**Make Listening Safe**

(This text is extracted from the document "Hearing loss due to recreational exposure to loud sounds: a review" [1] and the WHO webpage on prevention of deafness and hearing loss [2])

Concern is growing about the rising exposure to loud sounds in recreational settings such as nightclubs, discotheques, pubs, bars, cinemas, concerts, sporting events and even fitness classes. With the popularization of technology, devices such as personal audio systems are often listened to at unsafe volumes and for prolonged periods of time. Regular participation in such activities poses a serious threat of irreversible hearing loss.

**Cause for concern**

The World Health Organization (WHO) estimates that:

* Around 466 million people globally live with disabling hearing loss due to different causes. This number is projected to rise in coming decades, unless action is taken to mitigate risk factors for hearing loss (WHO, 2018).
* 1.1 billion young people worldwide could be at risk of hearing loss due to unsafe listening practices (WHO, 2015).
* Among teenagers and young adults 12 to 35 years old in middle- and high-income countries (WHO, 2015):
  + Nearly 50% listen to unsafe levels of sound with the use of personal audio devices such as MP3 players and smartphones.
  + Around 40% are exposed to potentially damaging sound levels at nightclubs, discotheques and bars.

The increasing sales of smartphones, with 470 million devices sold globally in 2011 alone, is another indicator of potential risk. This increased accessibility and use of personal audio systems for listening to music is coupled with their use at high volume and for long durations. Such risk-associated behaviours can permanently damage hearing capacity.

**Noise-induced hearing loss is irreversible**

Exposure to loud sounds for any length of time causes fatigue of the ear’s sensory cells. The result is temporary hearing loss or tinnitus which is a ringing sensation in the ear. A person enjoying a loud concert may come out experiencing ‘muffled’ hearing or tinnitus. The hearing improves as the sensory cells recover. When the exposure is particularly loud, regular or prolonged, it can cause permanent damage of the sensory cells and other structures, resulting in irreversible hearing loss. The high-frequency range (i.e. high-pitched sounds) is impacted first and may not be noticeable immediately. Continued exposure leads to progression of hearing loss, ultimately affecting speech comprehension and resulting in a negative impact on the individual’s quality of life.

Some people may be more susceptible to noise-induced hearing loss than others. Genetic predisposition, chronic conditions such as diabetes and exposure to cigarette smoke are known to increase the risk of acquiring noise-induced hearing loss. Because one cannot tell who the most susceptible individuals are, prevention is the most effective way to avoid such hearing loss.

Noise-induced hearing loss can affect many aspects of life, including a person’s social and educational development and his or her ability to work. Beyond the risk of hearing loss, children and adults who live in noisy environments may face increased psychological stress and anxiety.

In young children, noise-induced hearing loss hinders language acquisition. Learning disabilities, anxiety and attention-seeking behaviours are also common outcomes of hearing loss. Chronic noise exposure in classrooms can impede academic performance in areas such as reading ability, comprehension, short- and long-term memory, and motivation. On average, children who are exposed to noisy learning environments have lower assessment scores on standardized tests.

Noise exposure in young people also contributes to age-related hearing loss. Inadequate hearing protection during activities such as watching football games or listening to loud music during adolescence may lead to hearing loss and significant communication difficulties later in life.

Listening to devices with earphones can also be unsafe in additional ways. For example, use during walking or cycling decreases auditory perception and increases the listener’s chances of being involved in a road traffic collision.

**What is safe listening?**

Safe listening levels depend on the intensity (loudness), duration (length of time) and frequency (how often) of the exposure. These three factors are interrelated and contribute to the overall sound energy level to which a person’s ears are exposed. The total amount of sound energy a person can safely receive is effectively constant. People can be exposed to the same amount of energy at lower volumes listened to over long periods of time as they might receive when louder sounds are heard for a short duration. Permissible levels of daily exposure to noise have been identified accordingly, taking into account the total acceptable ‘allowance’ of sound.

The output of personal audio devices may range from 75 dB to as high as 136 dB. The maximum output levels vary depending upon regulations and legislation in different countries. Typically, users of personal audio devices choose to set the volume between 75 to 105 dB. This is often much higher than the recommended safe levels.

At nightclubs, discotheques and bars, average sound levels can range from 104 to 112 dB; noise levels at pop concerts may be even higher. Patrons may expose themselves to the same level of loudness in 15 minutes of music at 100 dB than an industrial worker gets in an eight-hour day at 85 dB. Noise levels at sporting venues have been found to range from 80 to 117 dB. The average noise exposure during the Football World Cup in 2010 was as high as 100.5 dB. Even a short duration of exposure to high-decibel levels such as these can be harmful. Habitual exposure almost certainly leads to hearing loss over time.

**How to make listening safe**

*Keep the volume down*

The daily recommended safe volume level is below 80 dB for duration of a maximum of eight hours. Sounds may be too loud if people must raise their voice to make themselves understood to a listener; it is difficult for the listener to understand someone who is an arm’s length away; or listeners develop pain or a ringing sensation in their ear(s). Even a small reduction in volume can offer significant protection. Volume can be reduced when listening to personal audio devices by:

* Wearing earplugs. When frequenting nightclubs, discotheques, bars, sporting events and other noisy places, use earplugs as hearing protection. Well-inserted earplugs can help to reduce the level of exposure considerably. If inserted properly, earplugs can reduce the exposure by 5 to 45 dB, depending on the type of earplugs.
* Using carefully fitted, noise-cancelling earphones/headphones. Earphones and headphones which are suited to the individual user allow music to be heard clearly at lower levels of volume. In addition noise-cancelling earphones and headphones cut down the background noise, so that users can hear sounds at lower volumes than otherwise needed. For example, frequent users of personal audio devices on trains or airplanes should consider using noise-cancelling earphones or headphones in these settings.
* Respecting safe listening levels. Determining the safe listening level on personal audio devices by setting the volume to a comfortable level in a quiet environment to no more than 60% of maximum volume is another way to keep the volume down.

*Limit time spent engaged in noisy activities*

As indicated, the duration of the exposure to noise is one of the key factors contributing to overall sound energy levels. The duration can be minimized by:

* Having short listening breaks. When going to nightclubs, discotheques, bars, sporting events and other noisy places, people should take short listening breaks to help reduce the overall duration of noise exposure.
* Moving away from loud sounds. At a noisy venue, people should stay as far away as possible from sound sources such as loudspeakers. Moving to quieter locations within venues can reduce the level of exposure.
* Limiting the daily use of personal audio devices. While it is important to keep the volume down, limiting the use of personal audio devices to less than one hour a day would do much to reduce noise exposure.

*Monitor safe listening levels*

People should be empowered with the correct information about the safe listening of their personal audio devices by knowing the products and their safety features. Smartphone technology can be used to measure noise exposure levels and inform users about their risk for noise-induced hearing loss. Applications or “apps” accessible through the phones display noise intensity levels in decibels and indicate whether exposure is risky. These apps are easy to download and can be used to collect information about noise levels in the environment and the risk of hearing loss.

*Heed the warning signs of hearing loss*

People who suspect hearing loss should seek help from a hearing health care professional in case of tinnitus or difficulty in hearing high-pitched sounds such as doorbells, telephones or alarm clocks; understanding speech, especially over the telephone; or following conversations in noisy environments, such as in restaurants or venues for other social gatherings.

*Get regular hearing check-ups*

This helps to identify the onset of hearing loss at an early stage. High-risk populations including adolescents and young adults should be informed and encouraged to have regular hearing screening. In order to facilitate this, schools, workplaces and communities are encouraged to organize hearing screening opportunities.

Every individual has the responsibility to respect their hearing and listen safely. However, the onus of raising awareness and creating an environment that facilitates safe listening lies with all stakeholders including civil society, governments and industry.

**WHO’s response: Make Listening Safe**

In consideration of these facts, WHO launched the Make Listening Safe initiative [3] in 2015. The overall vision of this initiative is to ensure that people of all ages can enjoy listening with full protection of their hearing.

Its **aim** is **to reduce the risk of hearing loss posed by unsafe exposure to sounds in recreational settings.** In order to achieve this, WHO has identified three specific objectives.To:

1. Regulate exposure to loud sounds through personal audio systems
2. Change listening behaviours among the target population
3. Limit sound exposure in recreational settings

**References**

[1] <http://apps.who.int/iris/bitstream/10665/154589/1/9789241508513_eng.pdf?ua=1&ua=1> (visited 2018-09-05)

[2] World Health Organization programme for prevention of deafness and hearing loss <http://www.who.int/deafness/en/> (visited 2018-09-05)

[3] <http://www.who.int/deafness/make-listening-safe/en/> (visited 2018-09-05)

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