

# **Blood pressure and your health**

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**The DASH diet and other lifestyle changes**

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You can't see it or feel it, but having high blood pressure can increase your risk of heart disease, stroke and kidney disease. High blood pressure is also called hypertension.

Many things can affect your blood pressure, including the foods you eat, your intake of salt or sodium, your weight, your level of physical activity, your alcohol intake, whether or not you smoke, and how you handle stress.

The information in this handout shows you how to make dietary changes to help control your blood pressure.

## What is blood pressure?

Your blood moves all around your body in arteries. Blood pressure is the force of your blood on the walls of your arteries.

Blood pressure is measured in millimetres of mercury (mm Hg) and recorded as 2 numbers:

1. Systolic blood pressure is the 1st or top number. This is blood pressure when your heart is working (contracting).
2. Diastolic blood pressure is the 2nd or lower number. This is blood pressure when your heart is relaxed.

130  
—  
80



**heart is working - Systolic**



**heart is relaxed - Diastolic**

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## What is normal blood pressure?

Most adults (including those with chronic kidney disease)	Less than $\frac{140}{90}$ mm Hg
Adults with diabetes	Less than $\frac{130}{80}$ mm Hg
Adults over 80 years of age	Systolic blood pressure less than 150

Reference: 2015 Canadian Hypertension Education Program Recommendations

These are general guidelines. Ask your doctor what your blood pressure should be.

## How can I lower my blood pressure?

### The diet connection

You can lower your blood pressure by making two important changes in your diet:

- Following the DASH eating plan. **DASH** stands for **D**ietary **A**pproaches to **S**top **H**ypertension.
- Eating less salt or sodium

Combining these two dietary changes can make the most difference in lowering your blood pressure.

## What is the DASH eating plan?

The DASH eating plan includes fruits and vegetables, low fat milk products, whole grains, fish, poultry and nuts.

The DASH eating plan is:

- low in total fat, saturated fat and cholesterol
- reduced in salt or sodium – DASH eating plan provides about 2000 mg of sodium a day
- reduced in red meat, sweets and sweetened drinks
- high in fibre
- rich in magnesium, potassium and calcium
- high in vegetable sources of protein such as cooked legumes – this includes kidney beans, lentils and chick peas

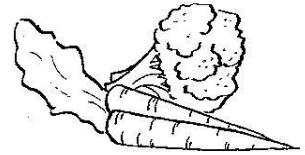
See the insert in this handout “**DASH Eating Plan**” for more information on how to make changes in your diet.

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## Tips for getting started on a DASH eating plan:

Making changes to what you eat can be a challenge. You may find it helpful to make 1 or 2 small changes at a time such as:

- Add an extra vegetable serving to your lunch and dinner.
- Wash and cut up fresh vegetables ahead of time and keep them in a clear container in the fridge. This will save you time when you want to use them. Keep frozen vegetables handy to add to stir-frys, casseroles, homemade soups and sauces.
- Choose whole grain products whenever you can. They will help fill you up and add fibre to your diet (see box below).
- Make a point of including low-fat milk with meals. Replace sweetened drinks with low-fat milk. Add low-fat milk to cooked cereals and homemade soups.
- Gradually reduce your portion size if you eat larger portions of meat, poultry or fish. Fill your plate with more vegetables and whole grain products instead.
- Try casseroles, pasta and stir-fry dishes. They are great ways to use less meat and more legumes, vegetables and grains.
- Snack on low-fat yogurt or a small piece of low-fat cheese.
- Eat fresh or dried fruit that need little or no preparation and make an easy-to-grab snack.
- Take the salt shaker off the table, do not add salt in cooking and avoid processed foods.

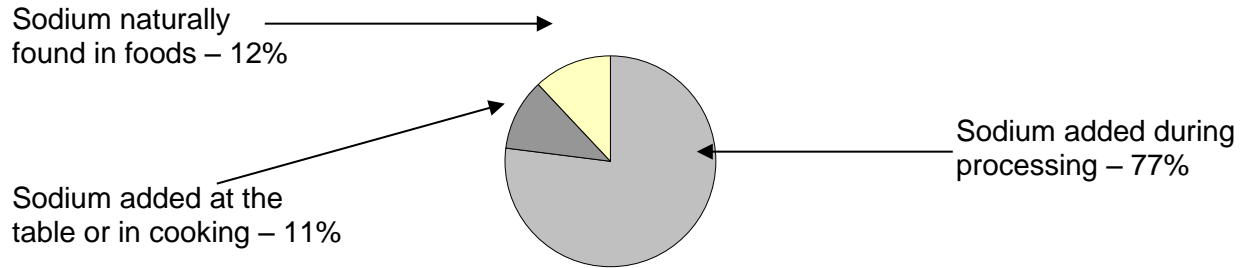


Increasing fibre too quickly or without drinking enough liquids may cause gas, bloating, cramping, diarrhea or constipation.

1. Add fibre-rich foods slowly to your diet. For example, add one new high fibre food each day for one week.
2. Drink 8 to 10 cups of fluid per day when increasing your fibre intake.

## Where does salt or sodium come from in my diet?

Table salt contains a mineral called sodium. It is a source of sodium in our diets. **However, most of the sodium in our diet comes from processed or convenience foods.**



Source: Journal of the American College of Nutrition, 1991

## How do I find out how much sodium is in a product?

Read the information on the Nutrition Facts table to choose products that contain less sodium. Here is an example of a Nutrition Facts table on a package of frozen mixed vegetables.

Nutrition Facts	
Per ½ cup (85 g)	
Amount	% Daily Value
Calories 60	
Fat 0 g	0%
Saturated 0 g	
+ Trans 0 g	0%
Cholesterol 0 mg	
Sodium 35 mg	1%
Carbohydrate 14 g	5%
Fibre 3 g	12%
Sugars 0 g	
Protein 3 g	
Vitamin A	40%
Vitamin C	6%
Calcium	2%
Iron	8%

Amount of food in one serving. The serving size is the amount most often eaten. **This may or may not be the serving size you would have.**

Amount of sodium in one serving.

% Daily Value for sodium

## What is % Daily Value?

The % Daily Value tells you if there is a little or a lot of a nutrient, such as sodium, in one serving. Daily values are based on the recommended amount of nutrients you should get each day.

Daily values are listed on the Nutrition Facts table on a scale from 0% to 100%. As a general guideline, a % Daily Value for sodium of 5% or less is a small amount.

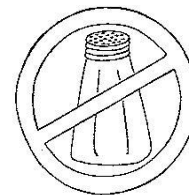
## How much sodium should I include each day?

The recommended amount of sodium from all foods and drinks is towards 2000 mg a day.

Most Canadians eat more sodium than this in a day.

## How can I lower my intake of sodium?

- ✓ Limit your intake of higher sodium foods such as canned goods, frozen dinners, cold cuts, condiments, snack foods, salted crackers, and packaged foods like macaroni and cheese dinners.
- ✓ Do not use salt at the table or in cooking.



### For more information on lowering sodium:

- Go to page 7, “**Menu Makeover**”. This gives an example of a higher sodium menu compared to a lower sodium menu.
  - See the insert in this handout, “**Guidelines to eat less sodium**”.
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## Menu Makeover

### (How to lower your intake of sodium over a day)

<b>Before</b>		<b>After</b>	
(4000 mg sodium)	mg sodium	(2100 mg sodium)	mg sodium
<b>Breakfast</b>		<b>Breakfast</b>	
1 package instant oatmeal	255	¾ cup oatmeal, quick cooking	2
2 tbsp natural bran	0	2 tbsp natural bran	0
1 cup milk, 1%	130	1 cup milk, 1%	130
1 slice whole wheat toast	145	1 slice whole wheat toast	145
1 tsp margarine	35	1 tsp margarine	35
1 banana	1	1 banana	1
<b>Lunch</b>		<b>Lunch</b>	
1 cup Campbells™ Chicken Noodle soup	900	1 cup Campbells™ Healthy Request Chicken Noodle soup	480
tuna salad sandwich on 2 slices whole wheat bread, 3 oz white tuna with 1 tbsp light mayonnaise	695	tuna salad sandwich on 2 slices whole wheat bread, 3 oz white tuna with 1 tbsp light mayonnaise	695
8 baby carrots	66	8 baby carrots	66
½ cup unsweetened applesauce	3	½ cup unsweetened applesauce	3
<b>Supper</b>		<b>Supper</b>	
3 oz frozen breaded chicken breast	738	3 oz roasted skinless chicken breast, no added salt	46
½ cup mashed potatoes made from flakes and 3 tbsp milk	368	½ cup homemade mashed potatoes with no added salt and 3 tbsp milk	56
3 spears broccoli	29	3 spears broccoli	29
½ cup yellow beans	6	½ cup yellow beans	6
1 slice whole wheat bread	145	1 slice whole wheat bread	145
1 tsp margarine	35	1 tsp margarine	35
2 oatmeal cookies, store bought	150	1 medium pear	1
1 cup milk, 1%	130	1 cup milk, 1%	130
<b>Snack</b>		<b>Snack</b>	
½ cup strawberries	1	½ cup strawberries	1
1 cup yogurt	125	1 cup yogurt	125
<b>4000 mg</b>		<b>2100 mg</b>	

## How much effect can lifestyle changes have on blood pressure?

Here is how making changes in your lifestyle can lower high blood pressure.

Lifestyle Change	Target	Drop in Systolic mmHg 	Drop in Diastolic mmHg 
Eat healthy and lower your intake of sodium	Follow the DASH diet (towards 2000 mg of sodium a day).	↓ 16	↓ 8
Exercise regularly	Include 30 to 60 minutes of heart-beat raising activity, 4 to 7 days a week.	↓ 5	↓ 4
Lose weight if you need to	For each 1 kg (2.2 lb) of weight lost.	↓ 1	↓ 1
Limit alcohol	Have no more than: <ul style="list-style-type: none"> <li>• 2 drinks a day (men).</li> <li>• 1 drink a day (women).</li> </ul>	↓ 4	↓ 2

Reference: 2015 Canadian Hypertension Education Program Recommendations

## Other ways to lower blood pressure ...

### **If you smoke, quit**

Each cigarette you smoke raises your blood pressure. Talk to your doctor about programs to help you quit smoking.

### **Reduce your stress**

If stress is an issue in your life, see a health professional about how to manage your stress.

Do not stop taking any medication for high blood pressure unless told to do so by your doctor.

## DASH Eating Plan

Use this chart to help you follow the **DASH** eating plan. The plan is based on 6500 kJ (1600 calories) a day. If you normally eat more or less than this, then the number of servings may increase or decrease. Your dietitian will show you how many servings to have each day.

Food group	What are some examples of foods in this food group?	What does this food group provide?	How many servings should I have?	How much is one serving?
<b>Grains and grain products</b>	<ul style="list-style-type: none"> <li>Whole grain products such as English muffin, pita, bagel and bread</li> <li>Whole grain hot and cold cereal such as oatmeal</li> <li>Brown rice, whole wheat pasta, couscous or bulgar</li> </ul>	<ul style="list-style-type: none"> <li>Fibre</li> </ul>	6 a day	<ul style="list-style-type: none"> <li>1 slice bread</li> <li>½ bagel, bun or pita</li> <li>1 oz dry cereal (refer to package for serving size)</li> <li>½ cup cooked rice, pasta, cereal, couscous or bulgar</li> </ul>
<b>Vegetables</b>	<ul style="list-style-type: none"> <li>Artichoke, beans, beets, broccoli, carrot, celery, cucumber, kale, leeks, onion, pea, potato, spinach, squash, tomato and turnip</li> <li>Low sodium or unsalted vegetable juice</li> </ul>	<ul style="list-style-type: none"> <li>Potassium</li> <li>Magnesium</li> <li>Fibre</li> </ul>	3 to 4 a day	<ul style="list-style-type: none"> <li>1 cup raw, leafy vegetable such as spinach</li> <li>½ cup cooked vegetable</li> <li>½ cup vegetable juice</li> </ul>
<b>Fruits</b>	<ul style="list-style-type: none"> <li>Apple, apricot, banana, date, grape, mango, melon, peach, pear, pineapple, prune, orange, raisin, strawberries and tangerine</li> <li>Fruit juice and dried, frozen or canned fruit</li> </ul>	<ul style="list-style-type: none"> <li>Potassium</li> <li>Magnesium</li> <li>Fibre</li> </ul>	4 a day	<ul style="list-style-type: none"> <li>1 medium sized piece of fruit</li> <li>½ cup fruit juice</li> <li>¼ cup dried fruit</li> <li>½ cup fresh, frozen or canned fruit</li> </ul>

<b>Food group</b>	<b>What are some examples of foods in this food group?</b>	<b>What does this food group provide?</b>	<b>How many servings should I have?</b>	<b>How much is one serving?</b>
<b>Non-fat or low-fat milk products</b>	<ul style="list-style-type: none"> <li>• Skim or 1% milk, non-fat or low-fat yogurt</li> <li>• Light or partly skimmed hard cheese</li> </ul>	<ul style="list-style-type: none"> <li>• Calcium</li> <li>• Protein</li> </ul>	2 to 3 a day	<ul style="list-style-type: none"> <li>• 1 cup milk</li> <li>• 1 cup yogurt</li> <li>• 1 ½ oz cheese</li> </ul>
<b>Meat, poultry and fish</b>	<ul style="list-style-type: none"> <li>• Lean meat from which visible fat has been trimmed away</li> <li>• Meat, fish or poultry that has been broiled, roasted or boiled instead of fried</li> <li>• Skinless chicken</li> </ul>	<ul style="list-style-type: none"> <li>• Protein</li> <li>• Magnesium</li> </ul>	2 or less a day	<ul style="list-style-type: none"> <li>• 3 oz cooked meat, poultry or fish</li> </ul>
<b>Nuts, seeds and legumes</b>	<ul style="list-style-type: none"> <li>• Unsalted almonds, walnuts, peanuts, hazelnuts, peanut butter</li> <li>• Unsalted sunflower seeds</li> <li>• Kidney beans, chick peas or lentils</li> </ul>	<ul style="list-style-type: none"> <li>• Magnesium</li> <li>• Potassium</li> <li>• Protein</li> <li>• Fibre</li> </ul>	3 a week	<ul style="list-style-type: none"> <li>• 1/3 cup nuts</li> <li>• 2 tbsp seeds</li> <li>• ½ cup cooked legumes</li> <li>• 2 tbsp peanut butter</li> </ul>
<b>Fats and oils</b>	<ul style="list-style-type: none"> <li>• Oils high in unsaturated fat such as olive, canola, corn, safflower</li> <li>• Non-hydrogenated margarine</li> <li>• Low fat mayonnaise</li> </ul>	<ul style="list-style-type: none"> <li>• Healthy fats</li> </ul>	2 a day	<ul style="list-style-type: none"> <li>• 1 tsp vegetable oil</li> <li>• 1 tsp margarine</li> <li>• 1 tbsp low fat mayonnaise</li> </ul>
<b>Sweets</b>	<ul style="list-style-type: none"> <li>• Maple syrup, sugar, jelly, jam, fruit flavoured gelatin, hard candy, sorbet</li> <li>• If you include sweets, choose ones that are low in fat</li> </ul>		5 or less a week	<ul style="list-style-type: none"> <li>• 1 tbsp sugar, jelly, jam</li> <li>• 5 jelly beans</li> <li>• 1 cup lemonade</li> </ul>

## Guidelines to eat less sodium

Food	Say Yes	Say No
<b>Grains, Breads and Cereals</b>	<ul style="list-style-type: none"> <li>• whole grain breads and rolls</li> <li>• muffins, homemade</li> <li>• cornbread, homemade</li> <li>• most dry cereals such as Shredded Wheat®, Shreddies®, Weetabix®, Life®, Fibre 1®</li> <li>• cooked cereals without added salt</li> <li>• unsalted crackers, breadsticks and rice cakes</li> <li>• low-sodium or homemade bread crumbs</li> <li>• rice, barley, quinoa, couscous, bulgur, kasha, millet</li> <li>• spaghetti, macaroni and other pasta</li> <li>• bread stuffing, homemade</li> </ul>	<ul style="list-style-type: none"> <li>• breads, rolls and crackers with salted tops</li> <li>• muffin and bread mixes, packaged</li> <li>• instant hot cereals</li> <li>• pancakes (mixes and frozen)</li> <li>• waffles (mixes and frozen)</li> <li>• bread stuffing, packaged</li> <li>• self-rising flour and biscuit mixes</li> <li>• bread crumbs or cracker crumbs, packaged</li> <li>• rice and pasta mixes, packaged</li> <li>• dry cereals with more than 200 mg sodium per serving such as Special K®, Rice Krispies®, Corn Bran®, Bran Squares®, Vector®</li> </ul>
<b>Vegetables</b>	<ul style="list-style-type: none"> <li>• all fresh and frozen vegetables</li> <li>• drained canned vegetables</li> <li>• low sodium canned vegetables</li> <li>• low sodium or salt free vegetable juice</li> <li>• mashed potatoes, homemade</li> <li>• pasta sauce, homemade</li> </ul>	<ul style="list-style-type: none"> <li>• regular, undrained canned vegetables</li> <li>• sauerkraut, pickles, pickled vegetables and others prepared in brine</li> <li>• vegetables seasoned with ham, bacon or salt pork</li> <li>• regular vegetable or tomato juice</li> <li>• pasta sauce, canned or in a jar</li> <li>• instant mashed potatoes</li> </ul>
<b>Fruit</b>	<ul style="list-style-type: none"> <li>• most fresh, frozen and canned</li> <li>• all fruit juices</li> </ul>	<ul style="list-style-type: none"> <li>• fruits processed with salt or sodium-containing ingredients (for example, some dried fruits)</li> </ul>

Food	Say Yes	Say No
<b>Milk and Alternatives</b>	<ul style="list-style-type: none"> <li>• milk, includes chocolate milk and eggnog</li> <li>• soy milk</li> <li>• light or partly skimmed hard cheese</li> <li>• low fat yogurt</li> <li>• ricotta cheese</li> </ul>	<ul style="list-style-type: none"> <li>• buttermilk, malted milk, milk shake</li> <li>• regular hard, processed cheese, cheese spreads and sauces</li> </ul>
<b>Meat and Alternatives</b>	<ul style="list-style-type: none"> <li>• fresh or frozen beef, lamb, pork, poultry, fish and most shellfish</li> <li>• canned tuna or salmon, low sodium</li> <li>• canned tuna, rinsed</li> <li>• eggs and unflavoured egg substitutes</li> <li>• peanut butter, unsalted</li> <li>• peanut butter, regular</li> <li>• nuts and seeds, unsalted</li> <li>• peas, beans and lentils, dried</li> <li>• cottage cheese - dry curd, low sodium</li> </ul>	<ul style="list-style-type: none"> <li>• Smoked, salted, cured and pickled meats such as sausages, hot dogs, bacon, ham, pickled herring, luncheon meats, canned meats</li> <li>• frozen breaded meats</li> <li>• pickled eggs</li> <li>• salted nuts</li> <li>• canned baked beans</li> <li>• commercial or store bought pot pies</li> <li>• regular cottage cheese</li> </ul>
<b>Soups</b>	<ul style="list-style-type: none"> <li>• homemade broths and soups without added salt and made with allowed vegetables</li> <li>• commercially canned and dehydrated soups, broths and bouillons with less than 500 mg sodium per serving</li> </ul>	<ul style="list-style-type: none"> <li>• regular canned soups, broths or bouillon</li> <li>• regular dry soup mixes, bouillon cubes, powder or concentrated liquid</li> </ul>
<b>Fats</b>	<ul style="list-style-type: none"> <li>• non-hydrogenated margarine</li> <li>• vegetable oils (unsaturated)</li> <li>• salad dressings, low-sodium</li> <li>• salad dressing, regular</li> <li>• sour cream, light</li> <li>• cream, light</li> <li>• cream cheese, light</li> </ul>	<ul style="list-style-type: none"> <li>• regular salad dressings with bacon fat, bacon bits and salt pork</li> <li>• snack dips made with instant soup mixes or processed cheese</li> <li>• commercially prepared sauces, gravies</li> </ul>

Food	Say Yes	Say No
<b>Other</b>	<ul style="list-style-type: none"> <li>• seasonings such as “McCormicks No Salt Added® or Mrs. Dash®</li> <li>• use a salt substitute such as “No Salt”® with doctor’s approval</li> <li>• pepper</li> <li>• herbs, spices</li> <li>• vinegar</li> <li>• lemon or lime juice</li> <li>• fresh ground horseradish</li> <li>• unsalted pretzels, popcorn</li> <li>• tortilla chips, low sodium</li> <li>• carbonated beverages</li> </ul> <p><b>Limit to 1 serving a day:</b></p> <ul style="list-style-type: none"> <li>• hot pepper sauce (1 tsp)</li> <li>• salsa (2 tbsp)</li> <li>• soy sauce, reduced-sodium (1/2 tsp)</li> <li>• soy sauce, low sodium (1 serving as labelled)</li> <li>• barbecue sauce (1 tbsp)</li> <li>• relish (1 tbsp)</li> <li>• ketchup (1 tbsp)</li> <li>• mustard (1 tbsp)</li> </ul>	<ul style="list-style-type: none"> <li>• any seasoning made with salt including garlic salt, celery salt, onion salt and seasoned salt and lemon pepper</li> <li>• sea salt</li> <li>• rock salt</li> <li>• kosher salt</li> <li>• meat tenderizers</li> <li>• meat coating mixes</li> <li>• monosodium glutamate</li> <li>• regular soy sauce</li> <li>• teriyaki sauce</li> <li>• steak sauce</li> <li>• Worcestershire sauce</li> <li>• black bean sauce</li> <li>• hoisin sauce</li> <li>• canned gravy and mixes</li> <li>• salted snack foods</li> <li>• olives</li> <li>• softened water used for drinking and cooking</li> <li>• artificial fruit flavoured crystals with salt or sodium-containing ingredients</li> <li>• instant pudding and cake mixes</li> </ul>



# DASH Recipes

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## Fruit'n Nut Bowl

Whether this is eaten warm right after it is made or after being refrigerated, it is deliciously different. A perfect breakfast/brunch dish or serve as a light lunch with yogurt.

1 cup bulgar  
2 cups boiling water  
1 - 14 fl oz/389 ml can sliced peaches packed in juice,  
drain well and keep the juice  
1 banana, sliced  
¼ cup slivered almonds, toasted  
2 tbsp dried cranberries

### Dressing:

2 tbsp reserved peach juice  
2 tbsp low fat, plain yogurt  
1 tbsp liquid honey  
1 tsp cinnamon

- Place bulgar in heatproof bowl; pour boiling water over. Cover with inverted plate; stand 30 minutes. Drain well in colander with small holes or sieve, pressing out any excess water. Turn into serving bowl.
- Cut each peach slice into quarters and add to bulgar along with banana, almonds and dried cranberries. Toss gently.
- Dressing: Whisk together dressing ingredients. Pour over bulgar mixture; combine well. Refrigerate until serving time or serve immediately.

Makes 4 servings

Each serving has 211 calories, 4 grams fat, 17 mg of sodium

**Bulgar:** Milled wheat berries are called cracked wheat. When they are steamed, dried and milled the result is bulgar. Bulgar does not require cooking, just soaking time.

Recipe used with permission from Public Health Services, Hamilton, ON.

## Almost salt-free salad dressing

2/3 cup olive oil  
1/3 cup balsamic vinegar  
2 crushed garlic cloves  
1 tsp Dijon mustard  
1 tsp honey  
spritz of fresh lemon

Combine and shake well. Store in a jar with a tight-fitting lid for up to 5 days.

Makes 16 servings - 1 tbsp each.

Each serving has 87 calories, 9 grams fat, 6 mg of sodium

Recipe from Nutrition Action Healthletter, June 2007, [www.cspinet.org/nah/](http://www.cspinet.org/nah/)

This chart may help you with serving sizes:

Metric and Imperial Sizes		
250 ml	=	1 cup
175 ml	=	¾ cup
125 ml	=	½ cup
60 ml	=	¼ cup
15 ml	=	1 tablespoon (tbsp)
5 ml	=	1 teaspoon (tsp)
25 g	=	1 ounce (oz)