

Patient information: Electroconvulsive therapy (ECT) (Beyond the Basics)

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WHAT IS ECT?

Electroconvulsive therapy (ECT) is a safe and effective treatment for certain psychiatric disorders. ECT is most commonly used to treat severe depression (major depression). It is often the fastest and best treatment available for this illness. ECT is also sometimes used to treat other psychiatric disorders, such as:

- Mania, a condition that makes you feel very happy or angry; sleep less; have lots of energy; and behave strangely; or
- Psychosis, a condition that can make you lose touch with reality; have false, fixed beliefs; or hear voices of people who are not there

During ECT, a small amount of electrical current is passed through the brain while the patient is under general anesthesia. This current causes a seizure that affects the entire brain, including the parts that control mood, appetite, and sleep.

HOW DOES ECT WORK?

ECT causes chemical changes in the brain that relieve severe depression. While scientists do not yet fully understand exactly how ECT does this, they know it causes helpful changes to the molecules and cells of the brains of people with depression. One thing that is clear is that the treatment works very well; more than 70 percent of depressed people who receive it respond favorably, making it the most effective treatment for severe depression. (See "[Unipolar major depression in adults: Indications for and efficacy of electroconvulsive therapy \(ECT\)](#)".)

If your doctor suggests that you be treated with ECT, it is because he or she believes that you have a disorder that will improve with ECT. Discuss this with your doctor.

Before ECT begins, your doctor will carefully assess your medical condition to make sure that ECT is safe for you. He or she will examine you, ask you about your medical history, and run tests. For example, you will probably have blood tests and a test called an "electrocardiogram" (ECG) to check the condition of your heart. These tests will also help the doctor make sure that there is no other medical problem causing your psychiatric symptoms.

HOW MANY TIMES WILL I NEED TO BE TREATED?

People undergoing ECT need multiple treatments. The number needed to successfully treat severe depression can range from 4 to 20, but most people need a total of 6 to 12 treatments. The treatments are usually given three times a week — Monday, Wednesday, and Friday.

WHAT SHOULD I DO TO PREPARE FOR EACH SESSION?

You must not eat or drink anything after midnight the night before your scheduled treatment. If you smoke, do not smoke the morning of your treatment. Smoking beforehand could cause problems during the treatment.

WHAT HAPPENS DURING THE ECT PROCEDURE?

Before you receive the treatment, a doctor or nurse will place a needle into a vein in your arm (IV). That way, the medical team can easily give you the medications you need before and during the procedure. (See ["Technique for performing electroconvulsive therapy \(ECT\) in adults"](#).)

Although you will be asleep during the treatment, the medical team will need to start preparing you for the treatment while you are still awake. The team will:

- Place sensors called electrodes on your head, so that they can measure the electrical activity in your brain. To do this, they will use a device called an EEG, or "electroencephalogram."
- Place electrodes on your chest, so that they can measure the electrical activity in your heart. To do this, they will use a device called an ECG, or "electrocardiogram."
- Wrap a blood pressure cuff around your arm, so that they can monitor your blood pressure during the procedure.
- Put a small sensor on one of your fingers called a "pulse oximeter," which will allow them to measure the amount of oxygen in your blood. This will tell them if you are breathing normally.
- Give you oxygen through a mask or a tube that rests below your nose. You will get oxygen throughout the whole procedure, until you wake up.

When everything is connected, the medical team will set the ECT device for your treatment. Next, a doctor or nurse will inject you with a medication (such as methohexital) that will make you go to sleep for 5 to 10 minutes. When you are asleep, you will get another injection, of a muscle relaxant (succinylcholine). This will keep you from moving about during the treatment. The muscle relaxant may cause mild muscle soreness after the treatment, but this soreness will pass.

Once your medical team is sure that you are deeply asleep and that your muscles are completely relaxed, they will administer the ECT treatment. Because you will be asleep, you will experience no pain during the treatment and will not feel the current or the seizure. If you were watching the treatment instead of receiving it, you would see your toes wiggling or other parts of your body moving a little — but not much else.

WHAT HAPPENS AFTER THE TREATMENT?

When you wake up after treatment, you may feel confused. This is partially due to the anesthesia and partially due to the treatment. In most people, the confusion passes within an hour. You may also have a headache the day of the treatment. A pain reliever, if necessary, usually helps. Other side effects, such as nausea, typically last only for a few hours.

Memory loss — You may have some memory loss until you complete all of your treatments. This memory loss should gradually reverse itself over the course of several weeks. However, you may never remember many things that happened to you shortly before, during, or soon after your course of treatment.

To speed and improve recovery of your memory, use your brain. Read, ask questions, and watch continuing stories on TV. This is the best way for you to help your memory return.

Because of the short-lived side effects on your memory, it is important that you postpone any major decisions until a week or two after the ECT course. It is also important that you do not drive during your course of ECT.

When will my depression lift? — Some people start to feel somewhat better after 2 to 4 treatments, but many do not get the full benefit of the treatment until later in the treatment course.

DOES ECT HAVE ANY RISKS?

Yes, like any medical procedure, ECT has some risks. In rare cases, ECT can cause heart rhythm problems, or other potentially serious complications. In patients with pre-existing heart disease, there is an increased risk of these

complications. If you have a heart condition, your doctor will take special care to monitor your heart and take other precautions with you, so that the treatment is as safe as possible. For instance, he or she might give you medicines to offset the effects of the ECT, if necessary.

SUMMARY

ECT is an extremely effective and safe treatment for severe depression. It is often more effective than available antidepressant medications. If you have questions about ECT, please discuss them with your doctor.

WHERE TO GET MORE INFORMATION

Your healthcare provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for healthcare professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

[Patient information: Electroconvulsive therapy \(ECT\) \(The Basics\)](#)

Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

This topic currently has no corresponding Beyond the Basics content.

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

[Unipolar major depression in adults: Indications for and efficacy of electroconvulsive therapy \(ECT\)](#)

[Medical consultation for electroconvulsive therapy](#)

[Overview of electroconvulsive therapy \(ECT\) for adults](#)

[Technique for performing electroconvulsive therapy \(ECT\) in adults](#)

The following organizations also provide reliable health information.

- National Library of Medicine

(www.nlm.nih.gov/medlineplus/healthtopics.html)

- National Institute of Mental Health

(www.nimh.nih.gov)

- American Psychiatric Association

(www.psych.org)

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Literature review current through: Jul 2016. | **This topic last updated:** Nov 14, 2015.

References

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 3. Kellner CH, Greenberg RM, Murrough JW, et al. ECT in treatment-resistant depression. *Am J Psychiatry* 2012; 169:1238.