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U. S. Department of Agriculture

Skim

Milk

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DRY SKIM MILK

Dry skim milk has practically the same food value as fresh skim milk. It provides the protein, calcium and other minerals, milk sugar, and vitamins B and G of milk. Only the fat, vitamin A, and water are removed from whole milk in the preparation of dry skim milk.

The diets of many families contain less milk than is needed for normal growth and health. Using dry skim milk is a good way of improving the diet at low cost.

Keeping Quality and Storage

If properly stored, dry skim milk can be kept without refrigeration for several weeks. If exposed to air, it absorbs moisture, becomes lumpy, and the flavor changes. It should be kept in a tightly covered container. If it is purchased in a specially prepared bag, the bag should be closed after each use. Storage in a cool place, preferably a refrigerator, lengthens the keeping time.

Uses

Large enough amounts of dry skim milk may be used in preparing soups, cereals, bread, and many other foods so that they are richer in milk solids than those made with fluid milk.

In making many products dry skim milk can be used in the dry form, as it comes from the package. This is a convenient method of adding powdered milk in preparing bread, muffins, biscuits, puddings, and cereals. In such recipes, the powder is mixed with the other dry ingredients and water is used as the liquid.

For use in beverages, soups, gravies, sauces, and such dishes as scrambled eggs and custards, dry skim milk should be made into fluid milk by mixing it with water. The fluid milk is used exactly as fresh skim milk.

Three and one-half ounces (seven-eighths cup) of dry skim milk made into a liquid with $3\frac{3}{4}$ cups of water equals about a quart of fresh skim milk in nutritive value. For convenient household measurement, use 1 cup of powdered milk for each quart of water; or one-fourth cup of milk powder for a cup of water. To increase the food value, increase the proportion of dry skim milk to water; or add the powdered milk to fluid fresh milk.

To prepare fluid milk with the powder, measure cold or warm water into a bowl, sprinkle the powder over the surface, and beat until the powder dissolves. Or, the milk powder and water may be shaken in a tightly closed glass jar or bottle. Do not use boiling water. The powder is likely to lump.

Milk made by either the spray or the roller process may be used in the recipes contained in this folder. Beverages made from roller-process milk should be mixed just before serving.

The liquid milk sours as does fresh milk, and may be used in the same way as other sour milk or buttermilk. Cottage cheese can be made from the clabbered sour milk.

By following the general directions a homemaker can use dry skim milk just as fresh milk in her recipes. When a large amount of dry milk is used to increase the nutritive value of a product such as bread it is sometimes necessary to modify the recipe slightly.

In Soups and Chowders

Quick Vegetable Soup

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| 1 quart milk made of— | 2 cups grated raw vegetables |
| 1 cup dry skim milk and | (potatoes, turnips, or car- |
| 1 quart water | rots) or canned corn |
| 3 tablespoons fat | 1 tablespoon finely chopped |
| 1 tablespoon flour | onion |
| | 1 $\frac{3}{4}$ teaspoons salt |
| | $\frac{1}{4}$ teaspoon celery salt |

Melt the fat, mix well with the flour, and add the milk, stirring constantly until the mixture comes to the boil. Then add the vegetables and cook 10 minutes. Add seasonings.

Split Pea Soup

Soak 2 cups of split peas overnight in 2 quarts of cold water. In the morning add an onion, sliced. Cover; cook slowly for 1 $\frac{1}{2}$ hours, or until the peas are soft; then mash. Mix thoroughly 2 tablespoons of flour with one-half cup of dry skim milk, and stir in 2 cups of cold water. Stir into the hot peas with 2 tablespoons of fat and salt and pepper to taste. Cook the soup a few minutes longer.

Fish Chowder

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| 1 pint milk made of— | 1 cup diced carrots |
| $\frac{1}{2}$ cup dry skim milk and | 1 pint water |
| 1 pint water | $\frac{1}{2}$ cup diced salt pork |
| 1 $\frac{1}{2}$ pounds fresh haddock or other | 2 tablespoons chopped onion |
| fish, or 1 pound-can salmon | 2 tablespoons flour |
| 2 cups diced potatoes | Salt and pepper |

Cut the fish into small pieces and remove the bones and skin. If using raw fish, cook it and the potatoes and carrots in the water for 15 minutes. Fry the salt pork until crisp, remove from the fat, cook the onion in the fat for a few minutes, add the flour, stir until well-blended, and add the milk. Add this mixture to the cooked vegetables and the cooked fish or canned salmon. Simmer 10 minutes longer, stirring frequently. Add the salt pork and season to taste with salt and pepper.

Corn Chowder

In place of the fish in fish chowder, add a No. 2 can of corn to the cooked vegetables.

Whole-Wheat Chowder

In place of the fish and potatoes in fish chowder, increase the carrots to 2 cups and add 2 cups of cooked whole wheat.

Rolled-Oats Chowder

Fry one-half cup diced salt pork until crisp; remove the pork and cook one-half cup of chopped onion in the fat until well-browned. Add 2 quarts of water and heat. Mix 1 $\frac{1}{2}$ cups of dry skim milk and 2 cups of rolled oats and stir slowly into the hot mixture. Cook for 15 minutes. Add 2 cups of finely shredded carrots and cook for a few minutes. Add salt pork and serve.

In Creamed and Scalloped Dishes

For sauces and gravies dry skim milk should be made into fluid milk by mixing it with cold or warm water as directed on page 2. As much as one-half cup of dry skim milk can be used to 1 cup of water, for making gravies and creamed and scalloped dishes. Typical uses include creamed eggs, left-over meat or fish, creamed potatoes, onions, and other vegetables.

White Sauce

For white sauce for creamed meat or scalloped vegetables use 2 tablespoons of fat, 2 tablespoons of flour, one-fourth to one-half cup of dry skim milk to each cup of water, and one-fourth teaspoon of salt. Melt the fat, blend with the flour, and add the milk and salt. Heat and stir constantly until thickened.

Creamed or Scalloped Meat or Fish

Make white sauce according to the recipe above, and stir in an equal quantity of chopped cooked meat or fish, and cook until hot all through. Serve over hot cooked macaroni, spaghetti, noodles, rice, or hot biscuits.

Scalloped Vegetables

Use left-over cooked vegetables such as onions, parsnips, or cabbage. In a greased baking dish, place alternate layers of vegetables and medium white sauce. Cover the top with buttered crumbs and bake in a moderate oven (325° to 375° F.) for 20 minutes, or until the crumbs are golden brown.

Five-Minute Cabbage

3 cups milk made of—	3 tablespoons flour
1½ cups dry skim milk and	3 tablespoons melted fat
3 cups water	Salt and pepper to season
1½ quarts shredded cabbage	

Heat the milk and cook the cabbage in it for about 2 minutes. Add the blended flour and fat and the seasonings. Cook rapidly for 3 or 4 minutes, and stir constantly. The cabbage retains its crispness and is delicate in flavor and color.

Scalloped Potatoes

Wash potatoes, cook in boiling salted water until half done, skin, and slice. Grease a shallow baking dish, place in it a layer of potatoes, sprinkle with some flour and salt, and dot with fat. Continue until all the potatoes are used. Cover the potatoes with hot milk, using one-half cup of dry skim milk to each cup of water. Bake in a slow oven for 1 hour, or until the potatoes are brown on top and soft throughout. If they become dry add more milk. Serve in the baking dish.

In Cereal, Hot and Cold

Hot Breakfast Cereal

The nutritive value of cereals is increased by cooking them with dry skim milk. Mix the dry skim milk and cereal thoroughly, using from one-half to 1 cup of dry skim milk to each cup of cereal.

Corn meal or other finely ground cereals mixed with the dry skim milk must be added slowly to a small quantity of cold water to prevent lumping.

Rolled oats, cracked wheat, and other coarse cereals are not so likely to lump. After being mixed with the dry skim milk they can be added directly to the boiling water.

Rice, hominy grits, and whole wheat should be added to the hot liquid milk. The cooking time for whole-wheat and other whole or coarse cereals is shortened by soaking them first in water overnight.

Creamy Rice Pudding

1 quart milk made of—	$\frac{1}{3}$ cup sugar
1 cup dry skim milk and	$\frac{1}{2}$ teaspoon salt
1 quart cold water	$\frac{1}{2}$ teaspoon nutmeg or cinnamon
3 tablespoons uncooked rice	

Add the well-washed rice and remaining ingredients to the liquid milk. Pour into a baking dish and bake in a slow oven (250° to 300° F.) for 3 to 3½ hours. Stir occasionally while baking. If desired, raisins may be added during the last half hour of baking.

Or the pudding may be cooked over hot water. Use 6 tablespoons of rice and the same quantities of other ingredients.

Bread Pudding

2 cups milk made of—	2 tablespoons fat
1 cup dry skim milk and	1 egg, beaten
2 cups water	$\frac{1}{2}$ cup seedless raisins
1 cup soft bread crumbs	1 teaspoon ground cinnamon and
$\frac{1}{4}$ cup brown sugar or molasses	other spices
$\frac{1}{4}$ teaspoon salt	1 teaspoon vanilla

Prepare the bread crumbs by pulling dry bread into small pieces. Heat the milk, bread crumbs, sugar, salt, and fat over hot water. Pour some of the hot mixture into the beaten egg. Combine all the other ingredients, pour into a greased baking dish, set in a pan of hot water, and bake in a moderate oven (350° F.) for about 1 hour, or until the pudding is firm in the center. When the pudding has partially set, stir well so the raisins will be all through the pudding rather than in a layer at the bottom. Serve hot or cold.

Indian Pudding

Cook together one-third cup of corn meal, 1 teaspoon of salt, and 1 quart of milk (made from 1 to 2 cups of dry skim milk and 1 quart of water) for 20 minutes. Add one-half cup molasses and three-fourths teaspoon ginger. Pour into a greased baking dish and bake in a very moderate oven (300° F.) for 2 hours.

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In Yeast Bread, Rolls, and Cake

White Bread

1½ cups dry skim milk	4 teaspoons salt
2¾ cups hot water	2 tablespoons fat
2 cakes yeast	9 cups sifted flour
2 tablespoons sugar	

Measure one-half cup of the hot water and when lukewarm (100° F.) add to the yeast. To the remaining hot water add the sugar, salt, and fat. When lukewarm, add the softened yeast and the dry skim milk sifted with the flour. Mix to a dough, which will be soft and sticky, and knead with the hands in the bowl. Rub a little fat over the top of the dough, and cover. Allow to rise in a warm place (80° F.) until it has nearly doubled in bulk (about 2½ hours). Cut and mold the dough into loaves, place in greased pans, rub fat lightly on the tops of the loaves, and cover. Place in a warm place (90° to 95°) and let rise until they have nearly doubled in bulk (about 45 to 50 minutes). Bake pound loaves for 40 minutes in a hot oven (400° to 425°). These ingredients make 3 pounds of bread.

Whole-Wheat Bread

1 cup dry skim milk	3 tablespoons fat
2½ cups hot water	7 cups sifted hard whole-wheat flour or 7½ cups sifted soft whole-wheat flour
1 to 2 cakes yeast	
4 tablespoons brown sugar	
1 tablespoon salt	

Mix as for white bread, and bake pound loaves for 50 to 60 minutes in a moderately hot oven (385° F.) for 15 minutes, then lower the heat to moderate (350°) to finish.

To increase the skim-milk solids in this recipe, increase the above proportions of dry skim milk and of liquid. A satisfactory loaf can be made with 1¾ cups of dry skim milk and 3 cups of liquid, or even as much as 2½ cups of dry skim milk and 3¾ cups of liquid.

Rolls

The dough for white bread and whole-wheat bread may be baked as rolls. If richer rolls are desired, increase the fat to 5 tablespoons.

Spice Cake

½ cup dry skim milk	1 cup sugar
3 cups sifted flour	1 egg, beaten
4 teaspoons baking powder	1 cup water
½ teaspoon salt	¼ cup fat, melted
1½ teaspoons mixed ground spice	1 teaspoon vanilla

Sift the dry ingredients together three times. Combine the beaten egg, water, melted fat, and vanilla. Add the dry ingredients all at once, stir until the mixture is smooth. Pour into a greased pan, and for a thin loaf bake in a moderate oven (365° F.) for 25 minutes. As cupcakes, bake in a moderately hot oven (375°) for 20 minutes.

In Quick Breads and Cookies

For biscuits, muffins, griddlecakes, corn bread, cake, and cookies, sift 3 to 4 tablespoons of dry skim milk with each cup of flour or meal. Use water for the liquid. It is desirable to increase the fat slightly in the recipe when skim milk replaces whole milk.

To vary the flavor and food value of muffins, 1 cup of fine rolled oats or corn meal may be substituted for 1 cup of the white flour called for in a recipe. Or whole-wheat flour may be substituted directly for the white.

Spoon Bread

1 cup dry skim milk	2 cups boiling water
1 cup corn meal	2 eggs, beaten
1½ teaspoons salt	3 tablespoons fat, melted
1 cup cold water	

Mix the meal, dry skim milk, and salt thoroughly. Combine with 1 cup of cold water and stir until smooth. Add to 2 cups of boiling water, stirring constantly until the mixture thickens. Blend a small amount with the beaten eggs. Combine all the ingredients. Pour into a well-greased hot pan or baking dish and bake for 45 to 50 minutes in a hot oven (400° F.). Serve from the pan in which it was baked.

Drop Biscuits

4½ tablespoons dry skim milk	4 tablespoons fat
2 cups sifted flour	Water to make a very soft dough (about ¾ cup)
¾ teaspoon salt	
3 teaspoons baking powder	

Sift the flour, dry skim milk, salt, and baking powder together. Cut in the fat. Add the water slowly, stirring from the center until a soft dough is formed. Drop from a spoon onto a greased baking sheet, and bake in a hot oven (450° F.) for about 15 minutes.

If using sour milk, reduce the baking powder to 2 teaspoons and add one-third teaspoon of soda to the dry ingredients.

Molasses Cookies

½ cup dry skim milk	½ teaspoon salt
2¾ cups sifted flour	¾ cup molasses
4 teaspoons baking powder	½ cup fat
½ teaspoon soda	½ cup sugar
½ teaspoon cinnamon	½ cup water
½ teaspoon ginger	1 egg, beaten

Sift together the dry ingredients except the sugar. Heat the molasses and fat until the fat is just melted, add the sugar, water, and beaten egg. Add the mixture gradually to the dry ingredients. Drop by spoonfuls onto a greased baking sheet, and bake in a moderate oven (350° F.) about 15 minutes. Remove from the pan at once.

In Desserts and Beverages

Cornstarch pudding, tapioca pudding, soft or baked custard, creamy rice pudding, and Indian pudding are only a few of the desserts that can be made with dry skim milk.

Soft Custard

3 cups milk made of—	$\frac{1}{8}$ teaspoon salt
1 $\frac{1}{2}$ cups dry skim milk and	2 eggs, beaten
3 cups water	$\frac{1}{2}$ teaspoon vanilla
$\frac{1}{3}$ to $\frac{1}{2}$ cup sugar	Cinnamon or nutmeg

Heat the milk in the top of a double boiler. Mix the sugar, salt, and beaten eggs. Add some of the hot milk slowly to the beaten-egg and sugar mixture, pour back into the double boiler, surround with hot, not boiling water, and stir constantly until the custard coats the spoon. Remove from the hot water at once, cool, and add the vanilla and spice.

Cocoa or Coconut Custard

Mix one-fourth cup of cocoa with the sugar or add one-half cup of shredded coconut to the hot custard.

Cocoa

1 $\frac{1}{2}$ cups dry skim milk	Salt
5 tablespoons cocoa	5 cups water
5 tablespoons sugar	

Mix the cocoa, sugar, salt, and 1 cup of water, and boil for a few minutes. Add the other 4 cups of water and sprinkle the dry milk over the top. Beat until smooth and heat in a double boiler or over low heat to the serving temperature. Cinnamon, nutmeg, or vanilla may be added. The cocoa may be chilled and served cold.

Milk Shakes

Place 1 cup of water in a bowl, add 1 teaspoon of sugar, a few grains of salt, and one-fourth teaspoon of flavoring. Sprinkle one-fourth cup of dry milk over the surface and beat until smooth. Or, the ingredients may be placed in a glass jar or milk bottle and shaken.

For fruit milk shakes, add 2 teaspoons of sugar, a few grains of salt, and 1 cup of water to the pulp of a raw banana, or one-fourth cup of the combined pulp and juice of cooked dried apricots or prunes with a little lemon juice if desired. Sprinkle one-fourth cup of dry skim milk powder over the top and beat until smooth. Serve cold. This makes a thick, frothy milk shake.

Eggnog

Combine a well-beaten egg, 2 teaspoons of sugar, 1 cup of water, one-fourth teaspoon of flavoring, and a few grains of cinnamon or nutmeg if desired. Sprinkle one-fourth cup dry skim milk over the mixture. Beat until smooth.

Milk with Coffee

Heat 1 pint of liquid milk and mix with 1 pint of hot coffee, or sprinkle one-half to 1 cup of dry skim milk over 1 quart of cold or warm coffee and beat until smooth. Serve cold or hot.