COGNITIVE NEUROSCIENCE INVESTIGATIONS OF PROFESSIONAL MUSICIANS

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Professional musicians practice for many hours and thus stimulate the motor, sensory, auditory, and limbic parts of their brain to an extent that leads us to expect plastic changes of both the processing architecture and the underlying neuronal machinery.

In my contribution I will consider a number of recent studies from our laboratory, in which we have investigated professional musicians. Specifically, I will argue that the specific role or instrument that a musician has shapes the way he processes auditory stimuli. For example, in a group of professional conductors we could demonstrate that the gradient of spatial attention in the periphery of auditory space is much steeper than in pianists or non-musicians. Drummers/percussionists on the other hand could be shown to be better at the preattentive processing of stimuli possessing a complex time structure.

These and other data suggest that musicianship leads to an adaptation of cognitive and brain system that matches the individual needs. I will thus argue that musicians can serve as a model organism for the study of neural plasticity.

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