



EANS Epilepsy surgery Brain Dissection Course Vienna 2024

Epilepsy surgery is a potentially curative and evidence-based approach aimed at eliminating or reducing drug-resistant seizures and improving quality of life.

There is a high interest in epilepsy surgery among senior trainees and young neurosurgeons and therefore a high demand for hands-on courses on epilepsy surgery.

Epilepsy surgical dissection intraoperatively mainly focuses on anatomical structures which in most cases are not altered by e.g. tumor tissue.

Therefore, anatomical orientation for temporal lobe surgery or disconnective procedures such as hemispherotomies is of utmost importance for trainees and young neurosurgeons planning to enter the field of epilepsy surgery.

In addition, it is important for the target audience to get a balanced answer to the questions of when surgery should be performed and which strategy should be chosen in epilepsy surgery: resection, disconnection, stimulation, or a combination of these, and many recent minimally invasive therapeutic options.

However, hands-on brain dissection courses for epilepsy surgery are rarely offered.

For this reason, the EANS Functional Section designed a three-day course, together with faculty members (Table 1) from our sister society, the ESSFN, as advisors with experiences from previous hands-on epilepsy surgery courses.

Since 2011, five hands-on courses on epilepsy surgery have indeed been organized under the auspices of the ESSFN, the first three in Ghent (Van Roost), followed by two in Lisbon (Gonçalves Ferreira and Campos). These ESSFN courses on epilepsy surgery are part of a cycle of 5 comprehensive hands-on trainings that cover the entire functional field and culminate in a certificate in functional neurosurgery. For this reason, the part on epilepsy surgery cannot be offered frequently.

The designed course and learning objectives were as follows:

- the work-up for epilepsy surgery and the essential examinations used in this trajectory
- the basic pathophysiological concepts of epilepsy
- the essential neuroimaging techniques and the most frequent epileptogenic lesions
- and practice the essential epilepsy surgical approaches, especially the detailed anatomy of the temporal lobe, particularly its mesial structures (hippocampus, amygdala, uncus, temporal horn and cisterns), as well as the complex procedure of a functional hemispheric disconnection.

The full three-day course was structured into morning lectures and afternoon dissections on cadaver brains in the anatomy lab.

All topics of epileptology and epilepsy surgery were covered, starting on day 1 with the general principles of epileptology, neuroimaging and neuropathology (Pataria, Kasprian, Gelpi) as well as the principles of epilepsy surgery, temporal lobe and minimally invasive procedures (Van Roost, Schijns, Ghizoni, Theys).

The lectures of day 2 covered advanced imaging, such as MEG (Rampp), special neuropathological conditions like FCD, LEATS and hippocampal sclerosis (Gelpi, Quinot), and epilepsy surgical procedures for lesional epilepsies (Theys). Holohemispheric pathologies and especially autoimmune encephalitis were addressed in the lecture of Höftberger. MRI negative epilepsies and the strategy of stereo-EEG with depth electrode implantation (Eröss) as well as deep brain stimulation for epilepsy (Novak) were explained.

On day 3, insight was given into various stimulation procedures for epilepsy (Strauss), childhood epilepsies and epilepsy surgery (Feucht, Campos). Workup of MRI negative epilepsy (Fountas), awake epilepsy surgery (von Lehe), the combination of stimulation procedures with resections (Damisah) and image guided surgery and augmented reality for epilepsy completed the three-day course.

Table 1

Faculty members EANS Epilepsy Surgery Brain Dissection Course 2024.

Name	Department	City	Country
Karl Rössler	Neurosurgery	Vienna	Austria
Christian Dorfer	Neurosurgery	Vienna	Austria
Fabian Winter	Neurosurgery	Vienna	Austria
Julia Shawarba	Neurosurgery	Vienna	Austria
Alexandre Rainha Campos	Neurosurgery	Lisbon	Portugal
Dirk van Roost	Neurosurgery	Ghent	Belgium
Ellen Gelpi	Neurology/ Neuropathology	Vienna	Austria
Ekatarina Pataria	Neurology	Vienna	Austria
Eyiyemisi Damisah	Neurosurgery	New Haven	USA
Enrico Ghizoni	Neurosurgery	Campinas	Brazil
Ido Strauss	Neurosurgery	Tel Aviv	Israel
Klaus Novak	Neurosurgery	Vienna	Austria
Kostas Fountas	Neurosurgery	Larissa	Greece
Gregor Kasprian	Neuroradiology	Vienna	Austria
Loránd Eröss	Neurosurgery	Budapest	Hungary
Marec von Lehe	Neurosurgery	Neuruppin	Germany
Martha Feucht	Pediatric/Neurology	Vienna	Austria
Olaf Schijns	Neurosurgery	Maastricht	The Netherlands
Romana Höftberger	Neuropathology	Vienna	Austria
Stefan Rampp	Neurosurgery	Erlangen	Germany
Thomas Czech	Neurosurgery	Vienna	Austria
Tom Theys	Neurosurgery	Leuven	Belgium
Valerie Quinot	Neuropathology	Vienna	Austria

<https://doi.org/10.1016/j.bas.2024.103924>

Received 2 October 2024; Accepted 9 October 2024

Available online 11 October 2024

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EANS Epilepsy Surgery Brain Dissection Course

22-24 August 2024

SURVEY (10 Participants)

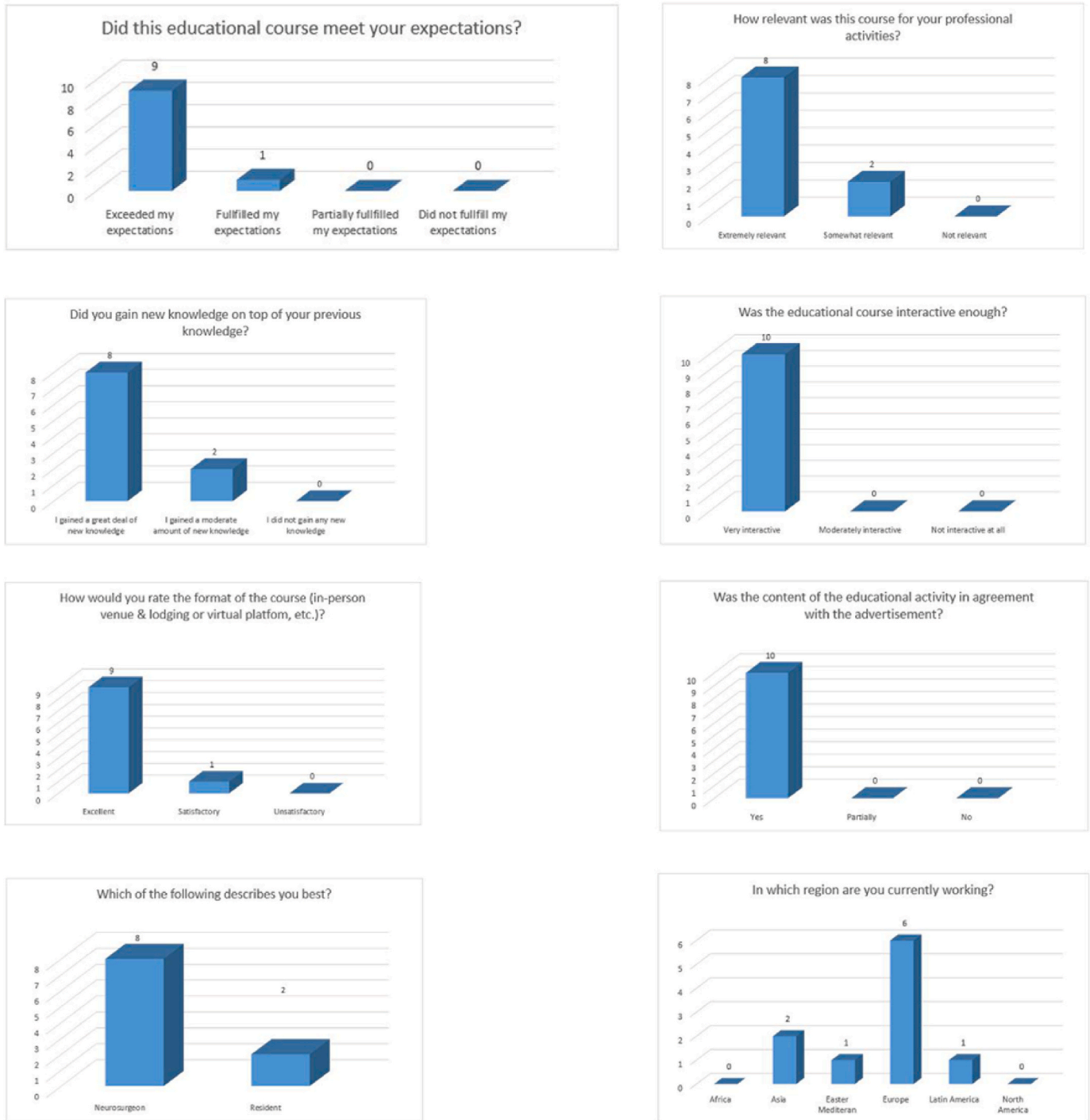


Fig. 1. Post-course Evaluation by the trainees.

Lab dissection focused on temporal lobe epilepsy surgery (various approaches, selective versus anterior temporal lobe resection), the relationship to the insula and hemispherotomy techniques (vertical versus lateral approach).

Eight surgical microscopes were available to be shared by two participants each to dissect cadaveric brains using also cavitron ultrasound aspirators (CUSAs). Fourteen faculty members supervised 16 participants, hence, a nearly 1:1 trainee-faculty relationship ensured comprehensive learning guidance during the dissections.

Lectures and dissections were combined with the opportunity to meet the industrial exhibitors and getting acquainted with new devices. Total costs of the course per participant was 650.- Euro including housing, full board and 3 evening networking events.

The favorable results of the post course survey (Fig. 1) confirmed the concept, which will be installed as an annual recurring event.

The 2025 EANS Epilepsy Dissection Course will take place in Vienna at Vienna Medical University under the auspices of both the EANS and the ESSFN from 3rd to 5th of July 2025.

More details and the application procedure will be announced through the communication channels of the EANS and on the webpage of its Functional Neurosurgery Section.

Declaration of competing interest

The authors declare the following financial interests/personal

relationships which may be considered as potential competing interests: Karl Roessler reports financial support and equipment, drugs, or supplies were provided by Carl Zeiss AG, Stryker, Dixi medical, Precisis. The submitting author is a member of the editorial board of Brain and Spine. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Handling Editor: Dr W Peul

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