

Practice doesn't always make perfect (depending on your brain)

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How do you get to Carnegie Hall? New research on the brain's capacity to learn suggests there's more to it than the adage that "practise makes perfect." A music-training study by scientists at the Montreal Neurological Institute and Hospital -The Neuro, at McGill University and colleagues in Germany found evidence to distinguish the parts of the brain that account for individual talent from the parts that are activated through training.

The research involved brain imaging studies of 15 young adults with little or no musical background who were scanned before and after they underwent six weeks of musical training. Participants were required to learn simple piano pieces. Brain activity in certain areas changed after learning, indicating the effect of training. But the activity in a different set of brain structures, measured before the training session had started, predicted which test subjects would learn quickly or slowly.

"Predisposition plays an important role for auditory-motor learning that can be clearly distinguished from training-induced plasticity," says Dr. Robert Zatorre, a [cognitive neuroscientist](#) at The Neuro

who co-directs Montreal's International Laboratory for Brain, Music and Sound Research (BRAMS) and is lead author of the study in *Cerebral Cortex*. "Our findings pertain to the debate about the relative influence of 'nature or nurture,' but also have potential practical relevance for medicine and education."

The research could help to create custom-made interventions for students and for neurological patients based on their predisposition and needs.

Future cognitive neuroscience studies will explore the extent to which individual differences in predisposition are a result of [brain plasticity](#) due to previous experiences and to people's genetics.

More information: cercor.oxfordjournals.org/content/hv138.abstract%C2%A0

Provided by McGill University

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