

Profile

Günther Deuschl: from mathematics to movement disorders



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After 5 years of studying mathematics at college, it takes courage to entirely change your career course, especially if that new career is medicine. But, at the age of 23, that is exactly what Günther Deuschl did. Clearly, it was the right decision. Deuschl is now director of the neurology clinic at Kiel University, Germany, and a globally renowned name in movement disorders.

"To change to another field was not easy, I have to admit", says Deuschl. "But, after much consultation with my wife, we decided I had to do it." The idea of a career in mathematics, much as he found the subject fascinating, did not compare to that of medicine. "Treating patients and helping people was definitely my motivation", he says. Deuschl doesn't regret his 5 years as a mathematician, however. "I learnt so much from doing that—logical thinking, for example, is something which I learned from the very beginning, and which is still today important for me."

One benefit of being older when starting his medical studies, says Deuschl, is that he already knew the subject in which he wanted to specialise. "When I studied physiology, I studied neurophysiology; when I studied anatomy, I studied neuroanatomy; and when I studied clinical sciences, then it was neurology and psychiatry", he says. "From the very beginning it was the brain." Why? "If you consider all the organs of the body, which one would you think is the king or queen?"

Deuschl studied for both his mathematics degree and medical degree at the University of Munich, Germany. He grew up in a town called Karlsruhe, 140 km south of Frankfurt, in a region colloquially referred to as the California of Germany. "They grow wine and everything is a little bit easier than elsewhere", Deuschl explains. Although the lifestyle was pleasant, as a young man, Deuschl was keen to expand his horizons: "I was happy to go to Munich for my University education", he says.

After completing his medical studies, Deuschl took a 2-year clinical appointment with movement disorder specialist Albrecht Struppeler (former chair of neurology, Technische Universität, Munich, Germany). Struppeler was particularly interested in tremor, and, says Deuschl: "He was one of the few neurologists worldwide who did stereotactic operations—he introduced me to this technique, where, by lesioning the brain, you could cure certain movement disorders."

Brain lesioning was soon replaced by the safer and reversible technique of deep brain stimulation. And both deep brain stimulation and tremor became Deuschl's career-long interests.

Deuschl continued his tremor studies with Parkinson's disease expert Carl Lüking at the University of Freiburg,

Germany, and here, his early mathematics training came in useful. Deuschl was studying many different types of tremor and he needed a better way of measuring and classifying them. With the help of some mathematicians, he developed a piece of software called the tremor recording system. One of Deuschl's most important contributions on the project was speaking the mathematicians' language: "I could understand what the mathematicians were talking about, which can be quite difficult!"

Next, Deuschl's desire to expand his horizons led him to the USA. He was looking for a change of scene, but not a change of topic, so he joined movement disorder specialist Mark Hallett at the National Institutes of Health, Bethesda, MD. Together, they worked on understanding the mechanisms underlying a rare form of tremor called palatal tremor. "It was just a wonderful time...Being free of any clinical duties, doing only research in such a stimulating environment was just extraordinary." Deuschl lived in Bethesda with his wife and two young sons, and, "like a European", he says, he walked to work everyday.

On his return to Germany, Deuschl started looking for a senior position and eventually took up the neurology clinic directorship at Kiel University in 1995. He chose Kiel for its strong research opportunities and also because, "Kiel is a nice place", he says, "and the family agreed".

For the past 15 years, Deuschl and his staff have been building a centre of excellence in deep brain stimulation, tremor, and in movement disorders more generally. The team has studied the mechanisms of deep brain stimulation, its applicability to different types of tremor, and has also undertaken a large-scale clinical trial of deep brain stimulation in patients with Parkinson's disease. This trial was the first to show that, for patients with advanced Parkinson's disease, deep brain stimulation plus drug treatment is more effective than are drugs alone. One of his current pet projects, he says, is seeing whether the same might be true in patients with early stages of the disease. If so, patients' social decline could be delayed, explains Deuschl, and their quality of life dramatically improved.

Outside work, Deuschl is a family man and an opera buff. "I enjoy taking my whole family to the opera whenever I can", he says. He has no particular favourites, instead saying: "There is almost no composer that I don't like...each opera has its place in life." Deuschl's sons are now 30 and 26 years old and have followed their father's footsteps into medicine. The younger son plans to specialise in something to do with the brain, says Deuschl. But, he laments jokingly, "I lost the other one to the heart".

Ruth Williams

For more on the [trial of deep brain stimulation](#) see *N Engl J Med* 2006; **355**: 896–908