Joyful music could be a game changer for virtual reality headaches

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Listening to music could reduce the dizziness, nausea and headaches virtual reality users might experience after using digital devices, research suggests.

Cybersickness—a type of motion sickness from [virtual reality experiences](#) such as computer games—significantly reduces when joyful [music](#) is part of the immersive experience, the study found.

The intensity of the nausea-related symptoms of cybersickness was also found to substantially decrease with both joyful and calming music.

Researchers from the University of Edinburgh assessed the effects of music in a virtual [reality](#) environment among 39 people aged between 22 and 36.

They conducted a series of tests to assess the effect cybersickness had on a participant's memory skills reading speed and reaction times.

Participants were immersed in a [virtual environment](#), where they experienced three roller coaster rides aimed at inducing cybersickness.

Two of the three rides were accompanied by [electronic music](#) with no lyrics by artists or from music streams that people might listen to which had been selected as being calming or joyful in a previous study.

One ride was completed in silence and the order of the rides was randomized across participants.

After each ride, participants rated their cybersickness symptoms and performed some memory and reaction time tests.

Eye-tracking tests were also conducted to measure their reading speed and pupil size.

For comparison purposes the participants had completed the same tests before the rides.

The study found that joyful music significantly decreased the overall cybersickness intensity. Joyful and calming music substantially decreased the intensity of nausea-related symptoms.

Cybersickness among the participants was associated with a temporary reduction in verbal working memory test scores, and a decrease in pupil size. It also significantly slowed reaction times and reading speed.

The researchers also found higher levels of gaming experience were associated with lower cybersickness. There was no difference in the intensity of the cybersickness between female and male participants with comparable gaming experience.

Researchers say the findings show the potential of music in lessening cybersickness, understanding how gaming experience is linked to cybersickness levels, and the significant effects of cybersickness on thinking skills, reaction times, reading ability and pupil size,

Dr. Sarah E MacPherson, of the University of Edinburgh's School of Philosophy, Psychology & Language Sciences, said, "Our study suggests calming or joyful music as a solution for cybersickness in immersive virtual reality. Virtual reality has been used in educational and clinical settings but the experience of cybersickness can temporarily impair someone's thinking skills as well as slowing down their reaction times. The development of music as an intervention could encourage virtual reality to be used more extensively within educational and clinical settings."

The study is published *IEEE Transactions on Visualization and Computer Graphics*.

  More information: Panagiotis Kourtesis et al, Cybersickness, Cognition, & Motor Skills: The Effects of Music, Gender, and Gaming

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