

Clinical Champion Update

Date: 11/4/19 Subject: Hypertension

Lifestyle Modification Strategies for Hypertension

"But I don't want to take a pill for my blood pressure! Besides, I feel perfectly fine."

Most patients would really prefer fewer pills, of course. Lifestyle modification is always a good start when discussing prehypertension or hypertension, although it does require some (sustained) effort on the part of patients. Their buy-in will pay off, however.

Diet: Emphasize fruits and vegetables, minimize oils and saturated fat, limit sodium and processed foods. Examples: DASH diet, whole food plant-based diet.

Why?

- Saturated fat from meat increases blood viscosity, which contributes to higher BP
- Fats and oils of all types (saturated, partially hydrogenated, polyunsaturated, monounsaturated) damage arterial endothelium, leading to plaque formation
- The higher potassium content of a more plant-based diet helps to reduce BP by countering the effects of sodium and relaxing artery walls
- Nitrate-rich vegetables (e.g., arugula, cilantro, rhubarb, butter-leaf lettuce, and other leafy greens) provide antioxidant flavonoids that upregulate

endothelial nitric oxide production, increasing arterial relaxation and blood flow

- Restricting sodium and processed foods (which are typically high in fat and sugar as well as sodium and low in fiber) and increasing consumption of whole grains all help to lower BP by improving arterial blood flow and elasticity
- Drinking hibiscus tea (or black or green tea) lowers both systolic and diastolic BP
- Including ground flaxseed also lowers BP better than ACE-I

Physical activity: Studies have shown that inactivity is a significant risk factor (5-13%) for hypertension.

- Aim for at least 30 minutes on most days of the week; more is better than less
- Vigorous exercise is good, but even walking decreases risk
- However, you can't outrun an unhealthy diet

Control weight:

- BMI 25-29.9 nearly doubles hypertension risk
- BMI 30 and up more than doubles the risk

Alcohol: Risk increases with amount consumed

- Limit to 1 drink per day for women and for men older than 65
- Limit to 2 drinks per day for men 65 and younger
- Remember: According to the World Health Organization, there's no safe minimum....

Stop smoking, or don't start.

Smoking raises BP in the short term

- Chemicals in tobacco damage the endothelium, eventually leading to narrowed arteries
- Exposure to secondhand smoke can also raise BP

Stress management

- Incorporate relaxation techniques
- Strengthen your social network
- Manage your time

Thanks,

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Hypertension Clinical Champions

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References

Dickinson KM, Clifton PM, Keough JB. Endothelial function is impaired after a high-salt meal in healthy subjects. *Am J Clin Nutr.* 2011;93(3):500-5.

Esselstyn CE Jr. Prevent and Reverse Heart Disease: The Revolutionary, Scientifically Proven, Nutrition-Based Cure. New York: Penguin Group,

Fraser GE. Vegetarian diets: what do we know of their effects on common chronic diseases? Am J Clin Nutr. 2009;89(5):1607S-1612S.

Greger M, Stone G. How Not to Die: Discover the Foods Scientifically Proven to Prevent and Reverse Disease. New York: Flatiron Books, 2015.

Hall JE, do Carmo JM, da Silva AA, et al. Obesity-induced hypertension: interaction of neurohumoral and renal mechanisms. *Circ Res.* 2015;116(6):991-1006.

Kapil V, Khambata RS, Robertson A, Caulfield MJ, Aluwahlia A. Dietary nitrate provides sustained blood pressure lowering in hypertensive patients: a randomized, phase 2, double-blind, placebo-controlled study. *Hypertension*. 2015;65(2):320-7.

Le LT, Sabaté J. Beyond meatless, the health effects of vegan diets: findings from the Adventist cohorts. Nutrients. 2014;6(6):2131-47.

McKay DL, Chen CY, Saltzman E, Blumberg JB. Hibiscus sabdariffa L. tea (tisane) lowers blood pressure in prehypertensive and mildly hypertensive adults. *J Nutr.* 2010;140(2):298-303.

Ornish D. Dr. Dean Ornish's Program for Reversing Heart Disease: The Only System Scientifically Proven to Reduce Heart Disease Without Drugs or Surgery. New York: Random House, 1990.

Ornish D, Ornish A. *UnDo It! How Simple Lifestyle Changes Can Reverse Most Chronic Diseases*. New York: Ballantine Books, 2019.

Pescatello LS, Franklin BA, Fagard R, et al. Exercise and hypertension. Med Sci Sports Exerc. 2004;36(3):533-553.

Roberts WC. High salt intake, its origins, its economic impact, and its effect on blood pressure. Am J Cardiol. 2001;88(11):1338-46.

Rodriguez-Leyva D, Weighell W, Edel AL, et al. Potent antihypertensive action of dietary flaxseed in hypertensive patients. *Hypertension*. 2013;62(6):1081-9.

Rueda-Clausen CF, Silva FA, Lindarte MA, et al. Olive, soybean, and palm oils intake have a similar acute detrimental effect over the endothelial function in healthy young subjects. *Nutr Metab Cardiovasc Dis.* 2007;17(1):50-7.

Tighe P, Duthie G, Vaughan N, et al. Effect of increased consumption of whole-grain foods on blood pressure and other cardiovascular risk markers in healthy middle-aged persons: a randomized controlled trial. *Am J Clin Nutr.* 2010;92(4):733-40.

Vogel RA, Corretti MC, Plotnick GD. The postprandial effects of components of the Mediterranean diet on endothelial function. *J Am Coll Cardiol*. 2000;36(5):1455-60.

Yokoyama Y, Nishimura K, Barnard N, et al. Vegetarian diets and blood pressure: a meta-analysis. JAMA Intern. Med. 2014;174(4):577-87.

... and, for your viewing pleasure:

"Forks Over Knives" documentary, 2011 / "What the Health" documentary, 2017 / "The Game Changers" documentary, 2018