Ways to Maintain Healthy Blood Pressure

Tiffany Lipsey, M. Ed., ACSM Clinical Exercise Physiologist®, EIM III, COHC
Director, Heart Disease Prevention Program
Manager, Teaching and Outreach Programs
Human Performance Clinical/Research Laboratory
Assistant Professor, Department of Health and Exercise Science
Colorado State University
And Super Mom
Life’s Simple 7™

1. Get Active
2. Control Cholesterol
3. Eat Better
4. Manage Blood Pressure
5. Lose Weight
6. Reduce Blood Sugar
7. Stop Smoking

First step: Know your numbers!

www.mylifecheck.heart.org
What is Blood Pressure?

- **Systole**
  - Heart contracts

- **Diastole**
  - Heart relaxes and fills ventricles with blood
High Blood Pressure

- AKA Hypertension
  - Too much pressure against arterial walls

- Short periods of high blood pressure is normal but chronic high blood pressure is a health risk

- Atherosclerosis
  - Heart has to work harder, weakens, enlarges, arteries narrow, scar and harden
## Table 15.1
**Blood Pressure Classification for Healthy Adults**

<table>
<thead>
<tr>
<th>Category(^a)</th>
<th>Systolic (mm Hg)</th>
<th>Diastolic (mm Hg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal(^b)</td>
<td>below 120</td>
<td>below 80</td>
</tr>
<tr>
<td>Prehypertension</td>
<td>120–139</td>
<td>80–89</td>
</tr>
<tr>
<td>Hypertension(^c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>140–159</td>
<td>90–99</td>
</tr>
<tr>
<td>Stage 2</td>
<td>160 and above</td>
<td>100 and above</td>
</tr>
</tbody>
</table>

\(^a\) When systolic and diastolic pressure fall into different categories, the higher category should be used to classify blood pressure status.

\(^b\) The risk of death from heart attack and stroke begins to rise when blood pressure is above 115/75.

\(^c\) Based on the average of two or more readings taken at different physician visits. In persons over 50, systolic blood pressure greater than 140 is a much more significant CVD risk factor than diastolic blood pressure.

Blood pressure as a risk factor

- Systolic blood pressure* ≥ 140 mm Hg
- Diastolic blood pressure* ≥ 90 mm Hg
- Antihypertensive medication

*Blood pressures confirmed by measurements on at least 2 separate occasions

Now that we know what it is...

- Options to control:
  - Medications
  - Lifestyle modifications
Medications

- Beta blockers
- Angiotensin II receptor blockers
- Angiotensin converting enzyme (ACE) inhibitors
- Aldosterone antagonists
- Calcium channel blockers
- Thiazides
Lifestyle Modifications

- Reduce weight.
- Adopt DASH eating plan.
- Lower sodium intake.
- Participate in physical activity.
- Moderate alcohol consumption.

Go AS et al. An Effective Approach to High Blood Pressure Control; A Science Advisory from the AHA, the ACC and the CDCP. Hypertension. 2014;63:878-885
Reduce weight.

- Guideline: Maintain normal body weight (body mass index 18.5-24.9 kg/m²)
- Calculate Body Mass Index
  - www.bmicalculator.com
- If you have excess weight, start by losing 10 pounds.

- Approximate systolic blood pressure reduction: 5-20 mm/Hg
Adopt DASH eating plan.

- Guideline: Consume a diet rich in fruits, vegetables and low-fat dairy products with a reduced content of saturated and total fat.

- Do you:
  - Eat a fruit or vegetable with every meal or snack?
  - Follow The Plate?
  - Select low-fat dairy options?
  - Choose lean proteins?

- Approximate systolic blood pressure reduction: 8-14 mm/Hg
Lower sodium intake.

- **Guideline:** Consume no more than 2,400 mg of sodium per day.
  - Further reduction of sodium intake to 1,500 mg per day is desirable since it is associated with even greater reduction in blood pressure.
  - Reduce intake by at least 1,000 mg per day since that will lower blood pressure, even if the desired daily sodium intake is not achieved.

- **Ways to lower sodium**
  - Read food labels. (Next slide)
  - Watch condiments. (in 2 slides)
  - Examine diary intake.
  - Avoid processed foods.

Approximate systolic blood pressure reduction: 2-8 mm/Hg
What is in the food?

Chocolate cupcakes
by Eleanor

3 eggs
5 scoops of salt
4 scoops of sugar
6 scoops of flour
3 pickles
4 scoops of salsa
3 flowers
1 teddy bear
1 small tree
10 scoops of chocolate
Understanding food labels

Sample label for Macaroni & Cheese

<table>
<thead>
<tr>
<th>Nutrition Facts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serving Size: 1 cup (228g)</td>
</tr>
<tr>
<td>Servings Per Container: 2</td>
</tr>
<tr>
<td><strong>Amount Per Serving</strong></td>
</tr>
<tr>
<td>Calories: 250</td>
</tr>
<tr>
<td><strong>% Daily Value</strong></td>
</tr>
<tr>
<td>Total Fat: 12g</td>
</tr>
<tr>
<td>Saturated Fat: 3g</td>
</tr>
<tr>
<td>Trans Fat: 3g</td>
</tr>
<tr>
<td>Cholesterol: 30mg</td>
</tr>
<tr>
<td>Sodium: 470mg</td>
</tr>
<tr>
<td>Total Carbohydrate: 31g</td>
</tr>
<tr>
<td>Dietary Fiber: 0g</td>
</tr>
<tr>
<td>Sugars: 5g</td>
</tr>
<tr>
<td>Protein: 5g</td>
</tr>
</tbody>
</table>

Quick Guide to % DV

- 5% or less is Low
- 20% or more is High

7. Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>2,000</th>
<th>2,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories:</td>
<td>Less than 65g</td>
<td>80g</td>
</tr>
<tr>
<td>Sat Fat:</td>
<td>Less than 20g</td>
<td>25g</td>
</tr>
<tr>
<td>Cholesterol:</td>
<td>Less than 300mg</td>
<td>300mg</td>
</tr>
<tr>
<td>Sodium:</td>
<td>Less than 2,400mg</td>
<td>2,400mg</td>
</tr>
<tr>
<td>Total Carbohydrate:</td>
<td>300g</td>
<td>375g</td>
</tr>
<tr>
<td>Dietary Fiber:</td>
<td>25g</td>
<td>30g</td>
</tr>
</tbody>
</table>
Sometimes, they may surprise you…

“Hot sauce doesn’t have any nutritional value. It’s vinegar and peppers for God’s sake. What did you expect? Why are even trying to determine the nutritional value of hot sauce? Just enjoy it!”
The Salty Six

- Breads and rolls
- Cold cuts and cured meats
- Pizza
- Poultry
- Soup
- Sandwiches
Change your salty ways in 21 days!

- Week 1 – Focus on breads & rolls and cold cuts & cured meats
  - Look for lower sodium items.
  - Track your sodium consumption.
  - Log much sodium you shaved from your diet.
Change your salty ways in 21 days!

- Week 2 – Focus on pizza and poultry
  - If you do eat pizza, make it one with less cheese and meats.
  - Add veggies to your pizza instead.
  - Use fresh poultry rather than fried, canned or processed.
Change your salty ways in 21 days!

- Week 3 – Focus on soups and sandwiches
  - One cup of chicken noodle soup can have up to 940 mg of sodium.
  - Check labels and try lower sodium varieties.
  - Use lower sodium meats, cheeses and condiments and plenty of vegetables to build healthier sandwiches.
Potassium

- Recommended intake:
  - > 4,700 mg/day
  - Too much is NOT healthy

- Potassium can lessen the impact of sodium on blood pressure.

- Sources of potassium:
  - Sweet potatoes
  - Bananas
  - Greens and spinach
  - Lima beans and peas
  - Tomatoes
  - Oranges and other orange colored fruits and vegetables
  - Fat free yogurt
  - Halibut and tuna
Engage in physical activity.

- Guideline: Engage in physical activity such as brisk walking at least 30 minutes per day, most days of the week.

- Approximate systolic blood pressure reduction: 4-9 mm/Hg
Moderate alcohol consumption.

- Guideline: Limit consumption to no more than 2 drinks per day in most men and to no more than 1 drink per day for women and lighter persons.
  - 1 drink = 12 oz. beer = 5 oz. wine = 1.5 oz 80 proof whiskey

- Approximate systolic blood pressure reduction: 2-4 mm/Hg
Heart Disease Prevention Program

- Goals of the HDPP:
  - Assessment of known risk factors for cardiovascular disease
  - Use of cardiovascular risk factor status in the development of individualized strategies for lifestyle changes
  - Reduction of the likelihood of developing heart and vascular disease

- Located at the Human Performance Clinical/Research Laboratory in the Moby building

- Includes 2-3 visits to our lab
Risk Parameters

- Paperwork to complete before CSU visit:
  - Medical and Family History
  - Nutrition analysis of 4 day diet diary
  - Psychosocial assessment

- Complete Blood and Urine Analysis
  - Lipid panel, CBC, liver panel, kidney panel, glucose, insulin, A1c, CRP-hs, and iron
  - Completed either before or on the same day as CSU visit

- Daily physical activity assessment
Testing Parameters

• Height
• Weight
• Blood pressures
• Skinfold measurements
• Girth measurements
• Sagittal diameters
• Pulmonary function testing
• Hand grip strength
• Flexibility
• Hydrostatic (underwater weighing)
Testing Parameters
Maximal Exercise Test

- Physician examination
- Resting and exercise blood pressures
- Electrocardiography
- Maximal exercise test
Coronary Risk Profile

- Comprehensive individualized summary of risk factors and guidance to reduce risk
  - Lifestyle modification
  - Exercise prescription
  - Nutrition information
  - Information on risk factors and risk factor reduction
Heart Disease Prevention Program

- Faculty and Admin Pros
  - Covered as a preventative benefit with Anthem
  - Cost is your co-pay

- State Classified and other categories
  - 20% discount
  - $384 for all that testing and individualized plans!
Questions?

- Tiffany Lipsey
  - Tiffany.lipsey@colostate.edu
  - 970-491-7035