
Stroke risk factors and prevention

Summary

- A stroke interrupts blood flow to an area of the brain.
 - Most stroke risk factors are lifestyle related, so everyone has the power to reduce their risk of having a stroke.
 - Risk factors should be considered together to understand the overall risk of stroke.
 - Some stroke risk factors, such as gender, age and family history, can't be controlled.
 - Lifestyle factors that increase your risk of stroke include high blood pressure, smoking, diabetes, high blood cholesterol levels, heavy drinking, high salt and high fat diet and lack of exercise.
 - Someone who has already experienced a stroke is at increased risk of having another.
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A stroke interrupts blood flow to an area of the brain. Strokes can be fatal, but the risk can be reduced. Many stroke risk factors are lifestyle related, so everyone has the power to reduce their risk of having a stroke.

Statistics on stroke

Australians will suffer more than half a million strokes in the next ten years, also:

- One in three people die within a year of having a stroke.
- Stroke kills more women than breast cancer.
- Almost one in five people who experience a stroke are under the age of 55.
- Men are more likely to suffer a stroke and at a younger age.
- In 2013, Australians suffered around 50,000 new and recurrent strokes – that's one stroke every 10 minutes.
- Stroke is Australia's second biggest killer after heart disease.

Causes of stroke

A stroke can occur as:

- a haemorrhagic stroke – an artery may rupture and cause bleeding into the brain tissue. Also called a cerebral haemorrhage
- an ischaemic stroke caused by atherosclerosis – an artery may become blocked by progressive thickening of its walls
- an ischaemic stroke caused by embolism – a clot blocks an artery and prevents blood getting to part of the brain.

The brain cells in the immediate area are killed because they are deprived of oxygen. The dead area that results from stroke is known as an infarct. Without prompt medical treatment, the area of brain cells surrounding the infarct will also die.

Risk factors of stroke

Some stroke risk factors can't be controlled. These include gender, age and family history. However, many stroke risk factors are lifestyle related. Everyone can reduce their risk of having a stroke by making a few simple lifestyle changes.

Lifestyle-related factors that increase your risk of stroke include:

- high blood pressure
 - cigarette smoking
 - diabetes
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- high blood cholesterol levels
- heavy drinking
- a diet high in fat (particularly saturated) and salt, but low in fibre, fruit and vegetables
- lack of regular exercise
- obesity.

Another important risk factor, particularly as you get older, includes atrial fibrillation (irregular heartbeat).

Overall risk increases when multiple risk factors are present. Your doctor should assess this overall risk (called '**absolute risk**') using a tool that calculates your risk of stroke and heart disease based on your age, sex, blood pressure, smoking history, cholesterol levels, and whether you have diabetes. Your doctor will also consider other factors such as if you have atrial fibrillation or kidney disease.

High blood pressure and stroke

High blood pressure (hypertension) is the most significant risk factor for stroke. Blood pressure refers to the pressure inside the arteries. Normal blood pressure is around 120/80, while high-normal blood pressure is 120/80 to 140/90. High blood pressure is when your blood pressure is consistently over 140/90. This is called 'hypertension'.

Hypertension means that the blood is exerting more pressure than is normal or healthy. Over time, this weakens and damages blood vessel walls, which can lead to stroke, particularly cerebral haemorrhage.

Hypertension may also cause thickening of the artery walls, resulting in narrowing and eventual blockage of the vessel (ischaemic stroke). In atherosclerosis, the pressure of your pumping blood could 'hose off' debris from damaged artery walls. The circulating debris (called emboli) can cause a stroke by lodging in and blocking a blood vessel in the brain.

Strategies to reduce high blood pressure include:

- Check your blood pressure regularly and know your numbers.
- Maintain a healthy weight for your height.
- Exercise regularly.
- Choose a low-fat, high-fibre diet.
- Reduce or eliminate salt from your diet.
- Limit your alcohol intake to two or fewer standard drinks per day.
- Stop smoking.
- Take antihypertensive medications to help control high blood pressure.

Atherosclerosis and stroke

Atherosclerosis is an inflammatory disease of the walls of the arteries and is a major cause of stroke. The term 'atherosclerosis' literally translates as hardening of the arteries. Healthy arteries are flexible and smooth-walled, allowing unimpeded blood flow. Arteries affected by atherosclerosis become stiff, inflexible and narrowed by deposits of cholesterol-laden 'plaque'.

This plaque destabilises the lining of the artery and can lead to the formation of blood clots within the vessel (atherothrombosis). These clots can then either block the artery or break off and flow downstream in the blood, lodging in a smaller vessel (embolism).

Either of these events (atherothrombosis or embolism) can cause an ischaemic stroke. Atherosclerosis can also weaken the walls of smaller arteries and result in haemorrhagic strokes.

Treatment for atherosclerosis includes:

- appropriate lifestyle changes
- medications that reduce the amount of fats circulating in the blood

- antiplatelet medications (such as aspirin) or anticoagulant drugs (such as warfarin) to prevent blood clots forming
- antihypertensive medications to reduce high blood pressure.

Carotid artery stenosis

Hardening of the arteries in the neck (carotid arteries) can be a high risk for stroke, because these arteries are responsible for delivering blood to the brain. Atherosclerosis of the carotid arteries causes narrowing. This is called carotid artery stenosis or carotid stenosis.

Most people with carotid stenosis are not aware of the condition until they have a transient ischaemic attack (TIA) or stroke. A TIA is a powerful warning that a full stroke is pending, possibly within hours, days, weeks or months. Apart from medications to control atherosclerosis, treatment may include surgery to unblock the carotid arteries.

Smoking and stroke

Smoking can double or even quadruple your risk of stroke. Some of the chemicals in cigarette smoke (such as nicotine and carbon monoxide) accelerate the process of atherosclerosis (narrowing of arteries). Clots are more likely to form because smoking thickens the blood and makes clotting factors, such as platelets, much more 'sticky'. Cigarette smoke forces arteries to constrict (get narrower), which makes it harder for the thickened blood to move through the vessels.

Strategies to quit smoking include:

- Call the Quitline for further advice and support.
- See your doctor for information and advice.
- Decide on a strategy, such as 'cold turkey' or using nicotine replacement therapy.
- Keep a smoking diary so that you are aware of your smoking triggers (such as stress or boredom).
- Ask your family and friends for support.
- Don't be discouraged by a slip-up. If you smoke a cigarette, put it behind you and keep going.

Diabetes and stroke

Diabetes is a chronic condition in which the body is unable to utilise blood sugar. A person with diabetes is around twice as likely to have a stroke as someone of the same gender and age, who doesn't have diabetes. This is because the high blood sugar levels contribute to the development of atherosclerosis (narrowing of arteries). It is very important that diabetes be kept under control.

Strategies to reduce the effects of diabetes include:

- See your doctor regularly for check-ups.
- Monitor your blood sugar levels regularly.
- Maintain a healthy weight for your height.
- Exercise regularly.
- Choose a low-fat, high-fibre diet.
- If you are on medication, make sure you are taking it correctly.

Cholesterol levels and stroke

Cholesterol is a fat-like substance that is made by the human body. It has many essential roles to play, but it becomes a problem if levels in the blood are too high. Blood cholesterol contributes to the formation of a substance called atheroma, which sticks to artery walls and leads to atherosclerosis (narrowing and hardening of the arteries).

Strategies to lower blood cholesterol levels include:

- Have your blood cholesterol levels checked regularly by your doctor.
- Eat a high-fibre diet.
- Reduce your intake of saturated fats (commonly found in animal products).

- See your doctor for information and advice. Medications may be recommended.

Alcohol and stroke

Some studies have indicated that drinking moderate amounts of alcohol (such as one or two standard drinks per day) can actually reduce the risk of stroke. However, people who drink heavily are three times more likely to have a stroke (particularly haemorrhagic stroke), regardless of their age. It is important to limit your alcohol intake.

Suggestions include:

- Limit your consumption to no more than two standard drinks per day.
- Have at least two alcohol-free days every week.
- See your doctor for information and referral if you are finding it difficult to limit your alcohol intake.

Diet and stroke

Various studies show that diet is an important risk factor in the development of stroke. Suggestions include:

- Limit or moderate salt intake.
- Choose fresh rather than processed foods.
- Increase your intake of vegetables, fruit and whole grains.
- Cut out or reduce sugary and fatty foods like cakes, lollies and junk food.
- See a dietitian who can help you plan a well-balanced diet.

Being overweight or obese can increase the risk of stroke. Too much body fat can contribute to high blood pressure and high cholesterol, and may lead to heart disease and type 2 diabetes. If you are unable to maintain your weight within recommended levels, ask a doctor or dietitian for help.

Exercise and stroke

A sedentary lifestyle (lots of sitting) increases the likelihood of obesity, high blood pressure and high blood cholesterol levels. These are all important risk factors for stroke. Suggestions include:

- See your doctor for a check-up if you haven't exercised for a while.
- Choose a range of activities you enjoy.
- Start your new exercise program slowly and only increase the intensity and duration as you become fitter.
- Exercise with a friend or join a team to add a fun social element.
- Remember to warm up and cool down.
- Contact a physiotherapist or fitness instructor for advice and information regarding appropriate exercise.
- Try to get moderate exercise for at least 30 minutes on (at least) five days of the week.

Atrial fibrillation and stroke

People with atrial fibrillation (AF), a particular type of irregular heartbeat, are at increased risk of ischaemic stroke. This is because the inefficient pumping of the atria (the chambers of the heart) allows blood to stagnate and ultimately form clots in the atria. Parts of these clots (emboli) may then break off, travel in the blood to the brain and block an artery, causing a stroke.

Treatment options include:

- warfarin, newer oral anticoagulants, or aspirin – to prevent the formation of blood clots and reduce the risk of emboli going to the brain and producing ischaemic strokes. Warfarin is an anticoagulant drug that provides a strong protective effect for people who have had a TIA or a stroke and have AF. There are other new drug types that are now available that are just as effective as warfarin to prevent strokes. Aspirin provides the lowest protection for stroke and may be considered where no other alternatives are suitable.
- other medication – speak to your doctor to make sure the amount you are taking is right for you. You should not stop taking any medication without speaking to your doctor first
- cardiac electrical treatment (cardioversion) – to try to make the heart beat regularly again
- use of digoxin – to slow the heart rate, if reversion to a normal beating heart cannot be achieved.

Medical professionals treating stroke

A person at high risk of stroke will have their condition managed by a team of medical professionals, which may include:

- your doctor
- cardiologist (heart specialist)
- geriatrician (specialist in diseases common in old age)
- neurologist (brain specialist)
- vascular surgeon (surgeon specialising in blood vessels)
- neurosurgeon (brain surgeon).

Where to get help

- Your doctor
- Other medical professionals
- Dietitians Association of Australia Tel. 1800 812 942
- National Stroke Foundation StrokeLine Tel. 1800 787 653
- **enableme** - The Stroke Foundation - Get the information, tips & techniques to equip you in your stroke recovery.
- Heart Foundation Heartline Tel. 1300 36 27 87
- Quitline Tel. 13 7848 (13 QUIT)

Things to remember

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