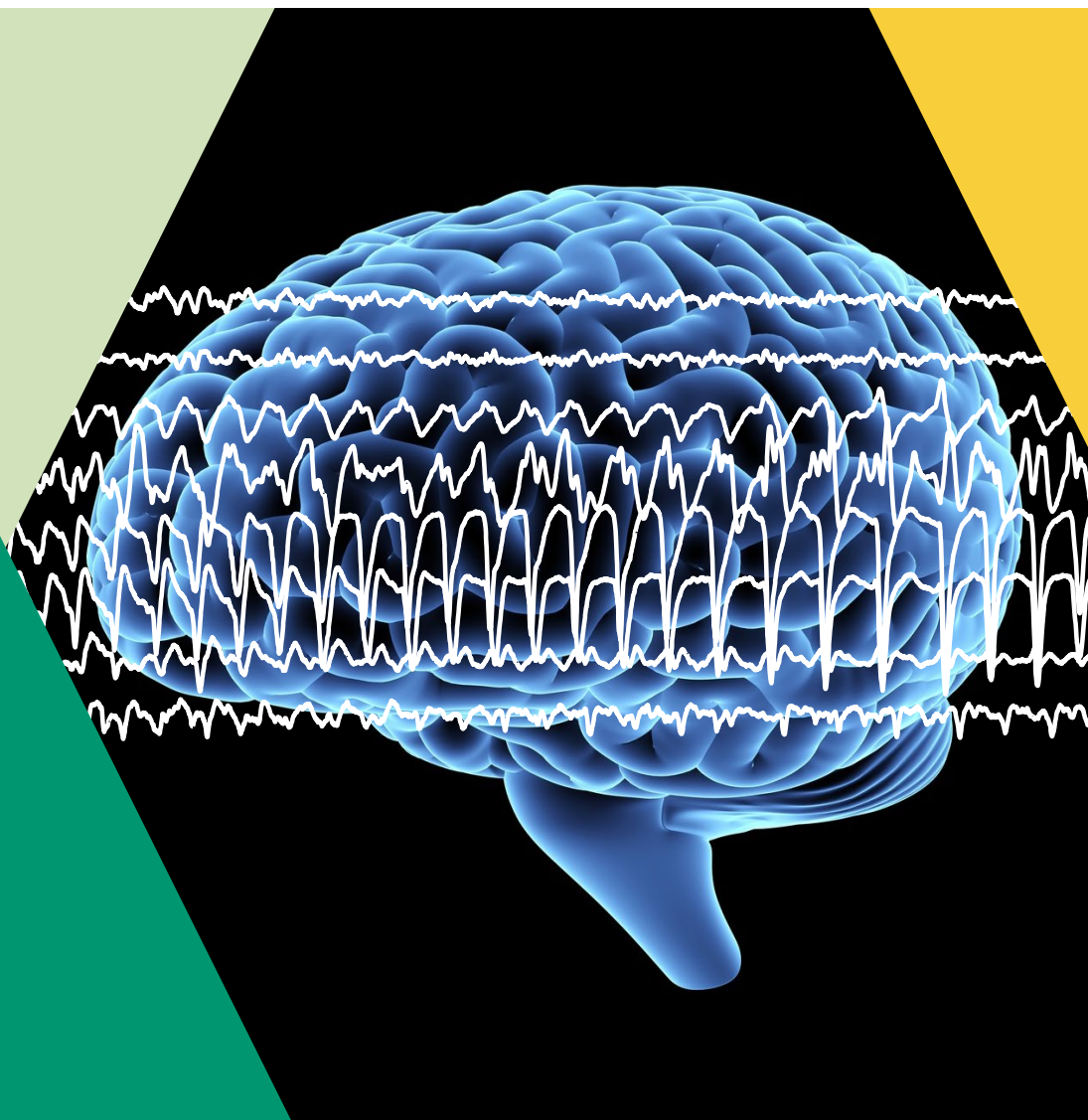


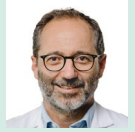
What is epilepsy surgery?



Who are your Doctors?

Our team of specialists works closely together under the leadership of Prof. Claudio Pollo (Neurosurgery), Prof. Kaspar Schindler and Dr. Maxime Baud (Neurology). The University Hospital of Bern is one of the largest centers for epilepsy surgery in Switzerland. It is accredited by the Conference of the cantonal directors of health for Highly-specialized Medicine in epilepsy.

Neurosurgery



Prof. Dr. med.
Claudio Pollo



Prof. Dr. med.
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Neurology



Prof. Dr. med. Dr. sc. nat.
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PD Dr. med.
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Dr. phil.
Dörthe Heinemann



Dr. med.
Wolfgang Schmitt

Neuroimaging



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Christian Rummel



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What is epilepsy?

Epilepsy is a common and chronic neurological disorder affecting approximately 1% of the population worldwide. Recurrent epileptic seizures are the hallmark of the disease. The symptoms of seizures vary individually, ranging from transient perceptual disturbances to uncontrolled convulsions.

The cause of epilepsy is often a pathological change in the structure of the brain. For this reason, imaging techniques – in particular magnetic resonance imaging (MRI) but also positron emission tomography (PET) – are very important diagnostic methods. They enable for example the visualization of scar tissue after brain injuries, or the identification of developmental anomaly of neurons or blood vessels, all of which can lead to epileptic seizures.

What are epileptic seizures?

Epileptic seizures stem from abnormal electrical activity in neurons measured by electroencephalogram (EEG)-electrode. These EEG measurements – along with imaging techniques – help determine from which part of the brain seizures are coming from.

Can epilepsy be treated with medication?

Around two thirds of people with epilepsy become seizure-free when taking regular medication. For the rest of them, unfortunately, the probability of achieving seizure freedom decreases with each new drug treatment attempted. By the third medication tried, chances are already less than 5%, although it is still possible that a treatment success occurs even after several attempts. At this stage, an in-depth evaluation is indicated to determine whether these individuals could benefit epilepsy surgery.

What is epilepsy surgery?

The aim of epilepsy surgery is to remove the diseased region of the brain from which seizures originate. Epilepsy surgery was developed since the 1950s. Technology and diagnostic possibilities have evolved enormously but the basic procedure has remained the same and consists of the following three steps:

1. Find out in which brain region the seizures start.
2. Define which parts of the surrounding tissue are healthy and functional.
3. Remove the diseased, dysfunctional brain region.

In concrete terms, this means that various outpatient or inpatient examinations must be performed to be able to precisely localize the epileptic region in the brain. Outpatient examinations include neuropsychological testing and neuro-imaging. Inpatient examinations include video EEG monitoring for 1 to 2 weeks, during which a few seizures that are typical for the patient are recorded. The results of these examinations are then discussed in an interdisciplinary conference, so that we can give you a recommendation in favor or against epilepsy surgery.

In view of the therapeutic success in the treatment of this chronic disease, neurological societies across the world recommend referring drug-refractory patients to specialized centers at an early stage, already after two failed attempts at drug therapy.



What are the reasons for surgery?

The reasons for having an epilepsy surgery are individual. The main goal is to achieve better or even complete seizure control after surgery. If seizure freedom occurs, then medications can be carefully reduced or even completely stopped. Surgery also leads to an improvement in quality of life in most cases.

What are the chances of success?

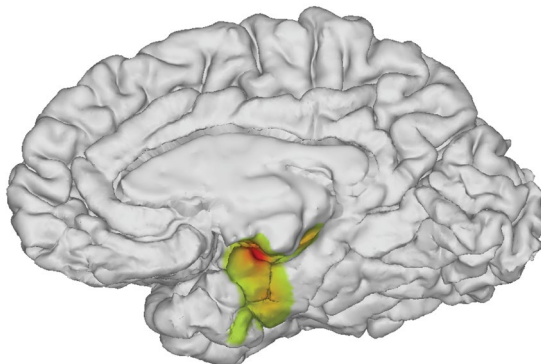
Overall, the chances of success are quite high. Depending on the specific type of epilepsy, the probability of achieving complete seizure freedom varies from 30 to over 80%. Even if the person continues to have epileptic seizures after the operation, the frequency or severity of the seizures usually decreases. However, the assessment of the chances of success is always individual. The cognitive functions of the brain are also taken into account. Dr. Dörthe Heinemann and her neuropsychology team will examine your cognitive performance, for example your concentration, language and memory skills, in detail and advise you on possible changes after the operation.

What are the risks of surgery?

In rare cases, surgery may have no effect on seizures. Complications may also occur during surgery, but these usually result in only a short-term worsening. In less than 1% of cases, surgery can lead to permanent damage. However, the exact risk must always be weighed on an individual basis. In order to obtain more detailed information about the operation and its risks, we always make a joint appointment directly with the treating neurologist and neurosurgeon.

What are the next steps?

After the diagnosis of drug-resistant epilepsy has been made, further examinations will be performed to obtain as much information as possible about your epilepsy. A comprehensive picture is crucial for doctors to understand your seizures. The preparation of brain surgery is long, involves one or two hospital stay and several tests over a period of 3 to 12 months. To visualize the diseased tissue, we rely on advanced neuroimaging methods such as 7 Tesla MRI or nuclear medicine imaging. To record seizures, you have to wear an EEG at all times inside the hospital for up to two weeks. This preparatory period, on the other hand, gives us several opportunities to discuss and explain the problem and help you with your final decision about surgery.



3D reconstruction of a person's brain with epileptic activity

How do I make the right decision?

The decision for or against epilepsy surgery belongs to a process that may be long. It can be helpful to discuss the arguments together with family members or a close person. Weigh the risk of surgery against the risk associated with recurrent epileptic seizures. The seizures and their consequences affect quality of life, increase the risk of injury and in rare cases can even be fatal.

Over the months leading up to surgery, you can change your mind and decide to stop the investigations. In addition, an in-depth discussion can take place with PD Dr. H. Gast, who is both a neurologist and a psychotherapist to help you make a decision before the operation, or help you go back to everyday life after the operation. In addition, Dr. W. Schmitt, a psychiatrist who is very experienced with neurological diseases, is also part of our team.

What information do neurologists need?

To better understand epilepsy, the following is necessary:

- Description of the seizures from the patient's point of view.
- If possible: description of the seizure by another person who has observed it
- Recording of a seizure on the EEG
- Obtain images of the brain

In some cases, the information provided by scalp EEG is insufficient, an invasive diagnostic step may be necessary. This involves placing intracranial electrodes directly on or in the brain. The necessity of this diagnostic step is discussed individually with the treating neurologist and neurosurgeon.

For more information on neurology at Inselspital, please visit the website.

<http://www.neurologie.insel.ch/de/unser-angebot/schlaf-wach-epilepsie-zentrum-swez/>





What information do the neurosurgeons need?

After all necessary examinations have been performed, the results are presented to an interdisciplinary team consisting of experts from neurology, neuroradiology, neurosurgery and neuropsychology. Prospects of success and risks of the surgery as well as possible therapeutic alternatives are discussed.

For more information on neurosurgery at Inselspital, please visit the website.

neurochirurgie.insel.ch/funktionell-schmerz/epilepsie



What information do you need?

After receiving information about the possibility of epilepsy surgery, many of your questions will certainly have remained unanswered. Therefore, we recommend that you make a list of points you would like to discuss with us before the next scheduled follow-up visit. It is also very important that you express your hopes and fears so that we can adjust our care to your specific expectations.

Most importantly, we want you to feel comfortable with the decisions you make. We want to provide the best possible care and support you in making a decision.

Questions for my doctor:



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