

### **Introduction**

Electroconvulsive therapy, or ECT, is a safe and effective treatment that may reduce symptoms related to depression or other mental health conditions. During ECT, certain parts of the brain are stimulated using small electric currents.

ECT seems to cause changes to the chemistry of the brain. It is most often used only when other treatments provide little or no relief from symptoms. Your doctor may recommend that you have ECT treatment. The decision whether or not to have this treatment is yours.



Electroconvulsive Therapy

This reference summary explains electroconvulsive therapy. It covers what it is, how it is done, and alternative treatments. The benefits and risks of ECT are also discussed. Follow-up treatments, known as maintenance treatments, are explained.

### **Electroconvulsive Therapy (ECT)**

Small electric currents are used to stimulate certain parts of the brain during ECT. This causes a brief and controlled seizure that may reduce symptoms related to depression or other mental health problems.

ECT seems to work by causing changes to the chemistry and functioning of the brain. This can help reduce the symptoms of certain mental health conditions.

ECT is most often used only when other treatments provide little or no relief from symptoms.

Other treatments often tried before ECT include medications and talk therapy.

Severe depression and schizophrenia can be treated with ECT. It is most often used when these conditions include the following symptoms:

- Psychosis
- Refusal to eat
- Suicidal thoughts or behaviors



Psychosis is a severe mental disorder in which a person loses the ability to recognize reality or relate to others. The person is not able to cope with the demands of everyday life.

ECT may also be used when long-term depression does not improve with medications or other treatments.

ECT can also be used to treat severe mania in patients with bipolar disorder. Episodes of mania cause a person to be overly energetic, “high” or irritable. If left untreated, mania may result in impulsive or risky behaviors, substance abuse, impaired decision making and psychosis. Bipolar disorder is a condition that causes people to experience dramatic mood swings from happy to sad and depressed. Bipolar disorder is also called manic depression.

ECT is sometimes used as a last option to treat other conditions. When a person with obsessive-compulsive disorder does not respond to medications or other treatments, ECT may be used. Obsessive-compulsive disorder is an anxiety disorder in which a person has intrusive ideas or thoughts that happen repeatedly. The person feels driven to perform certain behaviors over and over again.



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ECT also may be a good treatment option for the following groups of people:

- Older adults who can't tolerate the side effects of certain drugs
- People who have been successfully treated with ECT in the past
- Pregnant women who can't take medications that may harm the fetus

ECT may also be used in situations that are life threatening. It may be used when a patient is catatonic, or unable to move or respond to the outside world. It can also be used to treat a patient who is malnourished as a result of depression.

## **Alternative Treatments**

ECT is usually only recommended when other treatments have failed.

Sometimes medications are used to treat mental health conditions, including depression. Different types of medications are available.

Counseling and psychotherapy can help treat mild cases of depression or other mental health conditions. Therapy and prescribed medications are often used together for severe cases.

More advanced cases of mental health problems may require admission to a health care facility for treatment. This is especially true if the patient is having suicidal thoughts and may harm him or herself or others.



The FDA has approved another way to treat severe depression called vagal nerve stimulation. The vagal nerve is a nerve that goes from the brain to the heart, chest and abdomen. Stimulating this nerve with a low current may help some severe cases of depression. For vagal nerve stimulation, an electric wire, or lead, is surgically implanted around the vagal nerve as it courses into the neck. The lead is connected to a battery that is placed under the skin in the upper chest area.

As a patient starts to feel better, he or she will be able to make healthy changes that can reduce stress and maintain a more balanced outlook on life. Regular exercise, a healthy diet and stable relationships are all helpful in keeping stress low and reducing the chances of feeling depressed again. These steps may also help people with other mental health conditions.

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ECT may be useful for patients with severe depression who are slow to respond to medications. It may also be used to treat other mental health problems, such as schizophrenia or bipolar disorder.

## Preparing for ECT

Your doctor will ask you to have a physical examination and a psychiatric evaluation before you can receive ECT.

As part of your pre-ECT examination, your healthcare provider may also request:

- Your medical history
- Blood tests
- An electrocardiogram to check your heart

An electrocardiogram is a line graph that shows changes in the electrical activity of the heart over time. It is also known as an ECG.



You might need to visit an anesthesiologist before your ECT treatment. This is the healthcare specialist responsible for giving you an anesthetic before receiving ECT. The anesthesiologist will go over the risks associated with having anesthesia and answer any questions you might have.

## The Procedure

Before ECT is administered, you will be sedated with general anesthesia. A doctor monitors your breathing, heart rate and blood pressure during the entire procedure. A medication called a muscle relaxant is also given. A muscle relaxant prevents movement during the procedure.

Some of this medicine is given through an IV. An IV is a way of giving a drug or other substance through a needle or tube that is inserted into a vein. It is also called intravenous.

Once you are sedated, electrodes are placed at precise locations on your head. Through the electrodes, an electric current passes through the brain. The electric current causes a brief, controlled seizure. The seizure generally lasts less than one minute.



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Because of the anesthesia and muscle relaxant, your body will not show any signs of seizure. You will not feel any pain, other than the discomfort associated with inserting the IV.

You will wake up five to ten minutes after the procedure ends. At first, you may feel groggy as the anesthesia wears off. But you will be more alert after about an hour, and can resume normal activities.

## **Treatment Course**

A typical course of ECT is administered about three times a week until the patient's depression lifts. This usually happens within six to 12 treatments. After that, ECT maintenance treatment is sometimes needed to reduce the chances that symptoms will return.

The need for follow up treatment depends on the needs of the individual. ECT maintenance treatment may range from one session per week to one session every few months.



ECT maintenance treatment does not always involve more electroconvulsive therapy. People who undergo ECT may take antidepressant medication or mood stabilizing medication as part of their ECT maintenance treatment. Psychological counseling may also be part of this follow-up treatment.

## **Risks and Complications**

The ECT procedure is safe. There are, however, several possible risks and complications.

These are very unlikely, but possible. You need to know about them just in case they happen. By being informed, you may be able to help your healthcare provider detect complications early.

The risks and complications include those related to anesthesia, as well as those related to this specific procedure.

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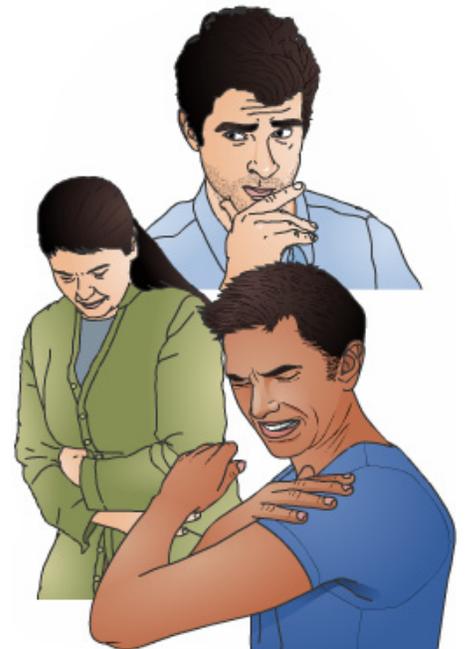
Risks of general anesthesia include nausea, vomiting, urinary retention, cut lips, chipped teeth, sore throat, and headache. More serious risks of general anesthesia include heart attack, strokes, and pneumonia. Your anesthesiologist will discuss these risks with you and ask you if you are allergic to certain medications.

Blood clots in the legs can happen due to inactivity during and after the procedure. These usually show up a few days after the procedure. They cause the leg to swell and hurt.

Blood clots can become dislodged from the leg and go to the lungs where they will cause shortness of breath, chest pain and possibly death. It is extremely important to let your healthcare provider know if any of these symptoms happen. Sometimes the shortness of breath can happen without warning. Getting out of bed shortly after the procedure may help decrease the risk of complications caused by blood clots.

Some of the risks and complications are related specifically to this procedure. The most common side effects associated with ECT are confusion, headache, upset stomach, muscle spasms, and muscle aches.

Some people may experience memory problems after ECT. Memory problems usually affect memories that were made around the time of the treatment. People may also have trouble remembering information learned shortly after the procedure, but this difficulty usually disappears a few days or weeks after the end of ECT treatment. It is possible that a person may have gaps in memory over the weeks during which he or she receives treatment.



Research has found that memory problems seem to be more associated with the traditional type of ECT, called bilateral ECT, in which the electrodes are placed on both sides of the head.

Unilateral ECT is an ECT approach where the electrodes are placed on just one side of the head. They are usually placed on the right side because it is opposite the brain's learning and memory areas. Unilateral ECT appears less likely to cause memory problems.

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In the past, electricity was delivered in a constant, high dose. However, studies have found that a "brief pulse" of electricity given in several short bursts is less likely to cause memory loss. For this reason, short pulses are most commonly used today.

## Summary

Electroconvulsive therapy, or ECT, is a safe and effective treatment that may reduce symptoms related to depression or mental health conditions. During ECT, certain parts of the brain are stimulated using small electric currents.

Small electric currents are used to stimulate certain parts of the brain during ECT. This causes a brief and controlled seizure that may reduce symptoms related to depression or other mental health conditions.

Scientists are not sure how the treatment works to relieve the symptoms of depression or other mental health problems. But ECT appears to produce many changes in the chemistry and functioning of the brain.

A typical course of ECT is administered about 3 times a week until the patient's depression lifts. This usually happens within 6 to 12 treatments.

While there are some risks associated with ECT, it is generally a safe and effective procedure.

After ECT treatment, maintenance treatment is sometimes needed to reduce the chances that symptoms will return. ECT maintenance treatment does not always involve more electroconvulsive therapy. It may involve antidepressant or mood stabilizing medications. Psychological counseling may also be a part of this follow-up treatment.

Regular exercise, a healthy diet and stable relationships are all helpful in keeping stress low and reducing the chances of feeling depressed again. These steps may also help people with other mental health conditions.



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