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# Department of Neurosurgery

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The Neurosurgery Clinic of the Faculty of Neurosurgery belongs to the largest and oldest neurosurgery clinics in the Czech Republic. In addition to the provision of top medical care, as a faculty department it is also intensively engaged in teaching and scientific research activities. The NCH Clinic annually organizes a postgraduate course for young neurosurgeons and regularly organizes autumn spondylo-surgical multidisciplinary meetings focused mainly on rehabilitation care. Doctors of the clinic regularly participate in many national and international congresses, publish in impacted scientific journals and participate in the preparation of a number of monographs. In the field of scientific activities, the clinic cooperates with research institutes not only in Hradec Králové, but also in other places in the Czech Republic (AV Prague, CEITEC Brno, TU Liberec). Within the framework of clinical and preclinical studies, the clinic has long been involved in research in the fields of vascular neurosurgery, onconeurology and minimally invasive spinal surgery. The NCH clinic participates in preclinical research on pathophysiological processes as well as in the synthesis of new potential drugs, and is also involved in the improvement of surgical techniques and the introduction of new surgical procedures. In the treatment of spinal disorders, the clinic is one of the centres of highly specialised spondylosurgical care in the Czech Republic. It focuses mainly on the development of minimally invasive spinal techniques, in which it is one of the leading centres not only in the Czech Republic but also in Europe.

## Hlavní výzkumná témata

- Cerebral microdialysis in patients with aneurysmal subarachnoid haemorrhage
- Investigation of new drugs and potential predictive biomarkers in patients with glioblastoma multiforme
- Experimental research on the treatment of spinal cord injury

## Vědecko-výzkumné skupiny

- Glioblastoma Pathophysiology and Treatment Research Group (Krůpa, Soukup, Kujovská, Górecki, Vajrychová, Paulíková, Korábečný)
- Pituitary Pathology Treatment Research Group (Česák, Póczoš, Gabalec, Soukup)
- Spinal cord injury and subarachnoid hemorrhage treatment research group (Adamkov, Krůpa, Hejčl, Jendelová)

## Vybavení

- Loop-X (an innovative radiological device enabling **peroperative 3D imaging of bony structures of the spine** during instrumented surgery)
- **Brain microdialysis** (analyzer used for real-time determination of key metabolites obtained from brain microdialysate. The information obtained is used to refine the picture of brain metabolism and is used for personalized patient treatment)
- **Exoscope** (A new generation of microscope used to provide a more detailed peroperative image allowing better orientation of the surgeon during operations on deep brain structures)

## Dosažené úspěchy

- Rudolf Peter Award 2018 - best neurosurgical publication by an author under 35 years of age ( [Dr. Krůpa](#) )
- Procházek Award 2019 - the best surgical publication of the Hradec Králové University Hospital by an author under 35 years of age (Dr. Krůpa)
- 1st place in the Student Scientific Conference of the Faculty of Medicine and Faculty of Medicine HK 2016 and 2019 (Dr. Krůpa)