



Music Appreciation

Education as Defense Against Hazardous Loudness Levels

By Melissa Heche

The bass line palpably thumps. The guitarist's riff resonates off the room's walls. The vocalist belts out the hook of the song, pushing the audience monitors to their limit. The crowd is cheering with excitement. Everyone is having a fun night.

So what's the problem?

Music is a source of entertainment, solace, memory, nostalgia, and celebration. Music brings people together socially, politically, and philanthropically. Whether we are playing or listening, with an instrument in hand or enjoying from the audience, or with earphones, music has become an integral part of our fabric. So it is a problem that music has become increasingly louder over the years and has contributed to an epidemic of hearing loss and auditory-related issues.

Initially, music became louder as a byproduct of invention and changing standards. In the late 1700s, musical ensemble size was fairly small, and vocal technique was much more restrained compared to that of the mid-to-late 1800s. By that time there was an emphasis on vocal placement with use of continuous vibrato, facilitating increased vocal projection over increasingly loud orchestras. Ensemble sizes were increasing, instruments were modified to accommodate higher volumes of output, and the overall loudness levels of music were increasing proportionately. Initially, the people who most risked exposure to music at dangerous intensity levels were the onstage performers; the levels did not bleed from the stage into the audience at the time.

The 20th century brought increased risk to anyone exposed. The advent of the electric microphone was followed by electric amplifiers and instrumentation. This new technology yields sounds at intensities that are dangerous to auditory health. This trend is not just a byproduct of technological and artistic musical changes, it is also a marketing technique. Several New York City club owners, who spoke anonymously, stated that louder music in the venues attracts bigger crowds. According to the club owners, music at increased sound levels "enhances the experience, draws more people to party on any one night, and increases the chance of repeat attendances." So essentially, in some instances, loudness levels are conscious choices. Loud levels

are expected—concert-goers, music listeners, and musicians have now become acclimated to the higher intensities of music. Dangerous sound levels are accepted as the target and the norm despite the hazards to the auditory system.

Is there an awareness of the dangers of loud music? On some level, those who are professionally involved (venue owners and musicians) should be aware that the loud intensity of the music are reaching dangerous levels. Setting up a venue sound system, managing that system on a daily/nightly basis, and juggling the competing sounds of the music versus the environmental sounds suggest the venue workers should be aware of the loud sound intensities that are the typical nightly in their club. From a musician's perspective, frequent difficulties hearing other band members or the music mix, the possible sensation of postevent otological symptoms (e.g., temporary/permanent threshold shift, tinnitus), and professional experience would offer an understanding of the dangerous levels to which they are exposed. Frequent concert attendees might experience similar occurrences: otological symptoms, difficulties hearing others in the venue, or a sensation of a shift in hearing. One might assume that these occurrences would trigger the realization of exposure to dangerous levels of noise. However, if there is not a clear understanding of industry regulations (e.g., National Institute for Occupational and Safety Health [NIOSH] regulates for maximal exposure levels), then the sound may be recognized as loud but not necessarily unsafe.

There is typically no formal training program regarding the understanding of the dangerous levels of sound. A person may be able to discriminate that a sound is loud, but understanding how loud and the

length of time allowable for exposure before damage occurs is a perceptual skill. Further, this skill may be largely contingent upon experiences and exposure. For example, musicians who are used to playing the same type of music in similar venues may assume safety because they become acclimated to the sounds. This is true for listeners also.

Even if unsafe levels are suspected, there is an overall indifference to exposure that appears to manifest. Minimal or no steps are taken to ensure protection. There are many reasons why indifference occurs, one being a lack of understanding of the true long-term auditory impact.

Fairly addictive is the proprioceptive feeling of the music—the sensation of the music within the body—on which the venues capitalize to maximize attendance. Some musicians seek that out, although its occurrence means that the music is dangerously loud. Mike Score, lead singer of the 1980s band “A Flock of Seagulls,” concurs with the addictive nature of sound proprioception. “Music (listeners) and musicians onstage feel the sound pressure from monitors. ...That’s what makes it sound good and makes it exciting. Otherwise it doesn’t help much creatively.” So, it needs to be loud to move the performance forward. But, when asked if he would engage in hearing protection for dangerously loud sounds, Score unequivocally stated that he has never been worried about hearing. “You know that when your ears ring, it’s not good. But they recover—or it seems that way. I wasn’t worried very much. Thirty years of feeling the floor monitors. That is what I am comfortable with.”

Is this thought inherent within the music industry? The sound has to be loud enough to attract listeners, keep a venue crowded, and feed the creativity of the musician? Is the impact of

hazardous intensity levels on hearing function marginalized that much?

Studies have identified tinnitus—not hearing loss—as the motivating factor in deciding to protect hearing. Concertgoers and musicians are motivated to seek help after an event leaves their ears ringing without recovery. Mike Score’s current bandmate, guitarist Joe Rodriguez, concurs with this motivating event. He was suffering from constant tinnitus from loud music. He started employing masking

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techniques independently. He reported waking up with “noise hangovers” after loud gigs: throbbing headaches, nausea, sound/light sensitivity, fatigue. It was affecting his music, so he pursued hearing protection plugs, which he has worn ever since. A motivating factor like this is a positive step; however, by the time someone suffers from the symptoms Rodriguez describes, the damage is done. The auditory system has already been negatively impacted. To slow down this growing epidemic of noise-induced auditory damage,

aggressive measures in hearing protection should be employed sooner—as a preventative measure, not a treatment.

One could argue that while learning music, the lack of training early on—whether in the school system or through independent music classes—of appropriate musician protection devices decreases the overall importance of long-term usage for the musician or music lover. Furthermore, there is a reduction in knowledge of excessive loudness levels and the maximal length of time recommended for exposure. An effective plan of action might be to address this education in the younger musicians and music lovers as a means of changing future trends in this health epidemic. This is a concept understood very well by rock musician Paulie Z, who fronts the successful rock band ZO2 and starred in the IFC comedy series *Z Rock*. His passion project is Rock Asylum, a program that introduces children to music by helping them engage in the process of writing educational songs. The goal is to facilitate learning through music. For his spring concert for children, Paulie knew that the music and venue might be too loud. He wanted to make sure their hearing was protected and that they understood the concept of hearing protection when listening to or playing music. On-site the day of the concert, each child was given disposable earplugs to wear. Paulie recognizes the importance of hearing protection and wanted to teach this concept to the children. With this knowledge, they can make a choice.

There is essentially no public policy or standard that tries to reverse or manage this growing trend toward dangerous loudness levels. Professional musicians, unlike others in occupations exposed to noise, are not required to have regular audiological testing nor are they required

to use hearing protection. American music venues, unlike their European counterparts, are not required to limit sound levels in accordance with safe loudness levels. The onus is on the venue to ensure that the sound will not reach dangerous levels and that the public is well informed. The onus is on the public to estimate the loudness levels to which they are being exposed and to protect themselves accordingly. The onus is on the musician to understand the need for onstage hearing protection and to use the devices properly so as not to cause further damage. It is a lot of responsibility on all parties, and it would be a fallacy to believe that everyone is completing their role effectively.

In the summer of 2012, a *New York Times* article uncovered the famous and always busy NYC hotspot Lavo as being dangerously loud—one of the loudest venues in the city with an average loudness of 96 dB. NIOSH guidelines state that no more than 30–60 minutes be spent in that environment or hearing damage will occur. This is the type of occurrence that contributes to this growing health epidemic. More parts of the entire puzzle—the venues, the attendees, the musicians, etc—need to be aware of this so that informed decisions can be made regarding hearing protection and safe loudness levels. Knowledge is power.

On the day of the Rock Asylum concert, 500 children squealed in delight in one of the most famous rock clubs in New York City, The Cutting Room. They watched and listened as their favorite rock star, Paulie Z, and his band perform songs to which they have contributed in various stages of development—all the while wearing disposable earplugs to protect their hearing. A new generation begins to understand the need for hearing protection. As Paulie belts a high note, Steve Walter, an owner of The

Cutting Room and a longtime musician himself, dives over the bar to the small mixing console and adjusts the controls. Glancing over his shoulder, he shrugs and says, “It got louder than I thought it would.” Yes, it did. Proof that, with education and awareness, even those with more experience can understand the value of hearing conservation. 🎧

Melissa Heche, AuD, is an audiologist at New York Speech and Hearing, Inc.

Illustration by Johanna van der Sterre.

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