



# Nutrition for Family Living

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## Salt in the News

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The results of the most recent DASH study (Dietary Approaches to Stop Hypertension) have brought the debate about salt into the headlines this month.

The DASH studies are supported by the National Heart, Lung and Blood Institute of the National Institutes of Health. The first DASH study was reported in April of 1997 and found that people with normal or slightly elevated blood pressure saw their blood pressure decrease substantially after 8 weeks of a low-fat diet which included far more fruits, vegetables, and low-fat dairy products than the usual American diet. The sodium content of that diet was only slightly less than average, around 3000 milligrams. Even among people with normal blood pressure, their blood pressure decreased when they followed this diet.

The second DASH study was published January 4 in *The New England Journal of Medicine*. People were assigned to either a regular diet or the DASH diet. Then the salt content of the diet was changed every four weeks: they ate a fairly unrestricted amount of salt (3,000 milligrams), an intermediate amount (2,400 milligrams) or an extremely low amount (1,500 milligrams). Participants' blood pressure continued to fall as their salt intake was reduced, no matter which diet they were on. The combination of the DASH diet and the lowest salt intake reduced blood pressure more than either the DASH diet or reducing sodium intake alone.

Every millimeter that blood pressure falls reduces the risk of heart attacks and strokes for people with high blood pressure. So what are the implications of these studies and does this change what Extension recommends?

Experts say that these studies really point out how dietary changes – more fruits, vegetables and low-fat dairy products – can have a big influence on blood pressure. One researcher involved with the study says that making dietary changes should be the first step in blood pressure control. The American Heart Association recommends limiting salt to 2,400 milligrams of sodium a day for everyone. This is consistent with the Dietary Guidelines for Americans, which recommend choosing fruits and vegetables and foods with less salt added in processing to keep sodium intake to 2,400 milligrams.

While limiting salt even more than that can be effective in reducing blood pressure for people with high blood pressure, it is difficult to accomplish and stick with. For the average healthy person, a modest reduction in salt to 2,400 milligrams is the best bet. Do people with normal



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blood pressure need to limit salt? Blood pressure increases as we age, and increases as we gain weight. A modest reduction in salt may help keep blood pressure in a healthy range. More important, increasing fruits and vegetables and low-fat dairy products can help manage both weight and blood pressure.

Educators should emphasize to their clients that this study does not mean we should go through our cabinets and throw away the pretzels! The best way for people to make long-term changes in their salt intake is to make them gradually, to get used to the different flavor of foods with less salt. Remind your clients that the foods with the most salt are often processed foods, and restaurant foods, which do not always taste salty.

Advice from the Dietary Guidelines booklet:

- Choose fruits and vegetables often. They contain very little salt unless it is added in processing.
- Read the Nutrition Facts label to compare and help identify foods lower in sodium, especially prepared foods.
- Use herbs, spices, and fruits to flavor food, and cut the amount of salty seasonings by half.
- If you eat restaurant foods or fast foods, choose those that are prepared with only moderate amounts of salt or salty flavorings.

To complicate the story, salt intake may also be a factor in a person's risk for developing osteoporosis. This is a relatively new research finding that needs further study.

For more information, check out:

Sacks FM et al. Effects on Blood Pressure of Reduced Dietary Sodium and the Dietary Approaches to Stop Hypertension (DASH) Diet. *N Engl J Med.* 2001; 344(1): 3-10.

Additional information on the DASH diet can be found on the NHLBI web site  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)

DASHing With Less Salt: [www.nhlbi.nih.gov/health/public/heart/hbp/dash/dashing.htm](http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/dashing.htm)

DASH web site: <http://dash.bwh.harvard.edu>



## School Breakfast and Academic Achievement

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Studies of school breakfast programs in Boston, Philadelphia and Baltimore show that universally free school breakfast programs make a difference for learning.

Before the universally free programs were initiated, 27% of students in Boston, and 15% in Philadelphia and Baltimore, ate school breakfast. In Boston, about one quarter of the students in the participating schools were hungry or at risk of hunger and about one third were at nutritional risk. Hungry students and students at nutritional risk had poorer grades and more emotional/behavioral problems as reported by teachers.

Follow-up interviews conducted six months after universally free school breakfast was introduced in 16 Boston public elementary schools showed that:

- More than half the students at nutritional risk and more than two-thirds who were hungry or at risk of hunger increased their school breakfast participation.
- Students who increased their participation the most not only reported a decrease in indicators of hunger, but also were more likely to show improved nutrition than students whose participation did not increase.
- Students who increased their participation increased their math grades, decreased their school absence and tardiness rates, and had decreased emotional/behavioral problems.

Similar trends were observed in Philadelphia and Baltimore. In these cities, participation in the school breakfast program nearly doubled and about half the students surveyed increased their participation when a universally free program was introduced. In three Boston schools that offered universally free school breakfast during the school day (rather than before school) participation increased even more – exactly 100% - suggesting that even greater gains are possible when breakfast is made a part of the school day like lunch.

For more information about what Massachusetts is doing to alleviate child hunger, you can download the report prepared by Project Bread, the agency responsible for coordinating the efforts:

The Massachusetts Child Hunger Initiative: An Action Plan to End Child Hunger in Massachusetts. Copyright Project Bread, 2000.

<http://www.projectbread.org/MCHI/actionplan.htm>

Philadelphia and Baltimore results are described in:

Murphy JM et al. The relationship of school breakfast to psychosocial and academic functioning: cross-sectional and longitudinal observations in an inner-city school sample. *Archives of Pediatrics & Adolescent Medicine*. 1998;152(9):899-907.



## Television During Meals and Children's Food Consumption Patterns

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Researchers at Tufts University interviewed 91 parent-child pairs about their mealtime television habits to see if children's food consumption patterns varied with the amount of television they watched. Children were fourth, fifth and sixth graders and completed 24-hour recalls on three different days. Parents were interviewed about television and meal preparation habits, and nutrition knowledge, attitudes and norms.

*Television and children's vegetable consumption:* The presence of television at meals and the number of nights parents chose to prepare quick and easy meals were closely related. As the number of nights parents prepared quick and easy meals increased, children's vegetable consumption decreased. Parents' nutrition knowledge was not related to children's vegetable consumption.

*Television and children's consumption of red meats:* Less educated women were more likely to run households in which the television was on at meals, to have strong attachment to meal plans that included meat, and to have low scores on a nutrition awareness scale.

*Television's direct association with children's diets:* Children who watched more television during meals ate more meat, pizza, salty snacks and soda, ate less fruits, vegetables and juice, and consumed twice as much caffeine as children who watched less television. These relationships remained even after controlling for socioeconomic variables.

This study showed an association between television at meals and poorer diet quality. We cannot conclude that television caused children to eat poorly, but the study results do indicate that the presence of television at meals signals a different family food culture and the likelihood of different dietary patterns. Television can influence children's eating habits not only by exposing them to advertised foods, but by influencing people's expectations of what makes up a normal diet. This study suggests that the association between television and the foods children eat extends to foods not normally advertised, such as vegetables. Typically we have thought about television's influence in terms of foods brought into the household as a result of advertising, but perhaps we also need to think about whether new foods are crowding out healthier foods in the long run.

Coon KA et al. Relationships Between Use Of Television During Meals And Children's Food Consumption Patterns. *Pediatrics* 2001;107(1).  
<http://www.pediatrics.org/cgi/content/full/107/1/e7>



## Consumer Research and the Dietary Guidelines for Americans

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When the Dietary Guidelines for Americans are revised every five years, the USDA not only consults the latest scientific nutrition research to guide content revision, but it also turns to consumers for input on wording. An article in the December 2000 issue of the *Journal of the American Dietetic Association* describes the results of consumer focus groups conducted by the USDA in July 1999, during the preparation of the 2000 (5<sup>th</sup> edition) Guidelines.

One hundred adults participated in focus group sessions that were held in Baltimore, Chicago, and Houston. Of the focus groups, six were with general consumers, two with overweight adults, two with adults over age 60, two with food stamp program participants, and two with health professionals. Below are some of the findings:

In general, consumers, and even the majority of health professionals, had not heard of the Dietary Guidelines. Those who had heard of them had not ever seen them; however, consumers consistently indicated that they value the food guide pyramid and refer to it when making food choices.

Consumers understood the meaning of the word “diet,” but they reacted negatively to it, thinking it sounded like someone telling them what to do, and associating the word with weight loss. They preferred the term “food choices.”

**Variety** - A majority of consumers liked the 1995 guideline title, “Eat a Variety of Foods,” but others thought the wording of this guideline should refer to the food guide pyramid, to make the guideline more specific and helpful. One consumer said, “A variety of food could be anything. It doesn’t say how much or what exactly you should eat. The pyramid tells you what to do.”

**Weight** – The concept of Body Mass Index (BMI) was unfamiliar to all focus group consumers, except for those who were health professionals. Groups were asked to explain the difference between the terms “healthy weight,” “desirable weight,” and “normal weight.” There was no consensus among consumers about how these terms differ, but “healthy weight” was most frequently associated with the idea of height/weight charts. A few consumers reacted negatively to the term “desirable weight,” thinking it sounded like an unattainable weight.

**Physical Activity** – All consumers thought this was important and deserved its own guideline. Most consumers thought “physical activity” meant exercise in some form, even if it was housework. Consumers advised guideline authors to avoid promoting structured exercise as the only way to be active – they thought that would deter people from becoming more physically active. Those who were health professionals felt a need for the guideline to include information to help people judge whether their activity choices are sufficient to gain health benefits, i.e. give examples of what physical activity is and explain how much and how often to do it.

**Grains, Vegetables, and Fruits** – Consumers thought it was important to eat whole grains, but found the term “whole grains” confusing. They expressed that it is a term people think they understand, but when asked, find it hard to define. Consumers like the action-oriented wording of the guideline, “Choose a variety of grains...”

**Fat** – Consumers found concepts like “30% of calories from fat” and words like “low” or “moderate” unclear, and did not like any of the proposed options for wording of the fat guideline.

**Sugar** – Most consumers thought that sugars should be limited in their diets. They thought the word “moderate” meant “balanced” or “a reasonable” amount. They did not like the proposed wording, “Go easy on beverages and foods high in added sugars,” as they thought it was unprofessional and vague.



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*What does this mean?* Some of the findings from these focus groups give us clues regarding terminology choices to use in materials and presentations. The term “whole grains,” for example, may need to be explained in order to make that guideline practical. There is information in the text of the dietary guidelines booklet to help explain the advice in the guideline headings. The text can be found at <http://www.usda.gov/cnpp/Pubs/DG2000/Index.htm>

1995 Wording	Wording Tested for 2000	Final 2000 Wording
Eat a variety of foods.	Adapt the Pyramid to plan your healthful eating pattern.  Use the Pyramid to plan your eating pattern.  Use the Pyramid to shape your eating pattern.	Let the Pyramid guide your food choices.
Balance the food you eat with physical activity – maintain or improve your weight.	Achieve and maintain a healthy weight.  Include daily physical activity in your life.	Aim for a healthy weight.  Be physically active each day.
Choose a diet with plenty of grain products, vegetables, and fruits.	Choose a variety of grain products daily, especially whole grains.  Choose a variety of fruits and vegetables daily.  Eat plenty of different fruits and vegetables every day.  Handle food safely from market to table.	Choose a variety of grains daily, especially whole grains.  Choose a variety of fruits and vegetables daily.  Keep food safe to eat.
Choose a diet low in fat, saturated fat, and cholesterol.	Choose foods low in saturated fat, cholesterol, and total fat.  Choose foods low in saturated fat and cholesterol and moderate in other fats.	Choose a diet that is low in saturated fat and cholesterol and moderate in total fat.
Choose a diet moderate in sugars.	Go easy on beverages and foods high in added sugars.	Choose beverages and foods to moderate your intake of sugars.
Choose a diet moderate in salt and sodium.	Choose and prepare foods with less sodium and salt.	Choose and prepare foods with less salt.
If you drink alcoholic beverages, do so in moderation.	If you drink alcoholic beverages, do so in moderation.	If you drink alcoholic beverages, do so in moderation.

*Adapted from Figure 1, p. 1465, JADA 100(12).*



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### Consumption of Food Group Servings: People's Perceptions vs. Reality

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The Center for Nutrition Policy and Promotion (CNPP) reports that people's perceptions of what they eat don't always match what they actually eat.

A sample of 5,752 adults kept track of everything they ate for 14 days. Researchers then compared what people said they "usually" ate with what they recorded eating during the study. They found that what people thought they ate was very different from what they actually ate. They suggested this may be due to not understanding what constitutes a serving from the various food groups.

	Number of servings people thought they ate	Number of servings people actually ate	Recommended Number of servings
Grains	2.5-3.2	4.2-6.2	9-11
Fruits	2.1-2.4	0.6-1.5	3-4
Vegetables	2.4-2.6	1.7-2.7	3-5
Milk	2.1-3.2	1.0-1.6	2-3
Meat, etc.	2.7-3.7	1.6-2.5	2-3
Other	1.6-2.2	3.0-4.5	Use sparingly

An important part of teaching about the Food Guide Pyramid is teaching people about serving sizes for the various Pyramid groups so that people can compare their intake with the recommended amounts.

CNPP's report can be found at <http://www.usda.gov/cnpp/Insights/Insight20.PDF>

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### More Americans are Eating "5 A Day" but Intakes of Dark Green and Cruciferous Vegetables Remain Low

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Researchers compared the 1994-1996 Continuing Survey of Food Intakes by Individuals (CSFII) with the 1989-1991 CSFII and found that Americans consumed 20% more fruits and vegetables in the mid-90's than they did in the earlier survey. In the 1994-1996 survey of 4806 adults, the average consumption was 3.6 +/- 2.3 servings of vegetables, and 1.6 +/- 2.0 servings of fruit. As you can see, there's quite a bit of variation and on the average, people were closer to the minimum recommendation for vegetables than they were for fruit. The most commonly consumed fruits and vegetables were iceberg lettuce, tomatoes, French fried potatoes, bananas and orange juice. The study found that while adults are consuming more fruits and vegetables, their choices do not often include dark green vegetables, cruciferous (cabbage family) vegetables, and fruits such as berries that may help reduce the risk of chronic disease.

Johnston CS, Taylor CA and Hampl JS. More Americans Are Eating "5 A Day" but Intakes of Dark Green and Cruciferous Vegetables Remain Low. *J. Nutr.*, 2000;130:3063-3067.



## Water – A Fluid Issue

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Many people believe it's very important to drink at least 8 cups of plain water every day to stay healthy and hydrated. However, research shows that the body's need for water is variable and can be met in many different ways.

The average sedentary adult male needs approximately 12 cups of fluid per day to be adequately hydrated. The average sedentary adult female needs approximately 9 cups per day. Fluid needs are influenced by activity level, body weight, pregnancy and lactation, and other factors such as medications and disease states. Many people don't realize that the food they eat can contribute up to 4 cups of fluid per day, and the body's own metabolism contributes about a cup of fluid back into the system.

An article in the January 2001 Tufts University Health and Nutrition Letter points out that researchers at Purdue found that women can meet almost 40% of their water needs with foods alone. That's because many fruits and vegetables have  $\frac{3}{4}$  or more of their composition as water. Even foods that don't seem particularly "juicy" can have significant amounts of water – for example, steak is more than 50% water, and bread is more than 30% water.

According to a review article in the Journal of the American Dietetic Association, dehydration can be a concern for some individuals with increased fluid needs. Athletes and other people who exercise heavily, especially during hot weather, need to make an effort to drink plenty of water. Older people often lose their ability to feel thirsty, and the consequences of dehydration can be serious. People who drink large amounts of caffeinated and alcoholic beverages may need additional fluids since these beverages can act as diuretics, without producing thirst. Many medications, especially blood pressure medications, affect the body's water balance. People, especially young children or older adults, who have flu symptoms such as fever, vomiting or diarrhea can quickly become dehydrated.

Early signs of dehydration include headache, fatigue, loss of appetite, flushed skin, heat intolerance, light-headedness, dry mouth and eyes, and dark urine with a strong odor. By the time a person feels thirsty, they may already be dehydrated.

So what should we say when people ask us how much water they should be drinking? It may not be necessary to insist that everyone drink 8 glasses of plain water each day. Point out that the answer depends on individual circumstances. A person who eats a balanced diet will probably get enough fluid by drinking a beverage with each meal or snack. People with increased fluid needs or with special health conditions should discuss their water needs with their health care provider.

On Whether Drinking 8 Glasses of Water a Day is Really Necessary. *Tufts University Health and Nutrition Letter*, January 2001.

Kleiner SM. Water: An essential but overlooked nutrient. *J Am Diet Assoc.* 1999;99:200-206.