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EC04-442 Adjusting Recipes to Meet Dietary Guidelines

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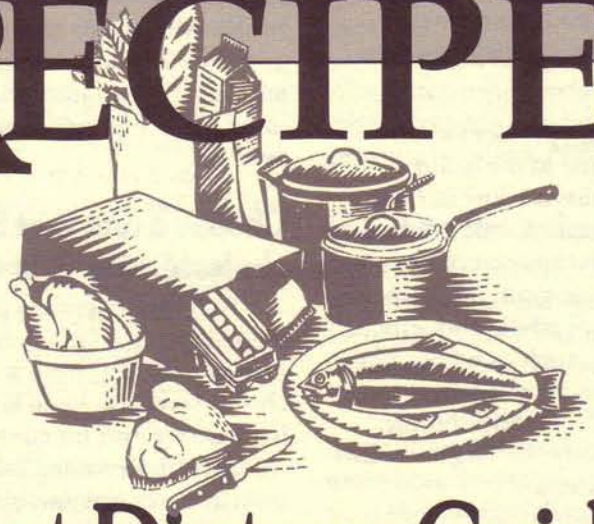
Adjusting RECIPES



to Meet Dietary Guidelines

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You may be one of millions of Americans trying to make some eating adjustments and finding time-honored traditions and habits get in the way. Possible and acceptable changes take time and consideration and should focus on the Dietary Guidelines for Americans.

This Extension Circular provides tips to help make the Dietary Guidelines work for you by adjusting recipes for some of the foods you prepare at home. Before you begin, however, consider the following nutritional goals and determine your goals.

Dietary Guidelines for Americans

Aim for Fitness

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

Build a Healthy Base

Let the Food 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.

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Choose a variety of grains daily, especially whole grains.

The Dietary Guidelines for Americans encourage eating six or more servings of grain products each day. Foods made from grains (wheat, rice and oats) help form the foundation of a nutritious diet.

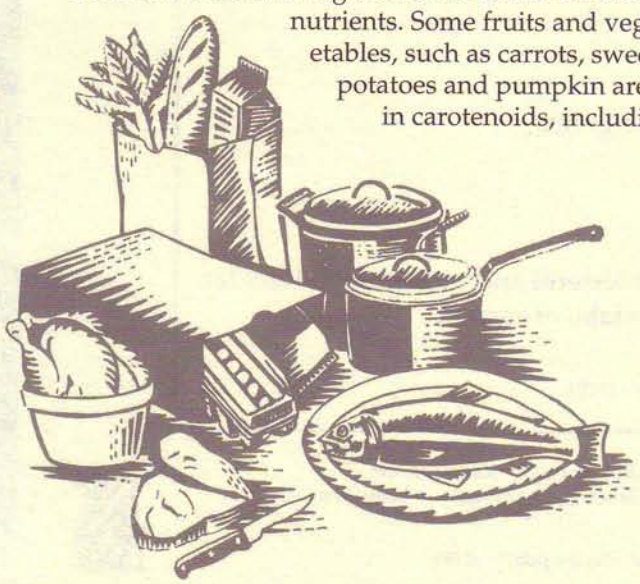
Vitamins, minerals, fiber and other protective substances in whole grain foods contribute to the health benefits of whole grains. Refined grains are low in fiber and the protective substances that accompany fiber. Whole grains differ from refined grains in the amount of fiber and nutrients they provide. Different whole grain foods vary in nutrient content, so choose a variety of whole and enriched grains. Eating plenty of whole grains, such as whole wheat bread, oatmeal and popcorn promotes proper bowel function and may help protect you from many chronic diseases. The high fiber content of many whole grains also may help you feel full with fewer calories.

In countries where diets are low in fiber and complex carbohydrates, but high in fat, there is a tendency to have more heart disease and certain types of cancer. Why this happens is not yet clear. When you prepare food at home, you can increase fiber in several ways. One choice is to select or change recipes to use whole grains, such as adding barley to soups or using whole wheat pasta. Also choose or prepare grain products with little added saturated fat and a moderate or low amount of added sugars.

Choose a variety of fruits and vegetables daily.

The Dietary Guidelines for Americans encourage eating three or more servings of vegetables and two or more servings of fruit each day. Fruits and vegetables provide essential vitamins and minerals, fiber and other substances that are important for good health. Try many colors and kinds of fruits and vegetables. Eating plenty of fruits and vegetables of different kinds may help protect you against many chronic diseases. It also promotes healthy bowel function.

Different fruits and vegetables are rich in different nutrients. Some fruits and vegetables, such as carrots, sweet potatoes and pumpkin are rich in carotenoids, including those which form vitamin A. Other fruits and vegetables are good sources of vitamin C, folate or potassium. Fruits and vegetables, especially dry beans and peas, also contain fiber and other substances that are associated with good health. Most fruits and vegetables are naturally low in fat and calories and are filling. Choose whole or cut-up fruits and vegetables rather than juices, since juices contain little or no fiber. Try fresh fruit for a dessert or try adding fruit to cereals.



Choose a diet that is low in saturated fat and cholesterol and moderate in total fat.

Fats supply energy and essential fatty acids and they help absorb the fat-soluble vitamins A, D, E, and K and carotenoids. You need some fat in the food you eat, but choose sensibly. Some kinds of fat, especially saturated fats, increase the risk for coronary heart disease by raising blood cholesterol. Saturated fats include high-fat dairy products, such as ice cream and butter; poultry, beef and pork fat; and coconut oil. In contrast, unsaturated fats do not increase blood cholesterol. Unsaturated fats occur in vegetable oils, most nuts, olives and fatty fish like salmon.

Aim for a total fat intake of no more than 30 percent of calories with no more than 10 percent from saturated fats. Fat intake in the United States as a proportion of total calories has decreased, but most people still eat too much saturated fat.

High fat diets — especially diets high in saturated fats and cholesterol — are associated with high blood cholesterol levels, which increase risk for heart disease. High fat diets also are linked to certain types of cancer. If you need to reduce your fat intake, do so primarily by cutting back on saturated and trans fats. Foods that are high in trans fats include partially hydrogenated vegetable oil, hard margarine and shortening.

One of the options to meet the dietary guidelines for fat is to make changes in recipes prepared at home. Limit the use of solid fats, such as butter, hard margarine, lard and solid shortening. Choose low-fat or fat-free dairy products.

Choose beverages and foods to moderate your intake of sugars.

Sugars are carbohydrates and a source of energy (calories). Carbohydrates provide 4 calories per gram. Dietary carbohydrates also include complex carbohydrates, starch and dietary fiber. During digestion all carbohydrates except fiber break down into sugars. Sugars and starches occur naturally in many foods that also supply other nutrients. Examples of these foods include milk, fruits, some vegetables, breads, cereals and grains.

Foods containing added sugars provide calories, but may have few vitamins and minerals. In the United States, the number one source of added sugars is nondiet soft drinks. Candies, cakes and cookies, fruit drinks and

fruitades also are major sources of added sugars. Intake of foods high in added sugars, like soft drinks, is of concern. Consuming excess calories from these foods may contribute to weight gain or lower consumption of more nutritious foods. Limit your use of these beverages and foods and drink water to quench your thirst.

Some foods with added sugars, like flavored milks, presweetened cereals, and sweetened canned fruits, also are high in vitamins and minerals. These foods may provide extra calories along with the nutrients and are fine if you need the extra calories.

Foods containing sugars and starches can promote tooth decay. The more often you eat foods that contain sugars and starches, and the longer these foods remain in your mouth before you brush your teeth, the greater the risk of tooth decay.

The Nutrition Facts Label gives the content of sugars from all sources (naturally occurring and those added). A food is likely to be high in sugars if one of these names appears first or second in the ingredient list or if several types of sugars are listed, including brown sugar, corn sweetener, dextrose, fructose, high fructose corn syrup, molasses, honey, fruit juice concentrate and lactose.

Sugar substitutes such as saccharin (Sweet and Low®), aspartame (Equal®), acesulfame-K (Sunnett® or Sweet One®), and sucralose (Splenda®) are extremely low in calories. These may be useful if you want the sweet taste without the calories. Some foods that contain sugar substitutes, however, still have calories. Unless you reduce the total calories you eat or increase your physical activity, using sugar substitutes will not cause you to lose weight.

Choose and prepare foods with less salt.

Many people can reduce their chances of developing high blood pressure by consuming less salt. Many studies in diverse populations have shown that a high sodium intake is associated with higher blood pressure. If you have high blood pressure or your family history indicates you may be prone to it, consider your sodium intake and plan ways to achieve a moderate intake.

Salt (sodium chloride) is the main source of sodium in foods. Most of the salt you eat comes from foods that have salt added during processing or preparation. Some recipes also include salty ingredients such as bouillon cubes, broth or soy sauce. Not all foods with added salt taste salty. Your preference for salt may decrease if you gradually reduce the amounts of salt or salty seasonings you add to your food. You can reduce sodium levels by using less highly processed foods. Most convenience foods, such as frozen dinners and luncheon meats, require little or no preparation before consuming, but may have higher levels of salt. Reduce the amount of salt in a recipe and remove the salt shaker from the dinner table. Some food manufacturers also sell "no salt added" products.

The best way to reduce sodium intake is to cut back on salt and salty foods and seasonings. Choose fresh, plain frozen, or canned vegetables without added salt. Choose fresh or frozen meats and fish. Look for labels that say "low-sodium". These foods contain 140 mg (about 5 percent of the Daily Value) or less of sodium per serving. When preparing foods at home, use less salt or replace the salt with spices and herbs. Reduce the use of soy sauce, ketchup, mustard, pickles and olives.

Is it time for a change?

If you have ever tried to make changes in any habit, you realize that changes must come gradually to be most successful. Quick changes 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 many home food preparation changes, think through the following questions.

Does this recipe need to be changed at all? Many recipes already may meet your 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 use them, reduce the serving size.

Certain recipes, however, are family favorites that you prepare frequently. It may help you meet your nutritional goals to adjust recipes that you will be eating several times in 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 changes 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 to you, 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? Recommendations for adjusting recipes discussed in this guide are for persons who are making changes to meet general nutrition recommendations. If you are following a specific diet for a medical condition or a chronic disease, consult a registered dietitian for directions. You may have special needs that should be considered.

How to Adjust Recipes

Many recipes can be adjusted to fit your nutritional goals 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 salt, sugar, fat, and fiber in recipes follow:

Fiber

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

Available whole grain flours include whole wheat, rye, oat, barley, and corn. 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 1 1/2 cups all-purpose and 1 1/2 cups whole wheat flour.

Substituting 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 a whole grain flour. Gradually increase the amount of whole grain flour as family members accept the new product.

In yeast breads, the large, sharp grain pieces in whole wheat flours interfere with gluten development during kneading and the ability of the bread to hold volume. The final loaf volume of whole grain breads will be less than that of white flour products. Whole grain products may have a drier texture because the large particles take longer to absorb moisture during mixing or kneading. 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 produces a very heavy, compact, low volume product.

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, as well as fat. Some people are allergic to nuts, so make sure no one has allergies before adding nuts.

Fruits and vegetables contain fiber. In mixed dishes, increase vegetables or use them as substitutes for part of the meat or poultry ingredient. Try oven fried or roasted vegetables. Both can be seasoned in a variety of ways and use a minimum amount of fat.

Fat and Cholesterol

In many recipes, the total fat content can be reduced by one-third. If a recipe uses 1 cup shortening, cut the amount to 2/3 cup. In other recipes, substitute some lower fat ingredients for higher fat ingredients.

Fat and Cholesterol Substitutions

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), half-and-half, or evaporated skim milk
Regular fat meats	Lean or extra lean meats
Butter, margarine	Applesauce/fruit puree

Trim visible fat on meat and poultry. Chill gravy, soups and stews until the fat solidifies on the top, and then lift it off.

To change the type of fat in a recipe from saturated to mono- or polyunsaturated fat, substitute fat from animal sources with fat from plant sources. This substitution also will reduce the cholesterol content. Examples of this type of recipe adjustment are substituting a vegetable shortening, such as canola or olive oil, for lard.

Fat serves several functions in foods. 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 baked items, fat gives a tender and moist product. Cakes adjusted for lower fat may only have a slight flavor change. Quick breads may be dry and less tender. Muffins have a tendency to tunnel more easily so go easy on mixing. Small reductions of fat in yeast breads will yield acceptable products but they may not keep as long. Large adjustments in the amount of fat in yeast breads will decrease the loaf volume. 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 often have an increased water content which may yield an inferior baked product and usually are not recommended for baked products.

Sauces, gravies and mixed dishes such as meatloaf or casseroles 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.

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.

Some ingredients can be substituted for fats in baked products. Baking Healthy® is a commercially available fat replacer. Applesauce also can be used as a fat replacer. Prune puree can be substituted for one-half of the fat in baked products. If a recipe calls for 1 cup of butter, use 1/2 cup of butter and 1/4 cup of prune puree. (Note: See recipe for prune puree.) Even in baked products, prunes will have a laxative effect.

There are two new fat products on the market. One is Benecol® (McNeil Consumer Healthcare) and the other is Take Control® (Lipton). Both products have been shown to reduce cholesterol levels by about 14 percent. These products help block cholesterol from being absorbed into the body. By doing this, the LDL or "bad" cholesterol level is reduced while the HDL or "good" cholesterol is maintained. Research shows that eating two to three servings of one tablespoon each will generally lower cholesterol levels, however eating more is probably not going to provide additional benefit. Benecol® can be used for baking and frying and also can be frozen. Take Control® can only be used as a spread and not for cooking; it should not be frozen. Both products are margarines and 100 percent of their calories are from fat. Eating either product in excess will add substantial amounts of calories and fat to your diet.

Only animal products contain cholesterol. 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. Eggs provide structure and tenderness to baked products. When beaten they are leavening agents. In salad dressings, puddings, and custards, eggs are thickeners and emulsifiers. Egg substitutes such as Egg Beaters® and Egg Scramblers® can be substituted for eggs in many recipes.

Prune Puree

To make prune puree, combine 1 1/3 cup (8 ounces) pitted prunes and 6 tablespoons hot water in container of food processor. Pulse on and off until prunes are finely chopped. Makes 1 cup. To store, cover and refrigerate up to one month.

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 3/4 cup or 2/3 cup. A product made with reduced sugar may be less sweet. Besides providing a sweet flavor to food items, sugar has other functions. Reducing the sugar may affect these functions.

In baked items, such as breads, quick breads, cakes and cookies, sugar gives a moist, tender, browned product. Sugar causes cookies to spread during baking. In yeast breads, a small amount of sugar increases the fermentation rate. Larger amounts of sugar in yeast products such as rolls depress the yeast action. Reducing the sugar in baked products will result in a lighter colored product that may be less tender. Cookies may not spread as much.

Sugar binds water. In pie fillings the liquid in fruit juices is "tied up" with sugar. Reducing sugar may result in a soggy crust. Drain fruits or reduce the amount of liquid to prevent a soggy crust.

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.

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 which do not taste as sweet when they are cold. Increase flavorings slightly to enhance the sweet flavor in reduced sugar frozen desserts.

Sugar crystallizes providing proper consistency and texture in candies. It is not advisable to reduce the sugar in candy recipes. Instead eat fewer or smaller pieces of candy.

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.

Egg Substitutions

If your recipe calls for:	Substitute:
Whole egg	• 1/4 cup egg substitute • 1 egg white plus 2 teaspoons vegetable oil • 2 egg whites • in cakes and cookies, 2 tablespoons water plus 1/2 teaspoon baking powder • in cake and cookie recipes that call for 2 or 3 eggs, for each egg, use: - 2 tablespoons flour - 1/2 tablespoon shortening - 1/2 teaspoon baking powder - 2 tablespoons liquid (use liquid called for in recipe)
Egg yolk	• 1 1/2 tablespoons egg substitute

Sugar acts as a preservative in jams, jellies, and marmalades. Sugar, acid (fruit) and pectin must be in the right proportions to get a desirable jelled product. To make reduced sugar jams, jellies, and marmalades, a special type of pectin is required. The high concentration of sugar inhibits food-borne pathogenic bacteria (although molds may still cause spoilage). For safety reasons, use recipes developed for reduced sugar preserves rather than adjusting your own recipes. Refrigerate reduced sugar preserves since the amount of sugar may not be enough to act as a preservative.

Substitute sweeteners are another alternative to replace sugar in some items. Several substitute sweeteners are commercially available. Sugar Twin®, Equal®, Splenda®, and Sunett® (Sweet One®) are examples. Follow manufacturers' recommendations for use.

Aspartame (Equal®) breaks down if heated to high temperatures. When it breaks down, aspartame no longer imparts a sweet taste to foods. Substitute Aspartame for sugar in recipes which do not require heating. Using saccharine (Sugar Twin®) in hot and cold foods may leave a bitter aftertaste. Acesulfame potassium (Sunett® or Sweet One®) is stable at high temperatures, therefore it can be used in baked products. 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. Sugar substitutes do not provide the other functions that sugar does in food, 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 gives flavor, gradual decreases are easier to accept. Begin by reducing the amount of salt in recipes by one-half. For example, if a recipe calls for 1/2 teaspoon salt, only add 1/4 teaspoon.

Salt may act as a flavor enhancer of other ingredients in the original recipe. 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 1 1/4 teaspoons as you reduce or omit salt.

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.

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.

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 and its safety may be questionable. Several tested recipes are available for reduced sodium quick-pack (not fermented) pickles.

You also may use salt substitutes in food products. Be careful because these substitutes may give a bitter taste.

Healthy Products

Many products are available on the supermarket shelves for health conscious consumers. Most traditionally processed foods also have a counterpart for the health conscious consumer. These products are sometimes mixed in with the traditional product or may be found in the 'Special Diet' section; however, low fat, low sodium and reduced calorie foods still contain calories. Putting low fat salad dressing on a salad containing an excess of high fat ingredients, such as ham, eggs, cheese, and bacon bits defeats the purpose of the dressing.

Helpful Web Sites

Most companies provide web sites which give additional information about their products. Web site addresses usually can be found on the package. These sites also contain recipes. Web sites for the products named in this publication are listed below.

Product	Web site
Saccharin®	www.saccharin.org
Equal® (NutraSweet®)	www.nutrasweet.com
Sunett®	www.sunett.com
Splenda®	www.splenda.com
Prunes	www.prunes.org
Take Control®	www.takecontrol.com
Benecol®	www.benecol.com

Adjusted Recipes

Examples of adjusted recipes follow. The *Modified Creamy Cornstarch Pudding* has less salt, sugar, cholesterol and fat, and a change in the types of fat. The *Modified Perfect Biscuit* recipe has increased fiber, reduced fat and salt. The goal of the *Modified Meatloaf* recipe was to reduce fat and salt content.

Creamy Cornstarch Pudding

Original	Modified
3 cups whole milk	3 cups skim milk
3/4 cup sugar	1/2 cup sugar
1/4 tsp salt	(omit)
7 Tbsp cornstarch	7 Tbsp cornstarch
3 egg yolks	6 Tbsp egg substitute
3 Tbsp butter/margarine	3 Tbsp light margarine
2 tsp vanilla	2 tsp vanilla

Blend cornstarch, sugar, and salt (omitted in the modified recipe) in a 3-quart saucepan. 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 tablespoons 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 sauce pan over medium heat; stir constantly and heat egg-starch mixture for three to four 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 four serving dishes and refrigerate.

Perfect Biscuits

Original	Modified
2 cups all-purpose flour	1 cup all-purpose flour **and** 1 cup whole wheat flour
1/2 tsp salt	(omit)
4 tsp baking powder	4 tsp baking powder
1/2 tsp cream of tartar	1/2 tsp cream of tartar
2 tsp honey	2 tsp honey
1 stick butter	5 Tbsp margarine
2/3 cup milk	2/3 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 3/4 inch thickness and cut. Place on a greased baking sheet and bake for 10-15 minutes at 450°F. Yield: 8 (2 1/2 inch) biscuits.

Credit is given to Julie Florell, Delores Shaffer, and Amy Vervaecke, University of Nebraska Nutritional Science and Hospitality Management students, for the recipe modifications.

Meatloaf

Original	Modified
1 1/2 lbs ground beef	1 1/2 lbs ground turkey or low fat ground beef
1/3 cup milk	1/3 cup skim milk
2 cups cooked white rice	2 cups cooked brown rice
2 eggs	2 egg whites
6 oz American cheese	6 oz mozzarella cheese
1/4 tsp pepper	1/4 tsp pepper
1/4 cup grated onion	1/4 cup grated onion
1/2 tsp garlic salt	1/2 tsp garlic powder
1/2 cup catsup	1/2 cup tomato paste

Mix ingredients together. Place in a meatloaf pan (4 x 8 x 3 inches). Bake for 50 minutes at 350°F.

Credit is given to Marty Glenn and Michael Wanetka, University of Nebraska Nutritional Science and Hospitality Management students, for the recipe modifications.

Resources

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