

# Musical training makes your brain better at paying attention

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**M**usical training won't just make you cool at get-togethers — it also gives you better control and focus over your attention, new research reports.



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Individuals who train in music see lasting improvements in the cognitive mechanisms that make us more attentive and harder to distract, the study reports. Trained musicians exhibit greater executive control of attention (a main component of the attentional system) than non-musicians, it explains, and this effect increases the longer they train in music.

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"Our study investigated the effects of systematic musical training on the main components of the attentional system. Our findings demonstrate greater inhibitory attentional control abilities in musicians than non-musicians," explained lead investigator, Paulo Barraza, PhD, Center for Advanced Research in Education, University of Chile, Santiago, Chile.

"Professional musicians are able to more quickly and accurately respond to and focus on what is important to perform a task, and more effectively filter out incongruent and irrelevant stimuli than non-musicians. In addition, the advantages are enhanced with increased years of training."

Our **attention** is made up of three types of functions: alerting, orienting, and executive control. The alerting function is associated with maintaining states of readiness for action. The orienting function is linked to the selection of sensory information and change of attentional focus. The executive control function is involved both in the suppression of irrelevant, distracting stimuli and in top-down attentional control. Each is handled by an anatomically-distinct neural network, the team writes.

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For the study, the team worked with 18 professional pianists and a matched group of 18 non-musician professional adults, whom they ran through an attentional network test. The **musician** group consisted of full-time conservatory students or conservatory graduates from Conservatories of the Universidad de Chile, Universidad Mayor de Chile, and Universidad Austral de Chile. On average, participants in this group had over 12 years of practice. "Non-musicians" were university students or graduates who had not had formal music lessons and could not play or read music.

The participants were asked to view a series of rapidly-changing images and provide immediate feedback on what they were being shown to test the efficiency of their reactive behavior. On average, the musician group had a score of 43.84 milliseconds (ms) for alerting functions, 43.70 ms for orienting, and 53.83 ms for executive functions, the team reports. For non-musicians, the mean scores were 41.98 ms, 51.56 ms, and 87.19 ms, respectively. The higher scores show less efficient inhibitory attentional control (i.e. a poorer control of attention).



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The authors say their results point to musical training having a lasting (and beneficial) effect on attention networks that previous research didn't spot.

"Our findings of the relationship between musical training and improvement of attentional skills could be useful in clinical or educational fields, for instance, in strengthening the ability of ADHD individuals to manage distractions or the development of school programs encouraging the development of cognitive abilities through the deliberate practice of music," says noted co-author David Medina, from the Department of Music, Metropolitan University of Educational Sciences, Santiago, Chile.

"Future longitudinal research should directly address these interpretations."

The paper "Efficiency of attentional networks in musicians and non-musicians" has been published in the journal *Heliyon*.

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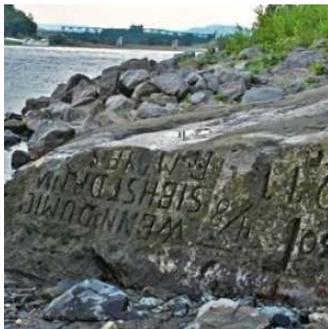
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