# Nutrition: Hypertension - Part 2

I'd also suggest eating a pound of cold-water fatty fish per week. Fatty fish is high in omega-3 fats. High omega-3 intake has been shown to reduce the risk of hypertension and cardiovascular disease. Fish oil supplementation has been shown to reduce blood pressure in several studies, but be careful because a growing body of evidence suggests that high-dose fish oil over an extended period of time may actually increase the risk of heart disease, probably because these fish oils are very unstable and likely to oxidize. So I would suggest patients aim, again, for somewhere between a pound or 12 ounces if they're lower in body weight or stature, or maybe 20 ounces if they're higher in body weight and consuming more calories; somewhere in that range of 12 to 20 ounces of fatty fish per week. That would include salmon, sardines, halibut, mackerel, trout, tuna, anchovies, herring, and whitefish. If you're concerned about mercury, you would focus more on the species that tend to be lower in mercury, particularly sardines and wild salmon and certain kinds of mackerel and anchovies and some species of herring. So you can always look up species that are low on mercury, there's a lot of good resources online. And the good news is, a lot of the species that are lower in mercury are also the species that are highest in omega-3 fats, so that tends to work out pretty well.

Certain varieties of tea have been shown to be effective at lowering blood pressure. Hibiscus tea is one of them, and consuming two to three cups a day, in studies have been shown to have a significant impact on reducing blood pressure. Hawthorn berry tea also falls into that category; it's rich in antioxidants and improves blood flow. Three cups a day would be the recommended intake for reducing hypertension, and then gotu kola tea is beneficial in cases of venous insufficiency and may help maintain connective tissue, and three cups per day would be recommended there. And then finally, some studies have shown that oolong or green tea can lower hypertension risk by 46 percent, which is a pretty significant reduction, so these different varieties of tea can be combined, some hibiscus, some green tea, some hawthorn tea, for the best effect.

Beets are an amazing food, one of the more nutrient-dense plant foods for sure. In the context of hypertension, they're useful because the nitrate content of beets is very high and may improve nitric oxide production in humans. Nitric oxide is a vasodilator, makes the blood flow more easily through the vessels and therefore lowers blood pressure. Other foods that are high in nitrates include celery root, Chinese cabbage, endive, fennel, kohlrabi, leek, parsley, celery, cress, lettuce, spinach, and chervil. Just as an interesting side note here, people get really worked up about the amount of nitrates in bacon, but the level of nitrates in some of these foods that we just mentioned, particularly endives, is orders of magnitude higher than the levels of nitrates in bacon, and nitrates can actually have a very beneficial impact on numerous indicators of health. So there are studies that show that beet juice lowers blood pressure, and one of the best ways to consume beet juice would be as beet kvass, which is a fermented beet-juice drink, comes from Russia, that part of the world; it can be really delicious and really super-nutrient dense.

Sun exposure is also important for the same reason, actually, that beets are important, among others, but UV radiation from the sun has been shown to produce nitric oxide, which again is a vasodilator, and this may explain in part some of the connections we see between latitude and chronic disease. Those that live at higher or lower latitudes get less sun exposure, have a higher risk of some chronic diseases that are affected by nitric oxide production, so we encourage you to advise your patients to aim for 20 to 30 minutes of bare-skin sun exposure daily, if possible, particularly when the sun is at a higher solar angle, midday. You have to tailor that to their skin tone. If they're very fair skinned they'd need to reduce that so they don't burn, but they want to be in the sun as a general rule for about half the amount of time it would take them to turn pink, so that's a recommendation that you can give that takes into account a number of different factors, like skin tone and latitude solar angle, time of the year, etc.

Stress is probably the elephant in the room when it comes to blood pressure; I mean, it gets a fair amount of lip service in the conventional paradigm when it comes to talking about blood pressure, but I don't think it really gets the attention it deserves in treatment, and in my experience, working with patients with blood pressure, stress management, stress reduction are the single most important interventions you can do, and will have the biggest impact, even above all the dietary stuff that we've been talking about. Chronic stress leads to repeated elevations in blood pressure, over time can cause a recalcitrant pattern. So meditation is one way to reduce stress, and that's been shown to be effective with hypertension. Transcendental meditation has been especially well studied. I don't think there's necessarily anything magical about it; it's just been better studied than other forms, and patients can see benefits in blood pressure in as little as a month, but those would tend to be cumulative and enhanced over time. Deep breathing has been shown to lower blood pressure—three to four 15-minute sessions per week, as little as that can lower blood pressure. Biofeedback and neurofeedback have been shown to reduce blood pressure. Things like yoga and tai chi, qi gong have been shown to reduce blood pressure. So I don't think it's the particular technique that matters as much, I think, it's just committing to something and sticking with it that makes the bigger difference, and it's really, really important. I think a patient can make all of the dietary changes we've talked about and have only a minimal benefit, but if they do the stress management piece, they'll have much better results.

Sleeping well is also crucial; we can pretty much say this for every health condition, as you know now, having been through a lot of this course, but for blood pressure, we've seen in the research that short sleep duration and poor sleep quality increase significantly the risk of hypertension, and we also have studies that show that correcting sleep apnea, which interferes with sleep duration and quality, reduces blood pressure, so you have to check into these things, especially if your patient's overweight and has metabolic syndrome. They should be checked for sleep apnea if they haven't been already, and you should make sure that they're following all of the recommendations that we talk about in this unit for improving their sleep.

Regular exercise is especially important for blood pressure. A mix of endurance or steady-state cardio type of exercise, strength training, and then higher-intensity exercise as we discussed in the physical activity portion of this unit will probably get the best results, and even just walking more

and sitting less are really important, and maybe more important than the exercise. We've had a lot of focus on exercise as a distinct activity, which is really important, but there are numerous studies that show that what's called non-exercise physical activity, or NEPA, may be more important than exercise when it comes to reducing blood pressure and improving several parameters of health. So if you take, as an example, someone who sits for eight hours a day as a computer programmer, 40 hours a week, and then they go to the gym three times a week and work out hard for an hour, that person will still be at significantly increased risk of disease despite the fact that they're exercising because of the amount that they're sitting, and that their non-exercise physical activity is very low. And in fact, studies have shown that marathon runners who are actively training for a marathon, if they're sitting most of the rest of the time, they'll still be at increased risk of disease, so encouraging your patients to sit less, work at a standing desk, if possible, take standing meetings, there are a lot of strategies that we're going to discuss in more detail later, but that can be a more important intervention, depending on the patient and where they're at.

### COQ10

**100-225 mg/day** reduces both systolic and diastolic BP

### Garlic

**10,000 units of allicin** (active ingredient in garlic) or amount in 4 cloves, can reduce both systolic and diastolic BP

### Magnesium

**500-1,000 mg/day** over 8 week period significantly reduces BP

**Chelated** forms preferable (e.g. MG Glycinate)

### Potassium

**1,000-2,000 mg/day** extra supplemental potassium might be helpful if dietary potassium is inadequate

**Must monitor** potassium levels

Here's some of the supplements that have shown benefit for hypertension. CoQ10 at 100 to 225 milligrams a day reduces both systolic and diastolic blood pressure. Garlic, 10,000 units of allicin, which is the active ingredient, or the amount in four cloves, can reduce both systolic and diastolic blood pressure. If the patient's going to eat the garlic, cook with it, one tip is to mince it and wait 10 minutes before you throw it in the pan; that 10-minute period of waiting actually activates the allicin, makes it more potent. Magnesium at a dose of 500 to 1,000 milligrams per day, which is a therapeutic dose, higher than the typical maintenance dose, over eight weeks can significantly reduce blood pressure, especially if the patient is magnesium deficient, and I prefer chelated forms like magnesium glycinate or malate, because they're better absorbed. Potassium, as I mentioned, a lot of Americans and Europeans, for that matter, don't get enough potassium in their diet, so an

additional 1,000 to 2,000 milligrams per day or more of supplemental potassium might be helpful if dietary potassium is inadequate. But you want to be careful with higher doses of potassium because of the potential effect of the cardiovascular system, so you want to monitor serum potassium levels if someone's taking more than 5,000 milligrams a day for more than a month. And patients on potassium-sparing diuretics cannot supplement with potassium, so make sure to pay attention to that in your intake process. Okay, that's it for now, see you next time.