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Definition

Blood pressure is defined as the force exerted by the blood against the vessel wall. Normal blood pressure is 120/80 mmHg. The systolic reading (120) is the maximum pressure the heart is exerting during contraction. The diastolic reading (80) is the pressure when the heart is between pumps and is at rest. The diameter of the arteries and the amount of blood pumped through the arteries determines the blood pressure. The kidneys are responsible for the amount of water circulating in the body and the level of salt retained by the body. Increased salt levels cause more water to be retained and can cause blood pressure to increase. Systolic values in the range of 130-139 and diastolic values in the range of 85-89 are referred to as, "High Normal," however systolic values of 160 and over demand medical attention, as do diastolic values over 100. The Sixth Joint National Committee on the Detection, Evaluation, and Treatment of High Blood Pressure classifies hypertension as follows (Arch Intern Med. 1997;157:2413-2446):

OPTIMAL BLOOD PRESSURE: <120/80 mmHg
NORMAL BLOOD PRESSURE: <130/85 mmHg
HIGH NORMAL: 130-139 systolic/85-89 diastolic

HYPERTENSION:

Stage 1: 140-159 systolic/90-99 diastolic
Stage 2: 160-179 systolic/100-109 diastolic
Stage 3: >180 systolic/>110 diastolic

As blood pressure values increase, the risk for myocardial infarction, stroke, heart failure, angina and renal failure increases. High blood pressure is easily detected and can usually be controlled. There are two types of hypertension:

Essential Hypertension:

Essential hypertension has no known medical cause and accounts for 90-95% of the patients diagnosed with hypertension.

Secondary Hypertension:

Secondary hypertension is caused by another disease and is usually due to renal disease.

Signs and Symptoms

- Usually no symptoms are present (hypertension is sometimes referred to as the "silent killer")
- Blood pressure reading of 140/90 mmHg or higher for two or more days in a row
- Could include dizziness, fatigue, nosebleeds, breathing problems, insomnia and gastrointestinal problems

Possible Causes or Contributing Factors

- 1) Dietary habits including high salt and dietary fat intake (there is a subpopulation exhibiting salt-sensitive hypertension), and low magnesium and potassium levels. High blood pressure has been termed the "Westerner's disease" since the Western diet seems to precipitate the problem.
- 2) Atherosclerosis - plaque builds up in the arteries and creates increased pressure.
- 3) Obesity

Health Concerns

The information in this report is intended for informational purposes only and should not be used to diagnose, treat, cure or prevent disease, or as a substitute for sound medical advice. Please consult with a qualified healthcare provider in all matters pertaining to your health. The statements above have not been evaluated by the FDA. The information provided cannot include all reported research, contraindications, toxicology, or drug/nutrient/herb interactions or depletions. The items marked with an asterisk () are provided by the practitioner and are the sole responsibility of the practitioner.*

Blood Pressure Support



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Possible Causes or Contributing Factors

- 4) Alcohol and coffee consumption
- 5) Smoking - stimulates the adrenal glands, which secrete adrenaline and can increase blood pressure; also cigarettes lead to toxic metal exposure (cadmium and lead). Decreased vitamin C levels are a problem with cigarette smokers. One puff on a cigarette can decrease vitamin C as much as 50%.
- 6) Stress
- 7) Food allergies/sensitivities
- 8) Heavy metal exposure, specifically cadmium and lead
- 9) Drug abuse or contraceptive use
- 10) Secondary hypertension can be caused by kidney problems (kidneys control fluid balance), adrenal problems (adrenaline has a blood vessel constricting effect), oral contraceptive use or pregnancy.

Nutrient Applications

1) Fish Oil

Fish oil has been shown to lower blood pressure in a meta-analysis study of over 31 trials. Doses at 4 grams per day of both EPA and DHA have been shown to effectively lower blood pressure in patients with mild hypertension.

Recommended Dosage: 2-3 grams of EPA per day or 4-8 grams of fish oil per day.

References: J Clin Hypertens (Greenwich) (2000) 2: 143-143, MMW Fortschr Med (2002) 144: 34-6, Ann N Y Acad Sci. Jun1993;683:35-45, Thromb Res. Aug1998;91(3):105-12.

2) Magnesium

Intracellular levels of magnesium are consistently low in hypertensives. Magnesium is a potent vasodilator and has demonstrated anti-hypertensive effects in patients with mild to moderate hypertension.

Recommended Dosage: 600-800 mg per day.

References: Mol Aspects Med (2003) 24: 107-36, Can J Physiol Pharmacol (2002) 80: 553-61, Am J Hypertens. Jan1993;6(1):41-5.

3) Calcium

Calcium has been shown to decrease blood pressure in some studies, but the research is conflicting.

Recommended Dosage: 1000 mg per day.

References: Nephron (1985) 41: 129-31, An Med Interna (1989) 6: 192-6.

4) Vitamin C

Current studies reveal an inverse relationship with vitamin C consumption and blood pressure.

Recommended Dosage: 500 mg- 2 grams per day or to bowel tolerance.

References: Am J Physiol Heart Circ Physiol (2001) 280: H528-34, Lancet (2000) 355: 1271; author reply 1273-4, Lancet. Dec1999;354(9195):2048-9.

5) Coenzyme Q10

Coenzyme Q10 aids in energy metabolism, heart function and blood pressure. Coenzyme Q10 increases



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Nutrient Applications

tissue oxygenation and supplementation has been shown to reduce the use of antihypertensive drugs in essential hypertension patients.

Recommended Dosage: 50-300 mg per day.

References: South Med J (2001) 94: 1112-7, Mol Aspects Med (1994) 15 Suppl: s257-63, Mol Aspects Med (1994) 15 Suppl: S265-72, J Hum Hypertens. Mar1999;13(3):203-8.

6) Potassium

Potassium counterbalances increased sodium levels. Increasing potassium levels, while decreasing dietary salt intake, may decrease blood pressure. Avoid if taking a potassium-sparing diuretic.

Recommended Dosage: .5-10 grams per day from food sources.

References: Clin Exp Hypertens (2003) 25: 103-15, Vascul Pharmacol (2002) 38: 13-23, Clin Exp Hypertens. Jul1999;21(5-6):769-83, Drug Therapy. 1993:88-92.

7) Taurine

Taurine has been shown to suppress the sympathetic nervous system. Taurine is helpful in hypertension.

Recommended Dosage: 1.5- 3 grams per day.

References: Amino Acids (2000) 19: 643-65, Amino Acids (2002) 23: 381-93.

8) L-Carnitine

Carnitine is a very protective nutrient for the heart.

Recommended Dosage: 1500-4000 mg in divided doses.

References: Minerva Med (1989) 80: 227-31, Clin Ter (1994) 144: 391-5.

9) B-Complex

The B vitamins are known as the relaxation vitamins. B vitamins reduce homocysteine levels.

Recommended Dosage: Varies by formula.

References: World Rev Nutr Diet (1992) 69: 40-73, Am J Hypertens (2002) 15: 857-64.

10) Detoxification Program

A detoxification program may be necessary. Hypertension can be caused by heavy metal toxicity (see, "Detoxification (Systemic)" under, "Health Concerns") for more information.

Recommended Dosage: Varies based on individual nutrients.

References: See "Detoxification, Systemic" for more information.

Botanical Applications

1) Hawthorn Berries

Hawthorn berries are high in proanthocyanidins (powerful flavonoids) and are known for their hypotensive and cardiotoxic effects.

Recommended Dosage: Standardized Extract: 80–300 mg of the hawthorn extract (standardized for total bioflavonoid content (usually 2.2%) or oligomeric procyanidins (usually 18.75%)) 2-3 times daily, Berry Preparations: 4–5 grams per day, Tincture: 4–5 ml per day (can vary based on tincture strength).

References: Prev Cardiol (2000) 3: 24-32, Planta Medica. 1980;29:110-14.



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Botanical Applications

2) Garlic

Garlic is known for its hypotensive effect.

Recommended Dosage: Standardized Extract: 600–900 mg (delivering approximately 5,000–6,000 mcg of allicin potential) per day in two or three divided amounts, Garlic Cloves: 1-10 cloves of fresh garlic (one clove of raw garlic daily provides about 5000 mcg allicin), Dried Powder: 0.4-1.2 grams of dried powder per day, Tincture: 2-4 mL tincture (1:5, 45% ethanol) three times a day.

References: Prev Cardiol (2000) 3: 24-32, Life Sci (1998) 62: PL 71-7, Br J Clin Pract Suppl (1990) 69: 3-6.

3) Siberian Ginseng

Siberian Ginseng balances the adrenal glands. Siberian ginseng is an adaptogen which has been reported to lower high blood pressure and raise low blood pressure.

Recommended Dosage: Standardized Extract: 300–400 mg per day of concentrated solid extract (standardized on eleutherosides B and E) per day, Dried Root: 2–3 grams per day is commonly recommended, Liquid Extract: 8–10 mL in two to three divided dosages per day (can vary based on tincture strength).

References: Am J Chin Med (1998) 26: 199-209, Am J Chin Med (2000) 28: 205-16.

4) Dandelion

Dandelion is a diuretic that spares potassium.

Recommended Dosage: Extract: 250-500 mg 2-3 times per day, Dried Root: 2–8 grams or by infusion or decoction three times daily, Dried Leaf: 4–10 grams or by infusion three times daily, Root (Tincture): 5–10 mL (1:5 in 45% alcohol) three times daily, Leaf (Tincture): 2–5 mL per day (can vary based on tincture strength).

References: Pharmazie (1958) 13: 423-436.

5) Coleus Forskohlii

Coleus is an Ayurvedic herb that has been studied for its hypotensive effects.

Recommended Dosage: Standardized Extract: Coleus extracts can be standardized to 10 to 18% forskolin. Take sufficient extract to provide 9 mg forskolin 2-3 times daily. 50-100 mg 2-3 times daily is typical dose.

References: J Med Chem. 1983;26:486-92.

Dietary and Lifestyle Applications

- 1) A detoxification program is beneficial. Detoxing the liver and lymphatic system is very helpful. Mini trampolines, dry brushing and deep breathing aid in lymphatic detoxification.
- 2) Eat a healthy diet low in salt, fat and sugar. Make sure the diet contains an adequate amount of good fats, especially monounsaturated fats (including almonds, olives, olive oil, and avocados) and omega-3 fatty acids (including fish and fish oils). Increase foods that contain potassium (bananas, melons, oranges, avocados, broccoli, cabbage, cauliflower, potatoes and squash), magnesium (nuts-especially almonds, potatoes, kidney beans, green leafy vegetables, wheat germ, whole grains and soybeans) and calcium (green, leafy vegetables, nuts and yogurt). Increase fiber intake, and liberally include celery, onions and garlic, which have been shown to decrease blood pressure. A vegetarian diet can be beneficial, although

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Dietary and Lifestyle Applications

studies indicate that when lean meat is included with healthy fruits and vegetables, this diet can still be beneficial for hypertension (Kestin M. et al. Am J Clin Nutr 1989; 50:280-287).

- 3) Cayenne mixed with lemon juice or vegetable juice aids in detoxification and has shown success in decreasing blood pressure. (Burton Goldberg Group, Alternative Medicine: The Definitive Guide, 1993, Future Medicine Publishing, Inc. WA, p. 728.) One cup of organic tomato juice with one meal a day may be beneficial.
- 4) A weight reduction program should be followed, if necessary.
- 5) Practice relaxation exercises including meditation, yoga, massage and biofeedback.
- 6) A moderate exercise program is recommended.
- 7) Avoid smoking and caffeine.
- 8) Avoid environmental pollutants and drink filtered water.
- 9) If you are taking MAO inhibitors (drugs used to fight depression), do not take tyrosine. It may increase blood pressure.
- 10) Avoid taking hot baths.

Notes

Since adrenal glandular will increase adrenal action, it is wise not to use adrenal supplementation with high blood pressure.

Contraindications/Toxicology

Refer to the individual nutrient or herb for more information regarding interactions, contraindications, precautions or side effects.