

Risk factors for dementia

Factsheet 450LP
June 2021



Dementia is not a natural part of ageing. It is a set of symptoms that develop when the brain is damaged by disease. There are many things that can increase a person's chances of developing dementia – these are known as 'risk factors'.

There are different types of risk factors for dementia, including medical, lifestyle and environmental factors. It is possible to avoid some risk factors, while others cannot be controlled.

This factsheet describes the risk factors for the two most common types of dementia – Alzheimer's disease and vascular dementia. It is written for anyone who wants to know more about what increases a person's chances of getting dementia.

For advice on how to lower your chances of developing dementia, see booklet 35, **Dementia: reducing your risk**.

Contents

- What do 'risk' and 'risk factor' mean?
- What are the risk factors for dementia?
 - Ageing
 - Genes
 - Gender and sex
 - Cognitive reserve
 - Ethnicity
 - Health conditions and diseases
 - Lifestyle factors
- Other useful organisations

Risk factors for dementia

What do 'risk' and 'risk factor' mean?

A person's 'risk' of developing dementia is the chance that they will get it at some point in their life. Everyone has a chance of developing dementia, but some people have a greater chance than others. These people are at 'higher risk'.

A 'risk factor' is something that is known to increase a person's chances of developing a condition. For example, ageing is a risk factor for dementia. This means a person who is aged over 75 is more likely to develop dementia than someone who is under 75.

Some risk factors for dementia cannot be reduced or avoided but many others can – especially with the right support. For more information see 'What are the risk factors for dementia?' on page 4.

It's important to remember that a person may still get dementia if they avoid risk factors and have a 'low risk'. This is because having a low risk only makes a person less likely to get dementia. It does not mean they will definitely avoid dementia.

A 'risk factor' is something that is known to increase a person's chances of developing a condition.

This factsheet is about risk factors for dementia caused by Alzheimer's disease, and heart or vascular disease (vascular dementia), unless stated otherwise. Very few studies have looked specifically at risk factors for less common types of dementia, such as frontotemporal dementia (FTD) or dementia with Lewy bodies (DLB).

What are the risk factors for dementia?

There are several known risk factors for dementia. Some factors only slightly increase a person's risk while others make it much more likely that the person will develop the condition.

For most people, the biggest risk factors for dementia are ageing and genes. A person's risk of getting dementia can also be increased by their:

- gender and sex
- ethnicity
- amount of 'cognitive reserve' – the brain's ability to cope with disease
- other health conditions, if any
- lifestyle – for example, smoking and excessive alcohol use
- exposure to air pollution.

You can find information on all of these risk factors in the following sections.

Some risk factors for dementia can't be avoided – for example ageing and genes. However there are lots of risk factors that can be avoided, or at least reduced – for example smoking. Around 4 in every 10 cases of dementia may be prevented by avoiding some of these risk factors.

A person can avoid some risk factors for dementia by making healthy life choices, such as not drinking too much alcohol. However, they may need wider changes to happen to avoid other risk factors – for example, effective environmental policies are needed to reduce air pollution. For more information on reducing your risk through individual lifestyle choices, see booklet 35, **Dementia: reducing your risk**.

Ageing

The biggest risk factor for dementia is ageing. This means as a person gets older, their risk of developing dementia increases a lot.

For people aged between 65 and 69, around 2 in every 100 people have dementia. A person's risk then increases as they age, roughly doubling every five years. This means that, of those aged over 90, around 33 in every 100 people have dementia.

Ageing is a risk factor for dementia because dementia can take a long time to develop. This is because dementia is caused by diseases that damage the brain, such as Alzheimer's disease or vascular disease. It can take these diseases many years to damage the brain enough to cause the symptoms of dementia. This means that the longer a person lives, the more time there is for dementia to develop.

Ageing is also a risk factor for dementia because an older person is likely to be coping with other changes and health conditions that can increase their risk. For example, an older person is more likely to have:

- high blood pressure
- blood vessels in the brain that are damaged, twisted or blocked
- a greater risk of having a stroke
- cells in the brain that aren't as active as those of younger people
- a weaker immune system
- a slower ability to recover from injuries.

As a person ages, they will also become more physically frail over time. Along with the changes listed above, this can make a person more likely to develop problems with their thinking and memory.

Although older people are at a higher risk of dementia, younger people can still get it. At least 1 in 20 people with dementia developed the condition when they were aged under 65. For more information see factsheet 440,

What is young-onset dementia?

Genes

There are certain genes that may be passed down (inherited) from a parent that can affect a person's chances of getting dementia. There are two types of these genes: 'familial' genes and 'risk' genes.

Familial genes will definitely cause dementia if they are passed down from a parent to a child. If one parent has a familial gene, their child will have a 1 in 2 chance of inheriting it and developing dementia – usually when they are in their 50s and 60s. Familial genes are very rare for most types of dementia. However, these genes may be the cause of around 1 in 3 cases of frontotemporal dementia, which is a less common type of dementia.

Risk genes increase a person's chances of developing dementia. They are much more common than familial genes. However, unlike familial genes, risk genes do not always cause a person to develop dementia. More than 20 risk genes have been found so far and most of them only slightly increase a person's risk of dementia.

The most important risk gene for dementia is called apolipoprotein E (APOE). Certain versions (variants) of the APOE gene can make a person up to four times more likely to develop Alzheimer's disease than people who don't have this version of the gene. However, it's important to remember that these higher-risk versions still don't always cause dementia. Most people with higher-risk versions of the APOE gene don't ever develop the condition.

For more information see factsheet 405, **Genetics of dementia**.

Cognitive reserve

‘Cognitive reserve’ is a person’s ability to cope with disease in their brain. It is built up by keeping the brain active over a person’s lifetime. The more cognitive reserve a person has, the longer it takes for any diseases in their brain to cause problems with everyday tasks. This means people with a larger cognitive reserve can delay the start of dementia symptoms for a longer period of time. People with a smaller cognitive reserve are at a higher risk of getting dementia in their lifetime.

The three most important factors that can lead to a smaller cognitive reserve are:

- **leaving education early:** a person who left school at an early age is more likely to have a smaller cognitive reserve than a person who stayed in full-time education for longer or who continued learning throughout their life
- **less job complexity:** a person who has not used a range of mental skills during their lifetime of work – for example, memory, reasoning, problem-solving, communication and organisational skills – is more likely to have a smaller cognitive reserve
- **social isolation:** a person who has not interacted much with other people during their life may also have a smaller cognitive reserve.

This means these factors are also risk factors for dementia.

Whilst a lot of a person’s cognitive reserve is built up during their childhood and early adulthood, there are many things a person can do to increase their cognitive reserve later in life, such as staying mentally and socially active.

Sex and gender

Overall, there are more women than men living with dementia. This is mostly because women tend to live longer than men (see 'Ageing' on page 5). The risk of getting dementia is about the same for men and women. However, women who are currently over 80 have a slightly higher risk of getting dementia than men their age.

The reasons why women over 80 have a higher risk of dementia than men over 80 are still unclear. It is possible that general differences in the lifestyles of these women and men over time have caused differences in their level of risk. For example, women currently in this age group may have had less access to education or work opportunities than men their age (see 'Cognitive reserve' on page 7).

Separate to gender, there have also been concerns that levels of sex hormones around the time of menopause may affect a person's risk of dementia. The evidence on this is still unclear. When a person goes through the menopause, their levels of oestrogen and progesterone fall. Some research has suggested that the earlier this happens in someone's life, the higher their risk of dementia. However, clinical trials of hormone replacement therapy (HRT, which replaces these sex hormones) have not shown any effect on the risk of developing dementia. Until there is clearer evidence, HRT is not recommended as a way to help people reduce their risk of dementia.

Ethnicity

A few studies have suggested that people from Black African, Black Caribbean and South Asian ethnic groups are more likely to get dementia than people from White ethnic groups. This includes a recent study of people living in London which also found that people from Black ethnic groups have the highest level of risk.

One possible reason for these differences is that people from Black African, Black Caribbean and South Asian ethnic groups in the UK are more likely to develop diabetes and cardiovascular disease (CVD) as they get older – both diabetes and CVD are important risk factors for dementia (see ‘Cardiovascular factors’ on page 10).

However, more evidence is needed to be certain that ethnicity itself is a risk factor for dementia. Differences in risk between different ethnic groups may be caused by other factors. For example, some ethnic groups may generally have less access to education and work opportunities (see ‘Cognitive reserve’ on page 7), and may be more likely to live in deprived areas (see below).

Deprived areas

A deprived area is an area with limited access to basic resources and services, such as suitable housing, education and work opportunities. People who live in deprived areas are at a higher risk of getting dementia. This may be because the lack of opportunities in these areas makes it harder for a person to get further education and to access jobs that keep a person mentally active throughout their life.

More deprived areas also tend to have higher levels of air pollution (see page 13) and less access to health and social care. This makes it harder for a person to manage any health problems that can lead to dementia (see ‘Health conditions and diseases’ on page 10).

Health conditions and diseases

Cardiovascular factors

A cardiovascular disease (CVD) is a disease that damages the heart or makes it harder for blood to circulate around the body. CVD can greatly increase a person's risk of developing dementia. This means that most risk factors for CVD are also risk factors for dementia.

The main CVD risk factors that are known to increase a person's risk of getting dementia are:

- high blood pressure
- increasingly stiff and blocked arteries (known as 'atherosclerosis')
- high blood cholesterol levels
- being overweight and physically unfit
- type 2 diabetes.

These factors start to have an effect during a person's mid-life (aged 40–65), increasing their risk of developing dementia later in life. Type 2 diabetes is also an important risk factor for people in later life (over 65).

These CVD risk factors are most strongly linked to vascular dementia. This is because vascular dementia is directly caused by problems with blood supply to the brain (see factsheet 402, **What is vascular dementia?**). However, CVD risk factors can also increase a person's risk of developing Alzheimer's disease.

Many people can avoid these CVD risk factors and there are many organisations who can provide support with this. For more information see booklet 35, **Dementia: reducing your risk** and 'Other useful organisations' on page 15.

Hearing loss

Dementia is more common in people who developed hearing problems during mid-life (aged 40–65). This means that, if a person's hearing worsens in mid-life, their risk of developing dementia when they are older increases. There may be several reasons for this, including:

- People with hearing problems may be more likely to withdraw from social situations and become more isolated over time. This can reduce their cognitive reserve (see page 7).
- The effort of straining to hear things may also make it harder for other mental processes to work properly.
- The diseases that cause dementia can also affect hearing.

Studies have shown that using a hearing aid may significantly reduce a person's risk of getting dementia. It's important that a person gets regular hearing tests as they get older.

Traumatic brain injuries

Traumatic brain injuries (TBIs) are caused by a blow or jolt to the head – especially if the person is knocked out unconscious. TBIs can start a process in the brain where the substances that cause Alzheimer's disease build up around the injured area. Even if the injury happens when a person is young, it can still increase their risk of developing dementia. If the person suffers several TBIs their risk increases even more.

Serious TBIs in younger people are mostly caused by:

- road traffic accidents
- an object accidentally hitting their head
- active service in the armed forces
- some sports (particularly boxing, cycling, skiing and horse riding).

The risks related to regular but less serious physical blows to the head are still unclear, such as those in football and rugby. There is some evidence that professional football players may have a slightly higher risk of developing dementia when they get older. However, this should be considered alongside the fact that football players generally live longer than other people.

Depression

People who have had periods of depression in their life also have a higher risk of developing dementia. This may be because depression has harmful long-term effects on the brain and on the way a person thinks and copes with difficulties. It's still not clear if treating a person's depression with antidepressants can reduce their risk of dementia. However, preventing depression from happening in the first place is likely to help.

There are many people who develop depression a few years before they get dementia. However, in these cases, it may be the development of dementia that is causing depression.

Other conditions

Some long-term medical conditions may cause problems with a person's thinking and memory that can develop into dementia in severe cases. These conditions include:

- multiple sclerosis
- HIV
- rheumatoid arthritis
- kidney disease.

Down's syndrome and other learning disabilities greatly increase a person's risk of developing young-onset dementia, usually caused by Alzheimer's disease. For more information see factsheet 430, **Learning disabilities and dementia**.

Air pollution

Certain forms of air pollution increase a person's risk of dementia. These include very small particles from traffic fumes and from burning wood in the house, for example in a fireplace. If a person breathes in these particles, the particles may cause damage to blood vessels in the person's brain, as well as a build-up of substances that can cause Alzheimer's disease.

Unfortunately it is difficult for a person to reduce their exposure to polluted air. Governments need to develop better environmental policies to reduce air pollution, such as banning heating fuels that produce lots of smoke particles.

Lifestyle factors

There is a lot of evidence that our lifestyle choices can affect our risk of developing dementia.

Studies show that dementia risk is lowest in people who have several healthy behaviours in mid-life (aged 40–65). These behaviours include:

- regular mental, physical and social activity
- not smoking
- drinking alcohol only in moderation
- keeping a healthy diet.

The risk of dementia is lowest in people who do at least three of these behaviours. Doing just one or two of these behaviours only reduces risk by a very small amount.

This section explains how these lifestyle factors can increase a person's risk of dementia. For practical advice on reducing your risk, see booklet 35, **Dementia: reducing your risk.**

- **Physical inactivity** – Physical inactivity can worsen the health of a person's heart, lungs and blood circulation, and make it harder for them to control their blood sugar. It is closely linked to a higher risk of heart disease, stroke and type 2 diabetes, which are all risk factors for dementia (see page 10).
- **Smoking** – Smoking damages a person's heart, lungs and blood circulation, particularly the blood vessels in the brain. It causes harmful substances to build up in the brain that cause inflammation and prevent enough oxygen getting to nerve cells. The substances also increase a person's risk of having a stroke, which can lead to vascular dementia.
- **Unhealthy diet** – Eating a diet that lacks a good range of healthy foods may increase a person's risk of dementia. There are many possible reasons. For example, an unhealthy diet increases the risk of high blood pressure which is a risk factor for dementia (see page 10). Ideally a person should eat lots of fruits and vegetables, wholegrain cereals, fish, low-fat dairy, beans and pulses, and not too much red or processed meats like sausages, ham or bacon. Too much salt (more than a teaspoon per day) is also linked with higher risk of dementia.
- **Too much alcohol** – Regularly drinking above the recommended amounts of alcohol exposes the brain to high levels of toxic substances that can damage nerve cells over time. The recommended amount of alcohol per week is 14 units, ideally spread over at least three days rather than all at once. Drinking very high levels of alcohol over a long period of time also increases a person's risk of Korsakoff's syndrome and alcohol-related brain damage, which increases the risk of dementia. For more information see factsheet 438, **What is alcohol-related brain damage (ARBD)?**

Other useful organisations

Blood Pressure UK

020 7882 6218

help@bloodpressureuk.org

www.bloodpressureuk.org

Blood Pressure UK is a charity dedicated to lowering people's blood pressure in the UK. It provides information and support for individuals and healthcare professionals, and runs awareness-raising activities.

British Heart Foundation

0300 330 3311 (Heart Helpline, 9am–5pm Monday–Friday)

hearthelpline@bhf.org.uk

www.bhf.org.uk

British Heart Foundation is a national heart charity. It invests in research, supports people with heart or circulatory illness, and provides information to help people reduce their own risk of cardiovascular illness.

Diabetes UK

0345 123 2399 (Helpline, 9am–6pm Monday–Friday)

helpline@diabetes.org.uk

www.diabetes.org.uk

Diabetes UK is a charity that supports people with diabetes to live well. It also provides information and advice on reducing the risk of Type 2 diabetes.

Drinkaware

020 7766 9900

contact@drinkaware.co.uk

www.drinkaware.co.uk

Drinkaware is a UK-wide charity that provides independent alcohol advice, information and tools to help people make better choices about their drinking.

NHS Better Health

www.nhs.uk/better-health

NHS Better Health is an online service that provides a range of resources to help people lose weight, quit smoking and be more active.

NHS Eatwell Guide

www.nhs.uk/live-well/eat-well/the-eatwell-guide

NHS Eatwell Guide is an online guide that has tips and advice on eating a healthy balance of food groups.

NHS Healthy Living

www.healthyliving.nhs.uk

NHS Healthy Living is an online information service for people living with Type 2 diabetes.

Northern Ireland Chest, Heart & Stroke

028 9032 0184

mail@nichs.org.uk

www.nichs.org.uk

Northern Ireland Chest, Heart & Stroke is a charity in Northern Ireland offering support for people and their families affected by chest, heart and stroke illnesses.

Smokefree

0300 123 1044 (helpline, England only, 9am–8pm Monday–Friday, 11am–4pm Saturday–Sunday)

www.nhs.uk/smokefree

Smokefree is a free NHS service that offers advice and support to help people quit smoking. You can find quitting tips and local Stop Smoking Services on their website and download the Smokefree app to track your progress.

Stroke Association

0303 3033 100 (helpline, 9am–5pm Monday–Friday, 10am–1pm Saturday)

helpline@stroke.org.uk

www.stroke.org.uk

Stroke Association is a 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 people's risk of stroke through health education, and funds research and campaigns for better services.

This publication contains information and general advice. It should not be used as a substitute for personalised advice from a qualified professional. Alzheimer's Society does not accept any liability arising from its use. We strive to ensure that the content is accurate and up to date, but information can change over time. Please refer to our website for the latest version and for full terms and conditions.

© Alzheimer's Society, 2021. All rights reserved. Except for personal use, no part of this work may be distributed, reproduced, downloaded, transmitted or stored in any form without the written permission of Alzheimer's Society.

Factsheet 450LP

Last reviewed: June 2021

Next review due: June 2024

Our information is based on evidence and need, and is regularly updated using quality-controlled processes. It is reviewed by experts in health and social care and people affected by dementia.

Reviewed by: Professor Claudia Cooper, Professor of Psychiatry of Older Age, University College London, Professor David Llewellyn, Professor of Clinical Epidemiology and Digital Health, University of Exeter and Dr Janice Ranson, Research Fellow in Dementia Prevention and Diagnostics, University of Exeter

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

To give feedback on this factsheet, or for a list of sources, please email publications@alzheimers.org.uk

People affected by dementia need our support more than ever. With your help we can continue to provide the vital services, information and advice they need.

To make a single or monthly donation, please call us on **0330 333 0804** or go to alzheimers.org.uk/donate

Alzheimer's Society is the UK's leading dementia charity. We provide information and support, improve care, fund research, and create lasting change for people affected by dementia.

For support and advice, call us on **0333 150 3456** or visit alzheimers.org.uk



Alzheimer's Society operates in England, Wales and Northern Ireland.
Registered charity number 296645.

