



# Patient Education Febrile Seizure

by: *NeuroCare.AI*

## What is Febrile Seizure?

A febrile seizure occurs when **a fever causes a convulsion in a child**. An infection often causes this. Children with febrile seizures can be healthy, have normal development, and have never had neurological symptoms. Although febrile seizures can be frightening, you can prepare for the basics and understand febrile seizures better.

Febrile seizures, also known as febrile convulsions, are defined by the **International League Against Epilepsy (ILAE)** as occurring during childhood between the ages of 6 months to 5 years and are closely related to a febrile illness; febrile seizures usually occur with a fever ranging from **38°C (100.4°F) or even higher**, there are no neonatal seizures or previous unprovoked seizures, and it does not meet the diagnosis of other acute symptomatic seizures.



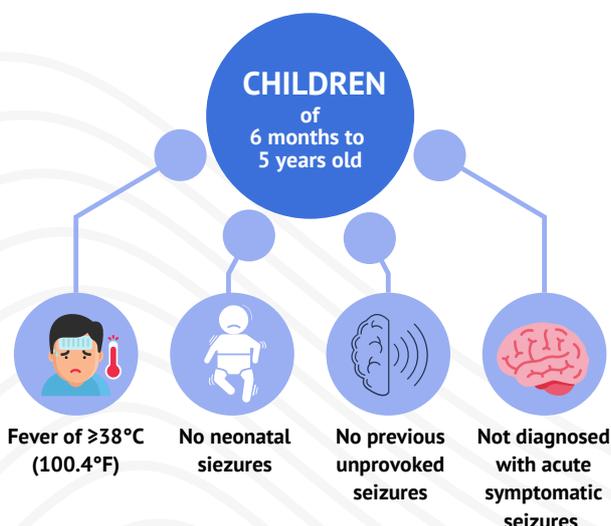
## Causes of Febrile Seizures

### INFECTION

A fever that triggers febrile seizures is primarily caused by **viral infections** and is less often caused by a bacterial infections.



Viruses causing the flu (**influenza**) and roseola (**human herpes virus-6**), accompanied by high fevers, are most frequently associated with febrile seizures. HHV-6 is most frequently found in the U.S. and Europe that causes febrile seizures and the Influenza A virus in most Asian countries.



# What Cause Febrile Seizure?

continuation...

## IMMUNIZATIONS

Specific vaccine preparations and the age at which they are administered have increased the risk of febrile seizures. **Tetanus-diphtheria-pertussis** and **measles-mumps-rubella vaccines** are among these vaccines. Children may experience a low-grade fever after they have received a vaccine. However, the fever, not the vaccine, causes a seizure.

Fever usually develops **8 to 14 days after the injection**. The **Centers for Disease Control and Prevention (CDC)** recommend immunizing MMR vaccines between 12 and 15 months of age to minimize the risk of measles-containing vaccines causing seizures.



## RISK FACTORS

Multiple factors likely cause febrile seizures that may harm a vulnerable nervous system under the stress of a fever. The risk factors include:

- Exposure to smoke and stress in utero
- Being in neonatal intensive care unit (NICU) for more than 28 days
- Neurodevelopmental delay
- Having first-degree relatives who have had febrile seizures

Genetic disorders increase susceptibility to environmental risk factors.

Many genes shown to increase familial epilepsy syndromes also describe risk factors for febrile seizures. Temperature elevation, not the rate of temperature increase, determines the risk of febrile seizures, and the seizure threshold varies by age and individual susceptibility.



## Types of Febrile Seizures and Its Symptoms

Febrile seizures usually occur during the first few days of illness. In some cases, febrile seizures are the first signs of disease. They can either be **simple or complex**.

The **most common type** of febrile seizure is a **simple febrile seizure**. Children often experience a convulsion or a rhythmic twitching of their arms or legs when they lose consciousness. Most seizures **can last up to 1-2 minutes**, although they can last up to 15 minutes. It may be that the child is confused or sleepy after the seizure, but they have no weakness in the arms or legs.

Unlike simple febrile seizures, **complex febrile seizures can last up to 30 minutes** (or more if they occur in series). After a seizure, the child may experience temporary weakness of an arm or leg.



# Types of Febrile Seizures and Their Symptoms

continuation...

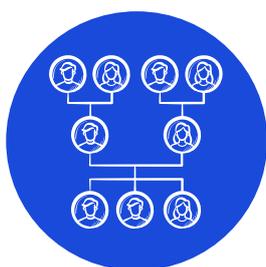
Types of Febrile Seizures	Characteristics	Symptoms
Simple Febrile Seizure	< 15 minutes Generalized No neurologic problems Can occur once in 24 hours	Roll eyes Passing out May vomit or peer during seizures Convulse, shake, uncontrolled twitching No weakness in the arms and legs
Complex Febrile Seizure	15 minutes and more Focal neurologic signs Recurr within 24 minutes	Temporary weakness in the arms and legs

## Evaluation

As a first step in evaluating children with febrile seizures, **a detailed history and physical examination should be performed** to determine the underlying cause of the fever. The medical history should include:



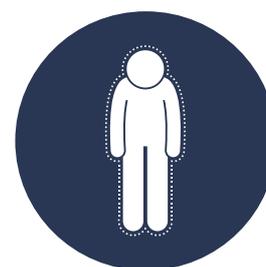
Description and duration of the convulsions



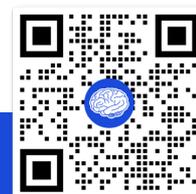
Family history of seizures or epilepsy



Recent medical illness, antibiotic use, or recent vaccinations



Post-ictal neurologic symptoms or Todd paralysis



# Evaluation

*continuation...*

## For Simple Febrile Seizure:

Children can develop fevers with or without seizures for similar reasons. The risks of bacterial meningitis, urinary tract infection, pneumonia, or bacteremia are not higher in children with a simple febrile seizure. A febrile seizure in a **well-appearing child does not require routine diagnostic testing**, such as laboratory tests, neuroimaging, or electroencephalography unless the physician determines the cause of the fever.

## For Complex Febrile Seizure:

A **neurologic examination** can determine whether laboratory tests are necessary for patients with complex febrile seizures. The risk of hypoglycemia is low in children with febrile seizures, and their serum sodium levels may be lower, but that does not predict seizure recurrence in well-appearing children. Any persistently abnormal mental status between seizures should prompt evaluation for hypoglycemia and electrolyte imbalances.

An early evaluation of a child experiencing a febrile seizure by a health professional is crucial to **determine the cause of the fever**. The fever in some children, especially those younger than 12 months old, may require testing to rule out meningitis, a severe infection of the brain lining. A lumbar puncture might be considered if a patient is at least 12 months of age.

# Prognosis

Febrile seizure has a **30% to 35% chance of having another seizure in the future**. Recurrent febrile seizures don't necessarily occur at the same temperature as the first episode, and they don't happen every time the child has a fever. There are almost always recurrences within one year and most within two years of the first seizure.



It is more likely that children will have recurrent febrile seizures if:

- Age less than 15 months (most common among toddlers)
- Low degree before seizure but can be considered as frequent fevers
- Have a family medical history of seizure
- There is a short interval between the onset of fever and the start of seizures

A study reported that a recurrent febrile seizure poses a 33% risk to children with their first febrile seizure. In children with febrile seizures, the chances of developing subsequent unprovoked seizures are five times higher than in children with no febrile seizures. Children with simple febrile seizures are at 2.4% risk of epilepsy, while children with complex seizures are at 6% to 8% risk.



# Management

In the case of a febrile seizure at home, parents should take steps in learning **Seizure First Aid to prevent their children from harming themselves.**

- Lie the child on their side without trying to stop their movement or convulsions. Avoid putting anything into the child's mouth.
- Pay attention to the time. Seizures lasting longer than five minutes require immediate medical attention. If one parent cannot keep the child safe, one should call 911 for emergency medical help for immediate medical rescue.



Emergency and prehospital management should stabilize the patient. Frequent febrile seizures are **self-limited and disappear before the patient reaches the hospital.** When seizures last longer than five minutes, they are unlikely to stop independently, so benzodiazepines should be administered to end the seizures.

Hospital admission is **usually not necessary.** Still, factors to consider include younger age, the need for further observation due to abnormal examination findings, or unreliable follow-up.

# Treatment and Prevention

If a febrile seizure stops on its own, **it does not need to be treated.** If a febrile seizure lasts more than 5 minutes, a doctor might need to use anti-seizure medicines to stop it. Routine use of antiepileptic medications to prevent febrile seizures is **not recommended due to their benign nature.**

Your child might also get other treatments, such as:



Medicines to bring down the fever



Medicines to treat the infection that is causing the fever



Fluids to treat dehydration (if the infection is causing vomiting or diarrhea)



## Consult a Doctor

Take your child to the doctor as soon as possible. The doctor will want to make sure that your **child's fever isn't caused by a serious infection**. To do this, tests might be needed to do.

Having a febrile seizure does not mean that a child has epilepsy and that the child's intelligence is affected. Discuss any matters, questions, and concerns about your child's health with their health professional.



### **DISCLAIMER:**

The information in this document is for general educational purposes only. It is not intended to substitute for personalized medical professional advice. NeuroCare.AI makes every effort to provide accurate and timely information, but makes no guarantee in this regard and disclaims responsibility for adverse consequences resulting from its use. For further information, consult a physician and the organization referred to herein.

