


Achieving a Healthy Blood Pressure




Achieving a Healthy Blood Pressure

Don Hall, DrPH, CHES
Wellspring Institute for Healthy Living
The Prevention Series

Health Risks of High Blood Pressure


- Increased risk of stroke
- Increased risk of heart attack or heart failure
- Increased risk of end-stage kidney failure
- Increased risk of eye damage and blindness



2 © 2005 - 2006 Wellspring, Inc. All rights reserved.

High Blood Pressure


- 50,000,000 Americans have high blood pressure.
- One in four adults has high blood pressure.
- One-third of these are unaware they have high blood pressure.
- In the past 10 years, age adjusted deaths from high blood pressure increased 21%.



3 © 2005 - 2006 Wellspring, Inc. All rights reserved.


Of those with High Blood Pressure . . .

- 31.6 % are unaware of their problem.
- 27.4% are on medication and have it controlled (less than 140/90).
- 26.2% are on medication but don't have it controlled.
- 14.8% are not being treated.



4 © 2005 - 2006 Wellspring, Inc. All rights reserved.

Prevalence of High Blood Pressure




| Age | Prevalence |
|-------|------------|
| 18-29 | 4% |
| 30-39 | 11% |
| 40-49 | 21% |
| 50-59 | 44% |
| 60-69 | 54% |
| 70+ | 64% |

5 © 2005 - 2006 Wellspring, Inc. All rights reserved.

Who is at increased risk for high blood pressure?

1. Family history of high BP
2. African-American ancestry
3. Overweight individuals
 - BMI 30+
 - Waist girth: 35"+ women, 39"+ men
4. High sodium intake, > 2400 mg/day
5. Physically inactive
6. High alcohol intake, more than 2 drinks/day
7. Blood pressure in high normal range




6 © 2005 - 2006 Wellspring, Inc. All rights reserved.

Achieving a Healthy Blood Pressure

New Blood Pressure Norms

- Normal
 - Less than 120/80
 - 39% of US population
- Pre-hypertension
 - 120/80 to 139/40
 - 31% of adults 45 million
 - Doubles risk
- Hypertension
 - 140/90 +
 - 29% of adults (50 million)
 - Increases risk of heart attack by 2-4 times

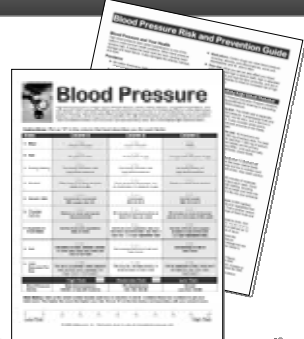


JAMA May 21, 2003; 289:2560-72
Arch Int Med 2004; 164:2113-18

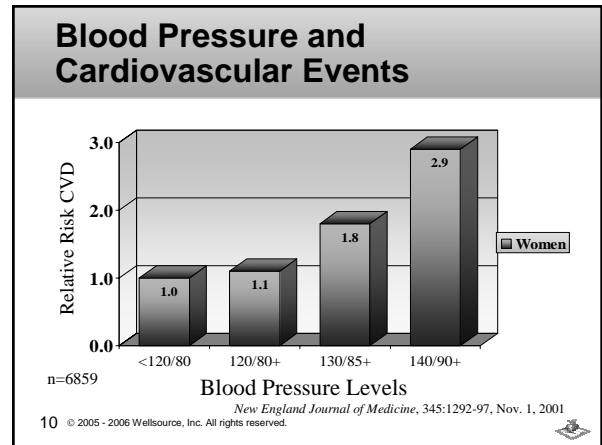
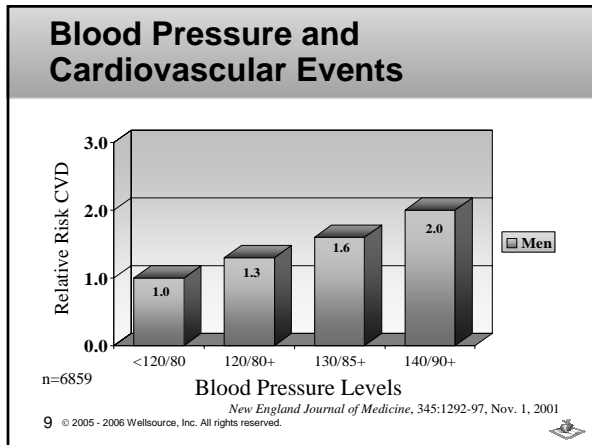
7 © 2005 - 2006 Wellspring, Inc. All rights reserved.

Your Blood Pressure

What risks do you have for high blood pressure?

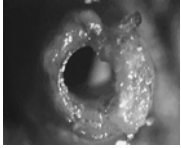


© 2005 - 2006 Wellspring, Inc. All rights reserved.



National Heart, Lung, and Blood Institute Statement

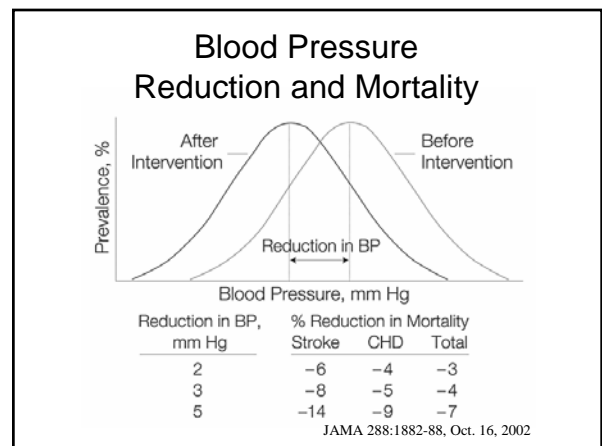
Damage to arteries begins at fairly low blood pressure levels – those formally considered “normal”.



- Studies show that the risk of death from heart disease and stroke begins to rise at blood pressures as low as 115/75.
- Risk doubles for each 20/10 points increase.

Dr. Claude Lenfant, NHLBI Director for NIH, News release by NIH May 14, 2003

11 © 2005 - 2006 Wellspring, Inc. All rights reserved.



Achieving a Healthy Blood Pressure

What is a Healthy Blood Pressure?

- Persons with blood pressures less than 120/80 have the lowest mortality rates.
- Pre-hypertension, 120/80 to 139/89, doubles the risk for cardiovascular disease.
- Keeping blood pressure low is important for everyone, even those without “high” blood pressure.

JAMA May 21, 2003; 289:2560-72

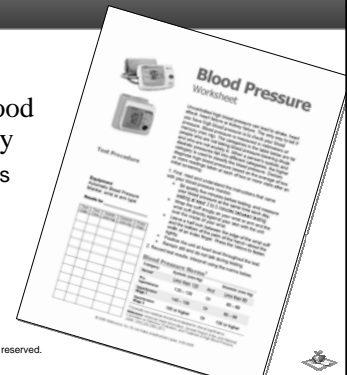
13 © 2005 - 2006 Wellspring, Inc. All rights reserved.



Your Blood Pressure

Monitor your blood pressure regularly

- Check the norms
- Be consistent



© 2005 - 2006 Wellspring, Inc. All rights reserved.



Let's look at the evidence ...

- Can high blood pressure be prevented?
- Can high blood pressure be reduced by lifestyle changes?



© 2005 - 2006 Wellspring, Inc. All rights reserved.



Therapeutic Lifestyle Changes



Dr. Claude Lenfant recommends, “For most, treatment would consist of lifestyle changes:”

- Healthy eating plan, low in sat. fat, cholesterol, salt
- Losing excess weight
- Becoming physically active
- Limiting alcohol intake

NIH News Release, May 14, 2003

16 © 2005 - 2006 Wellspring, Inc. All rights reserved.



Lifestyle Modifications for Prevention of Hypertension

1. Achieve a healthy body weight (BMI <25).
2. Reduce dietary sodium intake to <2400 mg/day.
3. Engage in regular aerobic physical activity, 30+ min of moderate activity daily; such as brisk walking.
4. Limit alcohol consumption .
5. Choose healthy meals (DASH Diet):
 - Rich in fruits and vegetables, 5-9 servings per day
 - Low fat dairy products, and reduced saturated fat intake

The National High Blood Pressure Education Program Guidelines Report, JAMA 289:2560-72, May 21, 2003

17 © 2005 - 2006 Wellspring, Inc. All rights reserved.



Diet and Blood Pressure

- DASH Diet
- Diet and Blood Pressure



© 2005 - 2006 Wellspring, Inc. All rights reserved.



Achieving a Healthy Blood Pressure

DASH Diet

- Emphasizes fruits and vegetables. Daily goal:
 - 5 servings of fruit
 - 4 servings of vegetables
- Low fat dairy products
- Eat whole grains and nuts
- Reduced intake of red meats, saturated fat, sweets, and soda pop

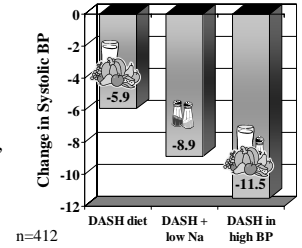


National High Blood Pressure Education Program, 2002

19 © 2005 - 2006 Wellsorce, Inc. All rights reserved.

DASH Diet and Blood Pressure

- DASH diet alone dropped systolic BP by 6 points
- DASH diet plus low sodium diet dropped BP by 9 points
- In those with high BP, it dropped 11.5 points
- These are similar drops in BP to those found in drug trials

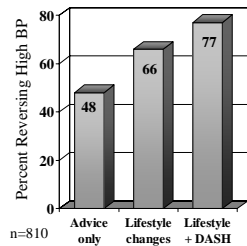


New England J of Med, Jan 4, 2001; 344:3-10

20 © 2005 - 2006 Wellsorce, Inc. All rights reserved.

Percent of Hypertensives Who Achieved Normal Pressures

- In the lifestyle plus DASH diet group, 77% of those with high blood pressure regained normal pressure within 6 months
- Nearly half in the advice group reached normal pressures
- About half would be expected to reach normal pressure using medication



PREMIER Study, JAMA Apr 23/30, 2003

21 © 2005 - 2006 Wellsorce, Inc. All rights reserved.

Goals of the PREMIER Study

- Lose excess weight (15 pounds in 6 months)
- Regular exercise (180 minutes per week or more)
- Limit sodium intake to 2400 mg/day or less
- Limit alcohol intake if used at all
- Eat 9 or more servings of fruits and vegetables daily
- Limit saturated fat to 7% of energy intake
- Eat whole grains and nuts
- Use low or non fat dairy (milk, yogurt, etc.)

22 © 2005 - 2006 Wellsorce, Inc. All rights reserved. Premier study, JAMA Apr 23/30, 2003

Blood Pressure Changes in "Healthy People"

- Optimum pressure is less than 120/80
- Above optimum pressure is 120/80 to 139/89
- About 1/3 of all blood pressure related deaths occur in persons with above optimum pressures
- In the lifestyle change plus DASH diet group, 48% of those with above optimum pressures were able to achieve a pressure less than 120/80

Premier study, JAMA Apr 23/30, 2003

23 © 2005 - 2006 Wellsorce, Inc. All rights reserved.

Exercise and Blood Pressure

- Exercise alone and exercise plus weight loss
- Recommend 30-60 minutes of moderate activity daily such as brisk walking

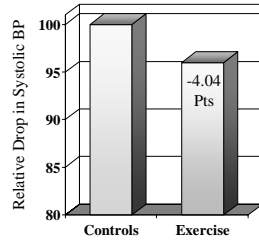


© 2005 - 2006 Wellsorce, Inc. All rights reserved.

Achieving a Healthy Blood Pressure

Exercise and Blood Pressure

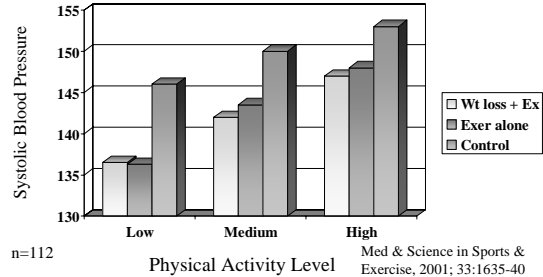
- Meta-analysis of 1108 people with normal blood pressure
- Those assigned to an exercise program had a 4.04 point drop in blood pressure compared to sedentary controls



JAMA, Oct 16, 2002; 288:1882-88

25 © 2005 - 2006 Wellspring, Inc. All rights reserved.

Effect of Exercise and Weight Loss on Blood Pressure



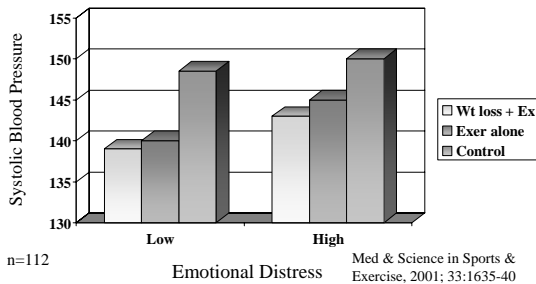
n=112

Physical Activity Level

Med & Science in Sports & Exercise, 2001; 33:1635-40

26 © 2005 - 2006 Wellspring, Inc. All rights reserved.

Effect of Exercise and Weight Loss on Blood Pressure



n=112

Emotional Distress

Med & Science in Sports & Exercise, 2001; 33:1635-40

27 © 2005 - 2006 Wellspring, Inc. All rights reserved.

Summary of Findings

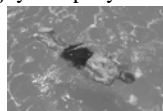
- The combination of exercise and weight loss resulted in significantly lower blood pressures across levels of daily physical activity and negative emotions as compared with a non-exercising control group.
- Exercise alone also reduced blood pressure but not as effectively as exercise with weight loss.

Med & Science in Sports & Exercise, 2001; 33:1635-40

28 © 2005 - 2006 Wellspring, Inc. All rights reserved.

Becoming More Active

- Aim for 30-60 minutes daily.
- You can divide exercise time into 15 minute sessions throughout the day.
- Moderate activities are as effective as if vigorous.
- Choose activities you enjoy:
 - Walking, active gardening, exercise to music, dancing, golf, tennis, bicycle riding, swimming, etc.
- Join an exercise group if you enjoy company.
- Get doctor's clearance if you have health problems.
- Moderate activities are safest.



29 © 2005 - 2006 Wellspring, Inc. All rights reserved.

Weight Loss and Blood Pressure

- Losing only 7-10 pounds helps!
- A BMI less than 25 is ideal

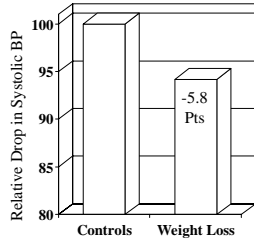


© 2005 - 2006 Wellspring, Inc. All rights reserved.

Achieving a Healthy Blood Pressure

Weight Loss and Blood Pressure

- Study included 181 people with normal blood pressures.
- Intervention:
 - Lost average of 7.7 lb
 - 18 month follow-up
- Systolic BP dropped 5.8 points compared to controls who didn't lose weight.



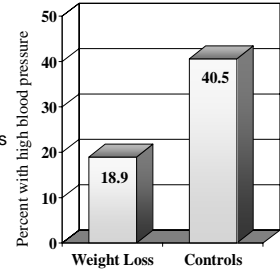
JAMA, Oct 16, 2002; 288:1882-88

31 © 2005 - 2006 Wellsource, Inc. All rights reserved.

Weight Loss and Blood Pressure

After 7 years of follow-up, the incidence of high blood pressure was:

- 18.9% in the weight loss group
- 40.5% in the control group

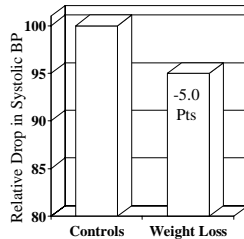


JAMA, Oct 16, 2002; 288:1882-88

32 © 2005 - 2006 Wellsource, Inc. All rights reserved.

Hypertension Prevention Trial

- Study included 595 people with normal blood pressures.
- Those assigned to weight loss intervention:
 - Lost average of 9.7 lb
 - 36 month follow-up
- Systolic BP dropped 5.0 points compared to controls who received normal medical care.



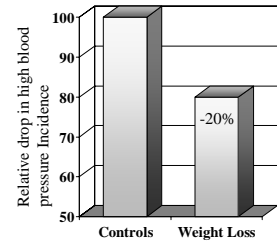
JAMA, Oct 16, 2002; 288:1882-88

33 © 2005 - 2006 Wellsource, Inc. All rights reserved.

Decrease in High Blood Pressure Incidence

After 3 years of follow-up, the incidence of high blood pressure was:

- 21% lower in those who lost weight (9.7 lb)
- Compared to the control group who didn't lose weight



JAMA, Oct 16, 2002; 288:1882-88

34 © 2005 - 2006 Wellsource, Inc. All rights reserved.

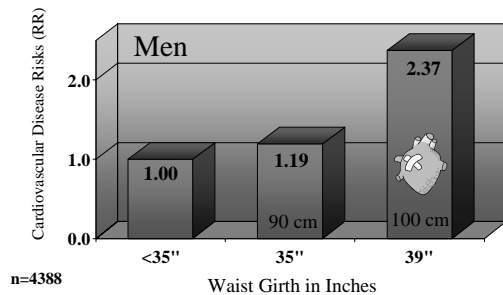
Waist Girth Measurement

- Measure waist girth at level of the navel.
- Pull tape firm but not tight.
- Be sure person is relaxed and not "sucking in their tummy".



35 © 2005 - 2006 Wellsource, Inc. All rights reserved.

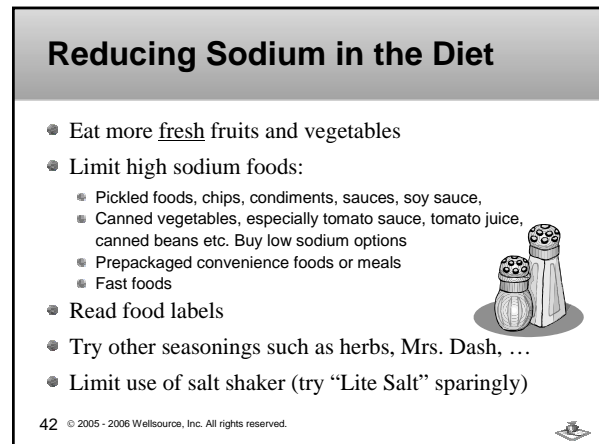
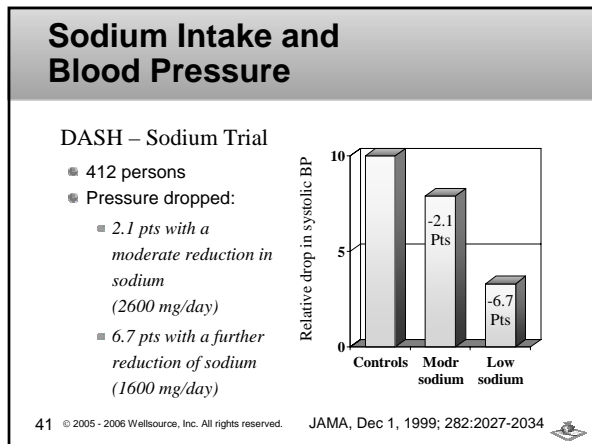
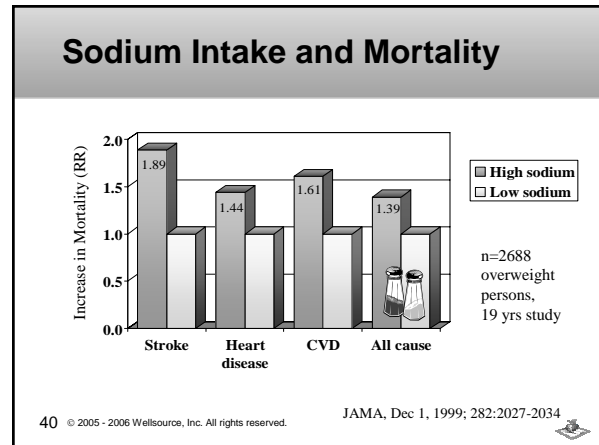
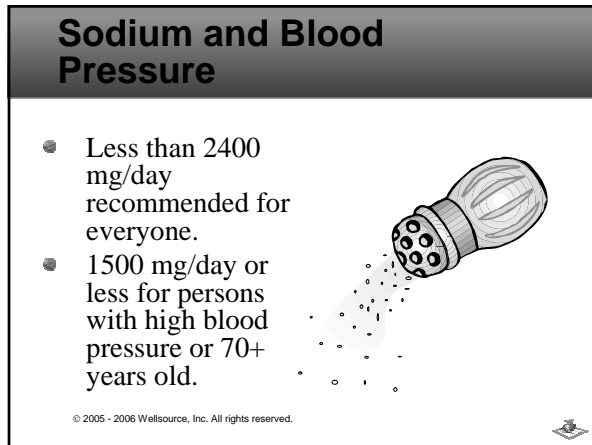
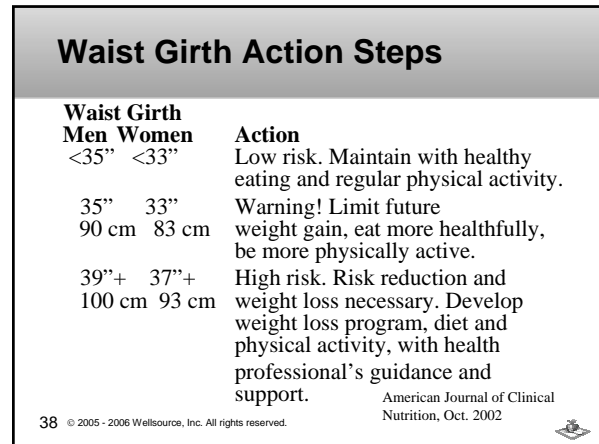
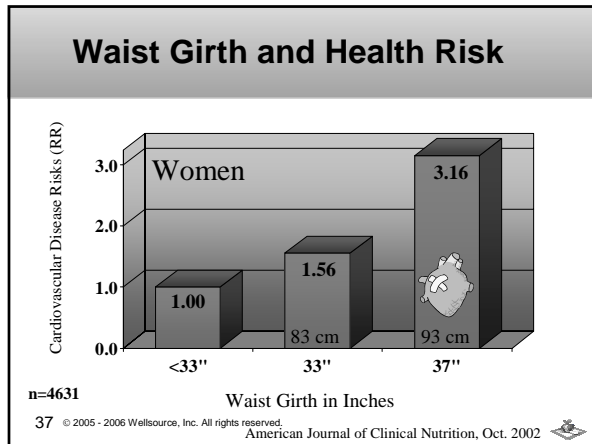
Waist Girth and Health Risk



36 © 2005 - 2006 Wellsource, Inc. All rights reserved.

The Lancet, Mar. 3, 2001

Achieving a Healthy Blood Pressure



Achieving a Healthy Blood Pressure

Sodium in Selected Foods

| Food | Sodium mg |
|----------------------------|-----------|
| Green beans, ½ cup, canned | 170 |
| Green Beans, ½ cup fresh | 2 |
| Tomato, stewed, ½ cup | 400 |
| Tomato, fresh, 1 medium | 11 |
| Potato, 1 baked | 8 |
| Potato French fries, 20 | 216 |
| Potato chips, 1 oz. | 213 |

43 © 2005 - 2006 Wellspring, Inc. All rights reserved.



Alcohol and Blood Pressure

- Alcohol is not recommended
- If you decide to drink, limit intake

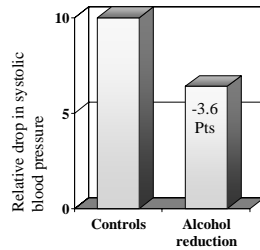


© 2005 - 2006 Wellspring, Inc. All rights reserved.



Decrease in Blood Pressure with Decrease in Alcohol Consumption

- Meta-analysis of 15 randomized controlled trials found:
 - The decrease in alcohol consumption and decline in blood pressure is dose-dependant
 - In 269 people with normal BP, a reduction in alcohol intake dropped systolic BP by 3.6 points



45 © 2005 - 2006 Wellspring, Inc. All rights reserved.

JAMA, Oct 16, 2002; 288:1882-88



Potassium and Blood Pressure

- 3500 mg of potassium/day from diet is recommended
- Eat more fresh fruits and vegetables, 5-9 servings daily
- “Lite Salt” is 60% potassium chloride and 40% sodium chloride. You can use it in place of regular salt.



© 2005 - 2006 Wellspring, Inc. All rights reserved.



Multiple Interventions to Reduce Blood Pressure

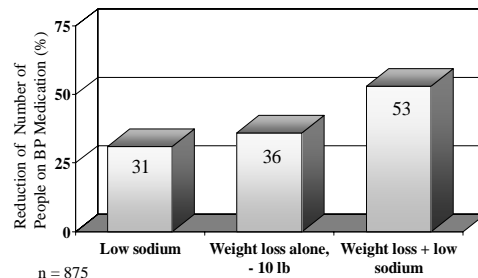
- Tone Study
 - 875 men and women
 - All taking blood pressure medication
- Trial – people divided into three groups
 - Weight loss only – goal 10 pounds
 - Low sodium only – about 1800 mg/day
 - Both weight loss and low sodium intake
- 18 month trial

47 © 2005 - 2006 Wellspring, Inc. All rights reserved.

JAMA Oct 16, 2002; 288:1882-88



Reduction in Percent of People on BP Meds after an 18 Month Intervention



48 © 2005 - 2006 Wellspring, Inc. All rights reserved.

JAMA Oct 16, 2002; 288:1882-88



Achieving a Healthy Blood Pressure

Results of Lifestyle Changes

- 30 to 50 percent of the people on blood pressure medication were able to get off their medication
- They could control their blood pressure by health lifestyle changes alone
- That means that at least half of all high blood pressure could be prevented by...

49 © 2005 - 2006 Wellsource, Inc. All rights reserved. JAMA Oct 16, 2002; 288:1882-88



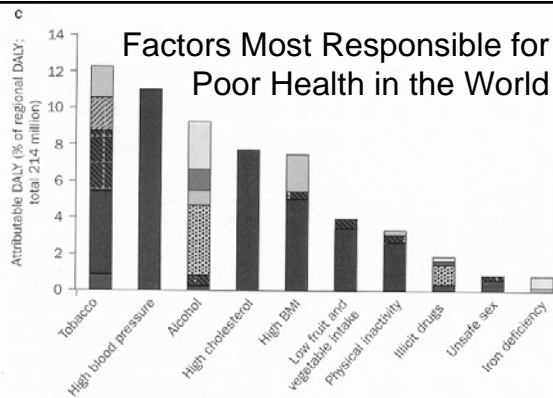
Summary to Prevent Hypertension

- Maintaining a healthy weight (or losing 10+ lbs)
- Limiting sodium in the diet to less than 2400 mg/day (<1500 mg if needed)
- Getting regular exercise, 30-60 minutes daily
- Avoiding or limiting alcohol
- Eating the DASH diet high in fruits and vegetables and low-fat milk and low in saturated fats and highly refined foods

The National High Blood Pressure Education Program Guidelines Report, JAMA 289:2560-72, May 21, 2003

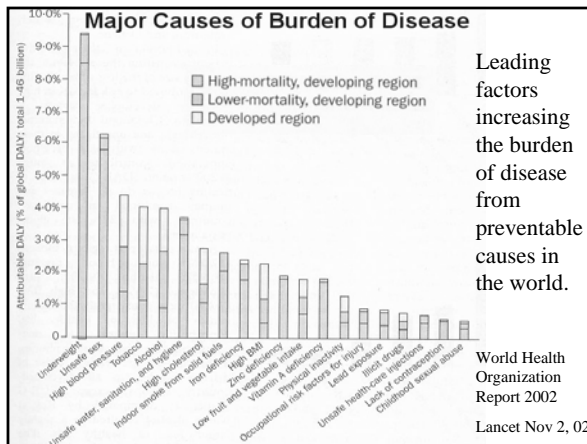
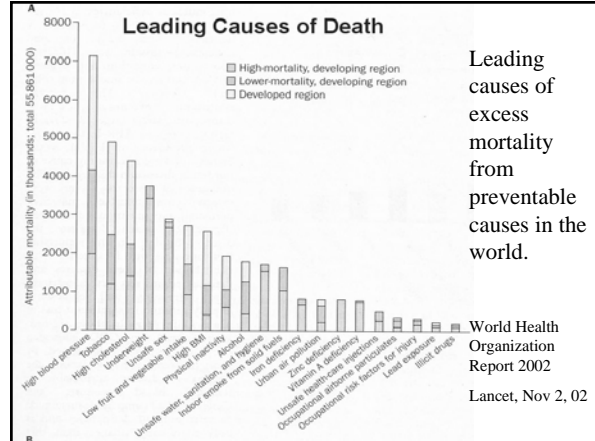
Also, get adequate rest and relaxation daily.

50 © 2005 - 2006 Wellsource, Inc. All rights reserved.



51 © 2005 - 2006 Wellsource, Inc. All rights reserved.

WHO, The Lancet, Nov. 2, 2000



END

For more information:
Wellsource Institute for Healthy Living
www.Wellsource.org



© 2005 - 2006 Wellsource, Inc. All rights reserved.

