

U.S. National Library of Medicine - The World's Largest Medical Library

[Contents](#)

[Behind Headlines](#)

[What's New](#)

[Featured review](#)

[Understand clinical effectiveness](#)

[Blog](#)

[Home](#) > [Diseases and Conditions](#) > [Wernicke-Korsakoff syndrome](#)



PubMed Health. A service of the National Library of Medicine, National Institutes of Health.

A.D.A.M. Medical Encyclopedia [Internet]. Atlanta (GA): A.D.A.M.; 2013.

Wernicke-Korsakoff syndrome

Korsakoff psychosis; Alcoholic encephalopathy; Encephalopathy - alcoholic; Wernicke's disease

Last reviewed: February 27, 2013.

Wernicke-Korsakoff syndrome is a brain disorder due to thiamine (vitamin B1) deficiency.

Causes, incidence, and risk factors

Wernicke encephalopathy and Korsakoff syndrome are different conditions. Both are due to brain damage caused by a lack of vitamin B1 (thiamine).

Lack of vitamin B1 is common in people with alcoholism. It is also common in persons whose bodies do not absorb food properly (malabsorption), such as sometimes occurs after obesity (bariatric) surgery.

Korsakoff syndrome, or Korsakoff psychosis, tends to develop as Wernicke symptoms go away. Wernicke encephalopathy causes brain damage in lower parts of the brain called the thalamus and hypothalamus. Korsakoff psychosis results from permanent damage to areas of the brain involved with memory.

Symptoms

Symptoms of Wernicke encephalopathy include:

- Confusion and loss of mental activity that can progress to coma and death
- [Loss of muscle coordination \(ataxia\)](#) that can cause leg tremor
- Vision changes such as [abnormal eye movements](#) (back and forth movements called nystagmus), [double vision](#), [eyelid drooping](#)
- [Alcohol withdrawal](#)

Symptoms of Korsakoff syndrome:

- Inability to form new memories
- Loss of memory, can be severe
- Making up stories (confabulation)
- Seeing or hearing things that are not really there ([hallucinations](#))

Signs and tests

Examination of the nervous/muscular system may show damage to many nerve systems:

- Abnormal eye movement
- Decreased or abnormal reflexes
- Fast pulse (heart rate)
- Low blood pressure
- Low [body temperature](#)
- Muscle weakness and atrophy ([loss of tissue mass](#))
- Problems with walk ([gait](#)) and coordination

The person may appear poorly nourished. The following tests are used to check a person's nutrition level:

- [Serum albumin](#) (relates to person's general nutrition)
- Serum [vitamin B1](#) levels
- Transketolase activity in red blood cells (reduced in people with [thiamine deficiency](#))

Blood or urine alcohol levels and liver enzymes may be high in people with a history of [long-term alcohol abuse](#).

Other conditions that may cause [thiamine](#) deficiency include:

- AIDS
- Cancers that have spread throughout the body
- Extreme nausea and vomiting during pregnancy ([hyperemesis gravidarum](#))
- [Heart failure](#) (when treated with long-term diuretic therapy)

- Long periods of intravenous (IV) therapy without receiving [thiamine](#) supplements
- Long-term dialysis
- Very high [thyroid hormone](#) levels ([thyrotoxicosis](#))

A brain MRI may show changes in the tissue of the brain, but if Wernicke-Korsakoff syndrome is suspected, treatment should start immediately. Usually a brain MRI exam is not needed.

Treatment

The goals of treatment are to control symptoms as much as possible and to prevent the disorder from getting worse. Some people may need to stay in the hospital early in the condition to help control symptoms.

Monitoring and special care may be needed if the person is:

- [Comatose](#)
- [Lethargic](#)
- [Unconscious](#)

[Thiamine](#) may be given by injection into a vein or a muscle, or by mouth. It may improve symptoms of:

- [Confusion or delirium](#)
- Difficulties with vision and eye movement
- Lack of muscle coordination

[Thiamine](#) usually does not improve loss of memory and intellect that occur with [Korsakoff psychosis](#).

Stopping alcohol use can prevent additional loss of brain function and damage to nerves. Eating a well-balanced, nourishing diet can help, but it is not a substitute for stopping alcohol use.

Expectations (prognosis)

Without treatment, Wernicke-Korsakoff syndrome gets steadily worse and can be life threatening. With treatment, you can control symptoms (such as [uncoordinated movement](#) and [vision difficulties](#)), and slow or stop the disorder from getting worse.

Some symptoms -- especially the loss of memory and thinking skills -- may be permanent. Other disorders related to alcohol abuse may also occur.

Complications

- [Alcohol withdrawal](#)
- Difficulty with personal or social interaction
- Injury caused by falls
- [Permanent alcoholic neuropathy](#)
- Permanent loss of thinking skills
- Permanent loss of memory
- Shortened life span

In people at risk, Wernicke encephalopathy may be caused by carbohydrate loading or glucose infusion. Always supplement with [thiamine](#) before glucose infusion to prevent this.

Calling your health care provider

Call your health care provider or go to the emergency room if you have symptoms of Wernicke-Korsakoff syndrome, or if you have been diagnosed with the condition and your symptoms get worse or return.

Prevention

Not drinking alcohol or drinking in moderation and getting enough nutrition reduce the risk of developing Wernicke-Korsakoff syndrome. If a heavy drinker will not quit, [thiamine](#) supplements and a good diet may reduce the chance of getting this condition, but do not eliminate the risk.

References

1. So YT, Simon RP. Deficiency diseases of the nervous system. In: Daroff RB, Fenichel GM, Jankovic J, Mazziotta JC. *Bradley's Neurology in Clinical Practice*. 6th ed. Philadelphia, PA: Elsevier Saunders; 2012:chap 57.

Review Date: 2/27/2013.

Reviewed by: Luc Jasm in, MD, PhD, Department of Neurosurgery, Cedars Sinai Medical Center, Los Angeles and Department of Anatomy, University of California, San Francisco, CA. Review provided by VeriMed Healthcare Network. Also reviewed by A.D.A.M. Health Solutions, Ebix, Inc., Editorial Team: David Zieve, MD, MHA, Bethanne Black, Stephanie Slon, and Nissi Wang.



[A.D.A.M., Disclaimer](#)

Copyright © 2013, A.D.A.M., Inc.

[PubMed Health Home](#) | [About PubMed Health](#) | [Copyright](#) | [Disclaimer](#) | [See us on Facebook](#) | [Follow us](#) | [Add us](#) | [Contact Us](#)