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April 09, 2021 | [Deborah Kotz](#)



Ronna Hertzano, MD, PhD

Research Calls Attention to Dangerous Noise Levels in Gym to Protect Against Noise Induced Hearing Loss

Fitness center instructors often turn up music volumes significantly during classes – sometimes loud enough to cause hearing damage – based on an assumption that participants will work out more intensely when volumes are raised. A new University of Maryland School of Medicine (UMSOM) study, however, found that those who attend indoor cycling (“spinning”) classes do not lower the intensity of their workouts when the volume is reduced to a safer decibel level. The findings were published recently in the journal [Noise & Health](#).

“Our findings make a strong case for reducing music volumes in fitness classes to protect against hearing loss without sacrificing the intensity of the workout,” said study corresponding author [Ronna Hertzano, MD, PhD](#), Associate Professor of Otorhinolaryngology-Head & Neck Surgery at UMSOM and avid gym goer before the COVID-19 pandemic. **“In fact, our study participants reported that they preferred the reduced sound level during their workouts.”**

Previous research suggests that the average sound levels in group fitness classes frequently exceed 90 decibels (as loud as an approaching subway train) and often exceed 100 decibels (as loud as a power lawn mower). The National Institute of Occupational Safety and Health recommends that a noise exposure of one hour not exceed 94 decibels, whereas exposures to levels of 100 decibels not exceed 15 minutes to protect against permanent hearing loss.

In the new study, the researchers selected a gym in the local Baltimore area and conducted surveys on participants aged 31 on average, who signed up for one-hour spinning classes. Music volumes in the spinning classes during the study ranged from 93 to 101 decibels. In the classes that were 2 to 3 decibels lower than the loudest classes—which translates to about a 50 percent

reduction in power and a 20 percent reduction in perceived loudness—participants reported no differences in their exercise intensity. Those in classes with the lowest volume experienced a slight reduction in exercise intensity, but only two of these participants reported below-average exercise intensity.

Overall, more than one in four study participants reported experiencing auditory symptoms following their spinning class, including ringing in their ears or muffled hearing. For those in classes with the highest sound levels, nearly one-third of participants reported that the sound level was too high, and nearly one-third reported that they would prefer a decrease of the music level. Only three of the participants reported using hearing protection, such as ear plugs, during the study.

“We also found that participants were most likely to report that the music level was satisfactory in classes where sound levels were lowest,” said Dr. Hertzano. ***“Importantly, the gym elected to maintain the music at the softer level after we made them aware of our study results.”***

Lawrance Lee, a 4th year medical student at UMSOM; Benjamin Shuster, a research fellow in the Department of Otorhinolaryngology-Head & Neck Surgery at UMSOM; and Yang Song, PhD, a postdoctoral fellow in the Institute for Genome Sciences at UMSOM all served as lead co-authors on the paper. Researchers from Massachusetts Eye and Ear in Boston and Otolith Labs in Washington, DC, also participated in this study.

“This is an important new finding that calls attention to the dangers of sound levels in fitness classes and the subsequent hearing loss that can result from prolonged exposure,” said [E. Albert Reece, MD, PhD, MBA](#), Executive Vice President for Medical Affairs, UM Baltimore, and the John Z. and Akiko K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine. ***“Fitness facilities should take note of the dangers highlighted in the new study finding and turn down the volume to protect against hearing damage.”***