

Control High Blood Pressure: The food and lifestyle habits that can help



by Miles Hassell MD

This handout includes the most effective food and activity choices to improve high blood pressure and is excerpted from pages 53 – 54 and 101 – 102 of *Good Food, Great Medicine* (4th edition), a Mediterranean diet and lifestyle guide and cookbook. The book is a practical, easy-to-read resource offering both the evidence and the tools to help prevent or reverse heart disease and type 2 diabetes, control high blood pressure, improve cholesterol levels, reduce risk of stroke, dementia, and cancer, and lose weight where appropriate. (You will find this handout as well as other helpful lifestyle medicine topics like *Weight Loss and Diabetes Reversal*, *Controlling Cholesterol*, and *Cancer Prevention and Survivorship* on the *resources* tab at goodfoodgreatmedicine.com.)

Control blood pressure

High blood pressure indicates multiple areas of metabolic dysfunction and can potentially damage almost every organ system. Although many drugs are available to treat hypertension, there are lifestyle steps to help control your blood pressure with less medication while improving overall health. Don't lose sight of the *most* important steps: daily exercise, eating vegetables and/or whole fruit with every meal and snack, reducing sugar and refined grains, and losing excess inches at the waist.

- **Goal:** Blood pressure typically less than 140/90. *Your physician may have reason to recommend a different (higher or lower) target blood pressure.*

The DASH diet

The best studied diet for lowering blood pressure is the DASH (Dietary Approaches to Stop Hypertension) diet, which can lower blood pressure by ten points or more¹ and is associated with reduced heart disease and cancer. The DASH guidelines emphasize fiber, with generous grains, vegetables, and fruit daily; two to three servings of low-fat dairy foods; two or fewer servings of lean meat, poultry, or fish daily; and four or five servings of nuts, seeds, and legumes weekly. **Although the DASH approach is more restrictive of fat and sodium, it is otherwise similar to a whole food Mediterranean model.** In our practice the Mediterranean model works as well, has better evidence for heart outcomes (for a broad spectrum of health outcomes, actually – see pages 15–31), as well as being easier for most of us to maintain.

Prescription for better blood pressure:

- **Eat a Mediterranean diet,**² including beans and legumes, whole grains, raw nuts and seeds (pages 35–50), and 2–3 servings per week of oil-rich fish (page 43).
- **Vegetables and whole fruit** (page 36) are your most effective lifestyle tools if included in every meal and snack. Aim for 9 servings daily. **Celery and beets are especially effective,** but potatoes are associated with *higher* blood pressure in multiple studies.³ For recipe ideas on how to incorporate more beets and celery in your kitchen, see page 5 of this handout.

¹ Siervo, M. et al. *Br J Nutr* 2015;113:1-15 (Meta-analysis)

² Davis, C.R. et al. *Am J Clin Nutr* 2017;105:1305-13

³ Borgi, L. et al. *BMJ* 2016;353:i2351

- **Weight loss:** If you are overweight, losing 8–10 pounds can lower your blood pressure significantly,¹ often as much as a prescription drug or two!
- **Exercise:** A brisk 30–45 minute walk daily, 5–7 days a week, may lower blood pressure up to ten points – especially if combined with some type of resistance exercise, like light weights. (See *Lets Move more!* on page 70.)
- **Extra-virgin olive oil** (page 41): In one study,² 3–4 tablespoons of extra-virgin olive oil daily was enough to eliminate the need for medications in ½ of hypertensive patients being treated with blood pressure drugs.
- **Dark chocolate:** One ounce daily may be beneficial. Choose chocolate with 70–90% cocoa content (see page 57).
- **Hibiscus tea**³: Try three cups daily.
- **Caffeine:** (page 56) raises blood pressure transiently by a small amount, but over time both coffee and tea appear to be associated with slightly *lower* blood pressure.⁴
- **Magnesium oxide:** Try 400 mg 1–2 times daily. (Reduce dose if it causes loose stools.)
- Non-steroidal anti-inflammatory medications (NSAIDs) like ibuprofen and naproxen; aspirin appears *not* to raise blood pressure at normal doses
- **Excess weight** is a striking risk factor. Lose ten pounds and watch your blood pressure improve.
- **Excess alcohol** is associated with high blood pressure, but moderate alcohol consumption (page 58) is not.⁵ Keep alcohol to *no more than* 1 drink daily for women and 2 for men (but only 1 if you are overweight).
- **Licorice extract** can raise blood pressure in a small number of people. Only real licorice has this effect – check the ingredient list to see if it includes real licorice.
- **Inadequate sleep** (less than 7 hours) is associated with hypertension (see page 75).
- **Sleep apnea** causes higher blood pressure; talk to your doctor about this possibility.
- **Excess sugar and refined carbs like sweet drinks and refined grains** contribute to high blood pressure as well as risk of death from heart disease and stroke; reduce or eliminate them. (See pages 62–66.)

These can raise blood pressure:

- **Medications:** Discuss your meds with your doctor to see if any of them could be making your blood pressure worse. Medicine that raises blood pressure in one person may have no effect on another; look at *all* of them carefully. Read package inserts. If you don't have them, your pharmacist can help. Some that may raise blood pressure include:
 - Most decongestant medications, and even acetaminophen

Cindy cut back on refined carbohydrates and reversed her hypertension

Cindy was a fit and active 55-year-old with a strong family history of premature heart disease. Her lifestyle was much healthier than average but she realized she needed to make changes when her blood pressure, cholesterol, triglycerides, and inflammatory markers all began heading in the wrong direction. Cindy cut back on bread, grains, and sweets, and increased her vegetables. She lost 10 pounds, increased her HDL (good cholesterol) from 61 to 108 (!) and dropped her triglycerides from 216 to 68. Her blood pressure also dropped from 154/98 to 112/70, allowing her to stop taking blood pressure medication.

¹ Semlitsch, T. Cochrane Syst Rev 2016;3:CD008274

² Ferrara, L.A. et al. Arch Intern Med 2000;160:837-42

³ Serban, C. et al. J Hypertens 2015;33:1119-27 (Meta-analysis)

⁴ Pannier, B. European Society of Hypertension 2013 Scientific sessions

⁵ Roerecke, M. et al. Lancet Pub Health 2017;2:e108-20 (Review)

- **Salt (sodium):** Excessive salt can raise blood pressure, and the first step in reducing salt intake should be to eliminate or minimize all commercially prepared food, especially bread, pasta, breakfast cereal, soups, sauces, salad dressings, and restaurant food. **Eating home-cooked whole foods increases our potassium intake, which blunts the effect of sodium and increases our ability to excrete sodium**, making salt intake less important.¹ Whole, unprocessed foods are naturally rich in potassium. (See the following detailed sodium discussion.)

Salt (sodium)

After thousands of studies on salt intake and health outcomes, researchers still can't agree on what is a "healthy" salt intake, how to measure salt intake, or which health outcomes are important. In this section, most dietary sodium is assumed to be provided from common table salt, also known as sodium chloride. One teaspoon of table salt provides 6,000 mg sodium chloride (2,360 mg sodium).

- Salt is as old as dirt, and an essential nutrient our bodies can't do without. It's also arguably an essential flavor enhancer our kitchens need, too.
- When assessing data we focus on outcomes such as total death rate and heart failure rather than strictly blood pressure outcomes.
- Moderate salt intake appears to be associated with better health outcomes compared to very-low or high-salt diets, particularly in the context of **high-potassium whole food diets**. There is evidence that very-low-salt diets may be harmful. According to the Institute of Medicine (IOM), "*lack of evidence for benefit and concerns for harm suggest that low sodium intake (<2,300 mg/day) should not be recommended.*"²

¹ Binia, A. et al. J Hypertens 2015;33:1509-20

² Bibbins-Domingo, K. JAMA Internal Medicine 2014;174:136-7

- Commercially prepared food, especially bread, pasta, and breakfast cereals, are the main sources of sodium³ in our society: about 75% compared to about 11% added in home cooking and at the table.
- Preparing food from scratch generally reduces salt intake, even with regular salt shaker use. Whole foods are also richer in potassium, which helps excrete sodium.
- Be more concerned about avoiding sugar and processed food than salt!⁴

What does the medical data say?

- Although low sodium intake (<2,000–2,300 mg/day) lowers blood pressure, it also has the adverse effect of raising renin and aldosterone levels; has not been adequately studied in long-term trials (>6 months);⁵ and has not been shown to improve cardiovascular outcomes.⁶
- While some small studies show a non-significant benefit for low salt intake,⁷ a meta-analysis of larger studies found the *lowest* death rate to be in people with a moderate sodium intake of 4–5,000 mg/day, and a significantly *higher* death rate in the low sodium group consuming <3,000 mg/day.⁸
- Harm from excess sodium^{9,10} may be in part due to eating too much low-potassium processed food. This suggests that excess sodium is a marker for poor food choices.
- Both exercise¹¹ and a higher potassium intake from whole foods¹² blunt the harmful effect on blood pressure by increasing sodium excretion.

³ U.S. Food and Drug Administration. May 2016

⁴ DiNicolantonio, J. and Lucan, S. Open Heart 2014;1:e000167

⁵ O'Donnell, M. et al. Circ Res 2015;116:1046-57

⁶ Institute of Medicine. Sodium intake in populations: assessment of evidence. 2013

⁷ Cook, N. et al. J AM COLL CARDIOL 2016;68:1609-17

⁸ Mente, A. et al. Lancet 2016;388:465-75

⁹ Aaron, K.J. and Sanders, P.W. Mayo Clin Proc 2013;88:987-95

¹⁰ O'Donnell, M.J. et al. JAMA 2011;306:2229-38

¹¹ Rebolz, C. et al. Am J Epid 2012;176(S):S106-S13

¹² Binia, A. et al. J Hypertens 2015;33:1509-20

Kidney failure, congestive heart failure, and low blood pressure

- For people with kidney failure, congestive heart failure, or low blood pressure, the sodium story is much more complex and needs to be addressed on a case-by-case basis. In general, if you have low-ish blood pressure, low blood sodium levels, or you're on diuretic drugs and following a low-salt diet, you should talk to your doctor about whether a cautious trial of increased salt added to food made by you from scratch could be beneficial.
- For people with congestive heart failure, there appears to be more hospitalization and death among those on low-salt diets (<2,500 mg/day) than those on moderate-salt diets, perhaps because of activation of the renin-angiotensin-aldosterone system associated with the low sodium intake.^{1,2}
- Another group that may feel better with a higher salt intake are thin, active people with low blood pressure, and with a systolic blood pressure typically lower than 100. For a discussion about specific foods, medications, and lifestyle choices that can raise or lower blood pressure, see pages 1 – 3 of this handout.

Note: Some people with kidney failure need to take our sodium and potassium advice with a grain of salt. Discuss this with your doctor.

And did you know? Pets, particularly dogs, are associated with lower blood pressure in their owners.³ Of course you knew!

Salt summary:

Keep salt intake at a moderate level while raising potassium intake. Here are three ways to do this:

- **Eat less packaged food:** breads, pastas, breakfast cereals, restaurant and fast food, processed meat, deli salads and soups, pre-cooked chickens, packaged heat-and-eat meals, and so on. These are high in salt, sugars and hidden calories – a bad mix for blood pressure, weight, and health.
- **Eat more whole foods to increase your potassium intake.** Some potassium-rich whole foods that improve sodium metabolism and blood pressure are vegetables, whole fruit, beans, whole grains, fish, meat, and so on.
- **Eat home-cooked food you salt yourself.** This avoids excess salt from commercially prepared foods and keeps eating enjoyable!

Note: All salts are not equal: “Light salt” has half the sodium (the rest is potassium chloride); ask your doctor if it is a good choice for you. Artisan salts are often rich in minerals like calcium and magnesium, which might provide some additional small benefit.

¹ Doukky, R. et al. J AM COLL CARDIOL: Heart Failure 2016;4:24-35

² Stolarz-Skrzypek, K. et al. JAMA 2011;305:1777-85

³ Levine, G. et al. Circulation 2013;127:2353-63 (AHA Scientific Statement)

Mother's Celery Salad

This little recipe is both a salad and a crunchy relish – and if you replace the 2 tablespoons of olive oil with a can of tuna fish packed in olive oil, you have a delicious and simple meal. The recipe can be found on page 123 of *Good Food, Great Medicine*, 4th edition.

3 cups diced celery, including tender leaves
½ cup stuffed Manzanilla olives, chopped
2 tablespoons extra-virgin olive oil
2 tablespoons apple cider vinegar
½ teaspoon salt
½ teaspoon dried oregano
¼ teaspoon pepper

1. Mix and serve. Good the next day, too.

Apple, Broccoli, and Celery Slaw

This is my favorite use for broccoli stems – and a good reason to buy broccoli with long stems! Always check for solid, fresh-looking stems – if you can bend them, don't buy the broccoli. This recipe is on page 183 of *Good Food, Great Medicine*, 4th edition.

(Serves 4 – 6)

1–2 unpeeled crisp apples, in ½ x ¼-inch dice
(1½ - 2½ cups)
2 cups broccoli stems (see directions)
2 cups sliced celery, ¼ -inch or less
3 tablespoons mayonnaise
1 tablespoon apple cider vinegar
½ teaspoon salt
½ teaspoon freshly ground pepper
½ cup broken fresh or toasted walnuts
2 tablespoons dried currants or raisins

1. Strip thick skin from broccoli stems using a small knife, starting with the base of the stem and peeling upwards. Halve lengthwise and slice in ⅛ – ¼ inch slices.
2. Mix together vinegar, mayonnaise, salt, and pepper and add to apples, broccoli, and celery with nuts and currants. Toss to blend thoroughly.

Roasting Beets

(This and other tips for roasting vegetables can be found on pages 176-182 of *Good Food, Great Medicine*, 4th edition.) The beet is not a fiercely popular vegetable, but we'd like to put in a word for a dish of gleaming, deep-red beet wedges tossed with vinaigrette.

- Choose beets still attached to fresh-looking greens, if possible. Fresh beets cook faster and you can use both greens and stems in *Red Lentil Soup* (page 250), *Greens and Beans* (page 251), *Green Eggs and Quinoa* (page 253), and so on. Choose smooth-skinned beets, similarly-sized so they cook evenly. Wash them, making sure there's no dirt hiding at the root end or around the tail. Leave tails intact but chop stems to an inch in length.
- Place on a large enough piece of heavy duty foil to allow you to wrap and seal beets snugly. Place on a baking sheet or pan, seam side up. (With heavy-duty foil you don't necessarily even need a pan . . . but you'll wish you had one if the foil springs a leak.)
- Roast at 425 degrees in the middle of the oven for about 1½–2 hours. Beets can take a long time to cook, and you don't want to bother unwrapping them until you're sure they're done. You can also test for doneness by poking with a skewer through the foil.
- When roasted beets are cool enough to handle, poke a fork in the stem end and peel with a paring knife. Skins should slip off easily. Slice peeled beets into slim wedges or chunks, and toss in vinaigrette while still warm. (I use them in *Salade Niçoise*, page 186.)
- **Beets in more of a hurry:** Trim and peel beets, and cut into ½-inch dice. Toss in olive oil, place on parchment-lined baking sheet, sprinkle with salt and pepper, and roast for 40 minutes or until tender. Toss in balsamic vinegar (the slight sweetness works well with beets) for a vivid side dish, or use in *Salade Niçoise*. Me? I eat them with walnuts and crumbled feta cheese over arugula. Yum!

Miles Hassell MD is an internist in private practice at Providence St. Vincent Medical Center in Portland, Oregon, where he lives with his wife Anna and son Tor. He was born in Seattle, Washington, and was raised in Perth, Western Australia, receiving his medical degree from the University of Western Australia. He completed his residency in Internal Medicine at Providence St. Vincent Medical Center.

Dr. Hassell established the [Integrative Medicine Program](#) at Providence Cancer Center in Portland and he is a clinical instructor in the training of Internal Medicine residents, twice named *Outstanding Teacher of the Year*, and is Associate Medical Director and Professor at Pacific University School of Physician Assistant Studies. He also lectures widely to physician groups about the appropriate integration of lifestyle and conventional medicine. He is the co-author of *Good Food, Great Medicine*, an evidence-based guide to using a whole food Mediterranean diet in the pursuit of optimal health.

In his private practice Dr. Hassell encourages the vigorous use of evidence-based food and lifestyle choices and has been chosen as one of *Portland's Top Doctors*. Dr. Hassell is available for individual consultations for diagnosis, second opinion, or to develop patient-centered solutions using evidence-based conventional and lifestyle interventions.

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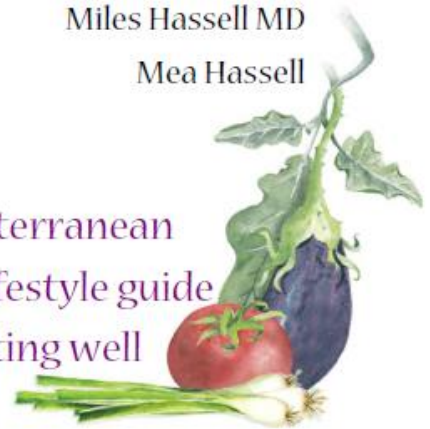
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