

# Neurosurgeon provides 'asleep' option for patients undergoing DBS surgery

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Patients who undergo deep brain stimulation (DBS) surgery to control life-disrupting symptoms caused by Parkinson's disease and other movement disorders traditionally have been awake during the procedure. Today, patients have another option.

Ellen Air, MD, PhD, a Mayfield Clinic neurosurgeon and Assistant Professor in the University of Cincinnati (UC) Department of Neurosurgery, is performing the procedure on patients who are under [general anesthesia](#).

Known as "asleep DBS," the surgical procedure utilizes the ClearPoint surgical navigation system and live MRI guidance at the time of surgery to assist in the accurate placement of DBS electrodes. This means that the surgeon is guided by MRI scans, which do not emit radiation, throughout the entire procedure.

During traditional "awake DBS," patients go off their medications and, although given a sedative, remain conscious during the electrode placement. Awake patients provide feedback to the surgeon as he or she determines the best location for the electrodes. Dr. Air and George Mandybur, MD, both of Mayfield Clinic, also perform "awake DBS" at the UC Medical Center.

The asleep DBS procedure is available to both adult and [pediatric patients](#) at Cincinnati Children's Hospital Medical Center in Avondale.

"Asleep DBS uses real-time MRI imaging to ensure that the electrode is placed in the correct location," says Dr. Air, who is also Co-Director of the NeuroRestorative Program at the UC Neuroscience Institute. "No electrical recording of the [brain cells](#) is performed. This approach to asleep DBS is made possible by a specialized navigation system and [surgical tools](#) that are compatible with the MRI environment."

DBS surgery is an important option for patients with Parkinson's disease or dystonia whose symptoms have become severe. The treatment is approved by the U.S. Food and Drug Association for patients who no longer respond to medication and who typically have suffered symptoms of the disease for 10 or more years. However, a recent European study published in the *New England Journal of Medicine* is causing doctors to ask whether the procedure should be offered earlier in the disease process.

DBS involves implanting tiny electrodes deep inside the brain and connecting them to a programmable, battery-powered device that creates electric pulses. The device, which resembles a heart pacemaker, is implanted beneath the collar bone. Electrical impulses from the electrodes work by regulating or overriding faulty signals caused by the disease.

Dr. Air says that asleep DBS is an important option for select patients.

"As compared to performing the surgery while the patient is awake, the patient gets to rest comfortably throughout the procedure," Dr. Air says. "Patients may take their morning medications as usual, and again as soon as they are ready after anesthesia. This means that they can avoid the uncomfortable 'off' time, as patients cannot take their morning medications prior to an awake procedure."

Dr. Air says that anyone who is a candidate for awake DBS surgery is

also a candidate for asleep DBS surgery, with the exception of [patients](#) who already have an implantable "pacemaker" device.

Medicare covers both awake and asleep DBS [surgery](#).

Provided by Mayfield Clinic

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