



# Food for Health

Division of Nutritional Sciences, Cornell University

## Revitalize Your Recipes for Better Health

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The times are changing and you like to keep in step. You jazz up your wardrobe to be in style and redecorate your home for a more contemporary look. But when it comes to the foods you eat and serve your family, chances are you are using the same old recipes heavy on fat, sugar, and salt.

Why not update and revitalize those recipes? Learn to prepare your old family favorites in new, more healthful ways. Keep in step with the trend toward leaner, lighter foods. How do you do this? It's a simple matter of modification.

### WHY Should You Modify a Recipe?

The link between diet and health is important. Food alone cannot make you healthy, but good eating habits based on variety and moderation can help keep you healthy and even improve your health. Good eating habits involve knowing how to prepare and select foods that fit into the Dietary Guidelines.

The U.S. Departments of Agriculture and Health and Human Services have suggested the following Dietary Guidelines for Americans:

#### Aim for Fitness

- Aim for a healthy weight
- Be physically active each day

#### Build a Healthy Base

- Let the Pyramid guide your food choices
- Choose a variety of grains daily, especially whole grains
- Choose a variety of fruits and vegetables daily
- Keep food safe to eat

#### Choose Sensibly

- Choose a diet that is low in saturated fat and cholesterol and moderate in total fat
- Choose beverages and foods to moderate your intake of sugars
- Choose and prepare foods with less salt

- If you drink alcoholic beverages, do so in moderation

The guidelines do not apply to people who need special diets because of diseases or conditions that interfere with normal nutrition requirements. These people need special instructions from a registered dietitian or doctor.

Most of us, however, could benefit by modifying what we already eat. One way to modify your diet is to make adjustments in the types and amounts of ingredients in recipes so that the end result is just as satisfying but fits better with the Dietary Guidelines.

Very few recipes need to be followed exactly to assure a good quality product. How many times have you followed a recipe but added bits of leftovers, substituted ingredients, or left out an ingredient because you didn't have it on hand? The end result was probably as good as, if not better than, the original. Your chances for success are best if you understand when and how to modify recipes.

### WHEN Should You Modify a Recipe?

Not all recipes need to be modified. Consider the following questions.

#### 1. Is the recipe already low in fat, cholesterol, sugar, or salt?

If so, only minor or no changes may be needed. For example, if a recipe calls for an egg, and the dish serves eight people, the amount of cholesterol per serving is already fairly low.

#### 2. How often do you eat the food?

If you make a certain dish only once or twice a year or for special occasions, it is not as important to modify that recipe as it is for foods you eat more frequently. For example, it's more important to cut down on the fat in your weekly tuna fish salad sandwich than it is to cut down on the fat in your birthday cake.

### 3. How much of the food do you eat?

Sometimes the best way to modify your intake of a certain food is to eat less of it. Decreasing the quantity you eat may be more satisfying than decreasing the quality. For example, many people prefer to eat less of a real jam or jelly than to eat the regular amount of a low-sugar jam. Or if you really enjoy a traditional pie crust, perhaps you are better off using a standard recipe and making a one-crust pie or a lower-fat filling, or eating a smaller piece.

### HOW Do You Modify a Recipe?

First, define your dietary goal. If you want to cut calories, you need to know what ingredients contribute the most calories. If you want to cut fat, sugar, or sodium, or to increase fiber, you need to identify the ingredients that contain these components.

**Calories:** Fat is the most concentrated source of calories. Each gram of fat supplies 9 calories, compared with 4 calories per gram of protein or carbohydrate and 7 calories per gram of alcohol. Reducing the amount of fat in a recipe is the most effective way to cut calories.

**Fat:** Fatty acids are the basic chemical units in fat. They are either saturated, monounsaturated, or polyunsaturated. All fats in foods are mixtures of these fatty acids.

Saturated fats are found in the largest proportions in fats of animal origin such as whole milk, cream, cheese, butter, meat, and poultry. They also occur in large amounts in coconut oil and palm kernel oil.

Monounsaturated fats are found in large amounts in olive oil and canola oil, as well as in many margarines and solid vegetable shortenings.

Polyunsaturated fats are found in the largest proportions in fats of plant origin such as liquid vegetable oils (safflower, sunflower, corn, cottonseed, and soybean) and margarines and salad dressings made from them.



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**Cholesterol** is a fatlike substance found only in foods of animal origin. Significant sources include egg yolks, meats (particularly organ meats), butter, cream, cheese, and whole milk.

**Sugar** comes in many forms including white sugar, brown sugar, honey, corn syrup, molasses, and maple syrup.

**Sodium** is found in salt (salt is 40 percent sodium); leavening agents (baking soda and baking powder); monosodium glutamate (MSG); condiments such as soy sauce, bouillon, pickles, and olives; cured meats; many canned vegetables and frozen dinners; and most cheeses, sauces, soups, and salad dressings.

**Fiber** is found in whole grain breads and cereals; dry beans and peas; nuts and seeds; and fruits and vegetables, especially those with edible skins or seeds.

Once you have identified the ingredient(s) in your recipe you want to modify, you can

1. Eliminate it completely
2. Reduce the amount
3. Substitute a more nutritionally acceptable ingredient

To choose the best approach, it's helpful to have a general idea of the function of the ingredient and what will happen if you modify it.

**Fat**

- Provides flavor and richness
- Improves texture and tenderness in baked goods
- Promotes flakiness and lightness

**Eggs**

- Provide structure and tenderness
- Act as a thickener and emulsifier
- Act as a leavening agent when beaten

**Sugar**

- Provides flavor and volume
- Improves texture
- Increases tenderness and browning in baked goods
- Acts as a preservative in jams, jellies, and pickles
- Acts as food for yeast

**Sodium**

- Provides flavor
- Acts as a preservative in cured meats and in brined vegetables such as pickles and sauerkraut
- Controls the action of yeast

**Handy Facts\***

	Calories	Total Fat (g)	Saturated Fat (g)	Mono-unsaturated Fat (g)	Poly-unsaturated Fat (g)	Cholesterol (mg)
<b>Values for 1 tablespoon</b>						
Vegetable oil	125	14	1.8	3.4	8.2	0
Vegetable shortening	115	13	3.3	5.8	3.4	0
Butter	100	11	7.1	3.3	0.4	31
Margarine	100	11	2.2	5.0	3.6	0
Reduced-calorie margarine	50	5	1.1	2.2	1.9	0
Mayonnaise	100	11	1.7	3.2	5.8	8
Reduced-calorie mayonnaise	35	3	0.5	0.7	1.6	4
White sugar	45	0	0	0	0	0
Honey	65	0	0	0	0	0
<b>Values for 1 cup</b>						
Whole milk	150	8	5.1	2.4	0.3	33
Low-fat milk	120	5	2.9	1.4	0.2	18
Skim milk	85	tr	0.3	0.1	tr	4
Half-and-half	315	28	17.3	8.0	1.0	89
Evaporated skim milk	200	1	0.3	0.2	tr	9
Sour cream	495	48	30.0	13.9	1.8	102
Plain low-fat yogurt	145	4	2.3	1.0	0.1	14
Plain nonfat yogurt	125	tr	0.3	0.1	tr	4
<b>Values for</b>						
1 whole egg	75	5	1.6	1.9	0.7	213
2 egg whites	30	0	0	0	0	0

\*Values are approximate. Check product labels for nutritional values of specific brands. tr=trace

**HINTS FOR HEALTHY HOME COOKING**

Here are a few ways to update your recipes. These suggestions can be applied to most foods except those in which specific proportions of ingredients are essential to prevent spoilage (such as cured meats, pickles, jams, and jellies) or are needed to ensure a standard quality product (such as yeast breads, cakes, and pie crusts.)

**To Decrease Total Fat and Calories**

- Try reducing fat by one-fourth to one-third in baked products. For example, if a recipe calls for 1 cup of oil, try 2/3 cup. This works best in quick breads, muffins, and cookies. It may not work as well for cakes.
- Use fruit purees such as plum or prune puree or applesauce for part or all of the fat in baked products.
- In casseroles and main dishes, cut back or even eliminate added fat. For example, browning meat in added fat is unnecessary because some fat will drain from the meat as it cooks. Use a nonstick pan or cooking spray.
- Sauté or stir-fry vegetables with very little fat or use water, wine, or broth.
- To thicken sauces and gravies without lumping, eliminate fat and instead mix cornstarch or flour with a small amount of cold liquid. Stir this mixture slowly into the hot liquid you want to thicken and bring it back to a boil.

- Chill soups, gravies, and stews and skim off hardened fat before reheating to serve.
- Select lean cuts of meat and trim off visible fat. Remove skin from poultry.
- Bake, broil, grill, poach, or microwave meat, poultry, or fish instead of frying in fat.
- Decrease the proportion of oil in homemade salad dressings. Try one-third oil to two-thirds vinegar.
- Use reduced-calorie sour cream or mayonnaise, or to reduce fat further, use plain low-fat or nonfat yogurt, buttermilk, or blended cottage cheese instead of regular sour cream or mayonnaise for sauces, dips, and salad dressings. If a sauce made with yogurt is to be heated, add 1 tablespoon of cornstarch to 1 cup of yogurt to prevent separation.
- Use skim or low-fat milk instead of whole milk. For extra richness, try evaporated skim milk.

### To Decrease Saturated Fat and Cholesterol

- Use two egg whites or an egg substitute product instead of one whole egg. In some recipes, you can simply decrease the total number of eggs.
- Use margarine instead of butter. Look for margarines in which liquid vegetable oil is the first ingredient.
- Use vegetable oils instead of solid fats. To substitute liquid oil for solid fats, use about one-fourth less than the recipe calls for. For example, if a recipe calls for ¼ cup (4 tablespoons) of solid fat, use 3 tablespoons of oil. For cakes or pie crusts use a recipe that specifically calls for oil because liquid fats require special mixing procedures and different proportions of sugar.

### To Decrease Sugar

- Try reducing sugar by one-quarter to one-third in baked goods and desserts. This works best with quick breads, cookies, pie fillings, custard, puddings, and fruit crisps. It may be less desirable for some cakes. Do not decrease the small amount of sugar in plain yeast breads because it provides food for the yeast and promotes rising.
- Decrease or eliminate sugar when canning or freezing fruits or buy unsweetened frozen fruit or fruit canned in its own juice or water.

- Increase the amount of cinnamon or vanilla in a recipe to enhance the impression of sweetness.
- Nonsugar sweeteners can be used in moderation, but their use is not necessary to decrease sugar in the diet. Some do not work well in cooked or baked foods, while others may leave a bitter aftertaste. They do not provide the volume or structure that sugar does, so rather than substituting, it's best to choose recipes especially tested for use with nonsugar sweeteners.

### To Decrease Sodium

- Salt may be omitted or reduced in most recipes. Do not reduce salt in cured meats or pickled or brined vegetables because it acts as a preservative. It is best not to omit the salt in yeast breads because it helps control the rising action of yeast.
- Start with a gradual reduction. For example, if a recipe calls for 1 teaspoon of salt, try ½ teaspoon. If you reduce the amount of salt gradually, you'll soon adjust to the less salty flavor.
- Choose fresh or low-sodium versions of products. For example, choose low-sodium soups and broths, soy sauce, canned vegetables, and tomato products.
- Rely on herbs and spices rather than salt for flavor.
- Use garlic or onion powder instead of garlic or onion salt.
- Try fruit juice or wine for cooking liquid instead of broth or bouillon.

### To Increase Fiber

- Choose whole grain instead of highly refined products, for example, whole wheat flour and bread, bulgur, brown rice, oatmeal, whole cornmeal, and barley.
- Whole wheat flour can usually be substituted for up to one-half of the all-purpose refined flour. For example, if a recipe calls for 2 cups of all-purpose flour, try 1 cup of all-purpose and 1 cup of whole wheat flour. When completely substituting whole wheat for white flour, use 7/8 cup whole wheat flour for 1 cup of white flour.
- Add extra fruits and vegetables to recipes and include the peel when appropriate.
- Add fruits to muffins, pancakes, salads, and desserts, and add vegetables to quiche fillings, casseroles, and salads.

### For more information about nutrition, visit these Web sites:

**Cornell Cooperative Extension Service**  
[www.cce.cornell.edu/food/index.html](http://www.cce.cornell.edu/food/index.html)

**NDSU Extension Service**  
[www.ag.ndsu.nodak.edu/food.htm](http://www.ag.ndsu.nodak.edu/food.htm)

**USDA Food and Nutrition Information Center** (Dietary Guidelines for Americans)  
[www.nal.usda.gov/fnic/dga/](http://www.nal.usda.gov/fnic/dga/)

**USDA Nutrient Data Laboratory**  
[www.nal.usda.gov/fnic/foodcomp/](http://www.nal.usda.gov/fnic/foodcomp/)

#### Milligrams of sodium in 1 teaspoon

Salt .....	2,130
Garlic salt .....	1,900
Onion salt .....	1,700
Baking soda .....	1,260
Baking powder .....	490
Monosodium glutamate (MSG) ...	490
Soy sauce .....	340
Garlic powder .....	1
Onion powder .....	1

## PUTTING IT INTO PRACTICE

Now that you have some guidelines, how do you begin? First, look at the ingredients in your recipe and review their functions. Then look at the general guidelines for modifying ingredients. Adjust quantities of major ingredients gradually. Individual tastes vary, and it may take some time to find out what level is satisfactory to you.

When you find modifications that work, make a note of them. Recipes for better health are worth repeating!

Here are two recipes to get you started:

### APPLE-SOUR CREAM COFFEE CAKE

TOPPING: ~~1/2 cup~~ sugar 1/4 c.  
~~1/2 cup~~ chopped walnuts 1/4 c.  
 1 teaspoon cinnamon

CAKE: ~~1/2 cup~~ butter 1/3 c. margarine  
~~1 cup~~ sugar 3/4 c.  
~~2 eggs~~ 1 egg  
 1 cup ~~sour cream~~ plain, low-fat yogurt  
 1 2 cups all-purpose flour plus 1 c. whole wheat flour  
 1 teaspoon baking soda  
 1 teaspoon baking powder  
~~1/2 teaspoon salt~~ omit  
 3 medium apples, pared and sliced (about 3 cups)

### VEGETABLE FISH CHOWDER

~~1 3 tablespoons~~ butter vegetable oil  
 1 medium onion, chopped  
 2 medium carrots, chopped  
 2 stalks celery, chopped  
 2 medium potatoes, peeled and cubed  
 2 1/2 cups water  
~~1 teaspoon salt~~ omit ADD: 1 bay leaf, 1/2 tsp. thyme, 1/2 tsp. dill  
 1 1/2 pounds firm, white-fleshed fish such as haddock or cod cut into bite-sized chunks  
~~1 1/2 cups half-and-half~~ 1 - 12 oz. can evaporated skim milk  
 Pepper to taste

#### ▲ Directions for modified coffee cake:

Heat oven to 375° F. Grease 10-inch tube pan or 12-cup bundt pan. Combine topping ingredients; set aside. Cream margarine and sugar; add egg and yogurt, beating well. In a separate bowl, combine flours, baking soda, and baking powder. Mix dry ingredients into yogurt mixture. Spread one-half the batter in pan. Sprinkle with one-third of the topping. Arrange apple slices on topping. Sprinkle with one-third of the topping. Spread remaining batter carefully over apples using the backs of two spoons; dough will be stiff. Sprinkle with remaining topping. Bake 35 to 45 minutes. Makes 12 servings.

#### ▲ Directions for modified vegetable fish chowder:

Heat oil in a 4-quart saucepan and sauté onion about 5 minutes. Add carrots, celery, potatoes, water, and herbs, cover, and gently simmer until vegetables are just tender, about 15 minutes. Add fish and simmer about 5 to 10 minutes more, until fish is just cooked. Stir in evaporated skim milk and heat to serving temperature; do not boil. Add salt, if desired, and pepper to taste. Makes about 10 cups.

Approximate nutritional value per cup of vegetable fish chowder:

	Original	Modified
Calories	172	137
Protein (g)	15	17
Carbohydrate (g)	10	13
Fat (g)	8	2
Saturated (g)	4.8	0.3
Monounsaturated (g)	2.2	0.5
Polyunsaturated (g)	0.5	1.0
Percent of calories from fat	42	13
Cholesterol (mg)	62	41
Sodium (mg)	323	104

Approximate nutritional value per serving of apple-sour cream coffee cake:

	Original	Modified
Calories	343	236
Protein (g)	5	4
Carbohydrate (g)	47	39
Fat (g)	16	8
Saturated (g)	7.9	1.5
Monounsaturated (g)	4.4	2.9
Polyunsaturated (g)	2.6	2.8
Percent of calories from fat	41	29
Cholesterol (mg)	65	19
Sodium (mg)	286	176

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