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Nutrition and Your Health Dietary Guidelines for Americans : Avoid Too Much Sodium

Cooperative Extension South Dakota State University

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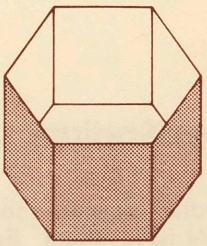

Nutrition and Your Health

Dietary Guidelines for Americans

Avoid Too Much Sodium

From the Editor

This is one of a series of bulletins with tips to help you use the seven Dietary Guidelines in choosing and preparing the foods you eat and serve to others. Following the Dietary Guidelines is a balancing act: getting the variety of foods necessary to supply the nutrients you need, but not too much of other food components—calories, fat and cholesterol, sugar, sodium, and alcohol. This bulletin shows how to "Avoid Too Much Sodium." But remember, it's important to consider all seven guidelines in building a healthful diet:

- Eat a Variety of Foods
- Maintain Desirable Weight
- Avoid Too Much Fat, Saturated Fat, and Cholesterol
- Eat Foods with Adequate Starch and Fiber
- Avoid Too Much Sugar
- Avoid Too Much Sodium
- If You Drink Alcoholic Beverages, Do So in Moderation

Test Your Sodium Knowledge

To see what you already know about sodium and your diet, take this quiz. After you've read this bulletin, try the quiz again to see how much you have learned. (Answers are on page 8.)

True	False		
☐	☐	1.	Sodium information is provided on nutrition labels of many foods.
☐	☐	2.	One way to decrease your sodium intake is to use onion and garlic salts instead of table salt.
☐	☐	3.	Many canned and commercially prepared foods have sodium added.
☐	☐	4.	To reduce sodium, you can use condiments like soy sauce, mustard, salad dressings, pickles, and relishes instead of salt for flavoring foods.
☐	☐	5.	Most foods in the same food group, such as milk and cheese, contain similar amounts of sodium.
☐	☐	6.	Sodium may be added to processed foods as a preservative as well as a flavoring agent.
☐	☐	7.	Salt substitutes are a good idea for everyone trying to reduce sodium intake.
☐	☐	8.	You can always tell how much sodium a product contains by tasting it.
☐	☐	9.	Preference for the taste of salt is learned, but can be changed with practice.
☐	☐	10.	Many recipes can be prepared with less salt without affecting their acceptability.

Sodium and High Blood Pressure

About one in four Americans has elevated blood pressure. Because it often produces no symptoms, blood pressure should be checked regularly for early diagnosis. High blood pressure increases the risk for heart attack, stroke, and kidney disease.

Risk factors for high blood pressure include a family history of the disease, overweight, and a high sodium intake. Some individuals can eat high-sodium diets without increased blood pressure; others cannot.

Too much sodium in the diet may aggravate high blood pressure once it exists. Thus, limiting dietary sodium is often an important part of treatment, along with exercise, weight reduction (if appropriate), and medication.

We cannot predict who will develop high blood pressure, but we know that many Americans eat much more sodium than they actually need. Therefore, many health professionals believe that reducing sodium is sensible for the population as a whole.

Four out of 10 adults are trying to cut down on salt or sodium. Consider reducing *your* sodium intake.

Read On For...

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Getting the Facts

What Is Sodium?

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Sodium is a mineral that occurs naturally in some foods and is added to many foods and beverages. Most of the sodium in the American diet comes from table salt, which is 40 percent sodium and 60 percent chloride. One teaspoon of salt contains about 2,000 milligrams of sodium.

Why Is Sodium Important?

Sodium attracts water into the blood vessels and helps maintain normal blood volume and blood pressure. Sodium is also needed for the normal function of nerves and muscles.

How Much Sodium Do I Need?

Although some sodium is essential to your health, you need very little. The National Research Council of the National Academy of Sciences suggests that a "safe and adequate" range of sodium intake per day is about 1,100 to 3,300 milligrams for adults. This is well below the amount that most American adults consume.

Where Is Sodium Found in My Diet?

Sodium is in many foods you eat. It may occur naturally in a food or be added during processing, cooking, or at the table. Most sodium added during processing comes from salt, but other ingredients and additives used by manufacturers contain sodium as well. Salt is second only to sugar in amount added by manufacturers to the foods Americans eat.

Foods that provide significant amounts of sodium in the diets of Americans (excluding sodium added during cooking or at the table) include bread and bakery products, cured and processed meats, canned vegetables, and milk products, especially many cheeses. Estimating the actual sodium content of diets is difficult because of the variable amounts of sodium people add to foods during cooking and at the table.

What's That Sodium DOING There?

Most of the sodium in processed foods is added to preserve and/or flavor them. Salt is the major source of sodium added to these foods. It is added to most canned and some frozen vegetables, smoked and cured meats, pickles, and sauerkraut. Salt is used in most cheeses, sauces, soups, salad dressings, and in many breakfast cereals. Sodium is also found in many other ingredients used in food processing. Examples of sodium-containing ingredients and their uses in foods are:

Baking powder—leavening agent
Baking soda—leavening agent
Monosodium glutamate—flavor enhancer
Sodium benzoate—preservative
Sodium caseinate—thickener and binder
Sodium citrate—buffer, used to control acidity in soft drinks and fruit drinks
Sodium nitrite—curing agent in meat, provides color, prevents botulism (a food poisoning)
Sodium phosphate—emulsifier, stabilizer, buffer
Sodium propionate—mold inhibitor
Sodium saccharin—artificial sweetener

About Condiments

Watch out for commercially prepared condiments, sauces, and seasonings when preparing and serving foods for you and your family. Many, like those below, are high in sodium.

Onion salt	Soy sauce
Celery salt	Steak sauce
Garlic salt	Barbecue sauce
Seasoned salt	Catsup
Meat tenderizer	Mustard
Bouillon	Worcestershire sauce
Baking powder	Salad dressings
Baking soda	Pickles
Monosodium glutamate (msg)	Chili sauce
	Relish

THE

SALT ⇨ SODIUM

CONNECTION

Salt—Sodium Conversions

1/4 tsp. salt = 500 mg sodium
1/2 tsp. salt = 1,000 mg sodium
3/4 tsp. salt = 1,500 mg sodium
1 tsp. salt = 2,000 mg sodium

The link between salt and sodium may be a little hard to understand at first. If you remember that 1 teaspoon of salt provides 2,000 milligrams of sodium, however, you can estimate the amount of sodium that you add to foods during cooking and preparation, or even at the table.

Sodium Content of Your Food

This table shows the sodium content of some types of foods. The ranges are rough guides; individual food items may be higher or lower in sodium.

A Short Guide to Sodium Content of Foods

Foods	Approximate Sodium Content (in milligrams)
Breads, Cereals, and Grain Products	
Cooked cereal, pasta, rice (unsalted)	Less than 5 per 1/2 cup
Ready-to-eat cereal	100-360 per oz.
Bread, whole-grain or enriched	110-175 per slice
Biscuits and muffins	170-390 each
Vegetables	
Fresh or frozen vegetables (cooked without added salt)	Less than 70 per 1/2 cup
Vegetables, canned or frozen with sauce	140-460 per 1/2 cup
Fruit	
Fruits (fresh, frozen, or canned)	Less than 10 per 1/2 cup
Milk, Cheese, and Yogurt	
Milk and yogurt	120-160 per cup
Buttermilk (salt added)	260 per cup
Natural cheeses	110-450 per 1-1/2-oz. serving
Cottage cheese (regular and lowfat)	450 per 1/2 cup
Process cheese and cheese spreads	700-900 per 2-oz. serving
Meat, Poultry, and Fish	
Fresh meat, poultry, finfish	Less than 90 per 3-oz. serving
Cured ham, sausages, luncheon meat, frankfurters, canned meats	750-1,350 per 3-oz. serving
Fats and Dressings	
Oil	None
Vinegar	Less than 6 per tbsp.
Prepared salad dressings	80-250 per tbsp.
Unsalted butter or margarine	1 per tsp.
Salted butter or margarine	45 per tsp.
Salt pork, cooked	360 per oz.
Condiments	
Catsup, mustard, chili sauce, tartar sauce, steak sauce	125-275 per tbsp.
Soy sauce	1,000 per tbsp.
Salt	2,000 per tsp.
Snack and Convenience Foods	
Canned and dehydrated soups	630-1,300 per cup
Canned and frozen main dishes	800-1,400 per 8-oz. serving
Unsalted nuts and popcorn	Less than 5 per oz.
Salted nuts, potato chips, corn chips	150-300 per oz.
Deep-fried pork rind	750 per oz.

Some Major Points About the Table:

- Unprocessed grains are naturally low in sodium. Ready-to-eat cereals vary widely in sodium content. Some have no salt added at all. Others are higher in sodium than most breads.
- Fresh, frozen, and canned fruits and fruit juices are low in sodium. Most canned vegetables, vegetable juices, and frozen vegetables with sauce are higher in sodium than fresh or frozen ones cooked without added salt.
- A serving of milk or yogurt is lower in sodium than most natural cheeses, which vary widely in their sodium content. Process cheeses, cheese foods, and cheese spreads contain more sodium than natural cheeses. Cottage cheese falls somewhere between natural and process cheeses.
- Most fresh meats, poultry, and fish are low in sodium. Canned poultry and fish are higher. Most cured and processed meats such as hotdogs, sausage, and luncheon meats are even higher in sodium because sodium is used during processing to preserve them.
- Most "convenience" foods are quite high in sodium. Frozen dinners and combination dishes, canned soups, and dehydrated mixes for soups, sauces, and salad dressings contain a lot of sodium. Condiments such as soy sauce, catsup, mustard, tartar sauce, chili sauce, and pickles and olives are also high in sodium. (See the box on page 2 for some examples.)
- Many low- or reduced-sodium foods are appearing on supermarket shelves as alternatives to those processed with salt and other sodium-containing ingredients. Check the label for the sodium content of these foods.

Estimating the Sodium in Your Diet

Take a look at how the foods you eat and the way you prepare and serve them affect the amount of sodium in your diet.

How often do you:	Less than once a week	1 or 2 times a week	3 to 5 times a week	Almost daily
1. Eat cured or processed meats such as ham, bacon, sausage, frankfurters, and other luncheon meats?	☐	☐	☐	☐
2. Choose canned vegetables or frozen vegetables with sauce?	☐	☐	☐	☐
3. Use commercially prepared meals, main dishes, or canned or dehydrated soups?	☐	☐	☐	☐
4. Eat cheese?	☐	☐	☐	☐
5. Eat salted nuts, popcorn, pretzels, corn chips, potato chips?	☐	☐	☐	☐
6. Add salt to cooking water for vegetables, rice, or pasta?	☐	☐	☐	☐
7. Add salt, seasoning mixes, salad dressings, or condiments such as soy sauce, steak sauce, catsup, and mustard to foods during preparation or at the table?	☐	☐	☐	☐
8. Salt your food before tasting it?	☐	☐	☐	☐

How Did You Do?

The more checks you have in the last two columns, the higher your diet is likely to be in sodium. However, not all of the items listed contribute the same amount of sodium. For example, many natural cheeses are relatively low in sodium. Most process cheeses and cottage cheese are higher.

To cut back on sodium, you can start by having some items less often, particularly those you checked as "3 to 5 times a week" or more. This does not mean eliminating foods from your diet. You can moderate your sodium intake by choosing lower sodium foods from each food group more often and by balancing high-sodium foods with low-sodium ones. For example, if you serve ham for dinner, plan to serve it with fresh or plain frozen vegetables cooked without added salt.

"Shake the Habit"

About one-third of the average daily intake of sodium comes from salt added to food in cooking or at the table. How much salt do *you* add? Try this test: Cover a plate with wax paper or foil. Salt the plate as you would if it contained food. Collect the salt and measure it. If you used about 1/8 teaspoon, that amounts to 250 milligrams of sodium.

Sodium Labeling

Nutrition and ingredient labels on foods can show you the major sources of sodium in your diet and help give you an idea of your sodium intake.

Using the Nutrition Label

NUTRITION LABELS are on many foods. Placing sodium content on the nutrition label is now optional, unless the product claims to be low or reduced in sodium, or to have less salt or no salt added. However, many manufacturers are providing this information as a service to consumers.

Sodium on nutrition labels is given in milligrams (mg) per serving. The amount includes sodium naturally present in the ingredients as well as sodium added during processing.

Here is part of a nutrition label like those you might see on foods. This label for an oat cereal tells you that this food provides 330 milligrams of sodium in a 1-ounce serving.

NUTRITION INFORMATION PER SERVING

SERVING SIZE	1 oz
SERVINGS PER CONTAINER	12
CALORIES	110
PROTEIN	4 g
CARBOHYDRATE	20 g
FAT	2 g
SODIUM	330 mg
	(1,155 mg per 100 g)

Using the Ingredient Label

INGREDIENT LABELS are found on nearly all food products. They list the ingredients in the food by weight, from greatest to least. (See the sample below.) Salt is the major—but not the only—source of sodium in food products. Any ingredient that has sodium, salt, or soda as part of its name (monosodium glutamate, baking soda, seasoned salt) contains sodium. Soy sauce and other condiments used as ingredients also contribute sodium. (See box on page 2.)

INGREDIENTS: Potatoes, vegetable oil, whey, salt, dried milk solids, sour cream, onion salt, monosodium glutamate, dried parsley, lactic acid, sodium citrate, artificial flavors.

This food contains four different sodium ingredients. Notice that salt is the fourth ingredient in the product by weight. Therefore, this product is probably high in sodium. If there is a nutrition label, check to see if the amount of sodium in a serving is listed. If you want more specific information, write to the manufacturer.

A Shopping Tip

Many manufacturers are introducing foods with reduced sodium. Examples of types of foods that are now available in low-sodium form or with reduced or no added salt include the following:

- Canned vegetables, vegetable juices, and sauces
- Canned soups
- Dried soup mixes, bouillon
- Condiments
- Snack foods (chips, nuts, pretzels)
- Ready-to-eat cereals
- Bread, bakery products
- Butter, margarine
- Cheeses
- Tuna
- Processed meats

Look for *reduced-sodium* versions of these products where you shop.

The Fast Food Challenge

Trying to watch your sodium intake while eating at your favorite fast food restaurant can be a real challenge. Fast foods are often high in sodium and it isn't always easy to predict which foods provide the largest amounts. For example, an analysis of one popular fast food meal found that an order of regular (salted) french fries contained *less* sodium than the regular hamburger, or than the milkshake, or than the fruit pie on the menu. There is some good news, however, for fast food lovers who are watching their sodium intake. More and more restaurants are providing nutrition information—including sodium content—for foods on their menus. Ask the manager of your favorite fast food place for any available information.

A Word to the Wise

How salty a food tastes is not necessarily a good indicator of how much sodium it contains. TRUST THE LABEL, instead of your tastebuds.

Avoiding Too Much Sodium—Some Suggestions

A diet with less sodium does not have to be dull or limited in variety. There are many ways to reduce sodium in your diet without sacrificing flavor or quality. Here are some suggestions to help. Remember that cutting back on sodium begins at the supermarket and continues through food preparation and serving.

At the Supermarket—

- Be a label reader. Look for information on the sodium content. (See page 5 for details.) Learn to recognize all of the sodium-containing ingredients.
- When shopping for lower sodium foods, fresh is usually best. Fresh fruits, vegetables, meats, and unprocessed grains are generally low in sodium. Most "convenience" foods have sodium compounds added, often to help preserve the food.
- Try the low- or reduced-sodium products that are now available. Shop carefully, though. These products can be more expensive. Make sure the reduction in sodium justifies the added cost.

In the Kitchen—

- Plan meals that contain less sodium. Try new recipes that use less salt and sodium-containing ingredients. Adjust your own recipes by reducing such ingredients a little at a time. Don't be fooled by recipes that have little or no salt but call for soups, bouillon cubes, or condiments that do.
- Experiment with spices and herbs as seasonings. Use spices and herbs instead of salt. (See the seasonings chart at right for ideas.)
- Cut back on salt used in cooking pasta, rice, noodles, and hot cereals.
- Make your own condiments, dressings, and sauces and keep sodium-containing ingredients at a minimum.

Remember that the foods you prepare can contain less sodium than commercially prepared ones. When you make foods from scratch, you can control how much sodium you add.

At the Table—

- Taste your food before you salt it. If, after tasting your food, you must salt it, try one shake instead of two.
- Limit the commercial condiments (such as catsup and mustard), dressings, and sauces you add to your food.
- Moderate your selection of high-sodium foods. But be sensible. It's the total amount of sodium in your diet that counts. Eating high-sodium foods occasionally need not be a problem.

Spicing It Up Without the Salt Shaker

There are many ways to season foods without salt. Experiment. Try the suggestions below or create your own flavor combinations. A dot (•) means the seasoning at the top goes well with the food to the left.

Food	ALLSPICE	BASIL	CARAWAY SEEDS	CHIVES	CLOVES	CURRY POWDER	DILL	GARLIC	GINGER	MARJORAM	ONION POWDER	OREGANO	POPPY SEEDS	ROSEMARY	SAVORY	TARRAGON	THYME	TUMERIC
Pot roast or meat loaf	•							•		•							•	
Fish				•			•									•		
Poultry										•				•		•		
Soups						•			•									
Pastas													•		•			
Tomatoes		•										•						
Rice or bulgur		•				•					•							•
Cooked cabbage, broccoli, brussels sprouts, or cauliflower			•			•				•								
Cooked carrots or beets			•		•													
Cooked green beans, lima beans, or peas							•							•				

What About Salt Substitutes?

Salt substitutes are not for everyone, but they may be helpful for some people trying to reduce their sodium intake. Many salt substitutes contain potassium in place of all or part of the sodium. People under medical supervision, particularly for kidney problems, should check with their physician before using these salt substitutes.

Some salt substitutes contain neither sodium nor potassium, but instead are mixtures of spices and herbs. These, as well as homemade seasoning blends, can be used to flavor foods without added sodium. See the spice chart above for some suggestions, and try seasoning some of your favorite recipes with more herbs and spices and less salt.

Putting It All Together: Modifying Recipes

Chicken Cacciatore

4 servings, 1 breast half each

Per serving:

Calories	160	Cholesterol	68 milligrams
Total fat	2 grams	Sodium	177 milligrams
Saturated fatty acids	Trace		

Onion, chopped	1/2 cup
Boiling water	1/4 cup
Tomatoes	8-ounce can
Tomato puree	1/2 cup
Garlic clove	1
Oregano leaves	1 teaspoon
Celery seed	1/2 teaspoon
Pepper	1/8 teaspoon
Chicken breast halves, without skin	4

1. Cook onion in boiling water until tender. Do not drain.
2. Add tomatoes, tomato puree, garlic, oregano, celery seed, and pepper to onions. Simmer 10 minutes to blend flavors.
3. Place breast halves in heavy frying pan. Pour tomato mixture over chicken.
4. Cook, covered, over low heat until chicken is tender, about 60 minutes.
5. Remove garlic clove before serving.

Traditional recipes for chicken cacciatore range in sodium content from approximately 400 to 900 mg per serving. This cacciatore recipe shows how seasonings can be used for flavor in place of salt and other high-sodium ingredients. For even lower sodium, you could use canned tomatoes with no added salt (available at most supermarkets) or fresh tomatoes.

Cereal Party Snack

About 5 cups

Per serving (1/2 cup):

Calories	145	Cholesterol	0
Total fat	8 grams	Sodium	154 milligrams
Saturated fatty acids	1 gram		

Margarine	2 tablespoons
Worcestershire sauce	2 teaspoons
Hot pepper sauce	Few drops
Unsalted pretzels	1 cup
Unsalted peanuts	3/4 cup
Unsweetened bite-size cereals, assorted	4 cups
Paprika	1 teaspoon
Onion powder	1/4 teaspoon
Garlic powder	Dash

1. *Preheat oven to 250°F (very slow).*
2. Melt margarine in baking pan in oven.
3. Remove pan from oven; stir worcestershire and hot pepper sauces into melted fat.
4. Break pretzels into bite-size pieces, if necessary. Stir pretzels and nuts into melted fat; add cereals and mix well.
5. Sprinkle with seasonings; stir.
6. Heat uncovered in oven for 20 to 30 minutes or until light-colored cereals begin to brown. Stir every 10 minutes.
7. Serve warm or cooled.
8. Store cooled cereal snack in tightly closed container.

For a cereal party snack that is even lower in sodium, you could use assorted cereals that are lower in sodium, or use mini-shredded wheat biscuits with no salt added. Check the labels for sodium content of the cereals you use.

A Word of Caution

Don't use seasoned salts or other high-sodium seasonings or condiments in place of table salt in your recipes. The box on page 2 will remind you of some of these high-sodium ingredients.

High Blood Pressure and Minerals in the Diet

Recently, calcium, potassium, and magnesium have been in the news because of their possible roles in maintaining normal blood pressure. While research on dietary levels of these nutrients and high blood pressure continues, it is a good idea to make sure that your diet contains enough of these essential minerals.

CALCIUM is found in milk, cheese, and yogurt. Dark-green leafy vegetables provide smaller amounts.

POTASSIUM is found in many foods, including fruits and vegetables, whole grains, and meat, poultry, and fish.

MAGNESIUM is found in many foods, including nuts, seeds, dry beans and peas, dark-green leafy vegetables, and whole grains.

Eating a variety of foods is a good way to make sure that your diet is adequate in these, as well as other, important nutrients. (See bulletin on variety in this series.)

An Encouraging Word for Salt Lovers

You were not born with a preference for salt. You *learned* it. This means that you can "unlearn" it by gradually lowering the amount of salt in your diet. Studies show that people who gradually reduce the amount of salt they eat lose their desire for the salty taste. Start with some small changes to see if you can adapt to a lower salt diet.

Test Your Sodium Knowledge

(Answers to Quiz on page 1.)

1. True. Sodium labeling is presently voluntary, except for products that claim to be low or reduced in sodium. However, many manufacturers provide this information on their food labels as a service to consumers.
2. False. All seasoned *salts* contain sodium. Garlic and onion *powder,* however, provide flavor without added sodium.
3. True.
4. False. Most condiments are high in sodium. Some lower sodium alternatives include lemon, garlic, vinegar and oil, herbs, and spices.
5. False. Foods within the same group can vary widely in sodium content. See the table on page 3 for some examples.
6. True.
7. False. Salt substitutes are not recommended for everyone. People under medical treatment should check with their physician before using.
8. False. Taste is not a good indicator of sodium content for all foods. Heavily salted foods do not always taste salty and salt is not the only source of sodium in foods.
9. True.
10. True.

Want More Information?

- Read the other bulletins in this series.
- Contact your local county Extension agent, public health nutritionist, or dietitian in hospitals or other community agencies.
- Contact the Human Nutrition Information Service (HNIS) for a list of current publications on guidelines topics. The address is U.S. Department of Agriculture, HNIS, Room 360, 6505 Belcrest Road, Hyattsville, Maryland 20782.

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