counterpart with less sugar. Sugar helps form a smooth texture in frozen food products. Cold temperatures mask the sweet flavor of frozen desserts so they don’t taste as sweet. Increase flavorings slightly to enhance the sweet flavor in reduced-sugar frozen desserts.
- **Candies.** Sugar crystallizes, providing proper consistency and texture in candies. It is not advisable to reduce the sugar in candy recipes. Encourage eating fewer or smaller pieces of candy instead.
- **Cooked and canned fruits.** In cooked and canned fruits, sugar helps retain the shape and preserve a firm texture and bright color. Excess sugar masks the natural flavor of fruits and may cause the fruits to shrink or shrivel.

Jams, jellies, and marmalades. Sugar acts as a preservative in jams, jellies, and marmalades. The high concentration of sugar inhibits foodborne pathogenic bacteria (although molds may still cause spoilage). Sugar, acid (the fruit), and pectin must be in the right proportions to get a desirable jelled product. For safety reasons, use recipes developed for reduced-sugar preserves rather than adjusting your own recipes. To make reduced-sugar jams, jellies, and marmalades, a special type of pectin is required. Check out the National Center for Home Food Preservation website on making jams and jellies at <http://nchfp.uga.edu>.

- **Sugar substitutes.** Substitute sweeteners are another alternative to replace sugar in some foods. Several substitute sweeteners are commercially available. Sugar Twin®, Equal®, and Splenda® are examples. Follow manufacturers' recommendations for use. Aspartame (Equal®) breaks down if heated to high temperatures and will no longer impart a sweet taste to foods. Substitute aspartame for sugar in recipes that do not require heating. Using saccharine (Sugar Twin®) in hot and cold foods may leave a bitter aftertaste. Sucralose (Splenda®) is the only low-calorie sweetener derived from sugar. Products made with sucralose retain their sweetness during exposure to high temperatures and long storage periods. Substitute sweeteners do not provide the other functions that sugar does, i.e., browning, tenderness, moistness, smooth texture, crystallization, retention of shape and color, or as a preservative in jams and jellies.

Salt. In most recipes, you may leave out salt without affecting the final product other than taste. Since salt enhances flavor, gradual decreases are easier to accept. Begin by reducing the amount of salt by one-half in recipes. For example, if a recipe calls for ½ teaspoon salt, only add ¼ teaspoon. If other spices and herbs are present in the recipe, increase these slightly when you reduce salt. If a recipe calls for 1 teaspoon each of salt and a spice, increase the spice to 1¼ teaspoons as you reduce or omit salt.



- **Increasing spice and herb amounts.** Be conservative when you increase spice and herb amounts. Whole spices provide more flavor with longer cooking while powdered spices lose their flavor with longer cooking times. As you experiment with herbs and spices and feel more comfortable with recipe adjustments, add spices and herbs not called for in the original recipe.

Lemon juice or vinegar can be used to add flavor to vegetables.

- **Yeast bread products.** Salt is a necessary ingredient in yeast bread products to control the fermentation of yeast. Yeast dough made without salt will rise rapidly, causing a poor texture. Avoid adjusting salt in yeast bread recipes.
- **Fermented products.** In fermented types of pickles, salt is essential for proper acid development. Do not adjust salt in pickle recipes. The resulting product may have a poor texture. The safety of the product may be questionable. Several tested recipes are available for reduced sodium quick-pack (not fermented) pickles.
- **Salt substitutes.** You also may use salt substitutes in food products. Be careful because these substitutes may give a bitter taste. Many contain potassium chloride in place of sodium chloride. If you have kidney problems or are on medication for your heart, kidneys, or liver, check with your doctor before using salt substitutes in place of sodium. Some are labeled “lite” or “low sodium” salt and still have sodium in them, just less than what is in table salt. These usually have a mix of sodium and potassium chloride. If a product is labeled “sodium free,” the main ingredient is potassium chloride with no sodium.

Special note on home food preservation:

If you have not canned for a while or have never canned before, make sure your canning recipes follow the latest guidelines. They should be based on or compatible with the 2009 guidelines. Check the directions that come with your canner before starting to can. If you no longer have the directions or have questions about a specific canner, check with the company. The home food preservation website through UNL Extension (<http://food.unl.edu/web/preservation/home>) provides canning information such as general directions; canning specific foods and products; freezing methods for fruits, vegetables, and meals or advance preparation; and drying information and resources on dehydrators, dehydrating vegetables, herbs, fruits, fruit leathers, and jerkies.

Perfect Biscuits

Original

2 cups all-purpose flour
½ tsp salt
4 tsp baking powder
½ tsp cream of tartar
2 tsp honey
1 stick butter
⅔ cup milk

Modified

1 cup all-purpose flour and 1 cup whole wheat flour
(omit)
4 tsp baking powder
½ tsp cream of tartar
2 tsp honey
5 Tbsp margarine
⅔ cup skim milk

Sift dry ingredients together, cut in shortening. Mix milk and honey, add to other ingredients and knead lightly. Roll or pat to ¼ inch thickness and cut. Place on a greased baking sheet and bake for 10-15 minutes at 450°F. Yield: 8 (2 ½ inch) biscuits.

Original:

Calories - 240; (Calories from fat - 110); Total fat - 12g; Saturated fat - 8g; Cholesterol - 30mg; Sodium - 380mg; Dietary fiber - <1g

Modified:

Calories - 190; (Calories from fat - 70); Total fat - 8g; Saturated fat - 1.5g; Cholesterol - 0mg; Sodium - 310mg; Dietary fiber - 2g;

Credit is given to Julie Florell, Delores Shaffer, Amy Vervaecke for recipe modifications.

Creamy Cornstarch Pudding

Original

3 cups whole milk
¾ cup sugar
¼ tsp salt
7 Tbsp cornstarch
3 egg yolks
3 Tbsp butter/margarine
2 tsp vanilla

Modified

3 cups skim milk
½ cup sugar
(omit)
7 Tbsp cornstarch
6 Tbsp egg substitute
3 Tbsp light margarine
2 tsp vanilla

Blend cornstarch, sugar, and salt (omitted in the modified recipe) in 3 quart sauce pan. Add milk in portions; stir after each addition until mixture is free of lumps. Place saucepan over medium heat and stir constantly; bring to a boil and boil 1 minute; remove from heat. Place egg yolk (egg substitute) in small bowl; blend with a fork. Add 3 Tbsp of hot starch mixture to egg yolk (egg substitute); blend thoroughly. Repeat three times. Pour egg-starch mixture into remaining starch paste. Blend thoroughly. Place saucepan over medium heat; stir constantly and heat egg-starch mixture for 3 to 4 minutes or until it loses its glossy look. Don't let mixture boil. Stir in butter and vanilla. Stir until mixture is well blended. Pour into 4 serving dishes and refrigerate.

Nutrition Facts:

Original:

Calories - 430; (Calories from fat - 160); Total fat - 18g; Saturated fat - 10g; Cholesterol - 195mg; Sodium - 290mg

Modified:

Calories - 250; (Calories from fat - 20); Total fat - 2.5g; Saturated fat - 1.5g; Cholesterol - 5mg; Sodium - 135mg

Meatloaf

Original

1½ lbs ground beef
⅓ cup milk
2 cups cooked white rice
2 eggs
6 oz American cheese
¼ tsp pepper
¼ cup grated onion
½ tsp garlic salt
½ cup catsup

Modified

1½ lbs ground turkey or low-fat ground beef
⅓ cup skim milk
2 cups cooked brown rice
2 egg whites
6 oz mozzarella cheese
¼ tsp pepper
¼ cup grated onion
½ tsp garlic powder
½ cup tomato paste

Mix ingredients together. Place in a meatloaf pan (4" x 8" x 3"). Bake for 50 minutes at 350°F. Use a meat thermometer to check for doneness. The internal temperature should be 165°F.

Serves 8.

Original:

Calories - 360; (Calories from fat - 190); Total fat - 21g; Saturated fat - 10g; Cholesterol - 130mg; Sodium - 620mg; Carbohydrate - 16g; Dietary fiber - 0g; Protein - 24g

Modified:

Calories - 270; (Calories from fat - 110); Total fat - 12g; Saturated fat - 4.5g; Cholesterol - 80mg; Sodium - 340mg; Carbohydrate - 16g; Dietary fiber - 2g; Protein - 24g

Credit is given to Marty Glenn and Michael Wanetka for the recipe modifications.

Putting It into Practice

Look at the ingredients in the recipe and review their functions in the food. Then review the general guidelines for modifying ingredients. Check out the amount of fat, eggs, sugar, and salt in a recipe and decide which ingredients to reduce, eliminate, or substitute. In some instances, you may even be able to add healthy ingredients to a recipe to bump up the nutritional content. Recipe modification often can be done in several ways, so consider taste, texture, and appearance. When adjusting recipes make one modification at a time, be creative, and have fun.

Resources

Texas A&M AgriLife Extension Service. May 2012.
Altering Recipes for Good Health. http://fcs.tamu.edu/food_and_nutrition/pdf/altering-recipes.pdf.

Oregon State University Extension, Family and Community Development. January 1999.
No Fat Baking with Applesauce and Prune Puree. [http://s168632207.onlinehome.us/peak-fitness-clubs.com%20\(OLD\)/nutrition/nofatbakingwithapplesauceandprunepuree.pdf](http://s168632207.onlinehome.us/peak-fitness-clubs.com%20(OLD)/nutrition/nofatbakingwithapplesauceandprunepuree.pdf).

Cornell Cooperative Extension, Cornell University. Division of Nutrition Sciences. January 2004.
Revitalize Your Recipes for Better Health. FN-432 (Revised). <http://library.ndsu.edu/repository/bitstream/handle/10365/5054/fn432.pdf?sequence=1>.

International Food Information Council Foundation. Everything You Need to Know About Acesulfame Potassium. Washington, D.C.

International Food Information Council Foundation. Everything You Need to Know About Aspartame. Washington, D.C.

Dietary Guidelines 2010, Selected Messages for Consumers, retrieved Feb. 1, 2011. <http://www.cnpp.usda.gov/Publications/DietaryGuidelines/2010/PolicyDoc/SelectedMessages.pdf>.

Dietary Guidelines for Americans, 2010, retrieved Feb. 1, 2011. <http://www.cnpp.usda.gov/Publications/DietaryGuidelines/2010/PolicyDoc/PolicyDoc.pdf>.

National Center for Home Food Preservation. Making Jams and Jellies. http://nchfp.uga.edu/how/can7_jam_jelly.html.

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