

# Study shows dopamine plays a role in musical pleasure

January 22 2019, by Bob Yirka

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Ball-and-stick model of the dopamine molecule, a neurotransmitter that affects the brain's reward and pleasure centers. Credit: Jynto/Wikipedia

An international team of researchers has found evidence of dopamine in the brain playing a role in the pleasure people feel when they listen to

music. In their paper published in *Proceedings of the National Academy of Sciences*, the group describes experiments they carried out with volunteers who were given a dopamine precursor or antagonist and what they found.

People are known to experience a range of emotions when listening to music, from annoyance to euphoria. And while researchers have long believed that at least some of the [pleasure](#) people derive from listening to music is tied to an increase in brain [dopamine](#) levels, the idea had never been tested until now. In this new effort, the researchers gave volunteers drugs that increased or decreased their dopamine levels and then administered various tests to gauge whether doing so caused a change in the experience of musical pleasure.

In the study, 27 volunteers were given either [levodopa](#), a dopamine precursor that raises levels of the neurotransmitter in the brain, or risperidone which has the opposite effect. Some were also given a placebo. Over the course of three separate sessions (on different days), the volunteers were asked to listen to music for a period of 20 minutes. Some of the songs were chosen by the experimenters and others were chosen by the volunteers themselves. Pleasure responses were measured via a skin sensor that measured electrodermal activity (goosebumps) and through questionnaires. They also asked each of the volunteers if they would be willing to buy the songs they were listening to, and if so, how much they would be willing to pay for them.

The researchers found that those volunteers who received levodopa reported experiencing more pleasure while listening to music than did the placebo group. They were also more willing to buy the music and to pay more for it. Conversely, those given risperidone reported experiencing less pleasure and were less willing to pay for the music.

The researchers suggest their findings indicate that dopamine plays a

major role in the pleasure sensations that people experience from listening to music. They further suggest that their experiments indicate that enjoyment of [music](#) can be regulated by the use of drugs that impact dopamine levels.

**More information:** "Dopamine modulates the reward experiences elicited by music," *Proceedings of the National Academy of Sciences* (2019). [www.pnas.org/cgi/doi/10.1073/pnas.1811878116](http://www.pnas.org/cgi/doi/10.1073/pnas.1811878116)

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