

IDEA Opinion Statement

Recommendations for Music Volume in Fitness Settings

Introduction

Music volume in fitness facilities continues to be a concern in the fitness industry. Studies have shown that loud music—combined with the accompanying voice level of the instructor—has the potential to cause permanent hearing loss to both the instructor and the class participants.^{1,2} Research has also demonstrated that people are experiencing hearing loss at an earlier age than in the past.^{3,4,5} While occupational noise sustained in settings where people work has been the largest source of hearing damage, an increasingly frequent cause is recreational noise, such as loud music played at concerts.^{1,5,6,7}

Music is commonly played in group fitness classes and in many areas of health clubs, sometimes without management's evaluation or restriction. Hearing loss is a slow, cumulative process that usually does not cause an immediate, painful reaction. Therefore, managers and instructors may not be aware that music played at a high volume—coupled with the sound of an instructor "shouting" over the music—may be putting instructors and their clients at risk of permanent hearing loss. Health facilities and fitness instructors have an obligation to their clients to ensure safe music intensity levels during group fitness classes and other functions.

The General Problem of Hearing Loss

According to the American Speech-Language-Hearing Association (ASHA), approximately 28 million Americans have some degree of hearing loss.⁷ ASHA estimates that more than 20 million Americans are exposed to environmental noise at sudden or cumulative levels that can damage hearing.⁶ Symptoms of hearing damage include tinnitus (ringing in the ears), muffled sounds, difficulty understanding words and general hearing loss.^{1,7}

Repeated exposure to loud noise can cause permanent damage to hearing. Over time, excessive exposure to loud noise can damage the tiny hairs in the cochlea, the snail-shaped, fluid-filled chamber in the inner ear where hearing is accomplished, and this can lead to hearing loss.

Hearing loss can be caused both by occupational noise exposure (e.g., exposure while teaching a group fitness class) and by recreational noise exposure (e.g., exposure while taking a group fitness class). Noise-induced hearing loss is almost always preventable.⁸

While hearing loss is usually associated with older people, recent statistics indicate it is increasingly prevalent among younger people. According to the National Health Interview Survey, the number of Americans between the ages of 45 and 64 with hearing problems increased 26 percent between 1971 and 1990; during the same period, hearing loss increased by 17 percent among people between the ages of 18 and 44.⁵ Young people in Great Britain are also experiencing increased hearing loss, according to the Royal National Institute for Deaf People.⁴

Noise exposure can harm more than hearing. Research has shown that noise is also associated with psychological stress and possibly hypertension.⁹ Although the studies that demonstrated these ill effects examined loud noise on the job, it is probable that recreational noise could have similarly harmful impacts.

Permissible Exposure Level

Music can be extremely enjoyable, but if played too loudly, it can harm hearing just as much as other forms of noise. OSHA has developed guidelines for safe noise level standards based on approximately 60 minutes of continuous exposure. According to the OSHA guidelines, the permissible exposure level for employees exposed to noise is 90 decibels (dB) averaged over an eight-hour period.¹⁰ The Centers for Disease Control and Prevention's Office of Health and Safety recommends a sound level of only 85 dB over an eight-hour period.¹¹

Although the incidence of excessive music levels in fitness facilities has not been conclusively documented, music volume exceeding the OSHA safety standards may be widespread in fitness classes.¹ In fact, Raymond Hull's 1991 review of music volume in fitness facilities found that 80 percent of the facilities surveyed played

music at levels above those designated safe by OSHA.¹ In addition, Hull noted that the instructor's voice, which needs to be heard over the music being played, creates even greater potential for hearing loss.¹

Since 1991, Hull has continued to document music volume in health clubs. In a recent study of group fitness classes in 110 clubs across the United States, he found that 80 percent of the facilities studied played music at about 105 dB, which is 15 dB above the OSHA guidelines.² In addition, 60 percent of the clubs played music at levels from 105 to 120 dB. Only 10 percent of the clubs played music at levels considered safe.²

In a 1999 study of 125 group fitness classes in health clubs, Kathleen Yaremchuk, MD, and Janet Kaczor, MD, found that the average noise levels ranged from 78 to 106 dB, with 79 percent of readings reaching 90 dB.¹² Class participants and instructors involved in this study reported fluctuating hearing loss and tinnitus 50 percent of the time.¹²

Based on these studies and the OSHA guidelines, Hull's advice is that it is generally safe for fitness instructors to be exposed to music at 90 dB for four hours in a row.²

If playing music at 90 dB is safe for a fitness class, why would it hurt to increase the levels to 95 dB, just 5 dB higher? The problem, according to OSHA, is that each 5 dB increase in sound pressure doubles the noise dose.¹³ The higher the intensity, the shorter the duration needs to be before participants incur increased risk of permanent hearing damage. For example, OSHA dictates that exposure to noise at 110 dB should not exceed 30 minutes.¹⁰ That means the music volume in some classes observed by Hull puts participants at risk for permanent hearing damage in just one 60-minute class.

Some instructors may set the volume higher than 90 dB because they want the music to be motivating and the loudness does not always register as painful. However, Hull says the average person's threshold for pain caused by noise is somewhere between 90 and 100 dB.² Health clubs he has consulted for that consistently lowered their music levels to 90 dB found that clients were happy with these levels and just as motivated.² To enforce these sound levels, some facilities

measure music volume with sound level meters and put a mark on the stereo to show instructors where to keep the volume so the decibels fall at 90.²

Vocal Problems for Instructors

Playing loud music can also exacerbate problems with an instructor's voice. Fitness instructors are vulnerable to vocal damage because they physically exert themselves while projecting their voices. Research shows that vocal abuse occurs because of several teaching behaviors, including shouting to be heard over loud music.^{14,15} Keeping the music at a reasonable level can help prevent this problem.

Legal Implications

Employers are responsible for enforcing the permissible exposure limit of 90 dB established by OSHA. Additionally, OSHA mandates that when any employee's exposure equals or exceeds an eight-hour time-weighted average of 85 dB, the employer "shall develop and implement an effective hearing conservation program."^{10,16} This program can include monitoring of noise exposure, audiometric testing and evaluation, hearing protection, training, education and record keeping.^{10,16}

Recommendations for Music Volume

Based on research and the safety standards established by OSHA,¹⁰ IDEA Health & Fitness Association makes the following music volume recommendations. Fitness professionals outside the United States are urged to refer to official guidelines established for their respective countries.

- Music intensity during group fitness classes should not exceed 90 decibels (dB).¹⁰
- Since an instructor's voice needs to be about 10 dB louder than the music in order to be heard, the instructor's voice should not exceed 100 dB.² Exposure at that level should last no longer than one hour.
- When information indicates that any employee's exposure may equal or exceed an eight-hour time-weighted average of 85 dB, the employer must develop and implement an effective hearing conservation program.^{10,16} Noise levels can be monitored using either a sound level meter, which measures sound intensity at a single point in time,

or a dosimeter, which measures intensity over a period of time.¹⁷ For specific guidelines on the use of these devices, fitness professionals should refer to OSHA's regulations on monitoring noise levels.¹⁷

- To motivate clients, fitness instructors should use creativity and enthusiasm instead of raising music volume; and they should educate clients about the risks of continuous exposure to excessive music volume.

Conclusion

While fitness facilities must legally protect their employees from excessive noise exposure, they also have a moral obligation to protect their clients. Although there is currently no standard regulation for monitoring recreational noise,⁵ clients should not have to choose between exercising for health and protecting their hearing. The value of loud music as a motivator is clearly overshadowed by the possible health risks that loud music creates for clients.

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