

WHAT IS SPECIAL ABOUT THE BRAINS OF MUSICIANS?

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Musicians are an attractive subject pool in which one can investigate possible cerebral adaptations to unique requirements of skilled performance. There are several reasons for this. Firstly, the commencement of musical training usually occurs when the brain may still be able to adapt. Secondly, at least professional musicians undergo long-term and intensive motor training of complicated uni- and bimanual motor activities. Thirdly, imaging studies from our group as well as other groups have shown that motor learning in the context of musical training can lead to changes in the cortical representation of motor control. Whether the unique musical abilities and structural

differences that musicians' brains show are due to learning or whether they reflect innate abilities and capacities that might be fostered by early exposure to music is largely unknown. In this presentation, several studies conducted by our group will be demonstrated that indicate that certain brain regions (corpus callosum, motor cortex, and the medial motor wall) related to the control of uni- and bimanual movements may show some form of adaptation to the extraordinary challenges of musical performance. These adaptations comprise macrostructural and functional changes of the motor areas.