

The neurobiology of musicality related to the intrinsic attachment behavior?

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Music is social communication between individuals -- humming of lullabies attach infant to parent and singing or playing music adds group cohesion. The neurobiology of music perception and production is likely to be related to the pathways affecting intrinsic attachment behavior, suggests a recent Finnish study. The study gives new information about genetic background of musical aptitude.

In the study of University of Helsinki and Sibelius Academy, Helsinki, the neurobiological basis of [music](#) in [human evolution](#) and communication was evaluated using candidate genes associated in the earlier studies with social bonding and cognitive functions. The data consisted of 343 family members from 19 Finnish families with at least some professional musicians and/or active amateurs. The musical aptitude was assessed using three music tests: the auditory structuring ability test (Karma Music test) and Carl Seashore's pitch and time discrimination subtests.

Additionally participants filled in an extensive web-based self-report questionnaire and blood samples were collected from the study subjects over 12 years of age. One part of the questionnaire was devised to chart the participants creative functions in music -composing, improvising and arranging of music.

In the study high music test scores were significantly associated with creative functions in music (p

To elucidate the neurobiological basis of music in human evolution and communication the researchers demonstrated an association of arginine vasopressin receptor 1A (AVPR1A) gene variants with musical aptitude. In the previous studies the AVPR1A gene and its homologies have been associated with social, emotional and behavioral traits, including pair bonding and parenting. The results suggest that the neurobiology of music perception and production is related to the pathways affecting intrinsic attachment behavior.

"Music is social communication between individuals. Darwin proposed that singing is used to attract the opposite sex. Furthermore, lullabies are implied to attach infant to a parent and singing or playing music together may add group cohesion. Thus, it is justified to hypothesize that music perception and creativity in music are linked to the same phenotypic spectrum of human cognitive social skills, like human bonding and altruism both associated with AVPR1A. We have shown for the first time in the molecular level that music perception has an attachment creating impact," says Liisa Ukkola.

More information: The study has been published in *PLoS ONE*: [dx.plos.org/10.1371/journal.pone.0005534](https://doi.org/10.1371/journal.pone.0005534) .

Source: University of Helsinki

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