Inheriting epilepsy

People can have epilepsy for a number of reasons. Some of these are related to the genes we inherit from our parents.

Why are some families more likely to have epilepsy than others?

We all have something called a seizure threshold. People with a low seizure threshold are more likely to have seizures than people with a high seizure threshold. A low seizure threshold seems to run in some families, so you might inherit a low seizure threshold from your parents.

The chances of one person in a family having epilepsy may change if epilepsy develops in other family members. This is because the more family members there are that have epilepsy, the more likely it is that other members will also develop the condition.

Some types of epilepsy syndromes caused by specific genes run in families too. Examples include childhood absence epilepsy (CAE), juvenile myoclonic epilepsy (JME), photosensitive epilepsy, generalised epilepsy with febrile seizures plus (GEFS+).

Epilepsy syndromes and seizures

A syndrome is a group of signs and symptoms that, added together, suggest a particular medical condition. CAE, JME and GEFS+ are examples of syndromes that usually affect people within a certain age range. These are some of the most common types of the inherited epilepsies. People with CAE, JME and GEFS+ have generalised seizures.

Some people who have focal seizures are also at risk of inheriting epilepsy from their parents.

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Inheriting other medical conditions that cause epilepsy

People with epilepsy can have other medical conditions caused by the genes that lead to seizures. One example of this is tuberous sclerosis.⁶ This affects many organs, including the brain. More information about tuberous sclerosis is available from the Tuberous Sclerosis Association.

What is the risk of my child inheriting epilepsy?

Each type of epilepsy has a different level of risk for being inherited. If your epilepsy is not part of another medical condition, your child’s risk of inheriting it is thought to be low. However, it also depends on how many other family members have epilepsy, the type of epilepsy they have, and the age it started. So, when looking at risk, you would have to consider these things.

It is not always straightforward to predict epilepsy, as a child can be seizure free even if both parents have epilepsy. But when both parents have the same genes, leading to epilepsy, the chance of epilepsy in their children is increased.

Genetic testing

Genetic testing is very useful to help with diagnosis and treatment of epilepsy.⁷ Even if you’ve had genetic testing in the past that didn’t give much information, it might be worth asking your doctor to test you again. This is because knowledge and testing techniques are developing all the time.

Some private companies sell their genetic testing services. It’s not a good idea to have genetic testing done privately, as the results might be misleading or unclear, even to experts. If you feel your epilepsy will benefit from genetic testing, many epilepsy centres have access to this service.

You might ask for genetic testing if you are:

- An adult who wishes to understand the risk of passing on epilepsy to your children⁸
- The parent of a child with a genetic epilepsy who wants to know more about their child’s health
- The parent of a child with epilepsy who wants to know whether any future children might also develop the condition⁹
- A person who is adopted who wants information about your health

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Before going through with genetic testing, you would need to discuss what the results might be. You would also need to think about how much information you want to know, and whether it would be helpful to you.

For information about genetic testing go to geneticdisordersuk.org

To sum up

Research into epilepsy and inheritance is being carried out all the time. In time, we might find out more about how epilepsy is inherited. Here is what we understand so far:

- Some types of epilepsy have a higher risk of being inherited than others
- Some children are born with changes to specific genes that cause them to develop epilepsy
- Some people inherit a low seizure threshold
- The risk that a child will inherit epilepsy depends on the type of epilepsy that is in the family. It also depends on which family members have epilepsy, and how old they were when it developed.

About this information

This information is written by Epilepsy Action’s advice and information team, with guidance and input from people living with epilepsy, and medical experts. If you would like to know where our information is from, or there is anything you would like to say about the information, please contact us at epilepsy.org.uk/feedback

Epilepsy Action makes every effort to ensure the accuracy of information but cannot be held liable for any actions taken based on this information.

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Your support

We hope you have found this information helpful. As a charity, we rely on donations to provide our advice and information. If you would like to make a donation, here are some ways you can do this:

- Call the Epilepsy Action fundraising team on 0113 210 8851
- Donate online at epilepsy.org.uk/donate
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Did you know you can also become a member of Epilepsy Action from as little as £1 a month? To find out more, visit epilepsy.org.uk/join or call 0113 210 8800.

Epilepsy Helpline

Freephone 0808 800 5050, text 0753 741 0044, email helpline@epilepsy.org.uk, tweet @epilepsyadvice