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Learn it, Do it, Teach it!

"Neurosurgery is nothing that the performing surgeon is to be admired for, but no… it is something that is badly needed by another human being." Citation: Prof. Dr. Brenner, founder and chief of neurosurgical department (1926-2005) in KA. Rudolfstiftung.
Pioneers in neurosurgery achieved the development of the first new standards in general neurosurgery. Walter Dandy 1886 – 1946 (description of the circulation of cerebrospinal fluid in the brain, surgical treatment of hydrocephalus, the invention of air ventriculography and pneumoencephalography, the description of brain endoscopy, the establishment of the first intensive care unit and the first clipping of an intracranial aneurysm), Harvey Cushing 1869 – 1939 (under his influence neurosurgery became a new and autonomous surgical discipline; use of x-rays to diagnose brain tumors; pivotal role in development of the Bovie electrocautery tool; the world's leading teacher of neurosurgeons in the first decades of the 20th century), Lars Leksell 1907 – 1986 (created an evolutionary array of stereotactic guiding devices; defined the origins of functional brain surgery, stereotactic surgery, and radiosurgery).
Nowadays this medical speciality has been integrated into routine treatment concepts covering areas like spine surgery, skull base, vascular, pediatric, tumor and endoscopic surgery but also radiosurgery.
The former concept of a "multitask professional" being able and often obliged to perform all kinds of neurosurgical procedures was admirable but is not realistic nowadays. Each of the subspecialties mentioned above has multiplied its very own scientific knowledge base taking into account various data of diagnostic and therapeutic developments.

We neurosurgeons concentrate on pathologies of the brain and spine. In spite of everything – *unfortunately or thankfully* – we are not able to augment natural brain function or efficacy. If this were even possible, would it be something to strive for? And isn't it better to do a single thing with honest ambition and joy than to collect a bibliography of data and to perform to an average standard?

Thus, as in former centuries the human brain – *including the neurosurgeon's* – has to process the presented information adequately and at least several times – *yes, it takes long!* – in order to engrave important and valuable neuron synapses. These electrical circuits enable us to acquire skills and knowledge.

Modern education and training offer many optimised ways to reach outstanding expertise levels and safe surgical performance in our profession. The two classic methods 1) **studying of literature** and 2) **learning with expert or mentor guidance** are still fundamental. Dedicated specialised professionals offer books, courses and workshops in accordance with National Societies.

"Going International" represents a unique platform where education and training schedules are introduced and summarised. An additional 3rd method must be taken into consideration: **Electronic media**. E-learning, virtual simulation and augmented reality are and will be important additional learning tools that make it possible to outline contents of teaching in a visually perceptive way.

Apart from education and training this mentioned "tripod" helps to meet the requirements of quality management, as high skill levels and low complication rates can be maintained.

In summary: ***Learn it, Do it, Teach it!***

Österreichische Gesellschaft für Neurochirurgie: http://www.neurochirurgie.ac.at/
Deutsche Gesellschaft für Neurochirurgie: http://www.dgnc.de/
European Association of Neurosurgical Societies: http://www.eans.org/
Central European Neuropsurgical Society: http://www.cens2008.com/
American Association of Neurological Surgeons: http://www.aans.org/
Congress of Neurological Surgeons: http://www.neurosurgeon.org/
World Federation of Neurosurgical Societies: http://www.wfns.org/