

What is mild cognitive impairment (MCI)?

Mild cognitive impairment (MCI) is a condition in which someone has minor problems with cognition – their mental abilities such as memory or thinking. In MCI these difficulties are worse than would normally be expected for a healthy person of their age. However, the symptoms are not severe enough to interfere significantly with daily life, and so are not defined as dementia.

It is estimated that between 5 and 20 per cent of people aged over 65 have MCI. It is not a type of dementia, but a person with MCI is more likely to go on to develop dementia. This factsheet explains what MCI is, the link between MCI and dementia, and the benefits of diagnosing MCI. It then looks at treatments for MCI, ways to cope with the symptoms, and how you can reduce your risk of developing MCI and dementia.

Many people who are diagnosed with MCI use this as an opportunity to change their lifestyle for the better. There is a lot that someone can do to help reduce their chances of MCI progressing to dementia.

Symptoms

The term MCI describes a set of symptoms, rather than a specific disease. A person with MCI has mild problems with one or more of the following:

- **memory** – for example, forgetting recent events or repeating the same question

- **reasoning, planning or problem-solving** – for example, struggling with thinking things through
- **attention** – for example, being very easily distracted
- **language** – for example, taking much longer than usual to find the right word for something
- **visual depth perception** – for example, struggling to interpret an object in three dimensions, judge distances or navigate stairs.

These symptoms will have been noticed by the individual, or by those who know them. For a person with MCI, these changes may cause them to experience minor problems or need a little help with more demanding daily tasks (eg paying bills, managing medication, driving). However, MCI does not cause major problems with everyday living. If there is a significant impact on everyday activities, this may suggest dementia.

Most healthy people experience a gradual decline in mental abilities as part of ageing. In someone with MCI, however, the decline in mental abilities is greater than in normal ageing. For example, it's common in normal ageing to have to pause to remember directions or to forget words occasionally, but it's not normal to become lost in familiar places or to forget the names of close family members.

If the person with MCI has seen a doctor and taken tests of mental abilities, their problems will also be shown by a low test score or by falling test scores over time. This decline in mental abilities is often caused by an underlying illness.

Causes

MCI can have a number of different possible causes. Some of these are treatable and some are not.

In some people, MCI is a 'pre-dementia' condition. This means that the brain diseases that cause dementia are already established. These

diseases are not generally reversible and so, in time, these people's symptoms will worsen and their condition will progress from MCI to dementia.

For example, some people with MCI have mild memory loss that started gradually. These people are likely to develop Alzheimer's disease as their memory worsens.

Some people with MCI will turn out to have a different, often treatable, cause following assessment by a doctor. This could include depression, anxiety or stress. The same symptoms could also be caused by a physical illness (eg constipation, infection), poor eyesight or hearing, vitamin or thyroid deficiencies, or the side effects of medication. Where this is the case, the person will be diagnosed with this condition – a thyroid deficiency or depression, for example – rather than MCI.

A doctor will not always be able to say what is causing MCI, even after a thorough assessment. It may be necessary to wait a few months or more, to see how the person's symptoms develop.

How many people with MCI develop dementia?

People who have MCI are at an increased risk of going on to develop dementia. In research studies carried out in memory clinics, 10–15 per cent of people who had MCI with gradual memory loss went on to develop dementia – usually Alzheimer's disease – each year.

In studies carried out in other settings, the rates of 'conversion' from MCI to dementia are about half this level (about 5 per cent each year), but people with MCI still show a significantly increased risk of dementia.

Although MCI increases someone's risk of developing dementia, not everyone with MCI will get worse and develop dementia. Some people with MCI remain stable over time and some improve and no longer have any problems. The outcome will generally depend on the cause of the MCI.

These different outcomes are one reason why some doctors find some aspects of MCI to be controversial.

Can we identify the people who will go on to develop dementia?

A lot of research has focused on trying to identify which people with MCI will go on to develop dementia. If this could be predicted, it would mean people could be offered a range of support earlier in the development of dementia. In the future, for example, researchers might develop drugs to prevent the progression of MCI to dementia.

Most research that looks at predicting which people with MCI will go on to develop dementia has focused on Alzheimer's disease. This is because it is the most common cause of dementia and also the best understood. There is good evidence that simple tests, based on learning lists of words, do a fairly good job of predicting those who will develop Alzheimer's.

Researchers have also tried to identify which people with MCI will go on to develop dementia due to Alzheimer's disease by using brain scans. These scans help to detect changes in brain structure and function.

A different approach to this problem is to measure the amount of certain proteins in the fluid that circulates around the brain and spinal cord. These proteins – called amyloid and tau – are analysed because they may indicate that the changes in the brain that take place in Alzheimer's disease are already underway.

While these are all promising areas of research, it is not yet possible to predict with certainty whether a person with MCI will develop Alzheimer's disease. Even a combination of memory tests, scans and protein level measurements cannot give a definite answer.

Research to identify which people with other forms of MCI (non-memory loss MCI) will go on to develop dementia is progressing, but is much less advanced.

What are the benefits of diagnosing MCI?

The main benefit of diagnosing MCI is that it helps to identify people who are at increased risk of developing dementia. They can then be offered information, advice and support. They can also be kept under review and if they do develop dementia, they should have this diagnosed sooner.

Anyone who is worried about their memory, or has any of the symptoms listed above, should see their GP. A thorough assessment might clear up any anxiety about the cause of symptoms. It may also lead to diagnosis of conditions (eg depression, high blood pressure, poor vision) that can be treated.

The assessment is the same as for suspected dementia – for more information see factsheet 426, **Assessment and diagnosis**. The GP will talk to the person about their symptoms, when they started and how they are affecting their daily life now. The person will have their physical health and any medication they are taking reviewed, and take tests to assess depression and mental abilities.

The GP may be able to make a clear diagnosis at this stage, or they might need to refer the person for more specialist assessment, often at a memory service. Diagnosis may require more than one appointment and may include more detailed assessment by a psychologist. A brain scan may be done, particularly if other potential causes (eg brain bleed, tumour) are suspected.

A doctor will use their own judgement to make the diagnosis. Research guidelines state that MCI should be diagnosed if the person shows all of the following:

- symptoms (as listed above) are getting worse and cannot be otherwise explained
- scores poorly for their age on a test of mental abilities
- has minor or no problems with more complex daily activities.

If a person is diagnosed with MCI by a specialist, they will usually be discharged back to their GP. What happens next will vary. In some parts of the country, the person will be invited back to the GP or memory service after a set time (often 6 or 12 months) to see whether things have changed. In other parts of the country, they are asked to arrange an appointment themselves, at any time, if they feel their symptoms have got worse.

This is a period of uncertainty for the person and those around them, and they should be given information and advice, and counselling if needed. They may also be offered further support (see ‘How is MCI treated?’ below).

Many people who are diagnosed with MCI or early-stage dementia take the opportunity to plan ahead, for example by making a power of attorney. For more information see factsheet 472, **Lasting Power of Attorney**.

A person diagnosed with MCI who drives – in contrast to someone with dementia – will not always need to tell DVLA (or DVA Northern Ireland). The doctor should be able to advise on this.

How is MCI treated?

There are currently no drugs that have been approved for treating MCI, as opposed to dementia. It was initially hoped that the Alzheimer’s drugs donepezil (eg Aricept), rivastigmine (eg Exelon) and galantamine (eg Reminyl) would help with symptoms of MCI, or slow its progression to dementia. However, a lot of trials of these drugs have been done and they have shown no clear benefit to patients.

Nevertheless, there is a lot someone with MCI can do to help lower their chances of developing dementia – see ‘Tips for someone diagnosed with MCI’ below. MCI is more likely to progress to dementia if the person has a poorly controlled heart condition or diabetes, or has strokes. Therefore, treatment for MCI will often include medication for any heart condition a person may have, or tablets to reduce high blood pressure, prevent clots or lower cholesterol. If depression is diagnosed this will also be treated, with medication, talking therapies or both.

A person with MCI will also be encouraged to lower their risk of developing dementia by adopting a healthy lifestyle. People who smoke should try to stop and people who drink alcohol should keep to recommended levels. Regular physical exercise also seems to reduce the risk of dementia. Eating a healthy diet and keeping to a healthy weight may also help. Ask the GP or primary care team for advice on all of these.

It is strongly recommended that someone with MCI keeps active, both mentally (eg doing puzzles, reading) and socially (eg seeing friends).

Recent evidence shows that a combined programme of approaches, rather than any one approach alone, can help to improve or maintain mental abilities in people with MCI. These approaches include medical treatment for vascular risk factors (a heart condition, diabetes or high blood pressure), physical activity, learning strategies to improve memory and thinking, and receiving and following advice on memory, health and diet.

In some areas, people with MCI are now routinely referred for regular sessions – sometimes called ‘memory protection groups’ – to support them with these changes.

Tips for someone diagnosed with MCI

There is a lot you can do to help reduce your chances of MCI progressing to dementia. There are also many ways to deal with memory problems that will allow you to live well with MCI.

- Take medication (eg for blood pressure) as prescribed by the doctor, even if you feel fine. It will help keep underlying health conditions in check.
- If you do smoke, now is a good time to stop. If you drink, check you are well within the recommended limits. Ask the GP for advice on both of these.
- Try not to become stressed or anxious as this can make memory or thinking problems worse.

- Having a regular routine can help to minimise memory problems, though make sure to have some variety in your days or you may get bored. Similarly, try to always keep things in the same place as it will make them easier to find.
- Use calendars and diaries, or reminders on electronic devices, to help you remember appointments and important events.
- Get regular physical exercise – you could go for a brisk walk or a swim, or do some more energetic tasks in the garden or around the house. Try to do this for at least 30 minutes, five times a week.
- Try to break tasks down into small steps if you are struggling, then focus on just one step at a time. For example, while cooking focus on one step of the recipe in turn.
- Eat a healthy balanced diet with plenty of fruit and vegetables, lots of starchy foods (eg potatoes and rice), regular fish and some meat, but not too much saturated fat or dairy products (eg butter and cheese).
- Keep your brain active with puzzles, quizzes, reading or anything else you enjoy that stimulates your mind.
- Make time to relax – you might enjoy listening to music or sitting in the garden. You could also find out about how to practise breathing exercises by taking out a book about relaxation and breathing at your local library or looking online for tips.
- Try to sleep well – avoid stimulants like tea or coffee, or having alcohol, before bed.
- Stay socially active – make an effort to keep going out to see friends and family. If you attend a place of worship, continue to go regularly.
- Ask your doctor about memory support groups for people with MCI in your area.

If you need a bit more support coping with memory loss, there are lots of practical tips in Alzheimer's Society publication 1540, **The memory handbook**.

How can someone minimise the risk of MCI and dementia?

Many studies have shown that age is the most important risk factor for both MCI and dementia. Genes play an important role as well, most clearly for Alzheimer's disease and frontotemporal dementia.

Similarly, several aspects of a person's health and lifestyle are thought to influence their chances of developing MCI as they age. Medical conditions, such as high blood pressure in mid-life, as well as diabetes, stroke and heart problems, are all closely linked to a higher risk of both MCI and dementia. A high level of cholesterol in mid-life, obesity in mid-life and a history of depression are also probable risk factors. It is important that these conditions are diagnosed and well managed.

Everyone can reduce their risk of MCI and dementia as they get older by not smoking, drinking only in moderation, eating a healthy, balanced diet and taking regular and appropriate physical exercise.

There is growing evidence that exercising the mind as well as the body can also help reduce the risk of MCI and dementia. Leisure activities that keep your mind active, such as card games, puzzles or reading, may build up a 'reserve capacity' in the brain that can help prevent or delay the onset of MCI and dementia. Keeping socially active may also help to reduce risk.

For more information about the risk factors for dementia see factsheet 450, **Am I at risk of developing dementia?**

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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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