

# Risk factors for dementia

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**Dementia is the condition that people over 50 fear the most. It is often a particular concern for the 1 in 4 people aged over 55 who already have a close relative with dementia. However, dementia is not inevitable as we age and there is a lot you can do to reduce your chances of developing it.**

This factsheet outlines the factors linked to the most common types of dementia. It also offers advice on the steps everyone can take to reduce their risk of dementia and live healthier and more independently as they get older. If you are worried about your chances of developing dementia, learn more about your own risk factors and take action where you can.

## **What do we mean by 'risk' and 'risk factor'?**

A person's risk of developing a disease or condition is the chance that it will affect them over a certain period of time. We are all at some level of risk of developing dementia, but some of us have a higher or lower risk than others. For example, a typical 80-year-old woman is much more likely to develop dementia in the next five years than a typical 30-year-old woman.

A risk factor is anything that increases a person's risk of developing a condition. For dementia there are a mixture of factors – some that can be avoided and others that are impossible to control. However, having any of the risk factors does not mean a person will necessarily develop dementia in the future. Likewise, avoiding risk factors does not guarantee that a person will stay healthy, but it does make this more likely (see 'What are the risk factors for dementia?').

Many risk factors have been discovered from studying large groups of people and looking at what those with dementia have in common. However, just because something is linked to dementia does not mean that it causes the condition. The link may be the other way round, ie dementia increases a person's chances of having the apparent risk factor – for example, depression in later life. Or they may share an underlying cause.

Something is more likely to be a genuine risk factor if there is a plausible way in which it might make dementia more likely, based on our understanding of how dementia develops. A good example is the clear way that, because high blood pressure can cause strokes and strokes can cause vascular dementia, high blood pressure is a risk factor for vascular dementia.

Overall, the best kind of evidence for identifying risk factors comes from clinical trials. These look at what happens over time when some people in the trial are given a medicine (eg to lower blood pressure) or adopt different behaviours (eg various diets). Such dementia 'prevention' trials are increasing but are still not common. In order to show an effect on dementia, they generally need to run for many years and involve hundreds or even thousands of people. Even trials that assess smaller changes – for example, by testing mental abilities – can be very complicated to organise and expensive to do.

Very few studies of dementia risk factors have looked specifically at the less common dementias such as frontotemporal dementia (FTD) or dementia with Lewy bodies (DLB). This factsheet, unless stated otherwise, is about the risk factors for the more common types of dementia. These are Alzheimer's disease, vascular dementia and mixed dementia (when someone has more than one type of dementia, most often Alzheimer's disease and vascular dementia).

## **What are the risk factors for dementia?**

Researchers have discovered several important factors that affect our risk of developing dementia. These include age and genetics, but also medical conditions and lifestyle choices. A person's risk of developing

dementia depends upon a combination of all of these risk factors. Some of them, such as age or the genes we have inherited from our parents, are beyond our control. Others are things we can change, such as our lifestyle choices – for example, whether we smoke and how much we exercise.

If you, or someone you know, has developed dementia, it is natural to ask why. It is not usually possible to say for certain, although a doctor may be able to say which factor(s) might have contributed. In most cases a mixture of risk factors – potentially avoidable and not – will be responsible.

Different dementia risk factors also seem to be important at different stages in our lives. For example, many studies show that staying in education beyond the age of 16 seems to reduce your risk of dementia in later life. Likewise if you stop smoking, even at 60, you are probably lowering your later dementia risk. However, it is better to stop smoking sooner (or better still, not start at all) if you can. That said, many of the most important avoidable risk factors for dementia (eg high blood pressure, type 2 diabetes) tend to first appear in mid-life, between the ages of about 40 and 64. This is probably because the changes in the brain that cause dementia seem to start in middle age. So mid-life is a particularly important time to start adopting healthy behaviours if you're not already doing so.

## **Ageing**

Age is the strongest known risk factor for dementia. Whilst it is possible to develop the condition earlier – at least 1 in 20 people with dementia developed it at age under 65 (see factsheet 440, What is young-onset dementia?) – the chances of developing dementia rise significantly as we get older. Above the age of 65, a person's risk of developing Alzheimer's disease or vascular dementia doubles roughly every 5 years. It is estimated that dementia affects one in 14 people over 65 and one in six over 80.

This may be due to factors associated with ageing, such as:

- higher blood pressure
- increased risk of cardiovascular diseases (eg heart disease and stroke)
- changes to nerve cells, DNA and cell structure
- loss of sex hormones after mid-life changes
- the weakening of the body's natural repair systems
- changes in the immune system.

## **Gender**

Women are more likely to develop Alzheimer's disease than men. This is the case even if we allow for the fact that women on average live longer. The reasons for this are still unclear. It has been suggested that Alzheimer's disease in women is linked to a lack of the hormone oestrogen after the menopause. However, controlled trials of hormone replacement therapy (HRT, which replaces female hormones) have not been shown to reduce the risk of developing Alzheimer's. The age at which HRT is started, however, may affect the outcome. HRT (prescribed mainly to help with symptoms of the menopause) is not recommended as a way for women to help reduce their risk of dementia.

For most dementias other than Alzheimer's disease, men and women have much the same risk. For vascular dementia, men are actually at slightly higher risk than women. This is because men are more prone to stroke and heart disease, which can cause vascular and mixed dementia.

## **Ethnicity**

There is some evidence that people from certain ethnic communities are at higher risk of dementia than others. For example, South Asian people (from countries such as India and Pakistan) seem to develop

dementia – particularly vascular dementia – more often than white Europeans. South Asians are well known to be at a higher risk of stroke, heart disease and diabetes, and this is thought to explain the higher dementia risk. Similarly, people of African or African-Caribbean origin seem to develop dementia more often. They are known to be more prone to diabetes and stroke. All of these effects are probably down to a mix of differences in diet, smoking, exercise and genes.

## **Genetics**

Scientists have known for some time that the genes we inherit from our parents can affect whether or not we will develop certain diseases. The role of genes in the development of dementia is not yet fully understood, but researchers have made important advances in recent years.

More than 20 genes have been found that do not directly cause dementia but affect a person's risk of developing it. For example, inheriting certain versions (variants) of the gene apolipoprotein E (APOE) increases a person's risk of developing Alzheimer's disease. Having a close relative (parent or sibling) with Alzheimer's disease increases your own chances of developing the disease very slightly compared to someone with no family history. However, it does not mean that dementia is inevitable for you.

It is also possible to inherit genes that directly cause dementia, although these are much rarer than the risk genes like APOE. In affected families there is a very clear pattern of inheritance of dementia from one generation to the next. This pattern is seen in families with familial Alzheimer's disease (a very rare form of Alzheimer's which appears usually well before the age of 60) and genetic frontotemporal dementia. If a person has the faulty gene then each of their children has a 50 per cent chance of inheriting it and so developing the dementia. For more information see factsheet 405, **Genetics of dementia**.

## Medical conditions and diseases

### Cardiovascular factors

There is very strong evidence that conditions that damage the heart, arteries or blood circulation all significantly affect a person's chances of developing dementia. These are known as cardiovascular risk factors. The main ones for dementia are:

- type 2 diabetes – in mid-life or later life
- high blood pressure – in mid-life
- high total blood cholesterol levels – in mid-life
- obesity – in mid-life.

These conditions are avoidable risk factors for dementia and also for cardiovascular diseases (stroke and heart disease, such as abnormal heart rhythm). Having cardiovascular disease or type 2 diabetes increases a person's risk of developing dementia by up to two times.

These cardiovascular conditions are most strongly linked to vascular dementia. This is because vascular dementia is caused by problems with blood supply to the brain (see factsheet 402, **What is vascular dementia?**).

Recent research suggests that many people with dementia have mixed dementia, or they have Alzheimer's disease with some vascular damage in the brain. The cardiovascular risk factors and diseases should be considered as risk factors for mixed dementia and not just vascular dementia. In some cases (eg diabetes or high mid-life cholesterol) they are known risk factors for Alzheimer's disease as well.

### Depression

People who have had periods of depression – whether in mid-life or later life – also seem to have increased rates of dementia. Whether depression is a risk factor that in part causes dementia is not clear,

and the answer probably differs with age. There is some evidence that depression in middle age does lead to a higher dementia risk in older age. In contrast, depression in later life, ie when a person is in their 60s or older, may be an early symptom of dementia rather than a risk factor for it.

## Other conditions

Other medical conditions that can increase a person's chances of developing dementia include Parkinson's disease, multiple sclerosis and HIV. Down's syndrome and other learning disabilities also increase a person's risk of dementia. See factsheets 442, **Rarer causes of dementia**, and 430, **Learning disabilities and dementia**.

A number of other conditions have been linked to dementia in some studies, but evidence on them is still emerging. These conditions include chronic kidney disease, hearing loss, anxiety and sleep apnoea (where breathing stops for a few seconds or minutes during sleep). There is also growing evidence that loneliness and social isolation may increase someone's risk of dementia. In many of these cases, more research is needed to show the strength and 'direction' of this link (ie what causes what).

## Lifestyle factors

There is overwhelming evidence that our lifestyle choices affect our risk of developing dementia. This is especially true of activities linked to cardiovascular health, so 'What's good for your heart is good for your head'.

Studies of large groups show that dementia risk is lowest in people who have several healthy behaviours in mid-life. These behaviours include regular physical exercise, not smoking, drinking alcohol only in moderation (if at all), and maintaining a healthy diet and weight. The dementia risk is lowest in people who do three or more of these, not just one or two. Trials also suggest that practising healthy behaviours in combination seems to work better than adopting one or two.

This section summarises the scientific evidence from population studies or – less often – trials on the main lifestyle risk factors for developing dementia. For practical advice see ‘Tips: How you can reduce your risk of developing dementia’.

- **Physical inactivity** – This is one of the strongest lifestyle risk factors for developing dementia. It is also closely linked to an increased risk of heart disease, stroke and type 2 diabetes. These cardiovascular and metabolic effects of being inactive are well known, but physical inactivity also has direct effects on the structure and function of the brain.

- **Smoking** – Smoking tobacco has an extremely harmful effect on the heart, lungs and vascular system, including the blood vessels in the brain. Smoking significantly increases the risk of developing dementia later in life, especially Alzheimer’s disease (as well as type 2 diabetes, stroke and heart disease).

- **Unhealthy diet** – An unhealthy diet can affect a person’s risk of developing many illnesses, including dementia, but also cardiovascular disease and type 2 diabetes. A poor diet is one that contains too much saturated fat, which raises cholesterol, narrows the arteries and leads to weight gain. An unhealthy diet also includes too much salt (which contributes to high blood pressure and stroke) and too much sugar (an additional factor in weight gain and type 2 diabetes). See ‘Tips: How you can reduce your risk of developing dementia’ for advice on what is a good diet to reduce dementia risk.

- **Excessive alcohol** – Regularly drinking above the NHS recommended levels of alcohol increases a person’s risk of developing dementias such as Alzheimer’s disease and vascular dementia. Excessive alcohol consumption at higher levels over a long period of time also increases the risk of developing Korsakoff’s syndrome and alcoholic dementia. For more information see factsheet 438, **What is alcohol-related brain damage?**

Many specialists used to think that low to moderate levels of drinking – a few units each week – reduces the risk of dementia



(mainly because it may help to keep the heart healthy). Although this 'protective effect' remains controversial, most specialists now no longer think that alcohol at low or moderate levels reduces your dementia risk.

- **Head injuries** – A severe blow to the head – especially being knocked out – increases the risk of later dementia such as Alzheimer's disease. About a fifth of professional boxers go on to develop a different form of dementia. This used to be known as dementia pugilistica but is now known as chronic traumatic encephalopathy. This is thought to be caused by protein deposits formed in the brain as a result of head injury. Recent evidence suggests that professional American footballers, who often have repeat mild head injuries, may also be at risk of chronic traumatic encephalopathy.

## **Tips: How you can reduce your risk of developing dementia**

There are lots of things you can do to reduce your chances of developing dementia. You can adopt a healthy lifestyle at any time. It's never too early, but starting in mid-life is a good time if you've not already done so. Many people use significant changes in their lives – for example, children moving out, a health scare, divorce or starting the menopause – as a trigger to live more healthily.

You will find it easier to adopt a healthier lifestyle (eg exercising more or eating better) if you can build it into your normal daily routine. Getting your friends and family to support you – or better yet, join you – also makes it more fun and therefore makes you more likely to continue.

- **Be physically active** – Regular moderate physical exercise is one of the best ways to reduce your risk of dementia, raise your cardiovascular health and improve your mental wellbeing. 'Regular' means exercising five times each week for 30 minutes each time. You can build up to this gradually. 'Moderate' exercise means doing an activity that leaves you a bit out of breath, raises your heart rate and

may make you slightly sweaty. Exercising like this brings many health benefits even if you're not losing weight. Activities could include brisk walking, cycling, swimming or dancing. You don't have to go to a gym or run a marathon. You could join a walking group, try a class at your leisure centre, or go dancing with friends. Try cycling to work, walking the children to school, getting off the bus two stops earlier and walking or taking the stairs instead of the lift. There are now lots of wearable gadgets or smartphone apps which record how active you've been.

- **Stop smoking** – If you do smoke, stop. It is better to stop smoking sooner (or better still, to never start) but it is never too late to quit. Even if you stop smoking in later life it will benefit your overall health and may reduce your risk of dementia. NHS Stop Smoking advisers can provide information, advice and support on how to quit. You might be able to refer yourself, or talk to your GP or local pharmacy for advice. Many people now use e-cigarettes, which provide nicotine without the harmful tobacco smoke, to help them quit smoking. For more information about quitting call the NHS Go Smokefree helpline on 0300 123 1044.

- **Eat healthily** – A healthy balanced diet includes lots of fruit and vegetables. Aim for five portions a day. Fresh, frozen and tinned fruit and vegetables all count. A healthy diet also has fish at least twice a week, including oily fish (eg mackerel, salmon, sardines) which contains healthy polyunsaturated (omega-3) fatty acids and vitamin D. Adding starchy foods (eg potatoes, brown rice, pasta, bread) and protein (eg meat, fish, eggs, beans) will also help you maintain a balanced diet. Following a 'Mediterranean' kind of diet is good for your cardiovascular health and may reduce your dementia risk. This diet is high in vegetables, fruit and cereals. Fats are mainly unsaturated (eg olive oil) with very little saturated fat (eg cakes, biscuits, butter, most cheeses). A Mediterranean diet also has some fish, poultry, eggs and dairy, but only a small amount of red or processed meat. To eat healthily, limit sugary treats such as fizzy drinks and sweets and keep an eye on your salt intake, especially salt hidden in bread, pizza and ready meals.

Read the labels on foods to see what they contain or look for healthier (reduced fat or salt) options. Speak to your doctor or pharmacist if you are thinking of taking a vitamin or mineral supplement.

- **Maintain a healthy weight** – Keeping to a healthy weight will reduce your risk of type 2 diabetes, stroke and heart disease – and hence probably of dementia. As well as weight, keep an eye on your waistline, as fat round your middle is particularly unhealthy. A good starting point is to follow the advice on physical exercise and maintain a healthy diet. Keep a diary of your food intake and exercise for each day – you are more likely to lose weight if you burn off what you eat. Visit the NHS Live Well pages for ideas, such as eating smaller portions at mealtimes. Alcohol contains hidden calories, so be aware of how much you drink. You could also consider joining a local weight loss group. If you've tried to make changes without success, your GP can also offer advice.

- **Drink alcohol within recommended levels (if at all)** – If you do drink, keep below the recommended NHS levels. These changed in 2016 and are now a maximum of 14 units each week for men and women, spread over three or more days. This is the same as four or five large glasses of wine over the week, or seven pints of beer or lager with lower alcohol content. To check how much you're drinking, record your units over the week – and be honest. If you want to cut down, set yourself a limit for each time you drink (and keep to it). You can also try smaller glasses, drinks with lower alcohol content, drinking with food, or alternating soft and alcoholic drinks. If you really find it a struggle to cut down, talk to your GP about what support is available.

- **Keep mentally active** – If you can keep your mind stimulated you are likely to reduce your risk of dementia. Regular mental activity throughout a person's lifetime seems to increase the brain's ability. This helps build up a 'cognitive reserve' and allows the brain to cope better with disease. (This link between brain activity and dementia is sometimes described as 'Use it or lose it'.) Keeping mentally active could help to delay the symptoms of dementia by several years. It could even mean that you never get it. You could try learning a new language, doing puzzles (eg word searches, crosswords, Sudoku),

playing cards, reading challenging books or writing letters. Find something enjoyable which stimulates your mind, do it regularly and keep doing it. There is not yet enough evidence to add computer 'brain training' games to this list, in spite of claims made by some manufacturers. Benefits from brain training are so far modest. They might make you better at a specific task, as practised within the game, but broader benefits for your mind or daily life are so far largely unproven. None has been shown to reduce the risk of developing dementia, although there is lots of research and new studies reporting all the time.

- **Be social** – There is emerging evidence that keeping socially engaged and having a supportive social network may reduce your dementia risk. It will also make you less prone to depression and more resilient. Try to visit family and friends, look after grandchildren, travel or volunteer. You may like to try joining a social/activity club or a group at a place of worship.

- **Take control of your health** – Managing your health can reduce your dementia risk. If you are invited for an NHS Health Check (in England), make sure you go. At this free mid-life 'MOT', a health professional will talk to you and measure your cardiovascular risk factors (eg blood pressure, weight, cholesterol). If necessary, you can then agree a plan to reduce your own risk of cardiovascular disease and dementia. In Wales, visit the Add to your life website for a self-assessment (see 'Useful websites'). In Northern Ireland, contact Northern Ireland Chest, Heart and Stroke (see 'Other useful organisations'). You can keep track of your weight or measure your blood pressure at home at any time with a simple monitor. If you feel that you might be getting depressed, seek treatment early.

- If you are already living with a long-term condition (eg diabetes, heart disease or high blood pressure) it's important to keep this under control. Follow professional advice about taking medicines – even if you feel well – and on lifestyle, such as diet and exercise.

Reducing your dementia risk means living a healthy lifestyle and keeping physically, mentally and socially active.

## Useful websites

### Healthier living

NHS Choices – Live well

[www.nhs.uk/livewell](http://www.nhs.uk/livewell)

Practical tips from the NHS on how you can make healthier choices for a healthier life. Includes advice on smoking, diet, exercise, alcohol and depression.

[www.nhs.uk/Change4Life](http://www.nhs.uk/Change4Life)

[www.change4lifewales.org.uk](http://www.change4lifewales.org.uk) (in Wales)

Campaign in England and Wales with tips on eating well, moving more and drinking less. In Northern Ireland, see Get a life, get active ([www.getalifegetactive.com](http://www.getalifegetactive.com))

### Health checks

Add to your life (Wales)

[www.addtoyourlife.wales.nhs.uk](http://www.addtoyourlife.wales.nhs.uk)

An online tool to assess your health (Wales residents only).

NHS Health Check (England)

[www.healthcheck.nhs.uk](http://www.healthcheck.nhs.uk)

Advice for people in England aged 40–74 without a health condition on how to get a free midlife ‘MOT’.

Northern Ireland Chest, Heart and Stroke

[www.nichs.org.uk/304/health-checks](http://www.nichs.org.uk/304/health-checks)

Offers anyone the option to book either an ‘express’ or ‘mini’ health check.

One You

[www.nhs.uk/oneyou](http://www.nhs.uk/oneyou)

An online quiz that evaluates lifestyle choices, helping you to make better decisions that will prevent you becoming ill in later life.

## **Other useful organisations**

### **Blood Pressure UK**

Wolfson Institute of Preventive Medicine  
Charterhouse Square  
London EC1M 6BQ

T 020 7882 6218  
E [help@bloodpressureuk.org](mailto:help@bloodpressureuk.org)  
W [www.bloodpressureuk.org/Home](http://www.bloodpressureuk.org/Home)

UK charity dedicated to lowering the nation's blood pressure. Provides information and support for individuals and healthcare professionals, and runs awareness-raising activities.

### **British Heart Foundation**

Greater London House  
180 Hampstead Road  
London NW1 7AW

T 0300 330 3311 (Heart Helpline, open  
weekdays 9am–5pm)  
E [hearthelpline@bhf.org.uk](mailto:hearthelpline@bhf.org.uk)  
W [www.bhf.org.uk](http://www.bhf.org.uk)

National heart charity that invests in research, supports and cares for heart patients, and provides information to help people reduce their own risk of dying prematurely from a heart or circulatory illness.

### **Diabetes UK**

Macleod House  
10 Parkway  
London NW1 7AA

T 0345 123 2399  
(Careline, open weekdays 9am–5pm)  
E [info@diabetes.org.uk](mailto:info@diabetes.org.uk)  
W [www.diabetes.org.uk](http://www.diabetes.org.uk)

Charity devoted to the care and treatment of people with diabetes in order to improve the quality of life for people with the condition. Provides a range of information and support through its website and helpline.

### **Northern Ireland Chest, Heart & Stroke**

Belfast office  
21 Dublin Road  
Belfast BT2 7HB

T 028 9032 0184  
E [mail@nichs.org.uk](mailto:mail@nichs.org.uk)  
W [www.nichs.org.uk](http://www.nichs.org.uk)

A charity in Northern Ireland offering support and support services for people and their families affected by chest, heart and stroke illnesses.

### **Smokefree**

T 0300 123 1044 (helpline)  
W [www.nhs.uk/smokefree](http://www.nhs.uk/smokefree)

A free NHS service that offers advice and support to help people quit smoking.

### **Stroke Association**

240 City Road

London EC1V 2PR

T 0303 3033 100 (helpline, open weekdays

9am–5pm )

E [info@stroke.org.uk](mailto:info@stroke.org.uk)

W [www.stroke.org.uk](http://www.stroke.org.uk)

National charity providing information and practical support for people who have had a stroke, and for their families or carers. It aims to help reduce the incidence of stroke through health education, and funds research and campaigns for better services.



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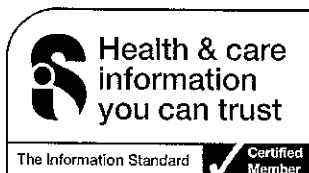
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This factsheet has also been reviewed  
by people affected by dementia.

A list of sources is available on  
request.



Alzheimer's Society National  
Dementia Helpline

England, Wales and Northern Ireland:  
**0300 222 11 22**

9am–8pm Monday–Wednesday  
9am–5pm Thursday–Friday  
10am–4pm Saturday–Sunday

**alzheimers.org.uk**

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