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**MONOGRAPH**

**“HOW DOES EPILEPSY AFFECT THE PHYSICAL, EMOTIONAL AND  
PSYCHOSOCIAL DEVELOPMENT OF ADOLESCENTS WHO SUFFER FROM  
IT?”**

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### **Gratitude**

Mainly I want to thank God for blessing me with the parents he gave me. My parents gave me the best heritage ever, education. The school and high school taught me many useful things, because besides teaching me math and english it taught me how to deal with different kinds of people, it also taught me to pursue my dreams.

## Summary

Epilepsy is not a psychiatric or mental illness, it is a disease caused by abnormal functioning at the synapse of the brain. It is misdiagnosed many times since its symptoms are manifested intermittently, most people with epilepsy are fully capable of other activities because they are common people under a medication prescribed by an epilepsy specialist. Epilepsy has an aura, the aura is when an epileptic feels that it is going to convulse and your body warns you, this is not medically proven, however 8 out of 10 patients with epilepsy claim that the aura is real. The seizures that an epileptic undergoes vary according to the type of epilepsy, these being the most common:

- Tonic crisis: They cause muscle stiffness during the seizure.
- Clonic crisis: They cause spasmodic muscle movements during the seizure.
- Tonic-clonic crisis: They cause an abrupt loss of consciousness, stiffness, body shaking and sometimes loss of bladder control, relaxation of the anal sphincter and biting of the tongue.
- Atonic crisis: They cause the loss of muscle control causing a sudden collapse or falls.

These types of seizure happen mostly while you are unconscious, and are involuntary movements caused by the abnormal electricity in your brain. The most common one of the earliest mentioned is the tonic clonic crisis being this one the most aggressive one.

As the author mentioned earlier, it is important to remember that although the treatment has a fairly effective treatment, it is never hundred percent certain that the patient will not convulse since the electricity in the synapse can be altered by various factors, such as bumps , stress, alcohol intake, sudden movements, etc. There are mild epilepsies that can be

controlled in one hundred percent, but this does not apply to all types of epilepsy, and remember once again that there are different types of epilepsy as well as different types of seizures.

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## **Introduction**

Monographs are essential works of higher education that consist on investigating a specific topic, services to enhance the research and writing skills of students, this method is very common in colleges and universities. The topics to be treated in a monograph are the student's free choice. In this occasion the theme selected by the author was “How does epilepsy affect the physical, emotional and psychosocial development of adolescents who suffer from it?

The author's purpose, having selected this topic, was to inform readers that it was epilepsy and that it implied as a disease. Throughout this monograph we will cover topics such as the symptomatology of an epileptic, cases in which symptoms vary, different types of epilepsy, seizure care and seizure prevention. It is crucial that people are aware of how to react in the face of a seizure because they can even save lives. The crucial goal of this is to inform readers to prevent any incidents related to seizures, the author will mention various prevention measures throughout the monograph. It is important to identify them to be able to provide if needed.

The authors Hermann BP and Gillian FG, are the authors of a book called epilepsy disorder, which is an amazing tool to help you deepen your knowledge about epilepsy. Citizens united for epilepsy research is also a very helpful tool that happens to be a website in which people all the things they have discovered about epilepsy under the supervising of several doctors so that we can trust that true statement are given.

Epilepsy is currently a very common disease, which is often misdiagnosed as it is characterized by tonic generalized seizure, thus leading to any seizure as a symptom of a possible epilepsy.

Monograph outline

Profile of the epileptic patient

Definition of epilepsy

Factors that cause epilepsy

Possible treatments of the epileptic patient

Treatments for epileptic patients

Physical repercussions caused by the treatment

Epileptic patient care

Factors that risk the treatment

Behavior in the face of a seizure

## **Chapter I**

### **Profile of the epileptic patient**

#### **1.1 Definition of epilepsy**

Epilepsy is a disease of the central nervous system in which the electrical conduction is disrupted causing the brain not to receive enough of the synapse transmission, therefore the electrical conduction changes, causing the brain to misunderstand the signals that the body commands so as a consequence of the miscommunication on the brain synapsis, an abnormal electrical discharge happens in the brain of the patient.

Seizures are the consequence of abnormal electrical discharge in an epileptic person, not all seizures are related to epilepsy. There are four types of seizures that are more related to epilepsy such as:

- Tonic crisis: They cause muscle stiffness during the seizure.
- Clonic crisis: They cause spasmodic muscle movements during the seizure.
- Tonic-clonic crisis: They cause an abrupt loss of consciousness, stiffness, body shaking and sometimes loss of bladder control, relaxation of the anal sphincter and biting of the tongue.
- Atonic crisis: They cause the loss of muscle control causing a sudden collapse or falls.

These types of seizure happen while you are unconscious, and are involuntary movements caused by the abnormal electrical discharge. Some epileptic people claim that they can feel when they are about to convulse, this is called the aura. There are some types of crisis while you are conscious, although the crisis is involuntary, this kind of crisis can be caused by



several factors as the author said before, it's quite important to be aware that not all seizures are caused by epilepsy. "The most common cause of seizures is epilepsy. But not every person who has a seizure has epilepsy (Mayo clinic staff, 2019, para. 21). This means that epilepsy is detected because of seizures but sometimes there could be other factors which are responsible for a seizure.

### **1.1.1 Personality of the epileptic patient.**

There are many types of personality, and epilepsy is not the defining characteristic. Personality disorders may occur during the treatment of the epileptic patient but these disorders may happen according to the type of epilepsy the patient has.

There are no personality characteristics of patients with epilepsy. However, Norman Geschwind described a type of personality change in patients with epilepsy of the temporal lobe, driven by emotionality, Manic tendencies, depression, lack of sense of humor, sexuality. Altered, anger, hostility, aggression, religiosity, recent philosophical interests, sense of increased personal destiny, dependence, passivity, paranoia, Moralism, guilt, obsession, circumstantiality, viscosity, and hypergraphia. (Benson FK, Hermann BP, 1999, p. 174)

As the author said before, the personality disorders occur according to the type of epilepsy. Psychosis is also often a primary characteristic of patients, as they are constantly afraid of convulsing in front of strangers. The "aura" is the indicator of seizures, patients feel when they are about to have a seizure and as a precautionary measure throwing themselves on the floor is the most appropriate thing to do. Sometimes the "aura" is confused by the psychosis of the patient causing them to throw themselves to the floor.

Isolation is also a very common feature in patients with epilepsy. They feel excluded because they are different, soon after obtaining the diagnosis it is very probable and common for them to fall into a short episode of isolation or depression since they consider that epilepsy can spread genetically and self-punish themselves through social rejection by have been diagnosed with epilepsy.

### **1.1.2 Factors that cause epilepsy**

Epilepsy can be caused by two essential factors, structural brain damage or electrical pathology.

Structural brain damage: Epilepsy can be a repercussion of brain abnormalities, which happen to cause damage in the brain structure, such as:

- Cysticercus cyst: These kinds of cysts are produced by a bacteria of the pork called *Taenia Solium*. “Cysticercosis is a parasitic infection of the tissues caused by the larval cysts of the swine tapeworm. These cysts infect the brain, muscles and other tissues and are one of the main causes of epilepsy in adults (Global health division of parasitic diseases, 2013, para. 3). *Taenia Solium* forms a cyst because it stays in your brain and eventually makes you convulse.
- Brain tumor: The formation of brain tumors prevents the electrical charge of the brain from spreading normally, which causes electro circuits.
- Brain arteriovenous malformation: Is the alteration suffered by the blood vessels in the process of bringing blood from the heart to the brain.
- Cerebral stroke: A percentage of the brain mass dies from a blood supply failure from the heart to the brain. “A stroke is a brain attack, when brain cells die during a stroke, abilities

controlled by that area of the brain such as memory and muscle control are lost” (National stroke association, 2019, para.1). The loss of muscle control is what causes a seizure.

- Cerebral hemorrhage: It is the accumulation of an exaggerated blood volume in the extravascular space of the brain. “This bleeding kills brain cells” (WebMD staff, 2016, para.6). The death of some of these brain cells is what causes seizures.

Electrical pathology: Epilepsy seizures of the electrical pathology are basically short circuits in some part of the brain that can be triggered by visual stimulations or errors in the transmission of electricity.

A very clear example of this electrical pathology is the photosensitive epilepsy. This sort of epilepsy is caused by a miss transmission on the brain synapsis that leads the electrical nerves to be triggered by the light like in flickering lights, disco lights or fast movements on a screen. The photosensitive epilepsy is a type of epilepsy in which attacks are caused by visual stimuli. This sort of epilepsy is very rare only 3 out of 100 epileptic persons suffer from this type of epilepsy. The treatment of this epilepsy is the same, but the care measures are quite different.

My neurologist told me that both eyes must see the light for one to have a seizure, so if you turn on a light and I’m not waiting for it, I cover one eye with the palm of my hand, look down and keep dancing. My friends now know what it means and they all do the same.

(Epilepsy action, 2012, para.12)

Although persons with this type of epilepsy have to be careful, that does not mean that they are disabled nor mentally retarded



## **Chapter II**

### **Possible treatments of the epileptic patient**

#### **2.1 Treatments for epileptic Patients**

Treatment for epileptic patients will always depend on the cause for which epilepsy was diagnosed.

The intention of treatments is always to avoid any type of seizure, either partial or generalized, there are many different ways to fight an epilepsy. Treatments are currently able to prevent and control the presence of any type of seizure, 80% of patients with epilepsy adapt perfectly to treatment and do not suffer more episodes as long as they stay medicated.

Current treatments can control seizures for at least some time in about 80% of patients with epilepsy. However, the remaining 20% of epileptic patients have seizures that cannot be properly treated with the means currently available, so it becomes absolutely necessary an improvement in the treatments or the appearance of new ones. (Unidad Editorial Revistas, 2015, párr.13)

As the author already mentioned, epilepsy can be caused by two essential factors: structural or electrical. The age of the patient diagnosed with epilepsy will also be a crucial factor in finding appropriate treatment.

##### **2.1.1 Epilepsy due to structural causes.**

- Graphene implants: More often used with kids. The Graphene implant acts as a chip that resets the abnormal electrical activity. “When a prolonged epileptic attack occurs, the brain

defends itself by doing this type of reset, hence the importance of understanding how this mechanism occurs" (Guerrero, 2019, párr.7). These implants are made out of graphene, a two-dimensional nanometric material that can bare high temperatures and electricity.

- Anticonvulsant pills: Anticonvulsant pills are taken twice a day and interact in the synapse of neurotransmitters preventing the electrical charge from being dispersed in the wrong way. Some medicines with compounds such as:

- Gabapentin,
- Lamotigrine,
- Carbamazepine

Produce the electrical activity to reduce, by means of a blockage in the sources of voltage and therefore manage to reduce the activity of the neurotransmitters.

### **2.1.2 Epilepsy due to electricity.**

The epileptic treatment, is in fact a very standard treatment so as the author said earlier the most fitting measure would be, the anticonvulsant pills. Is very important to be aware that some epilepsies are stronger than the others and pills indeed will help but they may or may not reduce completely your seizures.

### **2.2 Physical repercussions caused by the treatment**

If you take an anticonvulsant, you will usually need to attend follow up consultations so your neurologist can control side effects. The most common damage when taking this daily treatment is liver damage. Since the compounds of anticonvulsants are extremely strong and constantly ingested, our liver is quite affected.



It is always strongly advisable to take a digestive once a day when taking pills on a daily basis. These are the side effects that epileptic patients suffer most frequently:

- Double vision: this is caused by temporary blockage of the eye nerves during the brain synapse. As the author mentioned before, some anti-seizure pills work by blocking the transmission of neurotransmitters to reduce electrical activity in the brain.
- Headache: is given as derived by lack of sleep. It can also happen for a poorly prescribed dose, which is very high for the blood and its required levels.
- Vomiting: it is a result of gastrointestinal intolerance that can occur from irritation of some organ from daily consumption of the pills.
- Drowsiness: one of the primary and most common causes of seizures (of any kind) is lack of sleep, so this should come as no surprise. This happens due to disruption of neurological control of the sleep-wake system. Several studies made by renowned scientists, labor and doctors have seen a noticeable increase in physiological activity when going to sleep.
- Loss of coordination: This symptom of disorientation is due to lack of sleep, and in most cases, it is accompanied by bad memory or mental gaps. These mental gaps are characterized by a brief state of altered consciousness where usually a period of sleep and disorientation follows next (Stanford Children's Health, 2019).

### **2.3 Psychological repercussions caused by treatment**

Reverse psychology is a persuasion technique that consists in restricting an activity or action. Teenagers before this demonstrate a high cognitive reactance, in simpler words ignore the prohibition. Instantly by telling an epileptic teenager that he cannot drink alcohol or smoke cigarettes of any kind, this individual will be increasingly tempted to perform the

action that has been denied and that is one of the main psychological consequences of epileptic treatment, susceptibility for feeling different and frustrated for not being like the rest.

## **Chapter III**

### **Epileptic patient care**

#### **3.1 Factors that risk the treatment**

An epileptic patient is always at risk of convulsing, that goes according to the severity of the epilepsy, although it is true the anticonvulsants prevent seizures in their maximum

expression, however, there are factors that trigger seizures in disregard of anticonvulsants, below we will explain what the factors that double the risks of convulsions are and what effect this produces.

To expose the factors that trigger a seizure, it is important to remember and keep in mind that not all seizures are related to epilepsy.

- Roller coasters: Roller coasters have the challenge of creating a sense of extreme risk, and in order to achieve this, they subject you to strong movements, high speeds and powerful sensations that accelerate your pulse. An epileptic person who is subjected to this type of act suffers sudden brain movements, which may cause short circuits or electric shocks, which as the author mentioned before happens to be one of the main causes of the convulsions.

- Vape or cigar: The majority of vape essences are composed of a series of chemical essences seasoned with nicotine that go directly to the brain, altering it completely causing the patient to vomit and have absence crisis, and in the worst case scenario, generalized tonic seizures and even strokes of the brain.

- Drugs: These stimulants, including alcohol, directly manipulate neurons causing their excitability to be seriously affected by increasing in an extreme way. These drugs also reduce the effectiveness of anticonvulsant pills, exposing the patient to convulsion.

- Psychedelic lights: These lights immediately activate luminous stimuli causing the brain to be seriously affected and as a reaction leaves a large electric shock that will eventually lead to a seizure. Caution should be exercised with these flashes of light primarily in children and adolescents with epilepsy because they can destroy years of treatment no

matter how advanced your epilepsy may or may not be (Citizens United for Research in Epilepsy, 2019). Psychedelic lights alter the brain just like flash, and this is a maximum care matter.

The information previously provided are only the primary risk factors that may interfere with epileptic treatment, however not the only ones.

### **3.1.1 Behavior in the face of a seizure.**

The first step is not to be alarmed because if the patient has epilepsy, it was a matter of time to convulse, and better with you nearby than with anyone around. It is important to know that you should never interfere, interrupt or try to stop a seizure, since it is an abnormal electrical discharge that, when happens to be interrupted, can leave serious sequel in the brain.

By the only circumstances by which we should be alarmed, is if the seizure lasts longer than 5 minutes since it normally lasts 2 or 3 minutes, if the person is convulsing in the water, if the person seizing is pregnant and if a fracture occurs. abruptly interfering with the electric circuit.

It is quite important to remember that there are different types of seizures.

When thinking about a seizure, most people imagine a generalized tonic seizure, and clearly is the most known one, so in this type of seizure, as the author mentioned earlier, the person may scream, fall, tremble, or spasm and not realize what's going on around him.

(CDC, 2019, párr.10)

As this one is the most known one, measures regarding generalized tonic will be explained.



Now that we are aware of the circumstances under which we must be alarmed, I shall state what must be done if a seizure occurs. “We will be talking about simple but essential maneuvers to prevent the person concerned from suffering further harm” (Harvard Health, 2018, párr.11). Is valid to point out again that the care provided is based on generalized tonic clinic seizure.

- Very carefully turn the person sideways so that he or she can breathe more easily.
- Secure the perimeter, that is make sure there is nothing sharp or edgy nearby of who is convulsing, including stairs or water in order to prevent injuries or fractures.
- Places the person’s head on something soft and flat, to avoid numbness or some sort of cranial fracture.
- Remove any accessories from your face and head, earrings, lenses, dental plates, etc.
- Remove anything near the neck of the person convulsing.
- Loosen tight clothes.
- This is probably the most important care measure of all, immediately take the person who has had a seizure to the hospital, because he or she may or may not have suffered some type of stroke or disease.

Strokes or other brain diseases can also cause seizures and that's why if it's been the first seizure, you must take her or him as fast as possible to the hospital.



### **3.1.2 Not to do in the face of a seizure.**

A bad reaction could lead to up to some kind of brain damage, so it is also very important to know what not to do. Below you will read the basic regulations about things not to do during a seizure.

- Don't try to stop the seizure, or move the person abruptly, you may cause her or him some sort of brain damage.
- Don't put anything into the person's mouth, as it might start to drown or you could injure the person's teeth or jaw.
- Do not attempt to give cardiopulmonary resuscitation, shortly after convulsion the person will breathe again on his own.
- Do not offer food or water to the person until they are fully alert.

Although it may not be related, on the medical side it is of utmost importance not to be frightened by the person who has just convulsated, as it is very likely that he or she will feel, confused, dazed and susceptible to what your reaction can be of extreme non-acceptance even to cause another seizure. So, you must know how to be calm so that you won't make nervous the person.

## Conclusions

At the end of this monographic work it is concluded that:

- Epilepsy is a disease that is very important to know, seizures are often observed and it is important to know how to react in the face of one, know what to do and what not to. People with epilepsy are normal while taking medication, keeping away from alcohol and narcotic substances are essential care measures for a daily medication consumer. As the author mentioned several times before, epilepsy is not a condition, it is a disease that has a fairly short list when it comes to prohibitions. Epilepsy is a very common disease today as it is a chronic neurological disorder that affects people of all ages. Epilepsy is diagnosed every year to more than 180,000 people. People have seizures when their brain electrical signals become disorganized and normal brain electrical activity is disturbed by these excessive electrical discharges, which generate a temporary communication problem between nerve cells. As mentioned before is very important to know what to do in face of a seizure so let's go to the safety procedure if a seizure happens, the care provided is based on generalized tonic clonic seizure.
- Very carefully turn the person sideways so that he or she can breathe more easily, also make sure you:
  - Secure the perimeter, that is make sure there is nothing sharp or edgy nearby of who is convulsing, including stairs or water in order to prevent injuries or fractures.
  - Places the person's head on something soft and flat, to avoid numbness or some sort of cranial fracture.

- Remove any accessories from your face and head, earrings, lenses, dental plates, etc.
- Remove anything near the neck of the person convulsing.
- Loosen tight clothes.
- This is probably the most important care measure of all, immediately take the person who has had a seizure to the hospital, because he or she may or may not have suffered some type of stroke or disease.

Is very important to be aware of what you must do because in a severe seizure, the patient can even shock with his own tongue, so that is when you go in with all the measures the author just gave you. Now we will review some of the things you are not supposed to do:

- Don't try to stop the seizure, or move the person abruptly, you may cause her or him some sort of brain damage.
- Don't put anything into the person's mouth, as it might start to drown or you could injure the person's teeth or jaw.
- Do not attempt to give cardiopulmonary resuscitation, shortly after convulsion the person will breathe again on his own.
- Do not offer food or water to the person until they are fully alert.

These ones are the most remarkable ones, since you can save the persons live or you can make him shock, so this should be take as no joke, these are real measure you must remember if a seizure happens, once all of the earlier mentioned are done you immediately call 911, mostly if it is the first time that this happens to the person, because the seizure could have been due to a brain damaged that had to be treated immediately.

### **Recommendations**

At the end of this monographic work, it is recommended:

- 1) Another material that you can use to increase your knowledge about epilepsy is reading the book previously mentioned by the author "Epilepsy Disorder" or watching videos uploaded by Medscape for educational purposes.
- 2) It is important to remember that an epileptic patient should be treated normally, since a person with epilepsy while taking a medication prescribed by an epilepsy specialist is completely normal.
- 3) An epileptic is a totally common person under medication as the author mentioned earlier, since epilepsy is not a condition, it is a disease that prevents you from drinking alcohol and narcotic substances, that's it, is a fairly small list of things that you should not do as an epileptic.
- 4) Epilepsy is a fairly simple topic to understand, so I recommend that you look for the topics mentioned earlier through the chapters and basic information is what will appear on your screen so that you can understand it more easily.



## References

- Andres, M. (2014). Mood and Personality Changes. Recovered from <https://www.epilepsy.com/learn/challenges-epilepsy/moods-and-behavior/mood-and-behavior-101/mood-and-personality-changes>
- Centro Nacional para la Prevención de Enfermedades Crónicas y Promoción de la Salud (NCCDPHP) (2018). Primeros auxilios para las convulsions. Recovered from <https://www.cdc.gov/epilepsy/spanish/primeros-auxilios.html>
- Elson, L. (2015). Profile of epilepsy as a disability. Recovered from [https://www.aesnet.org/clinical\\_resources/practice\\_tools/employment\\_resources/profile\\_of\\_epilepsy\\_as\\_a\\_disability](https://www.aesnet.org/clinical_resources/practice_tools/employment_resources/profile_of_epilepsy_as_a_disability)
- Mayo Clinic. (2019). Symptons and causes. Recovered from [https://www.mayoclinic.org/diseases-conditions/seizure/symptomscauses/syc20365711?mc\\_id=google&campaign=1051355925&geo=20261&kw=seizure%20symptoms&ad=248596634289&network=g&sitetarget=&adgroup=57304941491&extension=&target=kwd296649917651&matchtype=b&device=m&account=4650938658&invsr=c=spanish&placementsite=enterprise&gclid=EAlaIQobChMI1Zbm5bbn5QIVD2yGCh3YNQ4-EAAYASAAEgL1mfD\\_BwE](https://www.mayoclinic.org/diseases-conditions/seizure/symptomscauses/syc20365711?mc_id=google&campaign=1051355925&geo=20261&kw=seizure%20symptoms&ad=248596634289&network=g&sitetarget=&adgroup=57304941491&extension=&target=kwd296649917651&matchtype=b&device=m&account=4650938658&invsr=c=spanish&placementsite=enterprise&gclid=EAlaIQobChMI1Zbm5bbn5QIVD2yGCh3YNQ4-EAAYASAAEgL1mfD_BwE)
- Megiddo, I. (2017). A patient with epilepsy can drive normally. Recovered from <https://vivirconepilepsia.es/epilepsia-conducir-normalidad>



