

# Electroconvulsive Therapy (ECT)

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## What is ECT?

Electroconvulsive therapy (ECT) is an extremely safe and effective medical treatment for certain psychiatric disorders. ECT is a procedure in which a small amount of electricity is applied to the scalp to produce a brief seizure in the brain. Like many other medical procedures, ECT is given to a patient who is under general anesthesia. The patient is asleep, and the procedure is painless. ECT often works when other treatments are unsuccessful.

## What Conditions Get Better with ECT?

ECT is usually given to people who have severe illnesses such as depression, mania, or some forms of schizophrenia. ECT is given when other treatments (such as medications and talk therapy) have not worked, when medications are unsafe or have bad side effects, when ECT has worked in the past, when severe symptoms must be treated rapidly and completely, or when a person prefers ECT over other options.

ECT has been used safely and effectively to treat psychiatric disorders in people of all ages, from adolescents to the elderly. It is safe and effective in people with serious general medical conditions and in women who are pregnant.

## Who is Treated with ECT?

In the United States, about 100,000 individuals receive ECT each year. Not everyone gets better when treated with medications or talk therapy. When illnesses like depression are severe, talk therapy alone is usually not enough. When someone has life-threatening psychiatric problems, such as suicidal thoughts or behaviors, ECT is a particularly good option because it usually provides faster relief than medications. For some people, ECT is safer than medications. Typically, these are people with serious medical conditions, like some types of heart disease.

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## Who Administers ECT?

ECT requires the skills of a specialized treatment team. That team consists of a psychiatrist, an anesthesiologist, and nurses. The doctors who give ECT are experienced specialists. ECT is given in a medical suite where there is a waiting area, a treatment room, and a recovery area. ECT can be given while a patient is in the hospital, but being hospitalized is not a requirement for a person to receive ECT.

## What Steps are Involved before Getting ECT?

Before someone has ECT, he or she needs a careful evaluation of their health. That evaluation usually includes a complete medical history, a physical examination, basic blood tests, an electrocardiogram (EKG), and other medical tests if needed. Completing these steps helps make sure that each person is safe and healthy enough to receive ECT. The doctor may also recommend some changes in the patient's medications to make sure they do not make ECT less safe or less effective.

Informed consent is another important part of the process. The patient and his or her family should feel comfortable with the decision to receive ECT. They should be given information about ECT and have all their questions answered. Once the patient understands ECT and has made a decision, a written consent form will be signed.

## How is ECT Given?

ECT is typically given two to three times per week, usually in the morning. Each ECT treatment takes about 10 minutes, with extra time for preparation and recovery. Before each treatment, the patient should not eat or drink anything for several hours according to the doctor's instructions. It is safe to brush your teeth and to take most regularly prescribed medications with a small sip of water. The doctor will decide if there are any medications that should not be taken and discuss those with the patient. The patient should also try not to smoke before each treatment.

When the patient comes to the ECT treatment suite, a number of steps take place before the ECT treatment is actually given. First, the patient has a brief examination.

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A nurse or other team member inserts an intravenous (IV) line into the hand or arm through which medications can be injected. The nurse places sensors on the head for recording EEG (electroencephalogram, a measure of brain activity) and on the chest for monitoring EKG (electrocardiogram, a measure of heart function). A cuff is then wrapped around an arm for monitoring blood pressure.

Once these preparations are done, the patient is given an anesthetic medication (such as methohexital) through the IV. The anesthetic will cause the patient to sleep for 5 to 10 minutes and be unaware of the procedure. Once the patient is asleep, a muscle relaxing medication (such as succinylcholine) is injected through the IV. The muscle relaxant prevents movement, so that during the seizure there are only minimal contractions of the muscles. Depending on the person's health conditions, the treatment team may give other medications as well.

Once the patient is completely asleep and the muscles are fully relaxed, the ECT treatment is given. A small amount of electrical current passes through the scalp, which stimulates the brain and triggers a seizure that lasts for about a minute. Throughout the procedure, the patient receives oxygen through a mask, and monitors frequently check the heart rate and oxygen use. A few minutes later, the anesthetic wears off and the patient begins to wake up. When the treatment is completed, the patient is taken to a recovery area where he or she is monitored by trained staff. When the patient wakes up, he or she may feel confused for a few minutes. Usually within 30 to 60 minutes, the confusion wears off and the patient can leave the recovery area.

## How Many Treatments Does a Person Receive?

ECT is given as a course of treatments. A common course of ECT consists of 2 to 3 treatments a week for 2 to 7 weeks. The total number of treatments needed depends on how severe the person's symptoms are and how quickly they improve. Many people with depression begin to notice some improvement after two or three ECT treatments. Full improvement usually takes 6 to 12 treatments, and sometimes more treatments are necessary. In comparison, improvement with antidepressant medications can take several weeks or more.

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If everyone agrees that ECT has been helpful, a person can go back to normal life and work after discussing it with the doctor. Even after symptoms improve, however, ongoing treatment (what is called maintenance treatment) is still needed. Without it, symptoms can come back. Maintenance treatment does not have to be ECT, but it definitely can be. It can also be medications. Many people choose ECT over medications as their maintenance treatment because they know it works for them. When ECT is given as a maintenance treatment, the treatments are given less frequently, usually about once or twice a month for about 6 months.

## Does ECT Work?

ECT is an extremely effective treatment. The great majority of patients treated with ECT have significant improvement. ECT even helps most patients who have not been helped by medications and talk therapy. Scientific evidence shows that ECT produces substantial improvement in about 80% of people with severe depression.

ECT is recognized as a very safe and effective treatment by the American Medical Association (AMA), the American Psychiatric Association (APA), the National Institute of Mental Health (NIMH), and similar organizations in Canada, Great Britain, and Europe.

Although ECT can be very effective for many people with serious mental illness, it is not a cure. Permanent cures for serious mental illness are very rare, no matter what treatment is given. After a successful course of ECT, people need maintenance treatment with ECT or medications for a few months in order to sustain the recovery.

ECT does not help all forms of mental illness. It is not likely to help someone with alcoholism or drug addiction or personality disorder. ECT is most helpful when a person is suffering from severe psychiatric symptoms that came on rapidly.

## Is ECT Safe?

ECT is an extremely safe procedure. There is less risk of death or serious medical complications with ECT than many of the medications used to treat mental illnesses.

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Because it is so safe, ECT is often recommended to treat mental illnesses in patients with serious medical conditions. The number of deaths from ECT is estimated to be about one of every 10,000 patients, or one in every 80,000 treatments. These numbers mean that ECT is actually safer than childbirth, and that a person is 6 times more likely to be struck by lightning than to die from ECT.

## What are the Common Side Effects of ECT?

As with any type of medical procedure, especially one that involves anesthesia, ECT treatments can have side effects. With each ECT treatment, patients experience some confusion when they wake up after the treatment. This side effect is partly due to the anesthesia and partly due to the treatment. The confusion goes away completely, typically in less than an hour. Also on the days of ECT, some people may have headache, jaw pain, or muscle aches after the treatment. These side effects do not occur in everyone, and they are usually relieved by over-the-counter pain medication, such as Tylenol or ibuprofen. Sometimes a person may have a few hours of nausea after the treatment. This too can be treated with medication. In people with heart problems, the risks of medical complications may be higher. Heart monitoring and other precautions, such the use of additional medications if needed, help to ensure a safe treatment.

## Does ECT Cause Memory Loss?

The side effect of ECT that receives the most attention is memory loss. The fear of memory problems is the main barrier patients and their families face in accepting the treatment. This fear is based on images of ECT as a terrifying treatment in movies and on TV. These images are false. Decades of research have resulted in major improvements in the procedure since it was introduced in the late 1930's.

Modern day ECT can affect memory in two main ways. The first way involves rapid forgetting of new information. For example, shortly following the treatment, patients may have trouble remembering recent conversations or things they have just read.

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This type of memory problem typically lasts for no more than a few weeks after the ECT course is over. It goes away completely. The second way ECT can affect memory involves events from the past. Some patients may have trouble remembering things that occurred in the weeks or months leading up to the treatment. This memory problem also goes away a few weeks after ECT is over. Some patients may have trouble remembering things that occurred right around the time of the treatment, and in some cases this trouble can last for years. As with any treatment, there are differences in each patient's experience. And some patients do not have any memory problems at all. Patients are monitored carefully for memory problems during a course of ECT.

It is important to know that it is not necessary for a person to experience memory problems from ECT in order to benefit from the treatment. It is also important to know that many mental illnesses cause problems with memory, attention, and concentration. So, when that illness gets better with ECT, patients have improvement in these aspects of thinking. After successful ECT, many patients have better scores on tests of intelligence, attention, and learning, and they have the same abilities and skills they had before they got sick.

## **Does ECT Cause Brain Damage?**

No. There is no scientific evidence that ECT causes brain damage. During ECT, the amount of electricity that reaches the brain is too small to cause electrical injury. Careful experiments in animals have shown no evidence of brain damage from brief seizures, like those given with ECT. In humans, seizures must continue for hours before brain damage can occur. In ECT, the seizure lasts only for about a minute. Brain scans following ECT have shown no injury to the brain. On the other hand, the brain can be damaged by persistent, untreated mental illness.

## **How Does ECT Work?**

Just like with many other treatments in medicine, no one knows for certain how ECT helps treat severe depression and other mental illnesses. What is known, however, is that the benefits of ECT depend on producing a seizure in the brain, and on certain

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technical features of that seizure. Research suggests that ECT changes certain aspects of brain chemistry, and that these changes may build upon one another. That is why ECT is most effective in people who receive a full course of multiple treatments.

## Is ECT Frightening?

ECT has been used since the 1940's. It used to be called "shock treatment" by some. Decades of research have resulted in major improvements in the procedure since that time. However, ECT is often portrayed in movies and TV shows and on the Internet as a painful procedure that is used to control or punish patients. These portrayals are false and do not resemble modern ECT in any way.

One scientific study reported that most patients felt that having ECT was no worse than going to the dentist, and many patients found ECT less stressful. Other research has shown that the vast majority of patients notice that their memory is improved after ECT and that, if needed, they would receive ECT again.

## Are There First Person Accounts of ECT?

ECT is an extremely effective form of treatment. It is often safer and more effective than medications or talk therapy. If you have any questions at all about ECT, please discuss them with your doctor. You may also wish to read one of the books listed below. Dr. Endler and Dr. Manning describe their illness and their experience in treatment with medication, psychotherapy, and ECT. Both doctors are psychologists who did not support ECT until they each had a severe depression and needed the treatment—each of them received ECT and got better.

*Holiday of Darkness*

by Norman S. Endler (Wall & Thompson, Toronto 1990)

*Undercurrents: A Therapist's Reckoning With Depression*

by Martha Manning (Harper, San Francisco 1995)

