

Nutrition for Hypertension

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Hypertension (HTN)

- Most prevalent form of (risk factor for) CVD, affecting 25% of entire US population
- Systolic Blood Pressure – ventricular contraction
- Diastolic Blood Pressure – ventricular relaxation

BP Classification	SBP	DBP	Lifestyle Modification
Normal	<120	and <80	Encourage
Prehypertension	120–139	or 80–89	Yes
Stage 1	140–159	or 90–99	Yes
Stage 2	≥160	or ≥100	Yes

JNC VII Classification of Blood Pressure for Adults

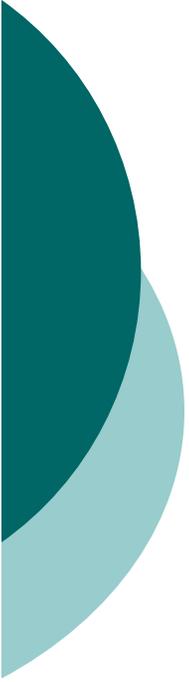
JNC VII Recommendations

- Major lifestyle modifications shown to lower BP include...
 - Weight reduction in those individuals who are overweight or obese
 - Adoption of the Dietary Approaches to Stop Hypertension (DASH) eating plan
 - Moderation of alcohol consumption
- A 1,600 mg sodium DASH eating plan has effects similar to single drug therapy



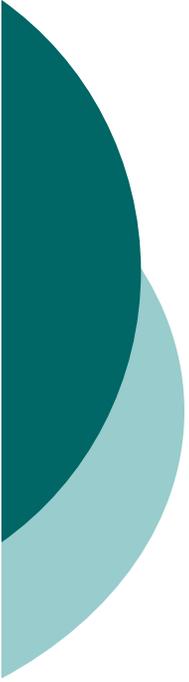
AHA Goals for Dietary Intake and CVD

- Consume a variety of fruits and vegetables and grain products
- Include fat-free and low-fat dairy products, fish, legumes, poultry, and lean meats
- Limit intake of foods with high content of saturated fatty acids and trans-fatty acids (< 10% of total calories) and cholesterol (< 300 mg per day)
- Substitute with unsaturated fats (both long-chain omega-3 polyunsaturated and monounsaturated fatty acids) from vegetables, fish, and nuts



HTN and nutrients

- Calcium has been found to reduce BP in different populations
- High potassium diets are often associated with hypertension
- Magnesium deficiency causes walls of arterial constriction, raising BP
- Vitamin C seems to help normalize BP



Dietary Factors Protecting Against CVD

- Soluble fiber (apples & other fruit, oats, soy, barley, legumes)
 - Lowers blood cholesterol, risk of heart attack, improves LDL-HDL ratio
- Omega-3 fatty acids (fish oils)
 - Limit clot formation, prevent irregular heartbeats, lower risk of heart attack
- Alcohol in moderation
 - Raises HDL, prevents clot formation

Dietary Factors Protecting Against CVD

- Folate, vitamins B₆, B₁₂
 - Reduce homocysteine (amino acid with elevated levels associated with increased risk of CVD)
- Vitamin E (vegetable oils and margarines, nuts, wheat germ)
 - Slows progression of plaque formation, lowers risk of heart attack in those with CVD, limits LDL oxidation
- Soy (protein and isoflavones)
 - Lowers blood cholesterol, raises HDL cholesterol, improves LDL to HDL ratio

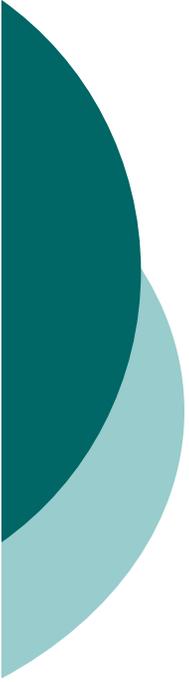


Salt and HTN

- Benefit from reduction of salt intake in **treatment** of HTN is not questioned
 - For 50% of people with HTN, lower salt intake leads to a reduction in BP
- Benefit from salt reduction for **prevention** of HTN has mixed evidence
 - Recommendation: everyone should moderately restrict intake to follow Dietary Guidelines: no more than 2400 mg/day, DASH diet recommends 1500 mg/day

Tips to Reduce Salt and Sodium

- Use reduced salt or no-salt added products
- Buy fresh, plain frozen, or canned with “no-salt-added” vegetables
- Use fresh poultry, fish, and lean meat, rather than canned, smoked, or processed
- Limit cured foods (such as bacon and ham), pickled foods, and condiments such as MSG, mustard, horseradish, catsup, and barbecue sauce
- Use spices instead of salt
- Cook grains without salt and cut back on instant or flavored rice, pasta, and cereal mixes
- Choose packaged foods lower in sodium (frozen dinners, canned soups, salad dressings)
- Rinse canned foods such as tuna and beans to remove sodium



DASH DIET

Dietary Approaches to Stop Hypertension (DASH) recommends...

- 7-8 servings/day of grains
- 4-5 servings/day of fruit and vegetables
- 2-3 servings/day of non-fat or low-fat milk
- 2 or less servings/day of lean meat
- 4-5 servings/week of nuts, seeds, and dry beans
- 2000 calories/day

Adopting DASH

- Change gradually
 - Add a serving of fruit or veggies at one more meal
 - Gradually increase your use of fat free and lowfat dairy products to 3 servings/day (drink milk, eat yogurt)
 - Read food labels to choose lowest in fat

Adopting DASH

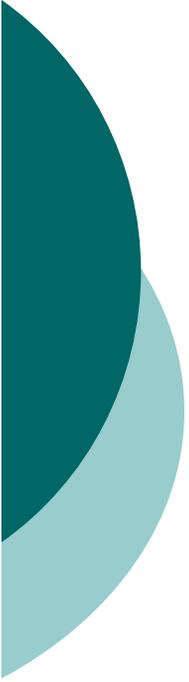
- Treat meat as just a part of a whole meal
 - Limit meat to 6 ounces a day (2 servings) – deck of cards or palm of hand
 - If you eat large meat portions, cut back slowly
 - Include 2 vegetarian-style meals/week
 - Increase servings of veggies, brown rice, whole-wheat pasta, and dry beans in meals

Adopting DASH

- Use fruits and other low-fat, low calorie foods as desserts and snacks
 - Use fruits in their own juice
 - Fresh fruits just need to be cut up in advance
 - Dried fruits can go anywhere
 - Snack Ideas: unsalted pretzels or nuts with raisins, graham crackers, low fat & fat free frozen yogurt, air-popped popcorn

Adopting DASH

- Choose whole grains (whole wheat bread, whole grain cereal, etc)
- Buy lactose-free dairy products if sensitive to lactose or lactose intolerant
- Use fresh, frozen, or no-salt-added canned vegetables



Resources

- American Heart Association
- National Heart, Blood and Lung Association
- National Cholesterol Education Program
- Joint National Committee on Blood Pressure (JNC VII)