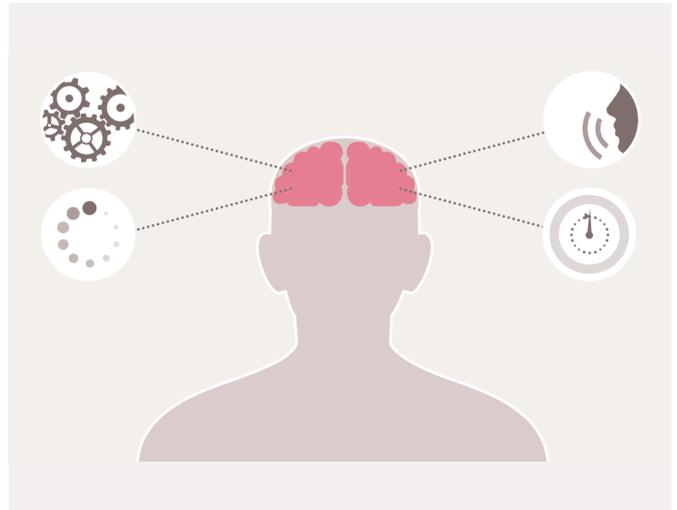


# Factsheet Cognitive impairment and HIV

## Key points

- Problems with thinking and memory can have a wide range of causes.
- A healthy lifestyle lowers the risk of cognitive impairment in later life.
- Cognitive impairment caused by HIV is usually mild in people taking HIV treatment.



You might have noticed changes such as a shorter attention span, slowness in processing information, less fluency in the use of language, a reduced ability to plan and organise everyday life, or lapses in memory. Most people in their 50s, 60s and 70s begin to notice some lapses in memory or slower thinking. These changes are a normal part of getting older. But if someone has more of these difficulties than other people of the same age, this may be described as cognitive impairment.

Cognitive impairment can have a wide range of causes. While we often think of the mind and the body as separate spheres, our physical health has a great impact on our cognitive processes. Cognitive impairment is usually caused by physical changes and diseases in the brain.

One form of cognitive impairment is linked to HIV infection. But people living with HIV can have cognitive impairment due to other causes. Some of the most important causes are:

- Alcohol or drug-induced cognitive disorders. Alcohol and recreational drugs can damage brain cells and disrupt body processes, especially when they are used regularly over a long period of time. This can have a long-term effect on cognitive function (not just when you are drunk or high).
- Depression, anxiety and other mental health problems. Their symptoms can include lapses in memory, problems concentrating, a slowness in thinking, and it being harder to solve problems.
- Vascular cognitive impairment, caused by small vessel disease, stroke and other conditions that reduce blood flow to the brain, depriving brain cells of vital oxygen and nutrients. High blood pressure, diabetes, smoking and high cholesterol are risk factors for vascular cognitive impairment.
- Alzheimer's disease, in which abnormal structures called plaques and tangles damage and

kill brain cells.

- HIV-associated cognitive disorder (sometimes called HIV-associated neurocognitive disorder or HAND). This occurs when HIV itself (or the response of the immune system to HIV) directly affect the brain and cause cognitive disorders. This form of cognitive impairment is more common in people who had a low CD4 count before they began HIV treatment.

What's more, rather than having a single cause, cognitive impairment often seems to result from a combination of factors. For example, one person's heavy drinking, blocked arteries and history of having a low CD4 count may all contribute to their cognitive problems.

**Many of the risk factors for cognitive impairment can be treated or changed. By dealing with them, it may be possible to lower your risk of having problems or prevent problems from getting worse.**

If you have mild cognitive impairment, this does not necessarily mean that the situation will progress to a more severe impairment which interferes with your daily life and your independence (known as dementia). In particular, in people taking effective HIV treatment, HIV-associated cognitive disorder does not progress to dementia. (The more severe illness, known as HIV-associated dementia, is now hardly ever seen except in people who are diagnosed with HIV at a very late stage, with a very low CD4 count.)

## Your lifestyle and cognitive impairment

Changes to your lifestyle can reduce your risk of cognitive impairment. Generally, things which are recommended in order to protect the health of your heart will also protect your cognitive abilities. It's also important to continue to be socially connected and mentally engaged.

If you are beginning to have problems with cognitive impairment, the same lifestyle changes will help prevent problems getting worse.

**Limit your intake of alcohol and recreational drugs.** Avoid binge drinking (drinking a lot of alcohol in a short space of time).

**Eat a healthy, balanced diet,** with a lot of vegetables, fruit, beans, whole grains and fish. Try to cut down on saturated fat (e.g. cakes, biscuits, cheese) and limit the amount of red meat and processed meat you eat. Reduce your intake of foods high in sugar or salt.

**Exercise regularly.** You should aim to do at least 150 minutes of moderate aerobic activity every week (for example 30 minutes on five days a week). Moderate activity will raise your heart rate and make you breathe faster and feel warmer. It includes activities like walking fast, dancing, gardening and cycling. Studies show that regular physical exercise in middle-aged or older adults reduces the risk of developing dementia.

**Lose weight** if you're overweight.

**Don't smoke.**

**Keep your brain active** with puzzles, quizzes, reading, learning a new skill or anything else you enjoy that stimulates your mind.

**Stay socially active.** Make an effort to see friends and family, get involved in activities, join a club, or volunteer for a charity. It's important to strengthen and extend social networks as you get older.

## Who is at risk?

The risk of cognitive problems increases as you get older. Because of genetic factors, you are at greater risk if a close family member has had cognitive impairment or dementia. Women are at greater risk.

Having any of these health conditions puts you at increased risk: raised cholesterol, diabetes, high blood pressure, atherosclerosis (hardening of the arteries), stroke or transient ischaemic attack ('mini-stroke'). Having previously had depression increases the risk of cognitive impairment later in life.

The lifestyle factors mentioned in the previous section are also important.

## Cognitive impairment in people living with HIV

As well as the risk factors mentioned above, having previously had a very low CD4 count raises the risk of HIV-associated cognitive disorder. This may have happened before being diagnosed with HIV and taking treatment. Good adherence to effective HIV treatment lowers the risk.

*"HIV-associated dementia is now very rare. This is because of the widespread use of effective HIV treatment."*

You may hear about research findings on cognitive impairment in people with HIV which sound worrying. These research findings need to be carefully interpreted. In particular, it's important to take note of how cognitive problems are defined. For example, they may be described as:

- asymptomatic – tiny changes which aren't noticeable in daily life
- mild – minor problems which have a limited impact on daily life
- dementia – more severe problems which interfere significantly with daily life.

Studies are often based on cognitive tests which can detect small declines in memory and thinking processes, but these changes may have no meaningful impact on people's lives.

Recent studies have compared cognitive function in people living with HIV and in HIV-negative people of a similar age, education and lifestyle. They have shown small differences in cognitive

test results. But we don't know if these small differences relate to real difficulties in performing day-to-day tasks. Researchers do not agree on whether people with asymptomatic impairment are likely to go on to have mild impairment.

On the other hand, we do know that HIV-associated dementia is now very rare. This is because of the widespread use of effective HIV treatment.

## Symptoms

The different cognitive disorders have different symptoms. For example, severe cases of HIV-associated cognitive disorder tend to affect decision making, concentration, multi-tasking and physical co-ordination. This is different to Alzheimer's, which is characterised by memory problems.

Symptoms might be noticed by you, your partner, your friends or your family. They may be mild, subtle changes. The symptoms may be fluctuating, meaning that they come and go. Many people who have these symptoms find that the situation improves over time.

Symptoms of various types of cognitive impairment can include:

- You lose your train of thought or the thread of conversations, books or movies.
- You find it harder to make decisions or work out how to complete a task.
- You forget information that you would previously have recalled easily, such as appointments, conversations or recent events.
- You take longer to find the right word for something.
- You become more impulsive or show increasingly poor judgment.
- You have problems with walking, balance or control of muscles.
- You have problems with perceiving visual depth – for example, struggling to judge distances or navigate stairs.

## Diagnosis and monitoring

Your doctor will use a range of information to assess your cognitive function and identify the cause of any problems. You will be asked to do some simple tests of memory, mental processing and physical co-ordination. You'll be asked about how any symptoms are affecting your daily life.

You might see a specialist for a more detailed series of written or computerised tests to assess your degree of difficulty with different types of problems. This can also help identify the type of cognitive disorder as different parts of the brain are important for different skills.

Your doctor should consider all possible causes of cognitive problems, reviewing your entire medical history. You may need to take additional blood tests, to see if an infection, chemical imbalance or vitamin deficiency is contributing to your difficulties.

A brain scan (usually an [MRI scan](#)) may be used to look for causes such as strokes or tumours. Your doctor may recommend a [lumbar puncture](#) – this involves a needle being inserted into the

lower back to take a sample of the fluid that surrounds the brain and spinal cord (called the cerebrospinal fluid or CSF). This fluid is checked for infections and for evidence that HIV treatment is working in the brain.

The results of these tests can be monitored over time.

## Treatment and management

If medical problems or lifestyle factors may be contributing to cognitive impairment, then it is important to deal with these. For example, you may need to get help tackling depression or anxiety, to take medication to lower high cholesterol or high blood pressure, or to cut down on alcohol and recreational drugs. (See the section on lifestyle, earlier in the factsheet.)

If your problems appear to be linked to HIV, a vital part of treatment is to optimise your HIV treatment. If you are not yet taking HIV treatment, you should start. If you do not have an undetectable viral load, you may need help with adherence to achieve this. Your doctor may use a lumbar puncture to check that the viral load in your cerebrospinal fluid is also undetectable and that there are not any signs of virus that is resistant to your anti-HIV drugs.

Doctors specialising in diseases affecting the brain and nerves are called neurologists. A neuro-psychologist is a psychologist who specialises in changes in thinking and behaviour that result from diseases affecting the brain. A neuro-psychiatrist is a medical doctor who has trained in the field of psychiatry and specialises in diseases affecting the brain.

Rehabilitation may be provided to help you learn ways to cope with cognitive impairment. Occupational therapists can help with day-to-day activities; speech therapists with communication problems; and psychologists with emotional and mental health issues.

## Information and support

The Alzheimer’s Society provides information on all types of cognitive impairment and dementia. Their website is [www.alzheimers.org.uk](http://www.alzheimers.org.uk) and you can contact their helpline team on 0300 222 1122.

### Find out more

**Eight ways to look after your health** Basic leaflet with pictures

**HIV, mental health & emotional wellbeing** Information booklet

**Alcohol** Simple factsheet