

# A new method to localize the epileptic focus in severe epilepsy

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The first two stereo-EEG explorations in Finland were carried out by neurosurgeons of the Epilepsy surgery team in Helsinki University Central Hospital this spring. The method reinforces other examination methods already in use and opens an excellent opportunity in the exploration of the electric activity of both the surface and the deep brain structures during epileptic seizures. The examination also enables exact localization of the functionally important areas of the brain and improves safety of epilepsy surgery at a later stage.

The stereo-EEG examination was developed already in the 1960's, but the recent modifications of the method in the last few years have made it safer and more feasible. The introduction of the method at HUCH benefits particularly patients with severe, drug resistant epilepsy

For the patient, the stereo-EEG is a considerably more pleasant experience than the earlier-used intracranial recording methods: no large craniotomy is required as thin recording [electrodes](#) are placed into the brain through small holes. The recording time can also be increased with the new method from one to as many as four weeks.

Epilepsy surgery in Finland has been centred in two university hospitals. In Helsinki University Central Hospital about 30 epilepsy surgery operations are performed each year, and the results are extremely good: more than half of the patients will be completely seizure-free thanks to the operation.

The new stereo-EEG method will be in active use.

"We have a large number of patients at the examination stage, and the ability to localize their epileptic foci through stereo-EEG is very beneficial. About a quarter of the presurgical patients will need an intracranial evaluation," [neurosurgeon](#) Atte Karppinen from HUCH Neurosurgery department informs.

## Getting ready for Deep Brain Stimulation

HUCH neurosurgery clinic is also getting ready to introduce the so-called [deep brain stimulation](#) therapy. The equipment and methods used in the DBS and in the stereo-EEG follow the same basic principles. In HUCH they have several decades' experience and expertise in DBS surgery regarding other illnesses, such as Parkinson's disease.

"Starting DBS therapy in the treatment of epilepsy is well-founded at the stage when we have sufficient, reliable research-based information on the results of the method in the treatment of [epilepsy](#)," Dr Karppinen says.

"The methods we use complement each other, and our team's technical research facilities, expertise and results achieved by surgery represent the cutting edge in the whole world. We have all the knowhow and capacity for DBS surgery, but we proceed with patience."

Provided by University of Helsinki

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