

South Dakota State University

Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange

SDSU Extension Fact Sheets

SDSU Extension

1984

Salt and High Blood Pressure

Cooperative Extension South Dakota State University

Follow this and additional works at: https://openprairie.sdstate.edu/extension_fact

Recommended Citation

South Dakota State University, Cooperative Extension, "Salt and High Blood Pressure" (1984). *SDSU Extension Fact Sheets*. 989.

https://openprairie.sdstate.edu/extension_fact/989

This Fact Sheet is brought to you for free and open access by the SDSU Extension at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in SDSU Extension Fact Sheets by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.



For current policies and practices, contact SDSU Extension

Website: extension.sdstate.edu

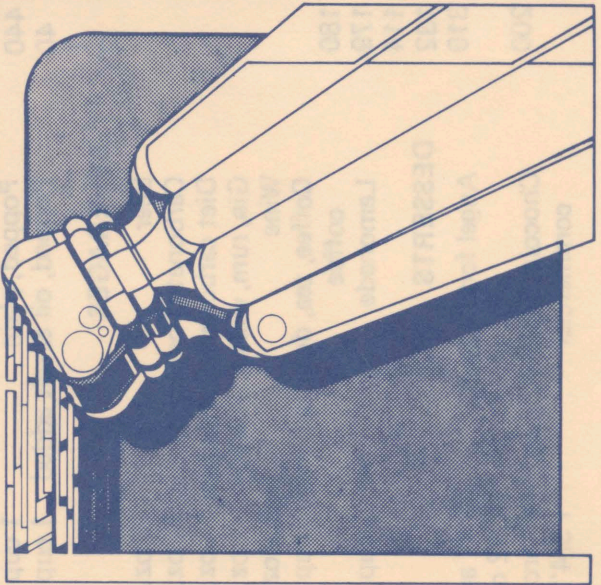
Phone: 605-688-4792

Email: sdsu.extension@sdstate.edu

SDSU Extension is an equal opportunity provider and employer in accordance with the nondiscrimination policies of South Dakota State University, the South Dakota Board of Regents and the United States Department of Agriculture.

salt and high blood pressure

SOUTH DAKOTA
STATE UNIVERSITY
FEB 08 1985
LIBRARY



Cooperative Extension Service
South Dakota State University
U.S. Department of Agriculture

630.732

S087.29

FS #820

salt and high blood pressure

Table salt is sodium chloride. Sodium is a mineral that occurs naturally in many foods and in our drinking water.

Both sodium and chloride are essential for good health and must be included in the diet. Sodium helps maintain water balance, and each cell is bathed in a fluid which has sodium in it.

While there is such a thing as sodium depletion or deficiency, most people take in more sodium than they need.

What is blood pressure?

When your heart beats it sends out a wave of blood, creating a series of waves in the blood vessels. The pressure at the top of the wave is called systolic pressure. The pressure at the bottom of the wave is called diastolic. This pressure is measured in millimeters of mercury (mm Hg). A blood pressure reading of 120/80 is usually considered normal for adults between the ages of 18 and 45.

High blood pressure is sometimes referred to as hypertension. This is an unfortunate choice of words because it sounds like too much tension or stress. What it really means is too much pressure. This extra pressure ages the arteries creating "stretch marks" where plaques form. There are no symptoms for high blood pressure. A pressure above 140/90 is usually described as "high blood pressure."

People who are in a stressful situation experience an increase in blood pressure as a normal response to stress. Their blood pressure returns to normal. People who are genetically susceptible to high blood pressure may have a greater increase in their blood pressure. If the level of stress is not reduced, it contributes to the problem of high blood pressure.

How much sodium should I eat?

The estimated safe and adequate levels of dietary intake of sodium have been set at 1100 - 3300 milligrams for adults. The amounts for children increase as the child grows older. Infants under one year of age should not have any salt in their food.

One level teaspoon of salt (sodium chloride) contains 2000 milligrams of sodium. Sodium is a natural component of all food.

Individuals on therapeutic diets may be told to limit their sodium intake to 400 - 2000 milligrams per day.

Who should eat less salt?

Studies of groups of people throughout the world build a strong association between high blood pressure and eating large amounts of salt. However, research has not established whether or not a high salt diet causes high blood pressure. People who do have high blood pressure experience a lowering of their blood pressure when they reduce their salt intake, and they should follow their doctor's orders for food, weight control, and medication.

Who is most likely to have high blood pressure?

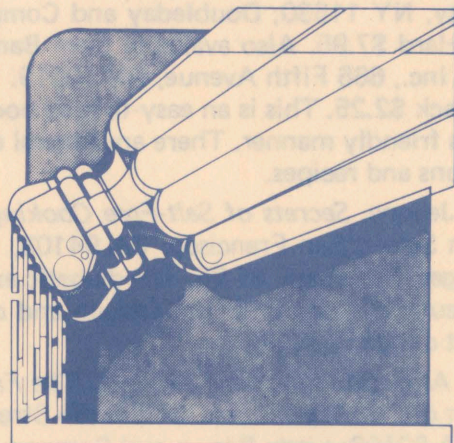
Weight adds to the risk and the extra food eaten by overweight people increases their salt intake. Older people and black people are at risk, too.

The tendency to have high blood pressure is inherited. If you have relatives who have high blood pressure, it would be a good idea to eat less salt. In the United States this represents about one out of six or seven people.

Where is sodium found?

Medication: Over-the-counter medications such as alkalizers, cough medicine, sedatives, aspirin, laxatives, and pain relievers.

Ingredients or Additives: Baking soda, baking powder, seasoning salts, and any substance with sodium in the name, such as monosodium glutamate.



Seasoning: Salt, chili powder, chili sauce, garlic salt, meat tenderizers, MSG (Accent), onion salt, soy sauce, Worcestershire Sauce, and lemon pepper.

Foods: Fruit contains very little sodium. The rest of our foods contain sodium, especially processed foods.

How much sodium is in water?

Unless you are on a severely restricted diet, the amount of sodium in drinking water is not significant. There are some pockets in the Duluth area that have naturally occurring high levels of sodium. The cities of Minneapolis and St. Paul have 8 and 12 milligrams of sodium per liter (or quart), respectively. Softened water may contain about 30 milligrams of sodium per quart. The mineral content of bottled water varies. People on sodium restricted diets should check labels or request information before using bottled water. Imported mineral water has 42 milligrams of sodium in 8 fluid ounces.

Equivalents:

1 gram (g) = 1000 milligrams (mg)
 1 ounce (weight) = 28 grams
 1 teaspoon salt = 5000 milligrams sodium chloride

1 teaspoon of salt has about 2000 milligrams of sodium.
 1 teaspoon of soda has about 820 milligrams of sodium.
 1 teaspoon baking powder has about 340 milligrams of sodium.

Some people on salt restricted diets receive diet instructions based on a point system. One point is the same as one milliequivalent or 23 milligrams of sodium.

Cookbooks for sodium restricted diets:

Bagg, E.W. *Cooking Without a Grain of Salt*. Garden City, NY 11530; Doubleday and Company, 1964. Hard \$7.95. Also available from Bantam Books, Inc., 666 Fifth Avenue, NY 10019. 1972. Paperback \$2.25. This is an easy-to-read book written in a friendly manner. There are general diet instructions and recipes.

Jones, Jeanne. *Secrets of Salt-Free Cooking*. 834 Mission Street, San Francisco, CA 94103, 1979. 192 pages. Paperback \$5.95. The diabetic exchanges are calculated along with the sodium and calorie content of each serving.

Payne, Alma and Callahan, Dorothy. *The Fat and Sodium Control Cookbook*. 34 Beacon Street, Boston, MA 02106; Little Brown and Company, 1975 (4th edition). 539 pages. Hard \$8.95. This cookbook has been tested in over 20 years of use.

MILK AND DAIRY PRODUCTS

	Amount	Sodium milligrams
Milk		
Buttermilk	1 cup	257
Cocoa	1 cup	149
Cream, half & half	1 Tbsp.	7
Ice cream	1 cup	84
Milk shake (choc.)	10 oz.	317
Sherbet	1 cup	89
Milk - skim	1 cup	127
Milk - whole	1 cup	122
Soft serve	1 cup	163
Yogurt	1 cup	114
Cheese		
Cheese food	1 oz.	400
American cheese	1 oz.	406
Cheddar cheese, natural	1 oz.	176
Cottage cheese (lg. curd)	1 cup	457
Cream cheese	1 oz.	84
Parmesan cheese, grated	1 Tbsp. = 5 g	100
Process cheese spread	1 oz. = 2 Tbsp.	381
Swiss, natural	1 oz.	74
" processed	1 oz.	388

FRUITS

Apple	3" diam.	2
Banana	Medium (8¾ x 1½)	2
Blueberries	1 cup	1
Cantaloupe	half, 5" diam.	24
Cherries, dark, sweet	1 cup	2
Dates	10 dates	1
Dried apricots	10 med. half 1 1/3" diam.	12
Grapefruit	half, 3½" diam.	1
Grapes	1 cup	1
Lemon juice	4 oz.	1
Orange	2 5/8" diam.	1
Orange juice	1 cup	5
Peaches	2¾" diam.	2
Pears	2½" diam. 3½" high	1
Plums	1 cup	1
Prunes	1 cup	8
Raisins	1 cup	17
Rhubarb	1 cup	5
Strawberries	1 cup	1
Watermelon	10" diam. 1" thick	8

NUTS

Coconut, not packed	1 cup	18
Peanuts, salted		
dry roasted	1 cup	986
roasted	1 cup	602
Peanuts, unsalted	1 cup	7
Peanut butter	1 Tbsp.	81
Sunflower seeds, unsalted	1 cup	14
Walnuts	1 cup	4

VEGETABLES — Without added salt

	Amount	Sodium milligrams
Asparagus, cooked	½ cup	1
Beets, fresh cooked	½ cup	37
Beets, canned	½ cup	240
Broccoli	½ cup	17
Cabbage	½ cup	8
Carrots, raw, grated	½ cup	34
Carrots, cooked	½ cup	43
Cauliflower	½ cup	8
Celery, raw	½ cup	50
Corn, canned	½ cup	200
Corn, frozen	½ cup	3
Cucumber	½ cup	2
Green beans, canned	½ cup	160
Green beans, frozen	½ cup	3
Green beans, fresh cooked	½ cup	3
Green pepper, raw, diced	½ cup	10
Lettuce	4½ oz.	4
Lima beans, canned	½ cup	228
Mushrooms, fresh sliced	½ cup	4
Onions, cooked	½ cup	5
Peas, fresh cooked	½ cup	1
Peas, frozen	½ cup	80
Peas, canned	½ cup	250
Potatoes, baked	2 1/3" diam. (4¾" long)	5
Potato chips—variable	1 oz.	300
Pumpkin, canned	½ cup	6
Rutabaga, fresh cooked	½ cup	4
Sauerkraut	½ cup	877
Soybean sprouts	½ cup	2
Spinach, canned	½ cup	455
Spinach, raw	½ cup	25
Tomatoes, canned	½ cup	200
Tomato paste	1 cup	77
Tomato sauce	1 cup	1498
Tomatoes, raw	3" diam. (2 1/8" high)	14
Tomato juice, canned	½ cup	440
Turnip, mashed	½ cup	40
Winter squash	½ cup	1
Zucchini, fresh	½ cup	2

BREAD AND CEREALS

Bread

Biscuit	1 biscuit	180
Bran muffins	1 muffin	179
Bread - white	1 slice	114
Bread - whole wheat	1 slice	132
Coffee cake (baking powder)	1/6 of cake or 2½ oz.	310
Corn bread	2½ x 2½ x 1 3/8"	200

	Amount	Sodium milligrams
Danish roll	4" diam. 1" high	260
Doughnuts		
- cake	3 5/8" diam. approx. 2 oz.	160
- yeast	3 3/4" diam. approx. 1½ oz.	99
Hamburger bun	3½" x 1½"	138
Pancake, small	1 oz.	152
Waffle	7" diam. 5/8" thick	515

Cereal

Bran flakes	1 cup	466
Corn flakes	1 cup	256
Farina	1 cup	2
Oatmeal, cooked w/o salt	1 cup	1
" w/salt as directed	1 cup	412
Puffed wheat or rice	1 cup	1
Wheat flakes	1 cup	355
Wheat germ	1 Tbsp.	Trace

Crackers

Graham crackers	2 squares 2½" each	95
Pretzels, twisted	5 per oz.	101
" sticks	3 sticks, 2¼" long	17
Rye crisp	1 wafer, 3½"x 1 7/8"	70
Saltines, salted	10 crackers	312
Crackers, low sodium	10 crackers	20

Pasta — Plain unsalted

Egg noodles	1 cup	3
Macaroni	1 cup	2
Rice, fried, Chinese	1 cup	400
Rice	1 cup	5
Wild rice	1 cup	11
Spaghetti	1 cup	2

Popcorn

Popped, plain	1 cup	Trace
Popped, oil & salt added	1 cup	175

BEVERAGES

Beer	12 oz.	25
Carbonated beverages	12 oz.	25 - 50
Diet carbonated beverages	12 oz.	30 - 70
Gin, rum, vodka, whiskey	1 oz.	1
Wine	3½ oz.	7
Coffee, tea, decaffeinated coffee	1 cup	1
Lemonade	1 cup	4

DESSERTS

Angel food cake	2½" arc, 1/12 of cake	170
Chocolate cake w/icing, commercial	4" arc, 1 3/4" thick	357

	Amount	Sodium milligrams
Chocolate pudding		
instant mix	½ cup	470
homemade	½ cup	73
Cream pie	4 3/4" arc	104
	1/6 pie	
Danish roll pastry	1 roll	238
Fruit pie - salt as ingredient	4 3/4" arc	224
	1/6 pie	
Gelatin dessert - made with water	1 cup	122
Sandwich cookies	1 cookie	48

SUGAR AND SWEETS

Caramels	1 oz.	74
Fruit preserves	1 Tbsp.	2
Gum drops	1 oz.	10
Honey	1 Tbsp.	1
Jelly	1 Tbsp.	3
Maple syrup	1 Tbsp.	1
Milk chocolate bar	1 oz.	27
Mints, chocolate	1½" diam.	20
	x ½" (1/3 oz.)	
Sugar	1 cup	2
Brown sugar	1 cup	66

FATS AND OILS

Butter, regular	1 Tbsp.	116
Butter, unsalted	1 Tbsp.	2
French dressing	1 Tbsp.	219
Italian dressing	1 Tbsp.	172
Margarine	1 Tbsp.	138
Mayonnaise	1 Tbsp.	78

MEAT AND BEANS — Without added salt

Beans

Baked beans, canned with pork	1 cup	928
Dried beans and peas cooked and unsalted	1 cup	5
Lentils, cooked	½ cup	4
Peanut butter	1 Tbsp.	81

Beef

Corned beef	3 oz.	808
Liver	3 oz.	99
Hamburger	3 oz.	56
Round steak	3 oz.	60
Roast beef	3 oz.	59

Eggs

Egg	1 large egg	59
Egg substitute	¼ cup	120

Fish

Cod fish fillet, raw	2 oz.	72
Lobster, cooked	1 cup	305
Shrimp, french fried	1 oz.	53
Tuna, packed in oil	6½ oz. can, solids & liquids	610

Amount Sodium milligrams

Tuna, packed in water	6½ oz. can solids & liquids	600
White fish, lake, raw	1 lb. edible portion	236

Pork

Bacon	2 strips	274
Ham, cured	3 oz.	1114
Pork chop	3 oz.	51
Sausage (pork)	1 link or 1 oz.	190

Poultry

Chicken, baked	3 oz.	55
Turkey	3 oz.	185

Sausages

Frankfurters	one, 2 oz.	627
Luncheon meats	1 oz.	369

COMBINATION DISHES

Beef stew (homemade with salt)	1 cup	292
Chili con carne, canned	1 cup	1194
Chow mein (w/o noodles)	1 cup	718
Macaroni & cheese	1 cup	1086
Pizza, cheese, commercial (10" diam.)	15 oz.	2571

Soups — prepared with water

Bouillon	1 cup	1152
Chicken noodle soup	1 cup	1107
Cream of mushroom soup	1 cup	1076
Tomato soup	1 cup	932
Vegetable soup	1 cup	823

MISCELLANEOUS

Baking powder	1 tsp.	339
Baking soda	1 tsp.	821
Catsup	1 Tbsp.	156
Flour - wheat	1 cup	3
Lemon juice	1 Tbsp.	Trace
Lemonade	1 cup	1
Mustard	1 tsp.	63
Olives, green	10 olives, lg.	926
" ripe	10 olives, extra large	385
Pickles, dill	1 med.	928
	3¾" long, 1¼" diam.	
" sour	1 med.	879
	3¾" long, 1¼" diam.	
Soy sauce	1 Tbsp.	1029
Vinegar	1 Tbsp.	Trace
Worcestershire sauce	1 Tbsp.	206

Seasoning Without Salt

If you are interested in reducing the amount of salt you use in cooking, you may want to explore the use of herbs and spices. It may be wise to make a few notes as you try new ideas. You want the flavor of food to be enhanced, not overpowered.

Try These Combinations for Flavor

Meats, Poultry

- Chicken: Cranberry sauce, ginger, fresh mushrooms, onion, paprika, sage, tarragon, thyme, tomatoes
- Turkey: Cranberries, marjoram, rosemary
- Fish: Basil, bay leaf, dill, garlic powder, green pepper, lemon juice, marjoram, mushrooms, onion, paprika, rosemary, savory, tomato
- Beef: Basil, bay leaf, dry mustard, garlic powder, green pepper, marjoram, onion, oregano, pepper, sage, thyme, tomato, vinegar
- Lamb: Cinnamon, curry, dill, garlic, (fresh or powder), mint, mint jelly, pineapple rings, rosemary, thyme
- Pork: Apples, applesauce, caraway, garlic, onion, sage
- Eggs: Curry, dry mustard, green pepper, jelly, mushrooms, onion, oregano, paprika, parsley, tomato
- Veal: Bay leaf, currant jelly, curry, garlic powder, ginger, mace, marjoram, mushrooms, onion, oregano, paprika, spiced apricots or peaches

Vegetables

- Asparagus: Basil, caraway, lemon juice, thyme
- Beans, green
or wax: Basil, dill, lemon juice, nutmeg, onion, oregano, rosemary, savory, sesame seeds (toasted), turmeric, unsalted toasted almonds
- Broccoli: Basil, lemon juice, oregano, tarragon
- Cauliflower: Dill, paprika, parsley
- Corn: Chives, green pepper, tomato
- Peas: Chives, green pepper, mint, mushrooms, onion
- Potatoes: Chives, green pepper, mace, onion, paprika, parsley, rosemary
- Squash
(summer): Basil, onion, oregano, pepper
- Squash
(winter): Brown sugar, cinnamon, ginger, mace
- Sweet
potatoes: Apples, cinnamon, nutmeg, orange juice, brown sugar
- Tomatoes: Basil, onion, oregano, sage, sugar, vinegar

Fresh herbs: In a recipe, 1 tablespoon of minced fresh herbs may replace $\frac{1}{2}$ teaspoon of dried herbs. Wash the fresh herbs gently, drain, and pat dry. Store in an airtight container in the refrigerator. Remove the stems before chopping or crushing because they may taste bitter. Fresh herbs may be frozen in small bundles in freezer wrap. Label, date them carefully, and use within a year. There may be directions for drying fresh herbs in microwave oven instructions. Add fresh herbs to hot dishes and salad dressings about fifteen minutes before serving, unless the recipe directs otherwise. Long cooking reduces the flavor.

Dried herbs, spices, and seeds: If stored properly, ground spices and herbs should be good for about a year. Whole spices and seeds are good for much longer. Buy small amounts and use them while still aromatic or pungent.

At some stores you may be able to buy spices in bulk. However, be sure to check for freshness. Ask for a few grains or leaves to crush between your fingers and thumb and check for a strong fragrance.

Heat, light, and moisture can speed deterioration. Tightly closed containers stored in a dark, cool place are ideal for a long shelf life. Keep containers away from light and the heat of kitchen appliances. Mark the date of purchase on each item.

Cooking—to grind or to crush: A mortar and pestle may earn a special place in your kitchen if you use spices and herbs frequently. You can use a blender to grind whole spices, but you will probably have to grind more than you need for one recipe. Small electric grinders are available and may be a welcome gift for people who have arthritis or other physical limitations.

It takes time to get acquainted with the flavor and aroma of herbs and spices. Restraint is a good idea. About $\frac{1}{4}$ teaspoon of a ground spice is enough for four servings.

About 1 tablespoon of fresh herbs will substitute for $\frac{1}{2}$ teaspoon of dried herbs: crush them between your fingers to release the aromatic oil. Whole spices may be tied together in a small square of cheesecloth for easy removal before serving the food.

Other ideas for seasoning: Garlic, peppers, onions, fresh mushrooms, parsley, and ginger add interest to meals. Small amounts of brown sugar, vinegar or lemon juice, grated orange or lemon rind may enhance a meal. Extracts can be used to accent the flavor of some desserts or fruit salads. For example, peppermint or almond extract may make a pudding or salad dressing more flavorful without adding salt to a meal.

Some additional words about. . .

Potassium: Some people need to be sure they eat a good source of potassium each day. Bananas are frequently a source (540 milligrams/medium fruit). Potassium is also found in fruits and vegetables (200 milligrams/½ cup), milk (350 milligrams/cup), meat (100 milligrams/ounce), and baked potatoes (780 milligrams/7 ounces). Potassium concentrates should be taken only under medical supervision for irritation to stomach and intestinal linings can result.

Salt substitutes: These are made with potassium chloride. Potassium tastes bitter and should be used sparingly. There are some herb blends on the market that may be tastier than salt substitutes and also convenient to use. Bitters are also being suggested as a flavoring. One teaspoon contains only 0.16 milligrams of sodium.

Lite salt: It is a combination of sodium and potassium chloride and not a salt substitute. One teaspoon contains 1,100 milligrams of sodium, half as much as regular salt. If you use twice as much, you defeat the purpose of buying this product.

Monosodium glutamate: It has 750 milligrams of sodium per teaspoon, about one-third the amount of sodium in a teaspoon of salt. It is a flavor enhancer and is safe for humans if used conventionally in foods. For people who do not have to eliminate salt from their diet, but are interested in reducing sodium intake, monosodium glutamate may be helpful in flavoring some foods.

Canning and freezing without salt: Salt does help retain the color and texture of the product, but it is added primarily for flavor. Salt is not necessary for safe processing of home canned or frozen vegetables. Follow reliable canning and freezing directions and omit salt. The use of salt substitutes is not recommended because they may contain additives which will result in off-flavors.

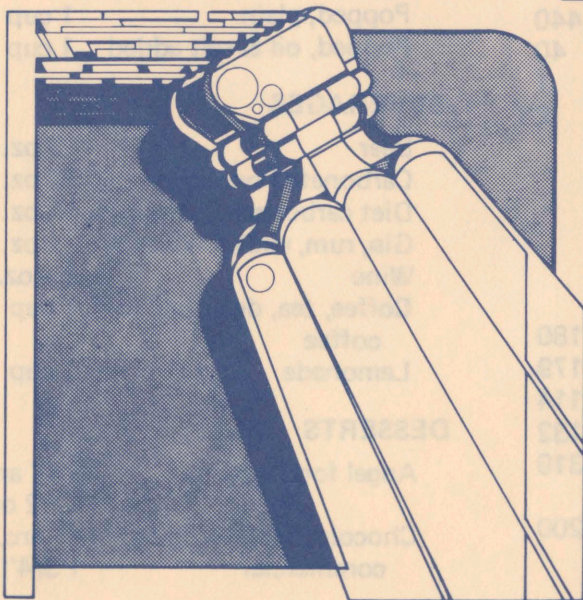
Labels: Be sure to read labels. In the future, more products will be labeled with information about the sodium content. When the labels say "low salt" or "low sodium" without listing actual amounts of salt or sodium, the content is impossible to evaluate. For example, a low salt colby cheese is available on the market, but the information on the actual amount of salt in the cheese is needed.

Patricia Page, SDSU Extension Nutritionist
Mary Darling, Minnesota Extension Nutritionist

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the USDA, Delwyn Dearborn, Acting Director of CES, SDSU, Brookings. Educational programs and materials offered without regard to age, race, color, religion, sex, handicap or national origin. An Equal Opportunity Employer.

File: 14.4-4M-2-84KY-ES 134.

salt and high blood pressure



Cooperative Extension Service
South Dakota State University
U.S. Department of Agriculture

630.1322

5087.29

FS #820

SOUTH DAKOTA
STATE UNIVERSITY
FEB 08 1985