

# What is Korsakoff's syndrome?

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Korsakoff's syndrome is a brain disorder usually associated with heavy alcohol consumption over a long period. Although Korsakoff's syndrome is not strictly speaking a [dementia](#), people with the condition experience loss of short-term memory. This factsheet outlines the causes, symptoms and treatment of the syndrome. This factsheet also explains the possible relationship between Korsakoff's syndrome and 'alcohol related dementia'. Alcohol consumption is increasing in the UK and therefore these conditions are expected to become more common in the future.

## What causes Korsakoff's syndrome?

Korsakoff's syndrome is caused by lack of thiamine (vitamin B1), which affects the brain and nervous system. People who drink excessive amounts of alcohol are often thiamine deficient. This is because:

- many heavy drinkers have poor eating habits and their [diet](#) does not contain essential vitamins
- alcohol can interfere with the conversion of thiamine into the active form of the vitamin (thiamine pyrophosphate)
- alcohol can inflame the stomach lining, cause frequent vomiting and make it difficult for the body to absorb the key vitamins it receives. Alcohol also makes it harder for the liver to store vitamins.

Korsakoff's syndrome is part of a condition known as Wernicke-Korsakoff syndrome. This consists of two separate but related stages: Wernicke's encephalopathy followed by Korsakoff's syndrome. However, not everyone has a clear case of Wernicke's encephalopathy before Korsakoff's syndrome develops.

## How does Wernicke's encephalopathy develop?

An encephalopathy is a disorder that affects the functioning of the brain. Wernicke's encephalopathy usually develops suddenly. There are four main symptoms, but they do not always occur. In some cases there may be no obvious symptoms at all and it can therefore be difficult to make a diagnosis.

To diagnose Wernicke's encephalopathy in a heavy drinker, a person must have at least two of the following four groups of symptoms:

- evidence of undernutrition (eg the person is very underweight)
- involuntary, jerky eye movements or paralysis of the muscles that move the eyes
- poor balance or unsteadiness, or other signs of damage to the cerebellum (a region of the brain involved in co-ordinating movement)
- disorientation, confusion or mild [memory loss](#).

If Wernicke's is suspected, immediate treatment is essential. This will involve a person being given high doses of thiamine slowly into a vein. If treatment is carried out in time, most symptoms should be reversed in a few days. However, if Wernicke's is left untreated, or is not treated adequately or in time, permanent brain damage may result. In some cases the person may die.

## How does Korsakoff's syndrome develop?

If Wernicke's encephalopathy is untreated, or is not treated soon enough, Korsakoff's syndrome follows in many cases. Korsakoff's is likely to develop gradually. Damage occurs in important small areas deep within the brain, resulting in severe short-term memory loss. Many other abilities may remain intact, such as working memory (where we hold a piece of information in our head for a short time before using it, for example when working out how much something costs).

## What are the symptoms of Korsakoff's syndrome?

The main symptom of Korsakoff's is memory loss ? particularly of events that occur after the onset of the condition. (For this reason, the term 'alcohol amnesic syndrome' may sometimes be used by health professionals.) In some cases, memories of the more distant past can also be affected. Other symptoms may include:

- difficulty in acquiring new information or learning new skills
- change in personality ? at one extreme the person may show apathy (unconcern, lack of emotional reaction), or at the other, [talkative and repetitive behaviour](#)
- lack of insight into the condition ? even a person with large gaps in their memory may believe that their memory is functioning normally
- confabulation ? where a person invents events to fill the gaps in memory. For example, a person who has been in hospital for several weeks may talk convincingly about having just visited their aunt earlier that day. This is more common in the early stages of the illness.

## Who is affected by the syndrome?

Wernicke-Korsakoff syndrome is diagnosed in about one in eight people with alcoholism (a dependency on, or addiction to, alcohol). Evidence shows that the condition is present in about 2 per cent of the general population. It is more common among people in deprived communities.

People affected tend to be men between the ages of 45 and 65 with a long history of alcohol misuse. However, it is possible to have Korsakoff's syndrome at an older or a [younger age](#).

Women can also be affected. They tend to develop Korsakoff's syndrome at a slightly younger age

than men, as they appear to be more vulnerable to the effects of alcohol. It is worth noting that people affected by Korsakoff's tend to be younger than the age group most affected by [Alzheimer's disease](#) or [vascular dementia](#).

It is not clear why some heavy drinkers develop Korsakoff's syndrome and others do not. A person's [genes](#) and [diet](#) probably both have a role.

## How is Korsakoff's syndrome diagnosed?

Korsakoff's syndrome cannot be [diagnosed](#) until the person has stopped drinking alcohol for several weeks, to enable the immediate symptoms of alcohol intoxication and withdrawal to subside.

A physical exam, lab tests and taking a medical history are important first steps. Psychological tests of the person's memory and other abilities will then be carried out. The person will also be observed to see whether their condition stabilises or worsens without alcohol. If their condition continues to worsen, they may be diagnosed with a form of dementia, such as [Alzheimer's disease](#). It is possible to have both Korsakoff's syndrome and dementia.

## How is it treated?

Unlike [Alzheimer's disease](#) or [vascular dementia](#), Korsakoff's syndrome is not certain to get worse over time. It can be halted if the person is given high doses of thiamine, abstains from alcohol, and adopts a healthy diet with vitamin supplements. If the person continues to drink and maintains a poor diet, Korsakoff's syndrome is likely to continue to progress.

Any improvement usually occurs within a period of up to two years. It has been estimated that about a quarter of those affected make a very good recovery. About half make a partial recovery and need support to manage their lives, but may still be able to live in their own homes. A further quarter make no recovery and generally need long-term [residential care](#).

The care and support needed by someone with Korsakoff's syndrome is different from that needed by someone with dementia such as Alzheimer's disease. A person with Korsakoff's:

- needs initial detoxification (removing the alcohol from their system) and then ongoing support for abstinence as well as dietary advice
- will not necessarily deteriorate if they are well supported
- will tend to be younger and physically more active than most people with dementia
- may be homeless or socially isolated due to alcoholism
- will often need long-term treatment for liver damage or other effects of alcohol misuse.

The services that are generally available to older people with Alzheimer's disease are therefore not usually suited to the more specific needs of someone with Korsakoff's syndrome. Unfortunately, in many cases a person with Korsakoff's may have a lengthy wait in hospital before gaining access to specialist care ? if it is available at all in their area.

## Other problems associated with heavy drinking

### Alcohol as a risk factor for dementia

Excessive drinking is a risk factor for other, more common, forms of dementia. Someone regularly drinking more than the recommended levels of alcohol significantly increases their risk of developing dementias such as vascular dementia and Alzheimer's disease. You do not need to be an alcoholic to have this higher risk. (See [factsheet 450. Am I at risk of developing dementia?](#))

## **Alcohol related dementia**

The majority of people with a long history of alcohol misuse do not develop the typical symptoms of Wernicke-Korsakoff syndrome. Instead they may develop what is known as 'alcohol related dementia', also called 'alcoholic dementia'. As with Korsakoff's, alcohol misuse is the main cause of this dementia. People with alcohol related dementia also tend to be middle-aged, typically in their 50s or younger, and men more often than women.

Alcohol related dementia is caused by direct and indirect effects of alcohol on the brain. Alcohol can cause widespread damage to nerve cells and blood vessels, leading to brain shrinkage. People who misuse alcohol also tend to suffer injuries to the head ? from falls or fights ? and have a poor diet. These all contribute to alcohol related dementia.

The symptoms of alcohol related dementia are broader and more numerous than those of Korsakoff's syndrome, and are similar to those of Alzheimer's disease. Symptoms include problems with:

- memory
- attention
- learning new tasks
- reasoning and problem-solving.

Making a diagnosis of alcohol related dementia is difficult. The person must have a history of alcohol misuse over several years. If symptoms of dementia persist even after several weeks of abstinence, and other causes of dementia can be excluded, then a diagnosis of alcohol related dementia may be made. Some people have alcohol related dementia as well as dementia from another cause.

## **How are alcohol related dementia and Korsakoff's syndrome related?**

Experts do not all agree on whether alcohol related dementia is a separate condition from Wernicke-Korsakoff syndrome. Alcohol related dementia is diagnosed much more often than Korsakoff's, but many people diagnosed with alcohol related dementia have a lack of thiamine that is often missed by the health professional. There is also a growing awareness that the symptoms of Wernicke-Korsakoff syndrome and alcohol related dementia can overlap.

For such reasons, a lot of researchers now believe that many people diagnosed with 'alcohol related dementia' actually have a form of Wernicke-Korsakoff syndrome. If so, it is probably not helpful to refer to 'alcohol related dementia' as a separate condition and researchers increasingly group this and Korsakoff's under the broader term 'alcohol related brain damage'.

Treatment for alcohol related dementia is the same as for Korsakoff's syndrome: abstinence, high doses of thiamine, better diet, and support. As with Korsakoff's, symptoms of alcohol related dementia may remain stable or even improve over several months of abstinence. For this reason, the term 'dementia' may not be appropriate as dementia is a progressive condition that gets worse over time.

For details of Alzheimer's Society services in your area, visit [alzheimers.org.uk/localinfo](https://www.alzheimers.org.uk/localinfo)

For information about a wide range of dementia-related topics, visit [alzheimers.org.uk/factsheets](https://www.alzheimers.org.uk/factsheets)

## Useful organisations

### Alcohol Concern

Suite B5  
West Wing  
City Cloisters  
196 Old Street  
London EC1V 9FR  
T 020 7566 9800  
E [contact@alcoholconcern.org.uk](mailto:contact@alcoholconcern.org.uk)  
W [www.alcoholconcern.org.uk](http://www.alcoholconcern.org.uk)

Alcohol Concern is the national charity on alcohol misuse in England and Wales, campaigning for effective alcohol policy and improved services for people whose lives are affected by alcohol-related problems.

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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

9.00am-5.00pm Monday-Friday

10.00am-4.00pm Saturday-Sunday

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