Beating Blood Pressure

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Blood pressure is the force exerted by the blood on the walls of the arteries – and the arteries are the blood vessels that carry the blood away from the heart. It is written as systolic/diastolic (e.g. 120/80 mmHg, stated as '120 over 80'). The systolic is the heart contraction phase putting force on the artery wall, and the diastolic is the relaxation phase of the heart – between heart beats. High blood pressure or hypertension is when the systolic blood pressure greater than or equal to 140 mmHg, or the diastolic blood pressure greater than or equal to 90 mmHg. Of course, if you need to take BP medication to keep it in normal range, then you also have hypertension. Interestingly, the health risks associated with BP start to increase exponentially once you go over about 110/70, even though this is still considered to be in normal range.

Hypertension, has numerous causes

- Poor Diet
- Excessive Alcohol Consumption:
- Lack of Physical Activity.
- Excess body weight, especially abdominal obesity.
- Smoking
- Chronic stress and poor stress management.
- Family History with a genetic predisposition high BP
- Medical Conditions: Chronic Kidney Disease, insulin resistance and high blood sugar levels, sleep apnoea, disorders of the adrenal glands and thyroid, some autoimmune diseases, and mental health disorders such as depression and anxiety
- Medications: such as long-term use of anti-inflammatory drugs, steroids, contraceptive pills, stimulants, and some anti-depressants.

Hypertension, can have many adverse effects on the body if left untreated. These effects can impact various organs and systems, leading to serious health complications:

- Cardiovascular: heart attack, heart failure, atherosclerosis, aneurysms
- Brain: Stroke, TIA, dementia, cognitive impairment
- Blood vessels: peripheral artery disease, aortic dissection
- Kidney: Chronic kidney disease, kidney failure
- Eyes: Damage to retina blood vessels, and the optic nerves
- Insulin resistance
- Sexual dysfunction

The good news is, as hypertension is largely a lifestyle disease, there are several healthy lifestyle measures that can help reduce the risk of developing high blood pressure.

About 21% of the high blood pressure burden in Australia is due to a diet high in sodium, based on estimates from the Australian Burden of Disease Study (ABDS). It will make a very significant impact on most individuals BP just by reducing salt alone. Benefits of a low sodium diet:

- Reduces systolic and diastolic BP
- Maintains elasticity and function of the blood vessels
- Enhances kidney function
- Decreases fluid retention

The story of salt in your diet however is not this simple. A low sodium diet is good in the context of our Western diet that has such an excess of salt. However, a no sodium diet is harmful. Sodium is an essential mineral that plays a vital role in several key bodily functions. Salt:

- Regulates fluid balance
- Helps maintain acid-base balance
- Supports nutrient absorption
- Facilitates nerve function
- Aids muscle contractions

Salt has a very long history with its use going way back to ancient times. It was once a very precious and valuable commodity. It found its use as a wonderful seasoning, but also, before the age of refrigeration, it was a way to preserve food. Salt also has spiritual meaning. Let me share a Bible verse with you to explain this. Jesus spoke these amazing words when preaching to the people: "*You are the salt of the earth; but if the salt loses its flavour, how shall it be seasoned? It is then good for nothing but to be thrown out and trampled underfoot by men. You are the light of the world. A city that is set on a hill cannot be hidden. Nor do they light a lamp and put it under a basket, but on a*

lampstand, and it gives light to all who are in the house. Let your light so shine before men, that they may see your good works and glorify your Father in heaven." Matthew 5: 13-16. When I became a Christian, I became a part of His family. I am now on the family business of God, and to honour this legacy, it important for me to be that salt and light that Jesus

asked me to be, and to share as often as I can the amazing things that God has done for me. Not just the benefits to my own and your mental and physical well-being, but also the death that he took in all our places and the gift of eternal life and peace that we can now have in Jesus. Ultimately, it is God that is the salt – the beautiful flavour – and light in my life.

Now the Bible does tell us directly on at least 2 occasions that salt is good. So how much sodium do we need? A minimum of about 500mg and a maximum of 2400mg for health. The optimal level is about 1800mg as an adult. In table salt – that is about ½ to 1 teaspoon each day. More than this, and you will be getting that excess that can lead to hypertension.

Potassium is really essential mineral in the management of blood pressure. One of the primary mechanisms by which potassium helps lower blood pressure is by counteracting the effects of sodium. High sodium intake can lead to an increase in blood pressure, and potassium helps balance this effect by promoting sodium excretion through urine. The more potassium you eat, the more sodium you lose through urination. Potassium also helps improve function of the blood vessel walls helping to ease tension in your blood vessel. Potassium-rich foods include spinach, avocado, watermelon, potatoes, broccoli, legumes (beans, chickpeas and lentils) and bananas.

Magnesium is another essential mineral for blood pressure regulation. It aids in the relaxation and dilation blood vessels, which can reduce blood pressure. It acts as a natural calcium channel blocker, preventing calcium from entering smooth muscle cells in the heart and blood vessels, thus helping them to relax. Magnesium helps maintain proper electrolyte or mineral balance, which is essential for normal blood pressure regulation. It works together with sodium, potassium, and calcium to maintain fluid balance and blood vessel function, and also improves blood vessel wall function. This mineral has anti-inflammatory properties, which can help reduce inflammation-related damage to blood vessels and lower blood pressure. Magnesium is quite easy to get from the diet. The best sources are leafy green vegetables, nuts, seeds, whole grains, and legumes.

A whole-food plant-based diet has been extensively studied and shown to offer numerous benefits for managing and preventing hypertension. This diet emphasizes the consumption of minimally processed plant foods while excluding or minimizing animal products and processed foods. It is rich in fruits, vegetables, legumes, nuts, seeds, and whole grains, all of which provide essential nutrients, fibre, and bioactive compounds. Research has shown that the more plant based your diet is, the greater the drop in your blood pressure. Individuals on fully plant-based diets, on average, have lower blood pressures than lacto-ovo vegetarians (those who still eat dairy and eggs, but no meat), and meat eaters have the highest rates of elevated blood pressure and BP medications. In fact, on average, you can drop your blood pressure by nearly 30 points if you go from a standard western diet to a whole-food plant-based diet. In a study that involved nearly 90 000 people – it found that those who only ate meat about once a week had a 23% lower rate of hypertension. Cutting out all meat, except fish reduced the risk by 38%. Removing all meat, but still having eggs and dairy reduced the risk by 55%, and completely, plant-based reduced risk by 75%. Even in the first two weeks of being on a whole-food plant-based diet, blood pressure can show some significant improvements.

Certain foods have been shown to superfoods when it comes to lowering the blood pressure:

- Leafy Greens: Spinach, Kale, Swiss Chard: are rich in potassium, magnesium, and calcium, which are nutrients known to help regulate blood pressure. They are also low in calories and high in fibre, making them excellent choices for blood pressure management.
- Berries: Blueberries, Strawberries, Raspberries: Berries are rich in antioxidants like flavonoids, which have been linked to lower blood pressure and improved blood vessel function.
- Chia Seeds, Flaxseeds: These seeds are high in fibre, omega-3 fatty acids, and other heart-healthy nutrients. They can help lower blood pressure and improve overall cardiovascular health when added to your diet. The research suggests you can drop you BP by up to 15 points with flaxseed which is better than some of the BP medications.
- Beetroot and Beet Greens: are high in nitrates, which the body converts into nitric oxide. Nitric oxide helps relax blood vessels and improve blood flow, which can lower blood pressure.
- Pomegranates are rich in antioxidants, including polyphenols and anthocyanins, which have been shown to help lower blood pressure and improve overall heart health.

Adequate water intake has several positive effects on hypertension:

- Maintains the blood volume
- Supports blood vessel health
- Reduces blood viscosity
- Helps balance electrolytes
- Influences hormone balance
- Enhances kidney function

Alcohol consumption can have several adverse effects on hypertension:

- Raises blood pressure in the short-term & the long-term
- Contributes to atherosclerosis
- Weakens the heart muscle
- Causes weight gain
- Leads to poorer food choices
- Dehydrates
- Disrupts electrolyte balance

There is absolutely no positive benefit to your health from alcohol so it is best to avoid it.

Caffeine and other methylxanthines (such as theobromine and theophylline) are stimulants commonly found in coffee, tea, and chocolate. Their effects on blood pressure and hypertension have been widely studied. Caffeine can cause a short-term increase in blood pressure, particularly in individuals who are not regular consumers of caffeine. This effect is typically seen within 30 minutes of ingestion and can last for several hours. This response is thought to be due to the stimulation of the sympathetic nervous system, leading to constriction of blood vessels and increased output from the heart. The long-term effects are not as clear across all the research, but it does suggest chronic high intake contributes to sustained higher blood pressure levels, particularly in sensitive individuals. Genetic differences in caffeine metabolism can influence how individuals respond to caffeine. Slow metabolisers experience more pronounced blood pressure increases compared to fast metabolisers. People with existing hypertension may be more sensitive to the blood pressure-raising effects of caffeine.

Exercise is widely recognized as a key component in the management and prevention of high blood pressure. Regular physical activity has been shown to:

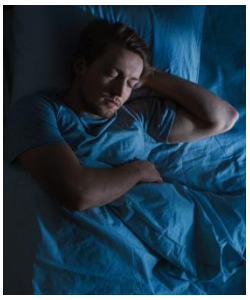
- Lower systolic & diastolic BP
- Promote blood vessel relaxation
- Decrease artery stiffness
- Strengthen the heart
- Improve sugar metabolism
- Promote weight loss
- Reduce stress hormones

There are two types of exercises that are particularly useful in BP management:

1. Aerobic exercise is the exercise that makes you huff and puff. Activities such as walking, cycling, and swimming are particularly effective in reducing blood pressure. The recommendations are for about half-an-hour each day
2. Resistance training are the strength training exercises that can also contribute to blood pressure reduction. This includes training with small weights or resistance bands for example. It is recommended that you do 2-3 sessions per week.

Weight management plays a significant role in controlling and preventing hypertension. On average, for every kilogram of weight lost, systolic blood pressure decreases by approximately 1 mmHg and diastolic blood pressure by about 0.5 mmHg. Excess weight forces the heart to work harder to pump blood throughout the body. Weight loss reduces the workload on the heart, which can help lower BP. Weight management can also improve function of the blood vessel lining, leading to better blood vessel relaxation and lower the blood pressure.

Getting some good quality sleep helps in the regulation of blood pressure management of hypertension. An adequate nightly rest:



- Maintains circadian rhythms
- Reduces the stress hormones
- Enhances blood vessel relaxation
- Improves sugar metabolism
- Manages the weight
- Decreases inflammation

Aim to get 7-8 hours each night, with the as many hours before midnight as possible, as this is the most restorative sleep time.

Smoking cessation has a definite positive impact on hypertension and it is well-documented in scientific literature. The key benefits include:

- Immediate lowering of the BP
- Repair of blood vessels
- Reduction in arterial stiffness
- Improvement in blood fats
- Decrease in inflammation

Sunlight exposure leads to the production of vitamin D in the skin. Adequate levels of vitamin D are associated with lower blood pressure and a reduced risk of hypertension. Sunlight exposure also stimulates the production of nitric oxide in the skin that helps relax blood vessels, thereby lowering blood pressure. Disrupted circadian rhythms have been linked to higher blood pressure and an increased risk of hypertension. Exposure to natural light during the day helps maintain a healthy circadian rhythm, which can positively affect blood pressure regulation.

Managing stress is essential for maintaining healthy blood pressure levels and reducing the risk of hypertension. Stress management can lower the BP in a number of ways:

- Decreases blood pressure elevating stress hormones
- Improves blood vessel wall function
- Relaxes blood vessels
- Reduces inflammation
- Leads to better lifestyle choices

There are well-known scientific benefits of spirituality on many aspects of our health, including hypertension. Having and active spiritual life contributes to a sense of well-being or peace, encourages positive coping mechanisms, and is associated with lower levels of stress hormones, and thus lower blood pressure. It also promotes healthy behaviours, such as avoiding alcohol and smoking, regular physical activity, and a balanced diet, which are all beneficial for maintaining healthy blood pressure. Being part of a church community can provide social support, which has been linked to lower blood pressure. Spirituality can help reduce symptoms of anxiety and depression, both of which are risk factors for high blood pressure.

There are some herbs that can provide some benefits in the management of high blood pressure.

- Olive leaf: 1-3g daily
- Garlic: 2-4g of dried powder daily
- Hawthorn berry: 1-3g daily (this can interact with some heart medications so be cautious with this herb)
- Hibiscus: 1-3g daily
- Celery seed: 3g daily (do not use this in pregnancy or if you have inflammation of the kidneys)