



When the Brain Misfires: A Closer Look at Seizures and Their Impact

Laila Hassan*

Department of Public Health, Cairo University, Cairo, Egypt

DESCRIPTION

The brain functions through a network of nerve cells that communicate using electrical signals. When these signals become irregular or excessively synchronized, a seizure can occur. The nature of a seizure depends on which part of the brain is affected and how far the activity spreads. Some seizures involve only a small area and may result in mild symptoms such as brief confusion or unusual sensations. Others affect larger regions and can lead to loss of consciousness, stiffening of the body or rhythmic jerking movements. Seizures are broadly divided into focal and generalized types. Focal seizures begin in a specific part of the brain and may or may not affect awareness. A person might remain conscious but experience changes in perception, emotion or movement. Generalized seizures involve both sides of the brain from the start and often result in more noticeable physical symptoms. These can include sudden muscle stiffness, repeated jerking or a complete loss of responsiveness. The causes of seizures are varied. They may result from head injuries, infections such as meningitis, stroke, brain tumors or genetic conditions. In some cases, seizures are linked to metabolic imbalances, including low blood sugar or electrolyte disturbances. Fever in young children can also trigger seizures, known as febrile seizures. However, there are instances where no clear cause is identified, which can make management more challenging.

Diagnosis begins with a detailed medical history and description of the events. Witness accounts are often helpful, especially when the person affected does not remember the episode. Healthcare providers may use tests such as electroencephalography to record brain activity and identify abnormal patterns. Imaging techniques like magnetic resonance imaging can reveal structural changes that may be responsible for seizures. These evaluations help determine the type of seizure and guide treatment decisions. Treatment depends on the underlying cause and the frequency of seizures. Medications are commonly used to control abnormal electrical activity in the brain. These drugs aim to reduce the likelihood of future

episodes and allow individuals to maintain a stable routine. It may take time to find the most effective medication, as responses vary and side effects must be carefully monitored. Consistent use of prescribed medication is important for maintaining control. In cases where medication does not provide sufficient control, other approaches may be considered. Dietary methods, such as high-fat, low-carbohydrate plans, have shown benefits for some individuals, particularly children. Surgical options may be explored when seizures originate from a specific brain area that can be safely treated. Devices that deliver electrical stimulation to certain nerves are also used in some cases to reduce seizure frequency.

Living with seizures involves attention to daily habits and potential triggers. Lack of sleep, stress, alcohol consumption and flashing lights can increase the likelihood of an episode in some individuals. Maintaining regular sleep patterns, managing stress through relaxation techniques and avoiding known triggers can help reduce risk. Keeping a record of seizure activity may also assist in identifying patterns and improving management strategies. Safety is an important consideration for individuals who experience seizures. Activities such as swimming, driving or working at heights require careful planning. It is important to follow medical advice regarding these activities to prevent injury. Wearing medical identification can provide useful information to others in case of an emergency. First aid during a seizure is simple but essential. The person should be guided away from potential hazards and placed on their side to help keep the airway clear. It is important not to restrain movements or place objects in the mouth. Staying with the person until the seizure ends and offering reassurance afterward can provide comfort and support.

CONCLUSION

Medical assistance should be sought if the seizure lasts longer than a few minutes or if multiple seizures occur without recovery in between. The emotional and social effects of seizures can be significant. Fear of having an episode in public may lead to

Correspondence to: Laila Hassan, Department of Public Health, Cairo University, Cairo, Egypt, E-mail: laila.hassan@cu.edu.eg

Received: 29-Aug-2025, Manuscript No BDT-26-31262; **Editor assigned:** 01-Sep-2025, PreQC BDT-26-31262 (PQ); **Reviewed:** 15-Sep-2025, QC No. BDT-26-31262; **Revised:** 22-Sep-2025, Manuscript No. BDT-26-31261 (R); **Published:** 29-Sep-2025, DOI: 10.35248/2168-975X.25.14.315

Citation: Hassan L (2025). When the Brain Misfires: A Closer Look at Seizures and Their Impact. Brain Disord Ther. 14:315.

Copyright: © 2025 Hassan L. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

anxiety or reduced participation in social activities. Support from family, friends and community members can help reduce these challenges. Education about seizures can also reduce

misunderstanding and stigma, creating a more supportive environment.