

### Introduction

Reye syndrome, also known as Reye's syndrome, is a rare but serious illness. It can cause swelling in the liver and brain. Although it mostly affects children and teens, anyone can get it.

Signs and symptoms such as confusion, seizures and loss of consciousness require emergency treatment. Early diagnosis and treatment of Reye syndrome can save a child's life.

This reference summary explains Reye syndrome. It discusses symptoms, causes, treatment and prevention.



### Reye Syndrome

Reye syndrome can affect the blood, liver and brain of a person who recently had a viral infection. Reye syndrome always follows another illness.

Reye syndrome may happen after:

- An upper respiratory infection, such as a cold.
- Chickenpox.
- The flu, also known as influenza.

Reye syndrome most often affects children and teenagers. But anyone can get it. People who have metabolic disorders are at greater risk. Metabolic disorders affect a person's metabolism. Metabolism is all the changes and actions that take place in the body. These actions help the body make energy, stay healthy and grow.

Reye syndrome causes a person's blood sugar level to drop. The levels of ammonia and acidity in his or her blood rise. At the same time, the liver may swell and develop fatty deposits.

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Ammonia is a compound made of nitrogen and hydrogen. It is made by the body when proteins break down. Swelling may also happen in the brain. This can cause seizures, convulsions or loss of consciousness.

Reye syndrome can lead to brain damage, liver damage and death. But if the disease is found and treated early, most people recover from Reye syndrome in a few weeks and have no lasting problems.

## Symptoms

The signs and symptoms of Reye syndrome often appear about three to five days after a viral infection.

Early symptoms of Reye syndrome are:

- Fast breathing.
- Nausea, vomiting and diarrhea.
- Sleepiness or no energy.



As the condition progresses, signs and symptoms may become more serious. These may include:

- Confusion or hallucinations.
- Loss of consciousness.
- Seizures and coma.
- Tiredness.
- Violent or irrational behavior.
- Weakness or paralysis in the arms and legs

These symptoms require emergency treatment.

Hallucinations are seeing, feeling, hearing or smelling things that are not real. For example, a person may hear a voice when no one is speaking.



Early diagnosis and treatment of Reye syndrome can save a child's life. If you think that your child has Reye syndrome, it is important to act quickly.

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## Causes

The cause of Reye syndrome is not known. But studies have shown that taking aspirin increases the risk of getting Reye syndrome.

Reye syndrome may be triggered by using aspirin to treat a viral infection. Examples of these infections are chickenpox or the flu.

Aspirin is approved for use in children older than age 2. But children and teenagers who are recovering from chickenpox, any viral infection or the flu should never take it. Health care providers recommend other pain relievers for young patients.

Reye syndrome happens most often in children and teenagers who have a fatty acid oxidation disorder. These disorders are a group of inherited metabolic disorders. They cause the body to be unable to break down fatty acids. A screening test is needed to determine if your child has a fatty acid oxidation disorder. Inherited means transmitted through genes. Genes are passed from parents to their children.



Exposure to certain toxins may also contribute to Reye syndrome. These toxins include:

- Herbicides.
- Insecticides.
- Paint thinner.

Reye syndrome cannot spread from child to child.

## Diagnosis

There is no one test for Reye syndrome. Instead, screening for Reye syndrome often begins with blood and urine tests. Tests are also done for fatty acid oxidation disorders and other metabolic disorders.

Your health care provider will do a physical exam. He or she will ask questions about symptoms, recent aspirin use and past health problems.

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Sometimes more tests are needed. Your health care provider may need to check for other causes of liver problems. He or she may look for neurological problems. Other tests that may be done are:

- Spinal tap, also known as a lumbar puncture.
- Liver biopsy.
- CT scan or MRI.
- Skin biopsy.



CT Scan

Neurological problems affect the nerves or the nervous system.

A spinal tap can help the health care provider identify or rule out other diseases with similar signs and symptoms. Similar conditions include meningitis and encephalitis. Meningitis is an infection of the lining that surrounds the brain and spinal cord. Encephalitis is inflammation or infection of the brain.

During a spinal tap, a needle is inserted through the lower back. A small sample of cerebrospinal fluid is removed. The sample is sent to a lab for analysis. Cerebrospinal fluid flows in and around the hollow spaces of the brain and spinal cord. It also flows between the two thin layers of tissue that cover and protect the brain and spinal cord. These layers of tissue are called the meninges.

A liver biopsy can also help identify or rule out other conditions that may affect the liver. A needle is inserted through the skin on the upper right side of the abdomen. It is inserted into the liver. A small sample of liver tissue is removed. The sample is sent to a lab for analysis.

A head CT or MRI scan can identify or rule out other causes of behavior changes or decreased alertness. A CT scan uses an imaging machine linked to a computer. It creates detailed images of the brain. An MRI scan uses a strong magnetic field and radio waves to generate images of the brain.

A skin biopsy may be needed to test for fatty acid oxidation disorders or metabolic disorders. During a skin biopsy, a health care provider takes a small skin sample for analysis in a lab.

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## Treatment

Most children and teenagers who have Reye syndrome survive. But permanent brain damage is possible. Without proper diagnosis and treatment, Reye syndrome can cause death in a few days.

Reye syndrome is treated in a health care facility. Severe cases may be treated in the intensive care unit. Health care providers will closely watch blood pressure and other vital signs.

Treatment may include:

- Breathing assistance with a ventilator. A ventilator is a machine used to help a person breathe. It is also called a respirator.
- Diuretics. Diuretics are medicines that decrease pressure on the brain. They also increase fluid loss through urination.
- Intravenous fluids. Intravenous fluids are given through an intravenous line, or IV. The fluids include glucose and electrolytes.
- Medicines to prevent seizures.
- Medicines to prevent bleeding.

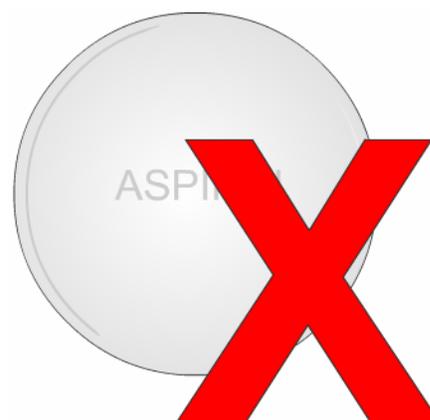


## Prevention

The most important step you can take to prevent Reye syndrome is to not give aspirin to anyone younger than age 20. This includes any product that contains aspirin. Always check with a health care provider first.

Children and teenagers recovering from chickenpox, viral infections or flu-like symptoms should never take aspirin. This includes plain aspirin and medicines that contain aspirin.

Always check the label before you give your child medicine. Check the labels of all over-the-counter products and alternative or herbal remedies. Aspirin can show up in some unexpected places, such as Alka-Seltzer®.



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Sometimes aspirin goes by other names. Other names for aspirin are:

- Acetylsalicylic acid.
- Acetylsalicylate.
- Salicylic acid.
- Salicylate.

Use other medicines to reduce high fever or relieve pain if your child has the flu, chickenpox or another viral illness. Other medicines you may use are:

- Acetaminophen.
- Ibuprofen.
- Naproxen.

Some health care facilities screen newborns for fatty acid oxidation disorders. This is to determine which children are at greater risk of getting Reye syndrome. Children with known fatty acid oxidation disorders should not take aspirin or products that contain aspirin.

Children and teenagers who have certain chronic diseases may need long term treatment with drugs that contain aspirin. This is called aspirin therapy. If your child needs aspirin therapy, make sure his or her vaccines are current. Your child should receive two doses of the varicella vaccine for chickenpox and a yearly flu vaccine. Avoiding these two viral illnesses can help prevent Reye syndrome.

## Summary

Reye syndrome can damage the blood, liver and brain of a person who recently had a viral infection. It always follows another illness. Reye syndrome most often affects children and teenagers. But anyone can get it. People who have metabolic disorders are at greater risk.

The cause of Reye syndrome is not known. But studies have shown that taking aspirin increases the risk of getting Reye syndrome. Reye syndrome may be triggered by using aspirin to treat a viral infection. Examples of these infections are chickenpox or the flu.

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