

Hearing Conservation Through Partnership With Musicians

By Frank Wartinger, AuD

Most audiologists will agree that musicians are not like other patients. Clinical encounters with musicians are often and affectionately described as challenging, with the potential to be highly rewarding. Musicians often push our understanding of sound and hearing to the limits, not because they are inherently difficult, but because they live and breathe sound. Music professionals have a thorough understanding of how sound and hearing interact in their personal and professional lives, from the practical, scientific, to emotional aspects. The purpose of this article is to discuss the implicit distinction of hearing conservation services for musicians, and to help transform clinical interactions with this patient group into positive, supportive, and productive dialogues.

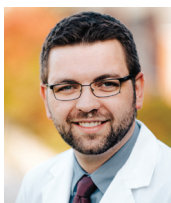


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START AT THE BEGINNING

Hearing conservation services and education are important to avoid noise-induced hearing loss (NIHL). This is especially true for workers exposed to significant occupational noise levels. The traditional hearing conservation message is simple and compelling: Protect your ears from loud and unwanted noise to avoid permanent hearing loss. However, this message has two major flaws when conveyed to patients who are musicians.

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First, music is not noise. Music can be grossly defined as an organized, consonant, and desirable sound. This is in relatively stark contrast with "noise," which is defined as a random, dissonant, and unwanted sound. In practice, there are surprisingly extensive overlaps between these two types of sound, depending on the musical genre. The simple use of the term "noise" in NIHL may lead many to believe that the warnings do not apply to their music exposure.

The second flaw in applying traditional hearing conservation education to musicians is that its primary emphasis is on hearing loss; other hearing issues such as tinnitus, hyperacusis, and diplacusis are often mentioned as footnotes. However, with musicians' reliance on sound quality, these associated hearing disorders can represent a much greater risk to their health and profession. To address these two flaws, the term music-induced hearing disorders (MIHD) has been used in recent literature and public messaging: Sound, including music and noise, can damage one's hearing, and hearing loss is not the only auditory disorder that results from excessive sound exposure.

PARTNERING WITH MUSICIANS

In an effort to define a musician, it is important to recognize that most wear more than one hat. For example, it is not uncommon for a symphony violinist to moonlight in a folk group, a jazz pianist to teach at an after-school rock music program, or a heavy metal drummer to have a passion for fine woodworking.



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While it is a typical and convenient practice in audiology to categorize musician patients into clearly defined sub-groups (e.g., rock musicians, classical musicians, music teachers, etc.), doing so may only provide limited benefits in creating an intervention plan that fully addresses a patient's wide array of musical activities and problem areas. Instead of presenting patients with cookie-cutter-type recommendations based on their primary musical genre or role, a better approach may be to empower patients with information and engage them in the process of determining feasible solutions and options.

Despite the conventional focus of hearing conservation on a musician's stage performances, the vast majority of musical activities actually occur in non-public events and spaces. Individual practice, group rehearsals, lessons, sound checks, production activities, and studio recording sessions constitute the bulk of musicians' time and contribute significantly to their total sound exposure. By exploring the musical settings beyond public performances, audiologists can better work with musicians in developing a comprehensive intervention plan.

Just like dealing with any patient, audiologists should evaluate the musician's complete noise history and possible sound sources, including non-musical activities. Chasin pointed out that musicians can be the most voracious consumers of recorded and live music (Chasin. Plural, 2009). Whether it be routine chores such as running a lawn mower or hobbies such as riding a motorcycle or recreational firearm use, non-occupational sound sources must be considered in determining a patient's daily exposure limits.

THE SHOW MUST GO ON

Music is a competitive field. This competition extends beyond landing a new gig or a coveted orchestra seat as musicians are constantly competing with themselves to improve and with others to demonstrate their worth. Being in such a high-pressure position, a musician patient's primary concern is likely to be the

impact on the quality of their performance (*AudiologyOnline*. 2015; Article 15268). Without addressing this basic priority, clinicians run the risk of being perceived by the patients as the safety police. As such, clinicians must discuss the benefits of hearing conservation interventions in a way that addresses the factors of performance quality, specifically self-monitoring, consistency of execution, and awareness of others' simultaneous performance. As Santucci explained, some musicians highly value hearing health, but this concern is generally a second or distant priority, almost always trailing behind the concerns for one's performance (Chasin. Plural, 2009). With this in mind, it is clear that any barrier or perceived hindrance to musical performance may be seen as an unacceptable sacrifice to the goals of an aspiring or a professional musician.

Performance benefits accompany many of the solutions that audiologists can recommend to and provide for musicians. However, these solutions may not be discussed during an office visit. For example, hearing protection devices can reduce fatigue and distorted hearing from a temporary threshold shift (TTS) during the course of a performance (WHO, 2015). In-ear monitor (IEM) systems can improve clarity of pitch and timing cues while also reducing the stage volume and risk of microphone feedback (Mix Online, 2007). Although clinicians are generally focused on the important business of educating patients on excessive noise exposure and minimizing the risk of developing MIHD, it can be argued that otherwise appropriate hearing conservation efforts that fail to consider the patient's performance priorities may not be met with open arms.

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Since music is an unregulated field, music professionals have something that is not available to other people affected by occupational noise exposure: The choice to continue working in a potentially unsafe sound environment without direct risk to formal employment. The draw of behavioral inertia is strong, so clinical recommendations must be stronger.

BALANCING CAUTION WITH FUNCTION

It is necessary to balance the standard preventative warnings with positive counseling that focuses on both short- and

long-term benefits. Analogous to amplification fitting, effective clinical counseling cannot focus exclusively on avoiding a potentially negative outcome. Instead, audiologists must highlight anticipated benefits to motivate patients and frame the recommended intervention. The role of clinicians is to define a patient's problem and offer practical, serviceable solutions. For many musicians, hearing conservation does not only mean prevention of an abstract risk of developing MIHD; it also means maintenance of their hearing ability and hearing quality, which is crucial to avoiding the loss of performance potential.

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Studies exploring provider-patient interactions report improved treatment compliance when patients feel susceptible to the ailment and believe that the intervention will be effective (*Ther Clin Risk Manag.* 2008;4[1]:269). The standard "avoidance" message may accomplish this goal for the general population. However, for individuals who pride themselves on their extensive experience with music and thorough understanding of sound, a warning may not be sufficient. This is where positive and compassionate dialogue prevails. Treatment compliance is shown to improve when patients perceive their providers to be emotionally supportive, reassuring, and respectful (*Ther Clin Risk Manag.* 2008). By considering the musician's frame of mind, innate emphasis on performance, and emotional relationship with sound, audiologists can better discuss the overlapping interests in maintaining hearing health in terms of career longevity and quality of life.

As athletes and dancers learn to understand and respect body dynamics, musicians should be provided with the opportunity to learn about their amazing auditory system. As Kantors has demonstrated in the "Hear Tomorrow" Hearing Conservation Workshops, teaching auditory physiology and pathophysiology concepts can empower music students and professionals, and promote self-directed adoption of safe listening habits (HearTomorrow.org, 2016). This approach is reflected in the National Association of Schools of Music and the Performing Arts Medicine Association's joint Advisories on Hearing Health documents, which emphasize the responsibility of students to be informed about their noise exposure risks and act in their best interest (NASM, 2011). In the clinical setting, non-adherence to intervention plans has been shown to decrease when patients are engaged in designing their own treatment plans (*J Am Board Fam Pract.* 2005;18[2]:87; *Ther Clin Risk Manag.*

2008). Therefore, helping patients understand the problem and the available options should preempt any discussion of treatment to encourage partnership between patients and clinicians in intervention planning.

APPLIED AUDITORY PHYSIOLOGY: A REFRESHER

Almost by definition, reducing the intensity and/or duration of a sound entering the ears is at the heart of all hearing conservation efforts. Having a brief refresher is helpful in framing the practical implications of auditory physiology concepts in the context of musician activities. While beyond the scope of this article, it is recognized that with sufficiently high sound pressure levels, the auditory system experiences distortions in the form of upward masking, gradual onset of TTS, subharmonic distortions, and activation of the middle-ear-muscle reflex (*J Assoc Res Otolaryngol.* 2012;13[4]:461). Taken in combination, these phenomena can result in relatively inaccurate audition when the ear is exposed to sufficiently high levels of sounds. It is important for musicians to understand that high-level monitoring can reduce the accuracy of their hearing.

In practical terms, inaccuracy means that the perceived musical performance differs from the actual performance. This describes a nightmare scenario for musicians who have dedicated their lives to the merit of their performance. It can be argued that if all the listeners in one area are listening to approximately the same sound level for the same duration, the shared perception of a live performance may be favorable, on balance. This argument holds until a recording of the same performance is later heard at a more reasonable listening level. This time, intensity-dependent distortions are absent and the true performance is heard, complete with any previously imperceptible errors in pitch and balance.

NEVER SAY STOP

This is the final and perhaps the most crucial take-away message: Never say "stop." It may be impossible to identify a single valid reason for an audiologist to counsel a musician patient to discontinue his or her musical activities. Behaviors and activities should be safely adjusted, but under no circumstances should a musician stop playing music. Music is not a hobby for a musician—it is their livelihood. More importantly, it is an emotional lifeline. If a crisis of any type, including and especially a hearing disorder, were to occur in a musician's life, the audiologist may advise the patient to listen to a good record, write a song about the disruption, or lose oneself in one's instrument of choice for a few healing hours. Discontinuation of music-making is not an option for most musicians and, as such, is hardly viable advice from a trusted hearing health professional. Audiologists can better ensure a rewarding experience by collaborating with musicians in developing a practical and comprehensive hearing conservation plan. 