

Hypertension and exercise

What is hypertension?

Blood pressure (BP) refers to the pressure in the large arteries when the main pumping chamber of the heart — the left ventricle — is at maximal contraction (systole) and relaxation (diastole). BP is usually presented as two numbers: the higher, systolic BP (normally less than 120 mmHg); and the lower diastolic BP (normally less than 80 mmHg). The two pressures are usually expressed together, for example '120 over 80'. These values represent an estimation of the pressure that the organs are exposed to. Excessively high BP is called hypertension. Hypertension is a major risk factor for chronic kidney disease, heart failure, cardiovascular events (e.g. heart attacks and strokes) and early death. Hypertension may not cause any symptoms, which is why it is sometimes referred to as a 'silent killer'.

How is blood pressure monitored?

Correct diagnosis and management of hypertension relies on careful measurement of BP. This is usually achieved using automatic devices, which are available in pharmacies. Buyers should ensure that the device has been tested for accuracy before purchase (1). A well-fitting cuff for the upper arm is vital — too small a cuff will overestimate the true BP and too large a cuff will underestimate true BP.

Quite often, a person's BP is higher when measured by a doctor than if measured at home — so-called white coat hypertension. This effect is probably caused by anxiety associated with having BP measured by a doctor. For this reason, many experts recommend that the BP recorded by doctors should not be the only measurement used to diagnose hypertension or manage patients with hypertension (2).

Better methods to determine true underlying BP can be achieved by people monitoring their own BP at home for extended periods (e.g. 7 days), or with special devices that monitor BP intermittently over 24 hours while people go about their daily activities. Access to these superior BP methods can be achieved through specialist clinics or in general practice.

The higher the BP, the higher the risk of cardiovascular events. Therefore, doctors prescribe lifestyle changes (e.g. diet and exercise) and/or medication for people with high BP to reduce the risk.

Hypertension is described on a graded scale from mild to severe (see table below). A BP of 180 over 110 mmHg (or higher for either pressure) is classed as severe hypertension (grade 3).

| Blood Pressure Category | Systolic BP (mmHg) | Diastolic BP (mmHg) |
|---------------------------------|--------------------|---------------------|
| Normal | <120 | <80 |
| High-Normal | 120—139 | 80—89 |
| Grade 1 Hypertension (Mild) | 140—159 | 90—99 |
| Grade 2 Hypertension (Moderate) | 160—179 | 100—109 |
| Grade 3 Hypertension (Severe) | ≥180 | ≥110 |

Why is exercise important?

Regular aerobic exercise has a variety of effects that protect against heart disease and diseases of the blood vessels, including high BP. On average, exercise reduces blood pressure by about 6–7 mmHg. Scientific studies with large numbers of volunteers have shown that, if systolic BP is reduced by 5 mmHg, deaths from strokes decrease by 14% and deaths from coronary heart disease (i.e. blocking of the blood vessels that supply the heart) decrease by 9%. These results emphasise why lifestyle changes, including regular exercise, are important first steps in preventing and treating hypertension.



How does exercise affect blood pressure?

It is normal for BP to fluctuate as people go about their daily activities. During aerobic exercise (exercise for heart and lung fitness), systolic BP increases as the exercise intensity increases — the heart works harder to pump more oxygenated blood to the muscles. At the same time, diastolic BP remains relatively stable and may even decrease slightly. On average, men have higher BP than women during aerobic exercise. Some people have an abnormally high spike in BP when they exercise (exercise hypertension), which is associated with higher risk for future cardiovascular events and is probably an early indicator of poorly controlled BP. This should **not** be interpreted as 'exercise is bad for you', because this is definitely not true. Low BP during exercise (such as a drop below resting BP values) may also signal serious heart disease and requires investigation.

Regular physical activity is the first treatment recommended to lower BP and improve cardiovascular health, both in the general population and in those people with hypertension (3, 4). Importantly, exercise is usually safe and beneficial whether or not BP-lowering (antihypertensive) medication is used. However, chest discomfort, irregular heart rhythm or abnormal breathlessness when exercising can indicate underlying heart disease and should be further investigated. Also, people with a resting systolic BP of 180 mmHg or more, or a resting diastolic BP of 110 mmHg or more, should postpone their exercise program and seek medical advice.

What type and amount of exercise is best?

The exact amount and type of exercise that is best for BP control is not really known. However, scientific studies support that regular aerobic exercise reduces resting BP and also reduces BP during light exercise and daily activities. Additionally, aerobic exercise protects against developing hypertension in the future (5). These effects occur in both men and women, with normal or raised BP.

Resistance exercise training (i.e. weights training) also produces small, but measurable, benefits for BP. It is recommended to perform resistance exercises at a controlled, slow to moderate speed, through the full range of motion and without holding the breath.

Current recommendations on the type, intensity and duration of exercise for people with hypertension are available on the ESSA website (www.essa.org.au).

References and further information

Exercise is Medicine Australia www.exerciseismedicine.org.au

Find an Accredited Exercise Physiologist www.essa.org.au

Exercise Right www.exerciseright.com.au

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