Opinion statement

Vagus nerve stimulation (VNS) for epilepsy is a well-established and effective treatment for medically intractable epilepsy. VNS is indicated if resective epilepsy surgery is unsuccessful or is not an option. About 60% of patients with VNS have a seizure reduction greater than 50%, but less than 10% become seizure-free. VNS also has an alerting effect on patients and may allow a reduction in sedating medications. The major adverse event is hoarseness, but treatment is generally well tolerated. The therapeutic effect can be delayed: patients may improve several months after VNS implantation. Direct brain stimulation (DBS) is an emerging treatment for epilepsy. Scheduled stimulation is similar to brain stimulation in Parkinson’s disease. Only the anterior thalamic nucleus has been studied in a larger randomized, controlled trial, in which patients with the stimulator turned on had a significantly reduced seizure frequency. Responsive stimulation applies an electrical stimulus at the site of seizure onset to terminate the seizure if one occurs. The seizure-onset zone must be well defined before implantation. Responsive stimulation requires seizure detection and application of a stimulus online. A large pivotal trial showed a significant reduction in seizure frequency. Both DBS and responsive neurostimulation are well tolerated, but there has been some concern about depression with DBS. Infection, hemorrhage, and lead breakage are adverse events possible with any type of stimulator. None of the brain stimulation devices have been approved by the US Food and Drug Administration, but final approval is expected soon. These devices are indicated for patients with bilateral seizure onset or seizure onset in eloquent areas. Although the initial trials of brain stimulation do not show overwhelming improvement in seizure frequency, the technology will improve with time as we continue to learn about the use of brain stimulation for epilepsy. Optimization of VNS has been going on for 10 years, and we need to ensure that brain stimulation is similarly developed further. In addition, sophisticated devices such as responsive neurostimulators can greatly enhance our understanding of the pathophysiology of epilepsy.
Natural Treatments for Epilepsy

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Understanding Epilepsy

What is Epilepsy?
Epilepsy is a neurological disorder that affects millions of people worldwide. It is characterized by recurrent seizures, which are brief episodes of abnormally increased electrical activity in the brain. Seizures can vary in intensity and duration, and some people experience multiple seizures over time. The condition is often managed through a combination of medication, lifestyle changes, and sometimes surgery.

What Causes Epilepsy?
There are several factors that can contribute to the development of epilepsy, including genetic predisposition, brain injury or damage, infections, stroke, brain tumors, and certain metabolic disorders. In some cases, the cause of epilepsy may be unknown.

How the Brain Works
The brain is a complex organ, responsible for controlling various functions such as movement, sensation, and memory. It is composed of billions of nerve cells, called neurons, which communicate with each other through electrical and chemical signals.

Seizures Can Cause:
- Ating stroke
- Cave seizure
- Ating aura
- Flashing lights
- Tingling sensations
- View changes
- Aching or pins and needles
- Numbness
- Anesia
- Other changes

If Someone Has a Seizure
Although the symptoms may vary, the primary goal is to prevent injury and provide a safe environment.

You Should:
- Stay calm
- Help the person lie down and roll onto one side to prevent choking
- Cover the head, mouth, and eyes
- Protect the person's head with a soft object such as a pillow or a jacket
- Gently guide the unconscious person in the right direction
- Remove any loose items from the head and feet
- Be reassuring and comforting

You Should Not:
- Not move the person unless needed
- Try toholder the person

Diagnosing Epilepsy
The diagnosis of epilepsy is based on a combination of factors, including a medical history, a physical examination, and sometimes brain imaging tests. The goal is to determine the underlying cause of seizures and develop an appropriate treatment plan.

Phases of a Seizure

Understanding the Different Kinds of Seizures

Generalized Seizures
These seizures affect both sides of the brain at the same time. Sudden activity is not localized to any specific area and can spread to the other side of the brain.

Partial Seizures
These seizures begin in a part of the brain and are then spread to the other side of the brain.

Main Types of Generalized Seizures

- Tonic-clonic seizures (formerly called "grand mal")
- Absence seizures (formerly called "petit mal")
- Myoclonic seizures
- Atonic seizures

Main Types of Partial Seizures

- Simple partial seizures (formerly called "partial onset")
- Complex partial seizures (formerly called "secondarily generalized")

Understanding the Different Stages of a Seizure

1. Aura
2. Tonic phase
3. Clonic phase
4. Post-ictal phase

Understanding the Different Types of Seizures

Natural Treatments for Epilepsy
CAUSES OF EPILEPSY

Epilepsy has no definite cause. However, some risk factors can be given:
- Intestinal Parasites block Nutrition absorption Especially Calcium
- Bad Diet + Malabsorption -Calcium Deficiency
- Premature infants
- Brain infections (meningitis, encephalitis)
- Infants with abnormal brain structures
- Cerebral palsy
- Hypoxia
- Brain tumors
- Stroke due to arterial blockage (Hemorrhage)
- Drug abuse Mis-Managed Prescription meds
- Family history of epilepsy

The most common causes of epilepsy are:
- Brain infection
- Head trauma
- Stroke
- Brain tumor
- Intestinal Parasites

Causes of Seizures in Children
- Intracranial
  - Epilepsy
  - Congenital anomaly
  - Birth injury
  - Infection
  - Trauma
  - Degenerative disease
  - Vascular disorder
  - Intestinal Parasites
  - Bad Diet
- Extracranial
  - Fever
  - Heart disease
  - Metabolic disorders
  - Hypocalcemia
  - Hypoglycemia
  - Dehydration and malnutrition
- Toxic
  - Anesthetics
  - Drugs
  - Poisons
Natural Treatments for Epilepsy

First Aid for Seizures (Convulsions, generalized tonic-clonic, grand mal)

- Cushion head
- Loosen tight neckwear
- Turn on side
- Nothing in mouth
- Seizure Disorder
- I have epilepsy
- Look for I.D.
- Don’t hold down
- As seizure ends
- ... offer help

Over 2 million people in the United States have been diagnosed with epilepsy.
May 15, 2011

Over the 21 years I have been in business, I have had many calls from health care providers about using Cranial Electro Stimulation with patients who have a seizure disorder. I asked the foremost authority and leading researcher on CES, Dr. Ray Smith, if he would give me his opinion about the subject and he agreed to let me put this on the website. Nancy Campbell

Seizuers and CES,
by Ray B. Smith, Ph.D, CES Researcher and Statistician
I think back to the study I did that was published in Brain Injury, Vol 8 (4), pages 357-361 with some 20 closed head injured patients, many of whom were seizure patients. The study was double blind and we gave them CES or sham CES every day for 1 hour, Monday through Friday for 3 weeks. One patient had a seizure during the second week of the study so we took him out of the study. At the end of the study none of the other patients had had a seizure and we found, when we broke the double blinding code that the patient who had the seizure was getting sham CES. When his parents saw the results of the study with those actually getting CES, they demanded that their son be treated also. We called him back for 3 weeks of daily CES treatment and he had no additional seizures.

On another front, when I worked in a 600 bed addiction treatment center back in the 1970s, we were not allowed to put CES on patients until they had gone completely through detox because a sizable proportion of patients had withdrawal seizures. Four years later I had occasion to contact the CES therapists at Charity Hospital in New Orleans, who told me that for months they had successfully used CES on all patients entering withdrawal to prevent their having seizures. They swore by CES as a seizure preventive measure in that situation.
Self-Control and Biofeedback

Some people with epilepsy try to control their brain activity to reduce the frequency of seizures. The theory is that if you can detect symptoms of an impending seizure, then you may be able to stop it.

According to NYU Langone Medical Center, some patients experience symptoms 20 minutes before a seizure. Others might feel symptoms for several days leading up to the event, including:

- anxiety
- depression
- fatigue
- bad headaches

Self-control methods are used to prevent or decrease the intensity of the seizure once it arrives. There are varying techniques, all which require good concentration and focus. Examples of such methods are:

- meditation
- walking
- immersing in a task
- sniffing a strong odor
- literally telling the seizure “no”

Oftentimes, these methods are too good to be true. The problem is there is no single technique to stop a seizure, and there is no guarantee it will work every time.

Another method involves biofeedback. Like self-control measures, the purpose of the process is to take control of your brain activity. Biofeedback utilizes electrical sensors to alter brain waves.

See the end of this book for information on balancing the Vagus Nerve.
Physical therapists commonly use biofeedback. If you’re interested in this procedure, seek a professional — don’t fall for a biofeedback practitioner without a license credential.

**EEG Biofeedback and Epilepsy**

EEG biofeedback is also known as EEG-operant conditioning or neurotherapy. In this method, the subject learns to voluntarily control his/her EEG rhythm and thereby gains control over seizures. Initial work done demonstrated on sensory motor rhythm (SMR) of somato-sensory cortex for which biofeedback was initiated. It is still debated that specific cortical rhythm is useful for biofeedback in specific seizures types. Sterman and Friar observed protection against drug-induced seizure in cats following operant conditioning of 11–15 Hz SMR.

Sterman enrolled 174 patients with refractory epilepsy for a study on the efficacy of EEG biofeedback. Of the 174 patients, 142 (82%) showed clinical improvement and 30% became seizure free. On average, there was a reduction of seizure frequency of 50% and also a decrease in seizure severity: 5% of these patients achieved complete control of seizures after 1 year. Advocates of biofeedback point to the evidence of positive effects that has accumulated over the last 25 years. Skeptics say that while it may be useful in some patients, much more data is needed before biofeedback is accepted generally as an option for people with refractory epilepsy.

The instruments and the training required for conducting studies on EEG biofeedback is expensive. The NYU Medical School has enrolled many patients for one such study which is ongoing.

**Herbal Treatments**

With an increasing market and public interest, herbal treatments have soared in popularity. It seems there is an herb for virtually every ailment. NYU Langone Medical Center estimates that 20 percent of people taking prescription drugs also use herbs. Some of the most commonly used herbs for epilepsy are:

- burning bush
- groundsel
- hydrocotyle
- lily of the valley
- mistletoe
Natural Treatments for Epilepsy

- mugwort
- peony
- scullcap
- tree of heaven
- valerian

Such herbs have the potential to reduce seizures, but there’s no scientific proof that they work. The FDA doesn’t regulate the safety and efficacy of supplements. Herbs sometimes cause unpleasant side effects such as headaches, rashes, and digestive problems.

While some herbs might help epilepsy, others should be avoided. These include:

- gingko and St. John’s wort (may interact with anti-seizure medications)
- kava, passionflower, and valerian (may increase sedation)
- garlic (can possibly increase medication levels)
- chamomile (may prolong medication effects)

Vitamins May Complement Treatment

Along with a healthy diet, certain vitamins can help decrease seizures in epilepsy. Keep in mind that vitamins alone don’t work. You should also follow your doctor’s instructions to prevent a possible overdose.

The most frequently used vitamins for epilepsy are:

- folic acid
Natural Treatments for Epilepsy

- vitamin B6
- vitamin D
- vitamin E

Other Alternative Treatments

Acupuncture and chiropractic treatments are sometimes considered other alternatives to conventional medicine. The exact way acupuncture helps is not understood, but the ancient Chinese practice is used to help chronic pain and other medical issues. By placing fine needles in specific parts of the body, practitioners help the body heal itself.

Acupuncture may change brain activities to reduce seizures. While the practice sounds good in theory, there is no scientific evidence to prove acupuncture as an effective epilepsy treatment.

Spinal manipulations in chiropractic care may also help the body heal itself. Some chiropractors use specific manipulations to help patients control seizures on a regular basis. But like acupuncture, chiropractic care isn’t widely viewed as an effective form of epilepsy treatment.

Certain dietary changes may also decrease seizures. The best-known diet is the ketogenic diet, which focuses on eating a higher ratio of fats. It’s considered a low-carb, low-protein diet. This sort of eating pattern is thought to help decrease seizures, although doctors don’t know exactly why.

Children generally use the ketogenic diet, and many people find the restrictions challenging. Still, this type of diet might complement other treatment measures to help reduce seizures.
Natural Treatments for Epilepsy

The Bottom Line

Your neurologist is your best source of epilepsy information and care. The brain is a complex network. Each case is different, and seizures vary in severity and frequency. Not one single treatment or alternative remedy will work for everyone.

Many patients try varying treatment methods until they find one that works best for them. Natural treatments may complement existing medical treatment. In some cases, alternative therapies might even improve your treatment.

Despite their potential, natural treatments still pose risks. This is especially the case with herbs and vitamins, as they can interact with medications. Some “natural” supplements can even be as powerful as conventional drugs.

Natural Approaches For Treating Epilepsy

Written by C. Thomas Corriher

Epilepsy is a term used to encompass various types of seizure disorders, which are believed to be caused by abnormal electrical signals in the brain. The standard medical therapies include anti-seizure pharmaceuticals, psychological counseling, and brain surgery.

Anti-epileptic medications are known for having horrific side effects, which include suicidal ideation, jaundice, kidney and liver failure, blurred vision, aplastic anemia (failure to produce blood cells), impaired cognitive function, bone loss, and more severe seizures. Doctors believe that these risks are acceptable, in exchange for an overall reduction of seizures. When the medical side effects manifest, doctors often fail to recognize that they were caused by the medication, and treat the side effects like spontaneously new disease conditions. The problems are caused by anything and everything -- except for the pharmaceuticals. This delusion sometimes results in half a dozen absolutely unnecessary drugs being used, and worsening health problems from the untested combinations of pharmaceuticals.

There is no medical procedure which is more dangerous than brain surgery, yet this is seen as a viable option for some people who suffer from seizures. It is used by the medical establishment as a final shot (in the dark) at eliminating epilepsy.
Natural Treatments for Epilepsy

Unless the seizures are triggered by stress, psychological services are not helpful for preventing seizures. However, seizures can be very traumatic for sufferers; especially when they include involuntary urination, so good counseling can be helpful for some. We recommend seeking a Jungian Analytical Psychologist, when needed.

The Causes and Cures of Epilepsy

Epileptic seizures can be triggered by many additives that are in processed foods. Aspartame is known to induce seizures. Two main constituents of aspartame include phenylalanine and aspartic acid. Aspartic acid is an excitotoxin, which means that it over-excites nerves, causing them to literally burn-out and die. Phenylalanine is a known neurotoxin, so aspartame should be avoided by all individuals. Beware whenever you see “sugar-free” on a package.

Zinc deficiency has been shown to cause seizures. A study that was published in 1990, entitled, Effects of dietary zinc status on seizure susceptibility and hippocampal zinc content in the El (epilepsy) mouse, showed that zinc deficiency caused seizures, and this could be quickly corrected with adequate zinc supplementation. Many epilepsy sufferers have noted significant improvements in their condition with zinc intake.

Magnesium is a vital component of epilepsy recovery, and many believe that magnesium deficiency is the root cause of epileptic seizures. Lots of people choose to supplement with magnesium using Epsom salt (magnesium sulphate). While this is an option, impurities may be present in Epsom salt, because it is not meant for oral consumption. Some companies are dedicated to selling completely pure food grade Epsom salt. We cannot attest to the integrity of any of these companies. If Epsom salt is used, then the ideal dosage is about 1/2 a teaspoon each morning. Otherwise, magnesium supplements are available from health food stores. Food sources of magnesium include almonds, cashews, peanuts, halibut fish, and spinach. Studies have verified a link between magnesium deficiency and epilepsy. However, excessive supplementation with magnesium will cause other important minerals to flush out of the body to ironically cause even more nutritional deficiencies. So, the wisest approach is to fix the nutritional problems with diet, if possible.

The valerian herb is a very popular anti-spasmodic medication in Russia and Germany. In America, it is mostly known for its sedative effect, but it also has an anti-convulsant action that is beneficial for epileptic people. In addition, it has been shown to aid concentration. Low doses are recommended to avoid its sedative effect.

Kava kava is a herb that contains nuciferine, an anti-spasmodic. Kava kava is relaxing, so it is best taken at night, before sleeping. Read about kava kava in our article, The Potent and Natural Painkillers That Are Still Legal.

Scullcap and Indian tobacco (lobelia inflata) have both been traditionally used for convulsions, seizures, and tremors. Although there have been few official studies concerning their effectiveness. Skullcap is believed to be calming, while Indian tobacco is believed to relax the muscles. Indian tobacco is technically not a tobacco, even though it is smoked. It is known for reversing the lung damage that is caused by smoking real tobaccos.

Vitamin B-1 and vitamin E have shown very positive results in helping people who are suffering with epilepsy. Epilepsy has been linked to a vitamin B-1 deficiency.
Based on the aforementioned approaches, it is obvious that a good diet is essential for overcoming epilepsy. As always, we recommend avoidance of all "white" products, including white sugar, white flour, table salt, and white rice. It is especially important for an epileptic sufferer to avoid artificial sweeteners and additives. Drink spring water, and eat a balanced diet, which includes range-fed meats (preferably organic), whole grains, and organic fruits and vegetables. There are no healthy breads (not even whole wheat) in regular retailers anymore, so we recommend buying a bread maker.

People who suffer from this condition often benefit from a heavy metal cleanse, which can be purchased at health food stores or you can do it yourself using the approach in the Techniques For Cleansing The Body and Detoxifying article. Be sure to read the ingredients on these products before purchasing.

Radiation from sources such as the new generation of high-frequency televisions, energy efficient lights, microwaves, video game systems, radio towers, and cellular towers can trigger severe seizures.
Natural Treatments for Epilepsy

Yoga for epilepsy

Ramaratnam S, Sridharan KK

Summary

Yoga for epilepsy

Epilepsy is a disorder where recurrent seizures are caused by abnormal electrical discharges in the brain. Most seizures can be controlled by antiepileptic drugs but sometimes seizures develop which are resistant to those drugs. People may also wish to try non drug treatments such as yoga. This review assesses the utility of yoga as a treatment for control of epilepsy. No reliable evidence was found to support the use of yoga and further trials are needed.

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Abstract

Background

Stress is considered an important precipitating factor for seizures. Yoga is believed to induce relaxation and stress reduction. The effect of yoga on the electroencephalogram and the autonomic nervous system has been reported. Yoga would be an attractive therapeutic option for epilepsy (if proved effective), in view of its non pharmacological nature, minimal adverse effects and international acceptance.

Objectives

To assess the efficacy of yoga in the treatment of people with epilepsy.

Search strategy

We searched the Cochrane Epilepsy Group Specialized Register (September 2006), the Cochrane Central Register of Controlled Trials (The Cochrane Library Issue 3, 2006), MEDLINE (1966 to September 2006), and also registries of the Research Council for Complementary Medicine. In addition, we searched the references of all the identified studies.

Selection criteria

Randomized control trials and controlled clinical trials of treatment of epilepsy with yoga.

Data collection and analysis

Two review authors independently selected trials for inclusion and extracted data. Outcomes investigated included: percentage of people rendered seizure free; seizure frequency and duration. Analyses were on an intention-to-treat basis.

Main results

Only one study with 32 participants met the inclusion criteria, 10 to sahaja yoga and 22 to control. Antiepileptic drugs were continued in all. Randomization was by roll of a dice. The results of this study are as follows:

(i) seizure free for six months - the odds ratio (OR) with 95% confidence intervals (CIs) for yoga versus sham yoga group was 14.54 (95% CI 0.67 to 316.69) and for yoga versus no treatment group
Natural Treatments for Epilepsy

17.31 (95% CI 0.80 to 373.45);
(ii) reduction in seizure frequency - the weighted mean difference between yoga versus sham yoga group was -2.10 (95% CI -3.15 to -1.05) and for the yoga versus no treatment group -1.10 (95% CI -1.80 to -0.40);
(iii) more than 50% reduction in seizure frequency - the OR for yoga versus sham yoga group was 81.00 (95% CI 4.36 to 1504.46) and for the yoga versus no treatment group was 158.33 (95% CI 5.78 to 4335.63);
(iv) more than 50% reduction in seizure duration - the OR for yoga versus sham yoga group was 45.00 (95% CI 2.01 to 1006.75) and for yoga versus no treatment group 53.57 (95% CI 2.42 to 1187.26).

Authors' conclusions
No reliable conclusions can be drawn regarding the efficacy of yoga as a treatment for epilepsy. Further studies are needed.

NATURAL CURE FOR EPILEPSY,
I’ve seen results in 2 weeks just from these breathing techniques

Topic:
Living With Epilepsy - Adults

Hi, im new to the site and joined the help other people, i know what shes going through.
I have (its going slowly thank god) temporal lobe epilepsy. I was getting hallucination's everyday that made me depressed, hopeless and dreamy. My seizures also gave me panic attacks, which make me go mad, tired etc.
I recently found out about these breathing techniques. Theyre from the ancient people of India ranging 5000 years ago. I’ve been using these techniques for the past 2 weeks and iveonly had 1 seizure since then, and i could control its strength. I feel more happy, energetic and more myself.
These breathing techniques are called 'Pranayama'. Google it, its changed my life.
The techniques help get more oxygen into the body and brain, thus replenishing the body and all of its dis-ease.
I also recently went to see Dr.Smita Naram (google her husband Dr Pankaj Naram). She and Dr Pankaj naram have been taught pulse reading and 2100 year old herbal remedies (please read on, i know they are only herbs but trust me) from a 120 year old tibetan monk who has cured so many people of disease.
The monk was part of a lineage of masters from the times of Lord Buddha. Vaidya Jivak was Lord Buddha's physician and passed on the secret to health and happiness for the body to his learner. The leaner in turn became a master (all masters have survived for up to 125+years), which in turn pass the knowledge down.
Anyway, this knowlege has been passed to Dr Pankjak Naram. He has cured epilepsy patient, relieved HIV sufferers and is quite literally a miracle worker.
Anyway, back the point. I saw Dr Smita Naram, she read my pulse and quite literally read my mind. She said i had a weak blood flow, and have emotional difficulty, concentration. I told her about my dream hallucinations where i feel sick, adrenaline rush, depressed and the deja vu i was suffering. She knew exactly what to prescribe me and taught me these breathing techniques.
I have ordered the herbs from India (they grow them in non-polluted areas for more herb potency) and have started doing the breathing techniques. The herbs haven’t come through yet but just doing these breathing exercises for 10 minutes a day have changed my life. My ‘seizures’ didn’t disappear straight away, but they’re almost non-existent now and I can control them, how strong they are. If you don’t have money she will try and give you special discounts, and the couple both live for humanity. Please google dr pankaj naram. Look up ayurveda too. Dr Pankaj naram has a website where he sells his herbs, but you should go for a consultation first so he knows exactly what to give you. There are quite literally 100's of combinations for herbs for epilepsy.
As I said I haven’t taken the herbs yet, they haven’t come through the post yet. But just by breathing techniques I’m seeing amazing results.

Seizure disorder herbs, supplements, vitamins, diet and food, natural ways to prevent or treat, by Ray Sahelian, M.D.
April 18 2015

A seizure is the response to an abnormal electrical discharge in the brain. Anything that irritates the brain can produce it. Two thirds of people who experience a seizure never have another. One third go on to have recurring seizures (a condition called epilepsy).

Precisely what happens during a seizure depends on what part of the brain is affected by the abnormal electrical discharge. The discharge may involve a tiny area of the brain and lead only to the person noticing an odd smell or taste, or it may involve large areas and lead to a convulsion—jerking and spasms of muscles throughout the body. The person may also have brief attacks of altered consciousness; lose consciousness, muscle control, or bladder control; and become confused.

Cause of seizure disorders
High fever due to infections. Most of the time, these types of febrile seizure are temporary. Brain infections from a number of viruses and bacteria are a cause of seizure. Antibiotic or antiviral therapy can treat the infection and hence prevent the seizure from reoccurring.
Seizure can occur due to heatstroke.
Exposure to toxic drugs and substances such as excess alcohol, amphetamines, and cocaine can certainly lead to seizures. Even certain substances not thought of to be a causative agent may be responsible, for instance camphor.
Withdrawal after heavy use of alcohol, sleep aids, tranquilizers.
Adverse reaction to prescription drugs.
Metabolic disturbances such as high levels of sugar or sodium in the blood, low levels of sugar, calcium, magnesium, or sodium in the blood, kidney or liver failure.
Insufficient oxygen to the brain from strokes or carbon monoxide poisoning.
Destruction of brain tissue from head injury or brain tumor.
In rare cases, excessively high doses of certain nutrients and herbs may cause a
seizure or make it more likely to occur. Side effects of certain natural supplements such as ginkgo biloba herb.
A severe brain injury puts people at high risk for more than a decade after they are first hurt.
Childhood vaccines may trigger early onset of a severe form of infant epilepsy, Dravet syndrome, but researchers say the disorder is ultimately caused by defective genes and lifesaving vaccines should not be withheld from these children. The disorder generally begins with seizures around six months of age. High levels of stress.

**Natural therapy for seizures**

The **ketogenic diet** may be helpful in reducing the frequency of seizures. Improvement of **sleep** patterns can help reduce the frequency of seizures. Improvement in **diet**. A high-fat, low carbohydrate diet can drastically cut seizures in children with severe epilepsy and could reduce the need for medication. Vitamin E may be useful afterwards. Mol Neurobiol. February 2 2014. Post-Seizure α-Tocopherol Treatment Decreases Neuroinflammation and Neuronal Degeneration Induced by Status Epilepticus in Rat Hippocampus. Vitamin E (as α-tocopherol, α-T) was shown to have beneficial effects in epilepsy, mainly ascribed to its antioxidant properties. Besides radical-induced neurotoxicity, neuroinflammation is also involved in the pathophysiology of epilepsy, since neuroglial activation and cytokine production exacerbate seizure-induced neurotoxicity and contribute to epileptogenesis. We previously showed that α-T oral supplementation before inducing status epilepticus, markedly reduces astrocytic and microglial activation, neuronal cell death and oxidative stress in the hippocampus, as observed 4 days after seizure.

**Fish oils** may be helpful, according to Dr. Christopher DeGiorgio, of the University of California, Los Angeles. Omega-3 fatty acids in fish oil can cross from the bloodstream into the central nervous system, where they reduce the excitability of brain cells that trigger seizures. **Melatonin** has been found to be helpful in children taking valproate (see study below). **Passionflower** herb should be considered. Add **calcium** mineral and **vitamin D** since patients on medications often lose bone mass. **Bacopa** has been used in India for epilepsy however research on this herb regarding seizures is very limited. Carnosine has been looked into, see study below, but no human studies are available. Scutellariae radix water extract has anticonvulsant activity against tonic seizures in mice. Its role in humans is not clear. **Yoga** is helpful. Any type of stress reduction could be of benefit.

**Fish oils and seizure prevention**

Fish oils help reduce the risk of cardiac arrhythmias by helping stabilize neuronal excitability in heart tissue. I wonder if fish oils or eating fish could have the same benefits in brain tissue, helping reduce neuronal excitability and thus reducing the occurrence of seizures. I would be interested in getting feedback from neurologists or other experts would have studied this topic.
Natural Treatments for Epilepsy

Diet enriched with omega-3 fatty acids alleviates convulsion symptoms in seizure patients.
Epilepsia. 2002.
We examined whether a dietary supplement containing omega-3 polyunsaturated fatty acids (n-3 PUFAs) can alleviate and/or reduce the frequency of epileptic seizures in patients with central nervous system (CNS) diseases treated with anticonvulsive drugs. A special spread containing 65% n-3 PUFAs was added to the daily diet. The patients consumed 5 g of this spread at every breakfast for 6 months. Five patients completed the study. In all of them, a marked reduction in both frequency and strength of the epileptic seizures was recorded. Incorporation of the dietary supplement containing n-3 PUFAs may be beneficial in suppression of some cases of epileptic seizures.

Q. I sometimes work as a locum pharmacist in and around Dublin and have experienced a case of this type. Largely driven by the research in the UK, Omega-3s are becoming very popular for all paediatric neurological complaints. One parent who came to our pharmacy described how his daughter’s liquid omega3 supplement is now covered (i.e. no payment required by the patient) by Ireland’s General Medical Services (GMS) based on the outcome of a brief trial which he initiated himself. (GMS is the Irish equivalent of the British NHS; but with more limited access - available to over 70s and those on below-average incomes), but with no charges to patients. OTC products are generally not covered, but Regional Health Service Executive offices have discretionary systems for special or hardship cases.) This man’s daughter’s (aged about 7) seizures had been refractory to therapy – resulting in several seizures per week. After several months on Omega 3s, seizures became much less frequent (down to one every few months). The brands she had been receiving are Eskimo and EyeQ.

Carnosine and seizures
Carnosine, a precursor of histidine, ameliorates pentylenetetrazole-induced kindled seizures in rat.
The objective of this study was to examine the effects of carnosine on the development of pentylenetetrazol (PTZ) kindling seizures and protection against the PTZ kindled seizures in rats. Injection of carnosine (200, 500 mg/kg, i.p.) significantly decreased seizure stage, and prolonged the latencies for myoclonic jerks, in a dose- and time-dependent manner. In the seizure development process, 500 mg/kg carnosine also significantly delayed the onset of PTZ kindled seizures. In addition, carnosine significantly reversed decreased histamine levels induced by PTZ kindled seizure in the hippocampus. These results indicate that carnosine can protect against PTZ-induced seizures in both the development of kindling and the challenge process in rats. The results suggest that carnosine might be an endogenous anticonvulsant factor in the brain and can be used as a new antiepileptic drug in future.

Supplements that may have an adverse effect on seizure
Reduce or eliminate any kind of supplements that have a stimulant effect such as tyrosine amino acid, ephedra, caffeine, guarana, citrus aurantium, ginkgo biloba herb, sexual herbs such as horny goat weed and tongkat ali, and teas that have caffeine.
Medications that can cause new onset seizures
Antidepressants lead to a higher risk for first-time seizures in people being treated for depression:
- Tricyclics
- SSRIs, or selective serotonin reuptake inhibitors.
- SNRIs, or serotonin–norepinephrine reuptake inhibitors
- Other antidepressants, including bupropion, mirtazapine, reboxetine, and trazodone

Anti seizure medication warning
The US Food and Drug Administration is requiring that the label of all anti seizure medications include a warning about the increased risk of suicidal thoughts and behaviors.

Widely used anticonvulsant drugs, including Neurontin and Trileptal, increase the risk of suicide, attempted suicide and violent death in patients taking them for the first time. Compared with Johnson & Johnson's generic epilepsy drug topiramate or Topamax, Dr. Elisabetta Patorno of Brigham and Women's Hospital and Harvard Medical School in Boston, found an increased risk for suicide in new users of Pfizer's Neurontin (sold generically as gabapentin), GlaxoSmithKline's Lamictal or lamotrigine, Novartis' Trileptal or oxcarbazepine and Cephalon's Gabitril or tiagabine. The study appears in the Journal of the American Medical Association, 2010.

Pregnancy
taking Depakote (valproate) during pregnancy lowers the baby's IQ and lead to deformities in up to one in ten cases. NEJM/New England Journal of Medicine, June 9, 2010.

Type of seizure
Absence seizure can appear to others that the person is daydreaming, something we all do when we are bored or distracted. However, during the absence seizure the person cannot be woken up since they are temporarily unconscious.
- Complex partial seizure
- Focal
- Grand mall
- Myoclonic
- Partial
- Petit mal - some people misspell this as petite mal seizure
- Tonic clonic

Seizure symptom
Symptoms depend on the type, ranging from a hardly noticed few second mental distraction to a total full blown epileptic seizure involving all extremities and muscle groups leading to loss of consciousness. A diabetic seizure can occur due to a sudden drop in blood sugar from insulin overdose.

Seizure Research studies
After a seizure, early intervention with anticonvulsant drugs appears to have little effect on the long-term prognosis of epilepsy. When to begin treatment with antiepileptic drugs in patients with few or infrequent seizures is a difficult decision. Doctors and patients must weigh the risk of seizure recurrence against the risk of
Natural Treatments for Epilepsy

medication side effects. Researchers evaluated the outcomes of patients who had single seizures and early epilepsy whose doctors were uncertain whether to proceed with treatment. The researchers randomly assigned 722 patients to start treatment immediately and 721 to defer treatment until the doctors and patient agreed that seizure treatment was necessary. In the deferred-treatment group, 332 started treatment during the course of the trial.

Patients who deferred treatment had a shorter time until the first or second recurrent seizure. However, the two groups did not differ in time to a fifth seizure. By the two-year follow-up, 32 percent of those in the immediate-treatment group had a recurrent seizure versus 39 percent of those in the deferred-treatment group. There was no greater improvement in quality of life among those assigned to immediate treatment versus deferred treatment. Immediate treatment was associated with more adverse events that were believed to be treatment related. After three years, 74 percent of the immediate-treatment group and 71 percent of the deferred-treatment group were seizure-free. At 5 years, 76 percent and 77 percent were seizure free.

Screening of plants used in Danish folk medicine to treat epilepsy and convulsions. J Ethnopharmacol. 2005; Department of Medicinal Chemistry, The Danish University of Pharmaceutical Sciences, 2 Universitetsparken, 2100 Copenhagen O, Denmark. Aqueous and ethanolic extracts of 42 plants used in Danish folk medicine for the treatment of epilepsy and convulsions, or for inducing sedation, were tested for affinity to the GABA(A)-benzodiazepine receptor in the flumazenil-binding assay. Ethanolic extracts of leaves of Primula elatior and Primula veris and aerial parts of Tanacetum parthenium exhibited good, dose-dependent affinity.

Vaccination with the measles, mumps, and rubella (MMR) vaccine appears to increase a child's risk of having a seizure from a high fever -- a usually harmless event. However, the increased risk appears to be small and short-lived, Danish researchers report. Moreover, like other febrile seizures, those arising after vaccination were not associated with an increased risk of developing epilepsy.

Herbal Medicines and Epilepsy: The Potential for Benefit and Adverse Effects. Spinella M. Epilepsy Behav. 2001. Herbal sedatives (kava, valerian, chamomile, passionflower) may potentiate the effects of antiepileptic medications, increasing their sedative and cognitive effects. Despite some anti seizure effects in animal models, they should not be used in place of standard seizure medications because efficacy has not been established. Anecdotal, uncontrolled observations suggest that herbal stimulants containing ephedrine (ephedra or ma huang) and caffeine (cocoa, coffee, tea, mate, guarana, cola or kola) can exacerbate seizures in people with epilepsy, especially when taken in combination. Ginkgo and ginseng may also exacerbate seizures although the evidence for this is similarly anecdotal and uncertain. St. John's wort has the potential to alter medication pharmacokinetics and the seizure threshold. The essential oils of many plants contain epileptogenic compounds. There is mixed evidence for evening primrose and borage lowering the seizure threshold. Education of both health care providers and patients is the best way to avoid unintentional and unnecessary adverse reactions to herbal medicines.
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Add-on melatonin improves quality of life in epileptic children on valproate monotherapy: a randomized, double-blind, placebo-controlled trial.
Lady Hardinge Medical College and Associated Hospitals, New Delhi, India.
Epilepsy Behav. 2004.

This randomized, double-blind, placebo-controlled study in epileptic children aged 3-12 years evaluated the effects of add-on melatonin administration on the quality of life of these children on sodium valproate (VPA) monotherapy using a parental questionnaire. Quality of Life in Childhood Epilepsy is a questionnaire designed to assess a variety of age-relevant domains such as physical function, emotional well-being, cognitive function, social function, behavior, and general health. Of the 31 patients, 16 randomly received add-on melatonin (MEL), whereas 15 received add-on placebo (P). The questionnaire had good internal consistency reliability, because for most of the multi-item scales Cronbach's [Formula: see text] reliability exceeded 0.5 (range: 0.59-0.94). To our knowledge, this is the first study assessing quality of life in epileptic children with add-on melatonin administration in the form of a randomized, double-blind, placebo-controlled trial. The study suggests a potential use of melatonin as an adjunct to antiepileptic therapy due to its diverse spectrum of action as an antioxidant, neuroprotector, and free radical scavenger, thus offering the advantage of reducing oxidant stress and subsequent damage. The beneficial effects of melatonin on sleep, its wide safety window, and its ability to cross the blood-brain barrier have the potential to improve quality of life in pediatric epilepsy.

The results of a small study confirm previous findings that treatment with the anti-seizure drug valproate tends to increase body weight. The results also show that patients treated with the drug appear to have an increased risk of developing nonalcoholic fatty liver disease.

The fruit essential oil of Pimpinella anisum (anise) exerts anti-seizure effects in mice.

This study investigates anti-seizure effects of an essential oil of the fruits of anise, a folkloric remedy in the Iranian traditional medicine, against seizures induced by pentylenetetrazole (PTZ) or maximal electroshock (MES) in male mice. Anise essential oil suppressed tonic convulsions induced by PTZ or MES. It also elevated the threshold of PTZ-induced clonic convulsions in mice. Anise essential oil produced motor impairment. However, this effect was not observed at the doses and time courses needed for anticonvulsant activity. seizure seizure natural therapy seizure vitamins herbs for seizures.

Sphaeranthus indicus herb has been studied in rodents.

Epilepsy is a common chronic neurological disorder and is also referred to as “Seizures Disorder”. It is a condition in which an individual experiences fits and blackouts. Fits can occur repeatedly or suddenly and may result in loss of consciousness and convulsions. This disorder is caused by factors such as an imbalance of nerve signaling chemicals, genetic abnormalities, stress, lack of sleep, brain tumor, smoking, excessive consumption of alcohol or hormonal changes. Symptoms of this disorder include deep breathing, loss of urine, repetitive blinking, strange sensations and so on. Different herbal remedies can be used in the treatment of epilepsy.
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HERBAL REMEDIES FOR EPILEPSY

Passion Flower

Passion flower is a member of the passiflora family. This herb is also known as “Passiflora Incarnata”. Passion flower tea can be consumed several times in a day. Inhaling the aroma of passion flower oil on a regular basis can also provide the desired results. It is advisable to consult a medical professional before using this herb.

Kava

Kava is one of the most beneficial herbal remedies. It is frequently referred to as “Piper Methysticum”. Kava is a member of the pepper family. This herb can help in relaxing the nervous system. It is anti-convulsant, anti-epileptic and anti-spasmodic. The kava root extract can be consumed on a frequent basis to obtain effective results. It is recommended to consult a doctor before consuming kava.

Aloe Vera

Consumption of aloe vera juice on a daily basis can provide relief from various symptoms of epilepsy. A combination of aloe vera juice and honey can be consumed to obtain the desired results. Aloe vera gel can also be boiled in a glass of water and consumed 2 to 3 times in a day for obtaining relief.
Bacopa has anti-epileptic properties. It can help in controlling fits. Intake of bacopa extract can promote optimal brain function. **Bacopa contains bacosides and saponins.** These components can have a very beneficial impact on the brain’s neurotransmitters. **Consumption of this herb may also improve** the memory of an individual.
Botanicals and Herbs: A Traditional Approach to Treating Epilepsy

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Summary: Botanicals and herbs have a centuries-old tradition of use by persons with epilepsy, in many cultures around the world. At present, herbal therapies are tried by patients in developing as well as developed countries for control of seizures or adverse effects from antiepileptic drugs (AEDs), or for general health maintenance, usually without the knowledge of physicians who prescribe their AEDs. Well-designed clinical trials of herbal therapies in patients with epilepsy are scarce, and methodological issues prevent any conclusions of their efficacy or safety in this population. Furthermore, some botanicals and herbs may be proconvulsant or may alter AED metabolism. In spite of these limitations, further preclinical evaluation of botanicals and herbs and their constituent compounds using validated scientific methods is warranted. Numerous anecdotal observations of clinical benefit in patients with epilepsy and published reports showing mechanisms of action relevant to epilepsy or anticonvulsant effects in animal models of epilepsy. This review highlights the use of herbal therapies for epilepsy, outlines the role of the U.S. Food and Drug Administration in regulating herbal products, and presents the author's approach to the scientific assessment of herbal therapies as potential therapies for patients with epilepsy. Key Words: Epilepsy, herbal medicine, botanical, dietary supplement, complementary and alternative therapies, hypericin A.

INTRODUCTION

Despite the availability of many antiepileptic drugs (AEDs), nearly one in three patients with epilepsy who have access to AEDs continue to have seizures, and a similar proportion experience unacceptable AED-related adverse effects. In addition, the large majority of people with epilepsy around the world are not under treatment with AEDs, largely because of their lack of access to physicians, the cost of AEDs, and cultural attitudes toward modern treatments.

Over thousands of years, people with epilepsy have used a variety of botanicals and herbs, hereafter referred to simply as herbal therapies (although no clinical benefit is implied by this term). Today, herbal therapies are among the most commonly used forms of complementary and alternative medical (CAM) therapies by patients. The National Institutes of Health—National Center of Complementary and Alternative Medicine (NIH–NCCAM; http://nccam.nih.gov/) identifies CAM therapies as health-care and medical practices that are not currently an integral part of conventional medicine—meaning the system of medical knowledge and practices taught in Western medical schools (for example, in the United States), and as practiced by Western-trained physicians, including neurologists.

Patients with a variety of chronic illnesses, including epilepsy, take herbal therapies for many reasons. For example, patients in developing countries may view herbal therapies as natural and time-tested and therefore safe compared with what are perceived as artificial drugs—an attitude supported by recent reports of safety concerns associated with widely prescribed FDA-approved drugs. In developing countries, there may be access to herbal therapies but not to pharmaceuticals, because of cultural and economic factors.

Herbal traditions include traditional Chinese medicine, Ayurveda, and other culturally specific practices in which plant materials, processed or not, are ingested by persons with the intention of reducing symptoms or curing disease. This review focuses on the extent and patterns of use of herbal therapies by patients with epilepsy, regulatory considerations for dietary supplements (which include herbal therapies in the United States), safety issues, specific herbal therapies that have been used and evalu-
12 Effect of Acupuncture on Epilepsy

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Summary Acupuncture has been used for suppression of epileptic seizure for more than two thousand years in Chinese medicine. Also, significant progress towards elucidating the biological basis of the acupuncture suppression has been made in the past several decades. This chapter will summarize the clinical applications and the experimental studies on acupuncture therapy for epilepsy. The therapeutic methods of acupuncture or simulated acupuncture include fine acupuncture, catgut implantation at acupoints, acupuncture plus Chinese herbs and many others. The commonly used acupoints are those along GV and CV meridians. Most reports showed that acupuncture induced remarkable efficacy although there was negative evidence in some of the studies. Optimizing acupuncture conditions including delivery ways, acupoints and stimulation parameters may further improve the efficacy of acupuncture therapy for epilepsy. In animal models, neurobiological insights into the underlying mechanism have been achieved by a variety of modern approaches including biochemical, molecular, electrophysiological, immunological techniques as well as electroencephalogram and power spectra. Accumulating data have showed that acupuncture suppress epileptic seizure through regulation of several neurotransmitters/modulators and their receptors including excitatory (e.g., glutamate) and inhibitory (e.g., gamma-aminobutyric acid) amino acids, neuropeptides such as cholecystokinin, somatostain, enkephalin, dynorphin, and nitric oxide. However, the cellular and molecular basis of acupuncture therapy for epilepsy is far away from well understanding.

Keywords seizure, acupuncture, electroencephalogram, excitatory amino acids, inhibitory amino acids

12.1 Introduction

Epilepsy is a common disease of the central nervous system characterized by excessive, episodic and synchronized activity of a group of neurons. The neurophysiologic disorder of cerebral function leads to paroxysmal derangement
Epilepsy (Seizure) – Basics

Epilepsy is a neurological disorder in which neurons in the brain signal abnormally, causing seizures, loss of consciousness, unusual behavior or sensations, and muscle spasms. Several different factors can cause epilepsy, including abnormal brain development, head injury, certain illnesses and imbalance of neurotransmitters (chemicals that signal and relay messages to the nerves). An individual can have seizures without being epileptic. Generally two or more seizures is an indicator of epilepsy.

Below you will find alternative and natural treatment options including those from a Chinese Medicine perspective for Epilepsy.

Epilepsy (Seizure) – Diagnostic Patterns

The Chinese Medicine treatment of epilepsy (seizure) generally involves arriving at the appropriate TCM diagnosis or pattern. This pattern within the individual is what treatment is based on not the general condition (see treating the cause and not the symptoms).

The following patterns may represent the underlying contributing factors for the development of epilepsy (seizure):

- Liver Yang Rising
- Liver Wind
- Liver and Gallbladder Damp Heat
- Kidney Qi Deficiency

Chai Hu Jia Long Gu Mu Li Wan

- Bupleurum, Dragon Bone, and Oyster Shell Formula
- Used for heat that is lodged in the chest affecting all yang stages, also for phlegm in the liver/gall bladder. Generally used for a range of psychological conditions, aiding with drug withdrawal and related issues. Symptoms include chest oppression, anxiety, irritabibility, palpitations, excessive/delirious speech, heavy sensation of body, constipation, urinary issues.
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The Pulse will be wiry and rapid and the Tongue will be red with a slippery tongue coating.

- Calm The Spirit
- Sedate and Calm the Spirit

During epilepsy attack press firmly following points with the nail of the thumb or pointed object.

Point No.1 : At the junction of upper 1/3rd and lower 2/3rd of the depression above the upper lip (Philtrum) in midline press this point firmly with the nail of the thumb or index finger.

Point No.2 : 1/3rd distance from the base of the middle toe to the heel, on sole of the foot. If pressure at this point doesn't relieve the attack, then press this point firmly with the help of any pointed metal object.

Acupuncture treatment may be effective to cure epilepsy but acupuncturist must be a skilled one. Drugs used for epilepsy are sedative ones and have undesirable side effects. After acupuncture treatment for about one year (10 days per month), the drugs may not be required.

Note : Epilepsy patient should keep away from fire, water and driving.
Readers are welcome to write to us about their experience on effectiveness of 2 points pleasant pressure in curing their Epilepsy.
IMPORTANT: 1) Cut, keep in file, use and benefit and help others too!
2) Familiarize with the above pressure points as they are common to other cures also!
Ayurvedic treatment of Epilepsy

In Ayurveda, the name given to epilepsy is Apasmara. It is a chronic neurological disorder. It is also known as falling sickness. This is a nervous disorder which is characterized by a fit in which there is a sudden loss of consciousness. This tendency of having fits is due to some abnormal electrical activity of the brain. A fit may be continuous and may come one after another for long periods.

AYURVEDIC CAUSES AND SYMPTOMS
An epileptic fit occurs when there is a sudden discharge of electrical energy from the brain. A fit may appear at any age but mostly it starts before adult life. Some other causes for the fits may be
Natural Treatments for Epilepsy

- If there is a delay in delivery and the oxygen supplied to the brain is insufficient or injury to the baby during delivery.
- Excess fluid and infections in the brain, tumors, tuberculosis and parasites in the brain may also be the cause of fits.

The attack is sudden in most of the cases. There is a movement of one or both the limbs of the body and there may or may not be loss of consciousness. Some may even not have control over urine and stool. There may be contractions in the body parts and the head may turn to one side. The patient may cry loudly and is unaware of it. The eyes roll wildly and the pulse is very fast. Foam mixed with blood may also come out from mouth.

AYURVEDIC MEDICINES AND PRESCRIPTIONS
The following ayurvedic medicines are prescribed in the case of epilepsy.

<table>
<thead>
<tr>
<th>AYURVEDIC MEDICINES</th>
<th>DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saraswatarishta</td>
<td>30ml should be taken after meals two times in a day.</td>
</tr>
<tr>
<td>Apasmarantaka Rasa</td>
<td>100mg to be taken with honey two times in a day.</td>
</tr>
<tr>
<td>Vacha Churna, Smritisagara Rasa,</td>
<td>1gm each of Vacha Churna and Jatamansi Churna and 100mg of Smritisagara Rasa should be taken with honey twice daily.</td>
</tr>
<tr>
<td>Jatamansi Churna</td>
<td></td>
</tr>
<tr>
<td>Mahakalyanaka Ghrita</td>
<td>10gm should be taken with sugar and cow’s milk two times in a day.</td>
</tr>
</tbody>
</table>

Apart from the above mentioned ayurvedic medicines, Brahmi and Vacha are two potent herbs which are particularly useful in this condition and are best known as restorative, mental and nerve tonics.

1. **BRAHMI** – One tea spoon full of brahmi juice should be taken three times daily.
2. **VACHA** – One tea spoon full of the powder of the root of vacha should be mixed with honey and taken three times daily.
3. **BRIHAT VATA KULANTAKA RASA** – This compound preparation which has gold dust (bhasma) is very beneficial and brings fast results. This should be mixed with honey and given three times daily.
4. **MANDUKPARNI** – This herb is also used in cases of mental retardation, insanity and epilepsy.
5. **JYOTISHMATI** – It is a very powerful nerve and brain tonic which helps in stimulating the intellect and sharpens the memory.
6. **SHANKHAPUSHPI** – This herb is one of the best brain tonic which helps in strengthening and brightening the brain and memory. It is used in the treatment of loss of memory, insanity and epilepsy.
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OTHER NATURAL REMEDIES
- Garlic is crushed and boiled in milk. This shows good results. Also ghee made of cow’s milk should be given.
- Sesame oil or brahmi amla oil is used to massage the head and the soles of the feet.

DIET AND OTHER REGIMEN
- The diet should primarily consist of milk.
- Light and easy to digest foods should be given. Fresh fruits and vegetables, mostly green leafy vegetables should be the main part of the diet. Pungent things should be totally avoided.
- A daily cold bath and light exercise is advisable. Mental strain of all types should be avoided.

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Nonpharmacological treatment of epilepsy
V. S. Saxena and V. V. Nadkarni

This article has been cited by other articles in PMC.

Abstract

Introduction

Non-pharmacological treatment of epilepsy includes surgery, vagal nerve stimulation, ketogenic diet, and other alternative/complementary therapies. Alternative therapies include techniques such as yoga, acupuncture, chiropractic, massage therapy, EEG biofeedback, aromatherapy, homeopathy, herbal remedies (traditional Chinese medicine), etc. Most people with epilepsy need to take antiepileptic medication to control their seizures and alternative therapies are more often complementary.

Alternative therapies, including stress-reduction techniques, can help some people to better control their seizures. The epilepsy patient who finds that he/she has more seizures when under stress may benefit from learning stress management and relaxation techniques such as progressive muscle relaxation and deep diaphragmatic breathing. Some people
have found that yoga or meditation helps them prevent stress-induced seizures and also to improve their quality of life.

Acupuncture uses needles to stimulate nerve endings, the goal being to bring the person's health into a better mental, physical, and emotional balance. Biofeedback techniques in epilepsy use EEG machines to help people identify and alter their own seizure-related brain activity. The person with epilepsy is trained over time to use relaxation or other biofeedback techniques to generate a more normalized brain wave pattern, which may help reduce their seizures. A ketogenic diet is often used as the last resort in the treatment of catastrophic epilepsies in children and is said to be safe and effective.

**Ketogenic Diet**

The ketogenic diet[1] remains a valuable option for patients with intractable childhood epilepsy and, particularly, epileptic encephalopathies. The success of ketogenic diet on seizure outcome provides some insight into epileptogenesis and anticonvulsant action. Estimates indicate that, overall, complete cessation of all seizures occurs in 16% of patients, a greater than 90% reduction in seizures occurs in 32%, and a greater than 50% reduction in seizures occurs in 56%. It is said that 40–50% of those starting the diet will have a greater than 50% reduction in seizures after 12 months. Parents also report improvements in their child's behavior and attention. A concomitant reduction in antiepileptic drugs is often possible. The ketogenic diet is the first-line therapy in patients with deficiencies in the GLUT-1 glucose transport, where glucose cannot be transported into the cerebrospinal fluid for use by the brain; the ketogenic diet is also useful in those with pyruvate dehydrogenase (E1) deficiency for the treatment of seizures due to glucose transporter protein deficiency.[2]

*Classic ketogenic diet (Johns Hopkins Hospital protocol):* The ketogenic diet used at the Johns Hopkins Hospital's pediatric epilepsy center is commonly considered the standard or classic form of this diet. The usual protocol for children between the ages of 3 and 12 years provides a ratio of four parts of fat to one part of protein and carbohydrates combined. The protocol followed in different countries is shown in Table 1.[3]

**Table 1**

**Sample ketogenic diet recipes[3]**

The largest single-institution intention-to-treat prospective study[4] conducted on 150 patients at the Johns Hopkins Hospital demonstrated that at 3 months (with 125 patients remaining on the protocol) 3% of patients were free from seizure, 31% had a greater than 90% reduction in seizure frequency, and 26% had a 50–90% reduction in seizure.[5] After
12 months (with 83 patients remaining on the protocol), 7% were free of seizures, 20% had greater than 90% reduction in seizures, and 23% had of 50–90% reduction in seizure.

Neal et al.[6] conducted a randomized controlled trial to study the efficacy of ketogenic diet in controlling seizures. They enrolled 145 children aged between 2 and 16 years who had daily seizures (or more than seven seizures per week), had failed to respond to at least two antiepileptic drugs, and had not been treated previously with the ketogenic diet. Seventy-three children were assigned to the ketogenic diet group and 72 children to the control group. Data from 103 children (54 from the ketogenic diet group and 49 from the control group) were available for analysis.

After 3 months, the seizure frequency was significantly lower in the diet group than in the controls (75% decrease; \( P<0.0001 \)), 28 children (38%) in the diet group had greater than 50% seizure reduction compared with four (6%) controls (\( P<0.0001 \)). Twenty-eight children (38%) in the ketogenic diet group had greater than 50% reduction in seizure frequency compared to four (6%) children in the control group who achieved similar reduction (\( P < 0.0001 \)). Five children (7%) in the diet group had greater than 90% reduction in seizure frequency, whereas none among the controls achieved similar reduction (\( P = 0.0582 \)).

There was no significant difference in the efficacy of the treatment between symptomatic generalized or symptomatic focal syndromes. The ketogenic diet has been used in patients in variety of types of seizure and epilepsy syndromes, including Lennox-Gastaut syndrome[8] and Dravet syndrome.[8] Earlier intervention with a ketogenic diet leads to better outcome in patients with Dravet syndrome.

A multicenter study of ketogenic diet found no relationship between outcome and age, sex, seizure type, and EEG findings.[9]

diet has less side effects and side effects such as dehydration and hypoglycemia have been reported. Nephrolithiasis is seen in 6% of patients on a ketogenic diet. In addition, children may have stunted growth, fractures, and hyperlipidemia.

The mechanism underlying the beneficial effect of ketogenic diet remains a mystery. Recently, a hormone called leptin,[10] which is generated by the ketogenic diet, has been shown to suppress seizures in a rodent model of seizures.

The ketogenic diet is a special high-fat, low-carbohydrate diet that helps to control seizures in some people with epilepsy.

Doctors usually recommend the ketogenic diet for children whose seizures have not responded to several different seizure medicines.

The typical ketogenic diet, called the "long-chain triglyceride diet," provides 3 to 4 grams of fat for every 1 gram of carbohydrate and protein.

Several studies have shown that the ketogenic diet does reduce or prevent seizures in many children whose seizures could not be controlled by medications.

What is the ketogenic diet?
The ketogenic diet is a special high-fat, low-carbohydrate diet that helps to control seizures in some people with epilepsy. It is prescribed by a physician and carefully monitored by a dietitian. It is stricter than the modified Atkins diet, requiring careful measurements of calories, fluids, and proteins.
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The name ketogenic means that it produces ketones in the body (keto = ketone, genic = producing). Ketones are formed when the body uses fat for its source of energy. Usually the body uses carbohydrates (such as sugar, bread, pasta) for its fuel, but because the ketogenic diet is very low in carbohydrates, fats become the primary fuel instead.

Ketones are not dangerous. They can be detected in the urine, blood, and breath. Ketones are one of the more likely mechanisms of action of the diet; with higher ketone levels often leading to improved seizure control. However, there are many other theories for why the diet will work.

Who will it help?
Doctors usually recommend the ketogenic diet for children whose seizures have not responded to several different seizure medicines. It is particularly recommended for children with the Lennox-Gastaut syndrome.

The diet is usually not recommended for adults, mostly because the restricted food choices make it hard to follow. Yet, studies done on the use of the diet in adults show that it seems to work just as well.

The ketogenic diet has been shown in small studies (case reports and case series) to be particularly helpful for some epilepsy conditions. These include infantile spasms, Rett syndrome, tuberous sclerosis complex, Dravet syndrome, Doose syndrome, and GLUT-1 deficiency. Using a formula-only ketogenic diet for infants and gastrostomy-tube fed children may lead to better compliance and possibly even improved efficacy.

The diet works well for children with focal seizures, but may be less likely to lead to an immediate seizure-free result.
In general, the diet can always be considered as long as there are no clear metabolic or mitochondrial reasons not to use it.

What is it like?
The typical ketogenic diet, called the "long-chain triglyceride diet," provides 3 to 4 grams of fat for every 1 gram of carbohydrate and protein.

The dietician recommends a daily diet that contains 75 to 100 calories for every kilogram (2.2 pounds) of body weight and 1-2 grams of protein for every kilogram of body weight.

If this sounds complicated, it is! That's why parents need a dietician's help.

A ketogenic diet "ratio" is the ratio of fat to carbohydrate and protein grams combined. A 4:1 ratio is more strict than a 3:1 ratio, and is typically used for most children. A 3:1 ratio is typically used for infants, adolescents, and children who require higher amounts of protein or carbohydrate for some other reason.

The kinds of foods that provide fat for the ketogenic diet are butter, heavy whipping cream, mayonnaise, and oils (e.g. canola or olive).
Because the amount of carbohydrate and protein in the diet have to be restricted, it is very important to prepare meals carefully.
No other sources of carbohydrates can be eaten. (Even toothpaste might have some sugar in it!).
The ketogenic diet is supervised by a dietician who monitors the child's nutrition and can teach parents and the child what can and cannot be eaten.

What happens first?
Typically the diet is started in the under a therapist's guidance. The child usually begins by fasting (except for water) under close medical supervision for 24 hours. For instance, the child might go into the hospital on Monday, start fasting at 6 p.m. and continue to have only water until 6 a.m. on Tuesday. The diet is then started, either by slowly increasing the calories or the ratio. This is the typical Hopkins protocol.
There is growing evidence that fasting is probably not necessary for long-term efficacy, although it does lead to a quicker onset of ketosis.
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The primary reason for admission in most centers is to monitor for any increase in seizures on the diet, ensure all medications are carbohydrate-free, and educate the families.

Does it work?
Several studies have shown that the ketogenic diet does reduce or prevent seizures in many children whose seizures could not be controlled by medications.
Over half of children who go on the diet have at least a 50% reduction in the number of their seizures.
Some children, usually 10-15%, even become seizure-free.

Tell me more
Children who are on the ketogenic diet continue to take seizure medicines.
Some are able to take smaller doses or fewer medicines than before they started the diet.
When medications can be lowered depends on the child and the comfort level of the neurologist. Evidence suggests it can be done safely in some children - as soon as the diet is started.
If the person goes off the diet for even one meal, it may lose its good effect. So it is very important to stick with the diet as prescribed.
It can be hard to follow the diet 100%, especially if there are other children at home who are on a normal diet.
Small children who have free access to the refrigerator are tempted by "forbidden" foods. Parents need to work as closely as possible with a dietician.

Are there any side effects?
A person starting the ketogenic diet may feel sluggish for a few days after the diet is started. This can worsen if a child is sick at the same time as the diet is started.
Make sure to encourage carbohydrate-free fluids during illnesses.
Other side effects that might occur if the person stays on the diet for a long time are:
- Kidney stones
- High cholesterol levels in the blood
- Dehydration
- Constipation
- Slowed growth or weight gain
- Bone fractures

Are any other medicine changes needed?
Because the diet does not provide all the vitamins and minerals found in a balanced diet, the dietician will recommend vitamin and mineral supplements. The most important of these are calcium and vitamin D (to prevent thinning of the bones), iron, and folic acid.
There are no anticonvulsants that should be stopped while on the diet. Topamax (topiramate) and Zonegran (zonisamide) do not have a higher risk of acidosis or kidney stones while on the diet. Depakote (valproic acid) does not lead to carnitine deficiency or other difficulties while on the diet either.
Medication levels do not change while on the diet according to recent studies.

How is the patient monitored over time?
Early on, the doctor will usually see the child every 1-3 months.
Blood and urine tests are performed to make sure there are no medical problems.
The height and weight are measured to see if growth has slowed down.
As the child gains weight, the diet may need to be adjusted by the dietician.

Can the diet ever be stopped?
If seizures have been well controlled for some time, usually 2 years, the doctor might suggest going off the diet.
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Usually, the patient is gradually taken off the diet over several months or even longer. Seizures may worsen if the ketogenic diet is stopped all at once. Children usually continue to take seizure medicines after they go off the diet. In many situations, the diet has led to significant, but not total, seizure control. Families may choose to remain on the ketogenic diet for many years in these situations.

To summarize, the ketogenic diet is useful therapy for patients with intractable epilepsy. A modified Atkins diet[11] has also been tried in a study and was better tolerated.

Yoga and epilepsy

The ancient Indian practice and philosophy of yoga is increasingly becoming a focal point of therapy and research in epilepsy. Yoga offers an ancient yet amazingly modern approach to the treatment of seizures. In Ayurveda, epilepsy is called apasmara, meaning loss of consciousness of the body. The ancient Indian texts, the Vedas, describe four types of epilepsy and nine disorders causing convulsions in children. For the treatment of epilepsy, the physical discipline of yoga seeks to re-establish a balance (union) between those aspects of a person's health that cause seizures. Yoga is one of the oldest formal practices known whose purpose is to restore this balance.

Pranayama or deep diaphragmatic breathing

In this method, as a person slips into a seizure state, s/he is trained to reflexively catch and hold their breath as if startled or frightened. This causes changes in metabolism, blood flow, and oxygen levels in the blood. The practice of pranayama, i.e., controlled deep diaphragmatic breathing, helps restore normal respiration; this can reduce the chances of going into a seizure or stop the seizure before it becomes full blown.

Asanas or postures

The asanas or yogasanas aid in restoring balance to the body and its metabolic systems. Practicing asanas increases physical stamina and calms the nervous system. Asanas, used as a physical exercise alone, improve circulation, respiration, and concentration, while decreasing the chances of having a seizure. These exercises also help to improve the health-related quality of life (HRQOL).[12]

Dhyana or meditation

Stress is a well-recognized trigger of seizure activity. Dhyana or meditation soothes the mind even as it heals the body. Meditation improves blood flow to the brain and slows the production of stress hormones. Meditation also increases the levels of neurotransmitters, like serotonin, which keep the body's nervous system calm. Practicing relaxation techniques such as Yoga meditation is well known as a definitive aid in seizure control.

In 1996, The Indian Journal of Medical Research published the results of a study on the effects of Sahaja Yoga practice on seizure control.[13] The study was not large enough to be considered conclusive. However, its results were so promising that the study caught the attention of researchers in Europe and North America. In this study, a group of patients
with epilepsy who practiced *Sahaja Yoga* for 6 months experienced 86% decrease in their seizure frequency.

**Effect of yoga meditation on electroencephalography**

The effect of yoga meditation on electroencephalography (EEG) was first recorded by Anand *et al.*[14] In 1961 in a controlled study conducted at the AIIMS, the EEG of four yogis was recorded both during rest and during meditation. All subjects displayed considerable alpha activity during the resting state and this activity became more prominent, with increased amplitude, during meditation. During rest, visual and auditory stimuli block the alpha activity, whereas during meditation these stimuli fail to block the alpha activity, indicating the absence of external influence on the EEG in the meditation state. Arambula[15] studied the effects of Kundalini Yoga meditation on EEG. The study subjects were physicians who practiced Kundalini Yoga meditation. Respirarition, heart rate, EEG, skin conductance, and blood pressure were monitored at baseline, during meditation, and post meditation. There was more alpha amplitude during meditation ($M = 1.7/\mu V$) than at baseline ($M = 0.47 \mu V$) or post meditation ($M = 0.78 \mu V$). Increased theta amplitude was seen during meditation ($M = 0.62 \mu V$) and before meditation ($M = 0.26 \mu V$). Bagchi and Wenger[16] also studied the effects of breathing exercises and found that some of their subjects, especially the experienced ones, could produce bi-directional changes in every autonomic variable that the experimenters measured. Further evidence that contemplative practice produces different physiological profiles was provided by Anand[17] who studied four yogis and found that they exhibited persistent alpha activity with increased amplitude during the state of trance. Prominent alpha band activity and cardiac rhythm modulation were observed after adjuant Yoga therapy in patients with refractory epilepsy.[18]

The practice of Yoga regulates body physiology through control of posture, breathing, and meditation. The effects of Yoga on the autonomic functions of patients with refractory epilepsy, as quantified by standardized autonomic function tests, were determined. The Yoga group showed significant improvement in parasympathetic parameters and a decrease in seizure frequency scores.

**RCT in Refractory Epilepsy**

Deepak[19] conducted a study on 11 adult patients of refractory epilepsy who were taught meditation. They practiced for 1 year. The control group was matched for age and duration of epilepsy. The results of the trial showed the following:

1. The meditation group showed decrease in frequency and duration of seizures (as compared to the baseline) after 6 months of Yoga practice.
2. There was normalization of the EEG after prolonged practice of meditation.
3. The slow wave spectrum (<7Hz) decreased and the 8 - 12 Hz spectrum increased.

No changes were seen in the control group.[17] The practitioner of Yoga combines physical posture, breathing exercises, relaxation, and meditation to attain optimal physical fitness. Some schools of Yoga place emphasis on *yogasanas*, others on breathing control
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and Sahaja Yoga. In a study of 32 patients with epilepsy, randomized to group 1 (n=10 receiving yoga therapy), group 2 (n=10, receiving sham yoga) and group 3 (n=12, control group), 40% of group 1 became seizure free after six months.[20] Experimental and clinical studies on Yoga and epilepsy from 1961 till 2007 show that different types of Yoga – Hatha Yoga, Sahaja Yoga mediation, and yogasana practice – not only reduces the stress associated with epilepsy but also modifies brain rhythm and thereby helps in controlling seizure frequency.

Ayurveda and epilepsy

Ayurvedic treatment focuses on the individual rather than just on their condition. According to Ayurveda, the same type of disturbance can result in different disorders, whereas the same disorder can result from different forms of disturbances/imbalances. Ayurvedic medicine seeks to treat epilepsy by unblocking the channels of the heart and the mind that may be clogged by the excess of doshas or humors. This opening of the channels is practiced using various concoctions and purgatives. The drugs to be taken orally are cooked with oils and ghee (purified butter) and, in addition, external oil applications, massages, and baths are also part of the treatment. Listed below are several Ayurvedic treatments that have been used in the past to treat epilepsy and some that are still being used today. However, as mentioned before, the treatment selected for one patient with epilepsy may not be appropriate for another. It is also important to note that most, if not all, of the traditional medicines listed below have not been scientifically or clinically proven to cure or help people with epilepsy and are generally recommended because of patient’s confidence in alternative treatment.

Treatment modalities that include strong elimination purgatives are used to alleviate the symptoms, depending upon specific requirements, are mentioned as being useful for epilepsy patients. When epilepsy is associated with extrinsic factors, then mantras (hymns) have been recommended. Using drastic emesis (vatika apasmara) and enema (paittika apasmara), the physician first takes steps for opening the channels of the heart and the mind that have been blocked by doshas (humors). Drug formulations are recommended only after the patient has been cleansed by all means. A wide variety of ghrtas (purified butters) have been recommended for internal use. One of the most important among these is maha panca gavya ghrita. The use of mixtures of ghra and taila (oil) cooked with drugs has also been mentioned. Oil cooked with different herbal and animal products have been recommended for anointing the body of the patient. Even nasyas (nasal applications) have been recommended. The use of a wide variety of anjanas (clyricu sticks) to bring the unconscious patient to his/her senses has also been mentioned. A variety of Ayurvedic medicines for epilepsy is available in the Indian market, for example, asvagandhadyarishta, bali tail, brahmi ghrita, chandanadi, kalyanaka ghrita, mahamrutyunjaya rasa, ajata bhasma, vaatakulantaka rasa, and ogendra rasa.[21] In Ayurveda, the modes of administration of drugs for epilepsy include external application, internal use, and application in the eyes and nose. The only first-aid measure recommended in epilepsy is blood-letting (siravdha) from the veins. Cauterization of both parietal bones with needles (soocivedha) has also been mentioned.

One type of Ayurvedic herbal remedy believed to be effective for epilepsy is called siddharthaka ghrita. Aswagandharistam is used for epilepsy and insanity; it is
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thought to increase one's energy, vitality, and strength and to provide physical nourishment.

*Saraswata rishta* is another herbal medicine that Ayurveda has assigned to epilepsy treatment. It contains 21 different ingredients, some of which can be found in Cerebrex® capsules, a commercially available drug from the European Institute for Scientific Research on Ayurveda. Pandit Shiv Sharma, Asian Director of the World Federation of Life Sciences and a professor of Ayurveda in Bombay, India, recommends a mixture of three preparations for the treatment of epilepsy - *smriti-sagara rasa* – a metallic mixture containing mercury, arsenous sulphide, and red arsenic. Skullcap Ramayana #16 is another Ayurvedic herbal preparation used for epilepsy treatment. It is made from Skullcap (*Scutellaria* spp.) and 18 other rejuvenating, healing, and carminative Ayurvedic ingredients in a base of honey and herbal ghee. Skullcap is given for insomnia, tremors, muscle spasms, neuralgia, neurosis, and nervous headaches.

A RCT of Mentat® (an Ayurvedic medicine) in various types of epilepsy was conducted by Moharana, *et al.*[22] in 31 adult epileptic patients. Mentat® is a remedy containing certain important Ayurvedic ingredients such as *Bacopa monnieri* (jalbrahmi), *Centella asiatics* (mandookaparni, brahmi), *Withania somnifera* (ashwagandha), *Evolvulus alsinoides* (shankhapushpi), *Nardostachys jatamansi* (jatamansi) etc., and many others. A review of the literature suggests that Ayurvedic medicines cannot be recommended as primary or add-on therapy in epilepsy patients at present but they may form the basis of a future new antiepileptic drug.

EEG Biofeedback and Epilepsy

EEG biofeedback is also known as EEG-operant conditioning or neurotherapy. In this method, the subject learns to voluntarily control his/her EEG rhythm and thereby gains control over seizures. Initial work done demonstrated on sensory motor rhythm (SMR) of somato-sensory cortex for which biofeedback was initiated. It is still debated that specific cortical rhythm is useful for bio feedback in specific seizures types. Sterman and Friar[23] observed protection against drug-induced seizure in cats following operant conditioning of 11–15 Hz SMR.

Sterman enrolled 174 patients with refractory epilepsy for a study on the efficacy of EEG biofeedback. Of the 174 patients, 142 (82%) showed clinical improvement and 30% became seizure free. On average, there was a reduction of seizure frequency of 50% and also a decrease in seizure severity; 5% of these patients achieved complete control of seizures after 1 year. Advocates of biofeedback point to the evidence of positive effects that has accumulated over the last 25 years. Skeptics say that while it may be useful in some patients, much more data is needed before biofeedback is accepted generally as an option for people with refractory epilepsy.

The instruments and the training required for conducting studies on EEG biofeedback is expensive. The NYU Medical School has enrolled many patients for one such study which is ongoing.
Botanicals and Epilepsy

Siegward M.[24] Elsas has stated that there are a multitude of botanicals that are used traditionally for epilepsy. Of these, he has discussed five examples: Valerian (European traditional botanical), Passiflora incarnata (native North and South American botanical), Kava kava (Pacific native botanical), Piper nigrum (traditional Chinese medicine), and Withania somnifera (Ayurvedic medicine). He has further stated that scientific studies and clinical experience with these botanicals is very limited and formal clinical trials are desirable to assess their efficacy.

Acupuncture and Epilepsy

A growing number of people with epilepsy are realizing that this ancient treatment helps control seizures. Acupuncture, which has been practiced in China for over 3,000 years, is often used as a synonym for Chinese medicine;[25] however, traditional Chinese medicine also includes diet modification, herbal remedies, and exercises.

Footnotes

Source of Support: Nil
Conflict of Interest: Nil

References


Natural Treatments for Epilepsy


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The Eductor can find and treat Epileptic Spindles
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Physiologic stimuli

Proper activation

Cell physiology

Rapamycin and analogs

mTOR

Protein translation
(synaptic proteins, cytoskeletal proteins, etc.)

Cell dysfunction

Aberrant activation

Pathologic stimuli

Gene mutation (Tsc1, Tsc2, Pten)

Brain injury

Seizures

Altered synaptic function and hyperexcitability

Aberrant molecular and cellular plasticity

Glia dysfunction and astrogliosis

Neuropathology

Epileptogenesis

Spontaneous recurrent seizures and neurological comorbidities

Epilepsy

www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfRL/RL.cfm?lid=392923&lipcd=HCC

U.S. Food and Drug Administration

Establishment Registration & Device Listing

Proprietary Name: Educator, Educator
Classification Name: DEVICE, BIOFEEDBACK
Device Class: HCC
Registration Number: 2015000000062
Medical Specialty: Neurology
Registered Establishment Name: NATURE SCIENCE AND YOU
Registered Establishment Number: 8310452953
Owner/Operator: Nature, Science, and You
Establishment Operations: Manufacturer

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Physiology of Sleep and Wakefulness as it Relates to the Physiology of Epilepsy

Amzica, Florin

Abstract

This paper reviews the present knowledge about the cellular origins of vigilance states (wakefulness and slow-wave sleep) from the perspective of their involvement in the triggering of epileptic seizures. The data stem from intracellular recordings (most of them dual impalements of pairs of neurons and glia), extracellular ionic concentrations (mainly K\(^+\) and Ca\(^{2+}\)) and simultaneous intracortical field potentials from the cortex of cats. These data were corroborated with recordings from naturally sleeping animals and humans. It is shown that sleep is dominated by a cortically generated slow (<1 Hz) oscillation resulting from the complex interplay within networks of neurons and glia, which are modulated by the more diffuse action of extracellular currents of ions. Wakefulness is produced through the activation of brainstem and basal forebrain structures, which disrupt sleep oscillations and elicit a global change of the extraneuronal milieu, with profound modifications of glial and cerebral blood flow parameters. Paroxysmal events arising during quiet sleep evolve within the cortex from normal slow sleep oscillations. The synchronization of large cortical and eventually subcortical territories relies on the propagation of increased currents of K\(^+\) through the glial syncytium, which compensate for the reduced synaptic efficacy due to the depletion of extracellular Ca\(^{2+}\).

Interictal Behavioral Changes in Epilepsy

1. Norman Geschwind

   - Hypergraphia;
   - Aggressiveness;
   - Spike;
   - Luteinizing hormone-releasing hormone

Summary: Common behavioral alterations associated with epilepsy include increased interest in philosophical and religious concerns, increased and extensive writing of a cosmic or philosophical nature, changes in sexual behavior, and aggressiveness. Psychological stress, the effects of anticonvulsant therapy, and the actual occurrence of seizures or convulsions can be ruled out as possible causes of the syndrome. It is speculated that
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these behavioral alterations are the result of an intermittent spike focus in the temporal lobe that leads to an alteration in the responsiveness of the limbic system. Thus, there is a heightened emotional response to many stimuli as well as a decrease in sexual responsiveness. In an effort to discover the cause of the high incidence of sexual alterations, abnormalities in response to luteinizing hormone-releasing hormone (LHRH) were found in a group of patients with partial complex seizures, some of whom had no overt sexual dysfunction and had never received anticonvulsant therapy.

Hughlings Jackson's suggestion for the treatment of epilepsy

(TUBERCULINUM)

1. George K. York III, MD and
2. David A. Steinberg, MD

ABSTRACT

John Hughlings Jackson articulated a neurologic method of systematically evaluating the anatomy, physiology, and pathology of every patient with neurologic disease. He used this mode of analysis to develop a theory of the physiology of epilepsy. We examined an example of his method in a newly discovered, unpublished manuscript containing his suggestions for the treatment of epilepsy based on his physiologic ideas. He had his private papers destroyed at the time of his death, but the Rockefeller Library of the University College London Institute of Neurology, Queen Square, contains a collection of his papers probably saved from destruction by his collaborator James Taylor. Among these articles is an 1899 memorandum, labeled “For Private Circulation” and entitled “A Suggestion for the Treatment of Epilepsy.” In it, Hughlings Jackson claimed that focal discharging lesions cause both focal and generalized epilepsy, and that the cells in the lesion discharge their energy more easily than normal tissue. Citing microscopic evidence that such lesions are congested and inflamed, and that tuberculin destroys such tissue in the lung, he reasoned that destroying these unstable neurons with tuberculinum would improve epilepsy. In this private manuscript, Hughlings Jackson uses an unusually detailed analysis of the pathology, anatomy, and physiology of epilepsy to predict a scientific approach to its treatment.

Seizures Caused by Ingestion of Atropa Belladonna in a Homeopathic Medicine in a Previously Well Infant: Case Report and Review of the Literature

Glatstein, Miguel MD; Danino, Dana MD; Wolyniez, Ido MD; Scolnik, Dennis MB, ChB

Abstract

Atropa belladonna is a poisonous plant that can cause anticholinergic effects when ingested. Roots, leaves, and fruits of the plant contain the alkaloids atropine, hyoscyamine, and scopolamine, which can lead to an anticholinergic toxidrome; however, not all characteristics of the toxidrome are necessarily present in each case of poisoning. We present an infant who suffered serious seizures...
after ingestion of a homeopathic agent containing *A. belladonna*. The 20-day-old infant arrived at the emergency department with fever and generalized seizures for 30 minutes, 2 hours after ingesting the correct dose of a homeopathic medication agent used for infantile colic. The patient was treated with intravenous benzodiazepines and antibiotics after a full sepsis work up; all the laboratory results were normal and the fever resolved after several hours. The infant recovered fully with normal neurological function and a normal electroencephalogram. This infant probably manifested what is known as the central anticholinergic syndrome. We discuss his presentation and review of the literature on this topic.

**HOMEOPATHICS FOR EPILEPSY**

*Belladonna* — for seizures with a high fever

*Causticum* — for individuals with seizures triggered by feelings of sadness, grief, hopelessness and fear

*Cicuta* — for individuals with seizures after a head injury

*Cuprum metallicum* — for individuals with mental dullness; may be triggered by menstruation or vomiting

*Artemisia*

*Convallaria*

*Scutellaria*

*Valeriana*

*Viscum album*

**TUBERCULLINUM**

23 X and beyond potencies

**HOMEOPATHY**

It may seem prettier, but it's still just water.

*Energetic Water with a Memory*
What is epilepsy and how is it treated? Are there alternative or natural approaches to treating epilepsy? When it comes to the subject of epilepsy, many people find it difficult to fully understand the disorder and all of its characteristics. Even though signs of epilepsy in people were present centuries ago, epilepsy is a relatively new discovery in the world of health. Before the advancement of medical technology, those with epilepsy might have been look upon by others with confusion.

The Center of Disease Control & Prevention states that “2.3 million adults and 467,711 children (0-17 years of age) in the United States have epilepsy”. The incidence of the diagnosis of epilepsy has increased in the last few decades. There is a higher incidence of seizures among infants and elderly citizens over the age of 70.

What is Epilepsy?
Epilepsy is a term used to express an array of brain disorders caused by seizures. Depending on the type of epilepsy, the disorder may be short-term or long-term. Epilepsy is characterized by a tendency for recurrent seizures. A seizure occurs when nerve cells in the brain signal abnormally causing temporary disruption in brain function. Neurons are overly stimulated which can lead to involuntary muscle spasms or convulsions, changes in behavior and/or changes in awareness or sensation. There are three main types of seizures: generalized seizures, partial or focal seizures and absence or petit mal seizures. Generalized seizures involve all parts of the brain. The Epilepsy Foundation provides the sub-types of generalized seizures in the following:

- Grand Mal Seizures- unconsciousness and convulsions
- Myoclonic Seizures- isolated jerking movements
- Clonic Seizures- repetitive jerking movements
- Tonic Seizures- muscle stiffness
Atonic Seizures - loss of muscle tone

Symptoms Specific to Types of Seizures

Generalized or tonic clonic seizures affect the entire brain. The person falls to the floor and shakes or twitches uncontrollably, and is unable to speak.

**Generalized or Tonic-Clonic Seizures** – With a generalized or tonic-clonic seizure, the person experiences muscle stiffness, loss of consciousness and/or flailing arms and legs. They may lose control of bowel or bladder, may have trouble breathing and turn blue or be foaming at the mouth.
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The generalized seizure may last seconds or minutes. After the seizure, the person may feel very confused and it may take up to an hour for him/her to fully regain awareness of the situation.

Partial or Focal Seizures – During partial or focal seizures, part of the brain is affected. The part of the brain that is affected will determine which kind of symptoms arise. For example, if the occipital lobe is affected, the person may experience temporary blurry vision or is extremely sensitive to light. Within this category of seizures, there are also simple and complex partial seizures. Refer to diagrams A and B below.

A. Simple Partial Seizures

Simple partial seizure symptoms include arm twitching, tingling of face or one side of the body, seeing flashes of light, hearing ringing or hissing, sweating or flushing, facial grimacing or turning of head to one side.

B. Complex Partial Seizures
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Complex partial seizure symptoms include chewing movements, wetting lips, and picking at clothing, dysphasia or trouble speaking, and auditory, visual or olfactory hallucinations.

Absence seizures can occur many times in a day. People who have these seizures may exhibit moments of confusion, staring blanking and excessive blinking. Often absence or petit mal seizures go undetected because episodes can be brief but happen multiple times during the day or multiple times every hour. For more detailed information on each of the seizure types and symptoms, the Epilepsy Foundation is a very good resource.

Types of Epilepsy

The type(s) of seizure(s) a person has dictates which type of epilepsy is present. Epilepsy is characterized by the types of seizures a person exhibits. The major types of epilepsy include but are not limited to the following:

- Idiopathic Generalized Epilepsy
- Childhood Absence Epilepsy
- Juvenile Myoclonic Epilepsy
- Photosensitive Epilepsy
- Benign Rolandic Epilepsy

Idiopathic Generalized Epilepsy

Since there are so many different types of epilepsy, we will focus on idiopathic generalized epilepsy (IGE) or primary generalized epilepsy. According to an article written by Selim Benbadis & Leanne Heriaud from Tampa General Hospital, entitled “Idiopathic Generalized Epilepsy,” patients with IGE experience the following type of seizures:

- Patients with IGE have one or more of 3 types of (primary generalized) seizures: myoclonic, absence and generalized tonic-clonic seizures.
- One type may be the only or main type in a given patient.
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- Generalized tonic-clonic seizures are convulsions of the whole body lasting 1-2 minutes, and are the most common and most dramatic type of seizures.
- Absence seizures are brief staring spells with arrest of activity, often with eye fluttering, which last just a few seconds.
- Myoclonic seizures are very brief isolated body jerks that tend to occur in the morning.

Cause(s) of Idiopathic Generalized Epilepsy

Idiopathic generalized epilepsy is presumed to have a genetic cause however in many cases of epilepsy, a family history of the disorder may not be present. Patients with IGE who have a family history of the disorder may find it difficult to determine which family member will be born with IGE. The symptoms or seizures associated with IGE often start during childhood or adolescence.

Seizures that occur during childhood and associated with high fevers are termed “febrile seizures,” and are not uncommon. Children and adults can have seizures and not be diagnosed with epilepsy. The diagnosis of epilepsy is not made after only one incidence of seizure, but instead it is made after recurrent episodes of seizures. The Center of Disease Control & Prevention offers some possible theories of events that may lead to epilepsy:

- Oxygen deprivation during childhood
- Brain infections such as meningitis, encephalitis, or brain abscess
- Traumatic brain injury or head injury
- Stroke resulting from a block or rupture of a vessel in the brain
- Other neurologic brain diseases such as Alzheimer Disease
- Brain Tumors
- Certain Genetic Disorders

Diagnosis of Idiopathic Generalized Epilepsy

For physicians, it’s challenging to exactly pinpoint the type of epilepsy a patient may have. Patients with IGE have normal intelligence and score in the normal range on neurological exams. One method to most accurately diagnose a patient with IGE is to perform electroencephalogram (EGG) tests.
Flat metal discs are attached to the patient’s scalp to tract electrical activity in the brain. When the patient is having a seizure, the device documents the spikes. Other tests to assist physicians in diagnosing epilepsy include: Magnetic Resonance Testing (MRI), Positron Emissions Tomography (PET) Scan and Magnetic Resonance Spectroscopy (MRS). A good resource for more information about diagnostic tests for epilepsy is the John Hopkins Hospital School of Medicine, Neurology and Neurosurgery, “Diagnosing Seizures and Epilepsy.”

Orthodox Treatments for Idiopathic Generalized Epilepsy

No cure for Idiopathic Generalized Epilepsy (IGE) currently exists so finding the proper treatment is very important to maintain a healthy lifestyle. People with IGE can live a normal life span.

**Prescription Drugs** – Most patients diagnosed with idiopathic generalized epilepsy take placating medication to control their seizures. All prescription drugs have side effects. Some have potentially severe side effects. The placating medications to help control the incidence of seizures in patients with IGE include but are not limited to the following:

- Valproate
- Lamotrigine
- Topiramate
- Levetiracetam
- Ethosuximide
- Zonisamide
Alternative Treatments for Idiopathic Generalized Epilepsy

Alternative treatments for epilepsy include:

- **Ketogenic Diet** — A ketogenic diet may be considered to control IGE seizures. The diet is high in fat and low in carbohydrates. Ketones are formed when fat is used for the body’s source of energy. High ketone levels have been indicated to increase seizure control.

### Table 1. Antiepileptic Drugs

<table>
<thead>
<tr>
<th>Drug</th>
<th>FDA-Labeled Indication</th>
<th>Common Side Effects</th>
<th>Severe/Idiosyncratic Reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine</td>
<td>Partial epilepsy</td>
<td>Dizziness, ataxia, nausea, fatigue, diplopia</td>
<td>Rash, hyperthermia, hepatotoxicity, pancreatitis, bone marrow suppression</td>
</tr>
<tr>
<td>Ethosuximide</td>
<td>Absence seizures</td>
<td>Nausea, headache, dizziness, ataxia</td>
<td>Rash, bone marrow suppression</td>
</tr>
<tr>
<td>Felbamate</td>
<td>Partial epilepsy (intractable), IGE</td>
<td>Weight loss, anorexia, headache, insomnia</td>
<td>Fulminant hepatic failure, aplastic anemia</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>Partial epilepsy</td>
<td>Sedation, weight gain, edema</td>
<td></td>
</tr>
<tr>
<td>Lamotrigine</td>
<td>Partial epilepsy</td>
<td>Nausea, headache, dizziness</td>
<td>Cardiac arrhythmia</td>
</tr>
<tr>
<td>Levetiracetam</td>
<td>Partial and generalized epilepsy, LGT</td>
<td>Headache, nausea, dizziness, diplopia</td>
<td>Rash</td>
</tr>
<tr>
<td>Oxcarbazepine</td>
<td>Partial epilepsy</td>
<td>Nausea, headache, dizziness, ataxia</td>
<td>Rash, hyperthermia</td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>Partial epilepsy, GTC seizures</td>
<td>Sedation, cognitive impairment, hyperactivity</td>
<td>Rash, hepatotoxicity, anemia</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>Partial epilepsy, GTC seizures</td>
<td>Ataxia, dizziness, nausea, headache, gingival hyperplasia</td>
<td>Rash, hepatotoxicity, bone marrow suppression</td>
</tr>
<tr>
<td>Pregabalin</td>
<td>Partial epilepsy</td>
<td>Weight gain, edema</td>
<td></td>
</tr>
<tr>
<td>Rufinamide</td>
<td>LGT</td>
<td>Nausea, headache, dizziness, fatigue</td>
<td>Rash, shortened QT interval</td>
</tr>
<tr>
<td>Tiagabine</td>
<td>Partial epilepsy</td>
<td>Tremor, nausea, cognitive impairment, fatigue</td>
<td>Neurocognitive status epilepticus, seizures, death</td>
</tr>
<tr>
<td>Topiramate</td>
<td>Partial and generalized epilepsy, LGT</td>
<td>Fatigue, cognitive slowing, ataxia, anorexia, weight loss, paresthesia</td>
<td>Nephrolithiasis, acute angle closure glaucoma, metabolic acidosis, hyperammonemia</td>
</tr>
<tr>
<td>Valproate</td>
<td>Partial and generalized epilepsy</td>
<td>Weight gain, tremor, nausea, menstrual disorders, hair loss, sedation</td>
<td>Rash, hepatotoxicity, pancreatitis, hyperammonemia, thrombocytopenia</td>
</tr>
<tr>
<td>Vigabatrin</td>
<td>Partial epilepsy (intractable), infantile spasms</td>
<td>Weight gain, tremor, nausea, dizziness, headache, somnolence</td>
<td>Reversible visual loss, rash, hepatotoxicity</td>
</tr>
<tr>
<td>Zonisamide</td>
<td>Partial epilepsy</td>
<td>Anorexia, dizziness</td>
<td>Rash, nephrolithiasis, metabolic acidosis, aplastic anemia</td>
</tr>
</tbody>
</table>

A list of antiepileptic drugs, their FDA-approved indications, side effects, and potential severe reactions. FDA = US Food and Drug Administration, GTC = generalised tonic-clonic, LGT = Lennox-Gastaut syndrome. Reprinted with permission from Noor, Genome Abroad. 2011;31:04-54.¹
Natural Treatments for Epilepsy

Vining concludes, in a research review entitled “Tonic and atonic seizures: medical therapy and ketogenic diet.” Epilepsia. 2009, that “Although these seizures are often very difficult to control, some of our medications/therapies have been shown to be effective. Recommendations concerning the efficacy of these therapies and a review of the newer therapies are provided. In addition, the ketogenic diet has been particularly successful in treating these seizures; this is discussed in some detail.”

Ketogenic diets have been successful with pediatric epilepsy in young children. Almost half of children and young people with epilepsy who have tried some form of this diet reduced seizures by at least 50% and maintained this decrease even after discontinuing the diet. Constipation, was the most common negative effect, affecting about 30% of patients, due to fluid restriction. This led to increased risk of kidney stones.

- **Biofeedback**: Biofeedback has been found to be an effective treatment for epilepsy. Relaxation techniques are used to control the body’s functions such as heart beat and blood pressure. Biofeedback may help control seizures that are triggered by stressful life events. In 10 research studies by Tan et al., (2009), *Meta-analysis of EEG biofeedback in treating epilepsy*, studied 87 patients whose seizures were not controlled by drug therapy.

Those with contingent EEG biofeedback all the studies showed fewer weekly seizures and a significant reduction (P < 0.05) in the frequency of seizures. The researchers concluded that neurofeedback training is a possible treatment in patient whose seizures do not respond to medical therapies.
Natural Treatments for Epilepsy

Here is a list of Conditions with Peer Reviewed Evidence the SCIO Eductor can HELP With

Conditional Research Is Proven the SCIO / Eductor can Help
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A trained licensed biofeedback therapist acts as a navigator to help the subjects reduce lifestyle risk of health and to emotionally deal with other issues as they arise.

A therapist can monitor electrode placement, vasovagal reactions, displaced memories, misdirected emotions, and to help deepen the relaxation for achieving the desired effects.

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"FIRST DO NOT HURT"
Natural Treatments for Epilepsy

Factors that influence the body voltage and membrane potential are fatty acids in the cell membrane, minerals, especially salts, hydration water, oxygenation, stress, toxins and life style.

The SCIO has been proven in tests to increase the electrical potential of the body. Increased cellular membrane potential makes cmosis increase, which increases detoxification, nutrient transfer and absorption, hydration, oxidation, and all cellular functions in general.

Independent Clinical Research Published in Recognized ISS's Peer Reviewed Medical Journals Has Proven GSRtDCS Technology Safe and Effective for Helping your Child Learn and Perform better in School, Sport and Life.

Monitored GSRtDCS

Eductor
2nd + 3rd Wave Form Generator

Enhancing Performance
Natural Treatments for Epilepsy

- **Herbal remedies** – Since ancient times, herbal remedies have been utilized in Traditional Chinese medicine for epilepsy.

In the US, herbal medicines are regulated by the 1994 Dietary Supplement and Health Education Act. Herbal remedies might be helpful in reducing the incidence of seizures, however, a study by Saper et al., 2004, “Heavy metal content of Ayurvedic herbal medicine products.” conducted in Boston with 70 herbal medicines found that 20% of these products contain potentially harmful levels of neurotoxic materials such as lead, mercury or arsenic that may cause seizures. 80% of the preparations did not contain harmful products, however. Some of the herbs that have been known to be effective in treating epileptic seizure side effects (nausea, headache, fatigue, etc.) are listed below:

- *Ailanthus altissima* (Tree of Heaven)
- *Artemisia vulgaris* (mugwort)
- *Calotropis procera* (calotropsis)
- *Cannabis sativa* (marijuana)
- *Centella asiatica* (hydrocotyle)
- *Convallaria majalis* (lily of the valley)
- *Dictamnus albus* (burning bush)
- *Paeonia officinalis* (peony)
Natural Treatments for Epilepsy

Scutellaria lateriflora (scullcap)
Senecio vulgaris (groundsel)
Taxus baccata (yew)
Valeriana officinalis (valerian)
Viscum album (mistletoe)

Gingko biloba, ephedra, eucalyptus, pennyroyal, shankhupushpi, star fruit, star anise & sage are some of the herbal medicines containing neurotoxic components which can induce seizures (Samuels et al., 2008), and should not be used by epileptic patients. More research is needed regarding the effectiveness of herbal remedies.

- **Essential Oils** – Essential oils can be effecting in calming the epileptic patient and preventing the symptoms of epilepsy. Such calming oils include: jasmine, ylang ylang, chamomile, and lavender (not spike lavender which is not recommended). Research was carried out at the University of Birmingham’s seizure clinic which involved using essential oils with individuals who had epilepsy.

The studies used aromatherapy massage to allow individuals to associate the smell of an essential oil with a state of relaxation. Researchers concluded that the aroma triggers relaxation and can help to reduce seizures. According to the University of Maryland Medical Center, the following essential oils should be avoided: Eucalyptus (Eucalyptus globulus), Fennel (Foeniculum vulgare), Hyssop (Hyssopus officinalis), Pennyroyal (Mentha pulegium), Rosemary (Rosmarinus officinalis), Sage (Salvia officinalis), Tansy (Tanacetum vulgare), Thuja (Thuja occidentalis), and Wormwood (Artemesia absinthium) For more information about aromatherapy contact the Aromatherapy Council

- **Acupuncture** - The effectiveness of acupuncture in treating epilepsy has not been statistically significant. A review of acupuncture in epilepsy, “Acupuncture for epilepsy” by Cheuk et al., (2009) included eleven randomized controlled trials. The authors suggested that studies using a larger sample size with appropriate standardized control groups are necessary to assess the effectiveness of acupuncture on treating epilepsy. They concluded that more studies are needed.

- **Yoga** – Yoga has been shown to be an effective treatment for epilepsy patients. In a research study conducted by Sathyaprabha et al., 2008, “Modulation of cardiac autonomic balance with adjuvant yoga therapy in
Natural Treatments for Epilepsy

patients with refractory epilepsy,” 18 members performed **yoga** (breathing exercise, meditation & yoga postures) and 16 members performed non-yoga exercise (quiet sitting & simple physical exercise) for one hour daily for 10 weeks.

The researchers determined that the yoga group showed significant **reduction in seizures** ($P<0.05$) with improved parasympathetic parameters compared to no changes in the non-yoga exercise group. Thus it was concluded that yoga might be used effectively as an alternative therapy in management of autonomic dysfunction in patients with refractory epilepsy.

- **Homeopathic Remedies** – A few studies examined the effects of homeopathic remedies but were inconclusive. More research is needed. The following homeopathic remedies may be effective with eliminating associated epileptic symptoms (such as nausea, dizziness, and fever) and have no harmful side effects.

  - **Belladonna** — for seizures with a high fever
  - **Causticum** — for individuals with seizures triggered by feelings of sadness, grief, hopelessness and fear
  - **Cicuta** — for individuals with seizures after a head injury
  - **Cuprum metallicum** — for individuals with mental dullness; may be triggered by menstruation or vomiting

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**Carrier Wave Piggy Back Scio tech**

When we set our radio or TV to a wave length such as 103.5 we get the wave of the radio station. The music and voice are superimposed onto the master wavelength in a piggy back function known as a carrier wave. So when we make a master signal from the SCIO/Eductor we can superimpose a piggyback signal onto the Carrier Wave. SIMPLE
Natural Treatments for Epilepsy

**Using scientific frequency stimulation we can balance the Vagus Nerve**

**WHAT TO DO IF**

**Vasovagal Syncope**

Cold Towel over eyes with slight pressure
Rest Comfortably
Breathe into a bag if there is hyperventilation
Vitamin Supplements – Eating a well-balanced diet rich in vitamins and minerals may help maintain adequate mental function. People with epilepsy taking seizure medications do appear to have an increased need for calcium and vitamin D to help keep their bones healthy. Large doses of vitamin supplements, unsupervised, do not improve epilepsy and may even be harmful. Some epileptic medications
Natural Treatments for Epilepsy

can result in depletion of nutrients and vitamins. **Folic acid** supplements can be helpful in replenishing vitamin loss caused by medication.

According to A.R. Gaby (2007), in a review entitled, “**Natural Approaches to Epilepsy,**” clinical observations and laboratory findings support the benefits of **Vitamin E,** magnesium, manganese, thiamine (to improve cognitive function), folic acid, biotin, vitamin D, and L-Carnitine (to prevent valproate toxicity with epilepsy patients).

**Vitamin E** was found to be effective in reducing seizures in children according to a 1989 study conducted by Ogunmekan AO, MD. Twenty-four children age 6-17 were randomly assigned to 400 IU/day vitamin E or placebo for three months. Of the 12 patients given vitamin E, 10 had a greater than 60% reduction in seizures. None of the placebo group had greater than 60% reduction. 6 out of the 12 children in the vitamin E group had **90-100% reduction in seizures.** The study was statistically significant (p<0.05). People who not take blood thinners should not take Vitamin E.

Other supplements such as Vitamin B6, taurine, vitamin K, melatonin and progesterone, were either uncontrolled trials or case reports, and may be effective with epilepsy symptoms, but more controlled studies and double blind studies are needed. There has been some research on the effects of omega-3 fatty acids on the reduction of epileptic seizures. **Fish oil** is mainly composed of omega-3 fatty acids (FAs), eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Pischon et al. (2003) concluded that increasing the intake of omega-3 FAs can reduce the plasma inflammatory markers and Schlanger (2002) concluded in a study entitled, “**Diet enriched with omega-3 fatty acids alleviates convulsion symptoms in epilepsy patients,**” that EPA could **reduce seizures** by decreasing these markers.

Always consult with your trusted health practitioner when making decisions regarding treatment. Alternative and complementary holistic health practices can be used in conjunction with orthodox or western medicine. Trust your own body wisdom and seek out professional advice.
Natural Treatments for Epilepsy

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PROFESSOR DESIRÉ DUBOUNET
THE DEVELOPER
Desiré is the Professor of Medicine at IMUNE. IMUNE is an accredited and legally registered medical university in Europe.

Since 1995 IMUNE has been offering medical education in a variety of subjects to defend and perpetuate Natural Medicine. There are many small minded people being driven by the SINthetic chemical companies to destroy Natural Medicine as a viable choice in Medicine. IMUNE has offices in Switzerland, Mexico, Dubai, Budapest, England, and the British Virgin Islands. The small petty minded piquey minions of the chemical companies constantly attack with their anal retentive biased short sided views.

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