

# The Risk of Hearing Loss in Young Adults

## Disclaimer

The findings and conclusions in this article are those of the author and do not necessarily represent the views of the National Institute for Occupational Safety and Health.

## References

1. Noise exposure from leisure activities: a review. Clark WW. *J Acoust Soc Am*. 1991; **90**: 175-181.
2. Noise exposure and hearing loss among student employees working in university entertainment venues. Sadhra S, Jackson CA, Ryder T, Brown MJ. *Ann Occup Hyg*. 2002; **46**: 455-463.
3. The influence of socio-economic status on adolescent attitude to social noise and hearing protection. Widén SE, Erlandsson SI. *Noise Health*. 2004; **7**: 59-70.
4. Self-reported tinnitus and noise sensitivity among adolescents in Sweden. Widén S E, Erlandsson SI. *Noise Health*. 2004; **7**: 29-40.
5. Recreational noise exposure and its effects on the hearing of adolescents. Part I: An interdisciplinary long-term study. Serra MR, Biassoni EC, Richter U, Minoldo G, Franco G, Abraham S, Carignani JA, Joeques S, Yacci MR. *Int J Audiol*. 2005; **44**: 65-73.
6. Recreational noise exposure and its effects on the hearing of adolescents. Part II: Development of hearing disorders. Biassoni EC, Serra MR, Richter U, Joeques S, Yacci MR, Carignani JA, Abraham S, Minoldo G, Franco G. *Int J Audiol*. 2005; **44**: 74-85.
7. Avaliação dos Limiares Auditivos de jovens e sua relação com hábitos de exposição à música eletronicamente amplificada. Jorge Júnior JJ. *Doctoral Dissertation*. Department of Otolaryngology, University of São Paulo, São Paulo. 1993. 102 pp.
8. On the relation between exposure to sound and auditory performance. Fleischer G, Muller R. *Proceedings of the SAE 2005 Noise and Vibration Conference and Exhibition*. May 2005, Grand Traverse, MI, USA, 2005.
9. Noise-induced hearing loss in young adults: the role of personal listening devices and other sources of leisure noise. Mostafapour SP, Lahargoue K, Gates GA. *Laryngoscope*. 1998; **108**: 1832-1839.
10. Early noise-induced hearing loss in teenage boys. Axelsson A, Jerson T, Lindberg U, Lindgren F. *Scand Audiol*. 1981; **10**: 91-96.
11. Hearing loss at age 7, 10 and 13 - an audiometric follow-up study. Costa OA, Axelsson A, Aniansson G. *Scand Audiol Suppl*. 1988; **30**: 25-32.
12. Holes in the reticular lamina after noise exposure: implication for continuing damage in the organ of Corti. Bohne BA, Rabbitt KD. *Hear Res*. 1983; **11**: 41-53.
13. Noise-induced degeneration in the brain and representation of inner and outer hair cells. Morest DK, Bohne BA. *Hear Res*. 1983; **9**: 145-151.
14. Longitudinal threshold changes in older men with audiometric notches. Gates GA, Schmid P, Kujawa SG, Nam B, D'Agostino R. *Hear Res*. 2000; **141**: 220-228.
15. The influence of ageing on noise-induced hearing loss. Rosenhall U. *Noise Health*. 2003; **5**: 47-53.
16. Acceleration of age-related hearing loss by early noise exposure: evidence of a misspent youth. Kujawa SG, Liberman MC. *J Neurosci*. 2006; **26**: 2115-2123.
17. Trends in the prevalence of hearing loss among young adults entering an industrial workforce 1985 to 2004. Rabinowitz PM, Slade MD, Galusha D, Dixon-Ernst C, Cullen, MR. *Ear Hear*. 2006; **27**: 369-375.
18. Interventions to promote the wearing of hearing protection. El Dib RP, Verbeek J, Atallah AN, Andriolo RB, Soares BG. *Cochrane Database Syst Rev*. 2006; **19**: CD005234.

## PREVENTING NOISE INDUCED HEARING LOSS IN FUTURE GENERATIONS

### Gael Hannan

Manager of Programs / Hearing Health Advocate  
The Hearing Foundation of Canada  
80 Richmond Street West, Ste. 1401  
Toronto, Ontario M5H 2A4  
Canada

Email: ghannan@hearingfoundation.ca  
Website: www.hearingfoundation.ca

Take a moment to consider the listening behaviour of those around you every day. You can often hear a thumping car stereo before you see the car coming down the street. Riding public transport, you hear the music coming from the headphones of your fellow riders. If you attend concerts and clubs, your ears may ring for days afterwards. If you have children, the noise from their video game battles can be heard in every corner of the house.

These types of listening behaviour have become increasingly common in recent years. Yet have we really thought about the impact it may have on our hearing? At the Hearing Foundation of Canada, we have become concerned that this amounts to a huge, unregulated, although unintentional experiment that exposes the general population – especially young people – to the risk of noise-induced hearing loss.

### Sound Sense

Several years ago, reacting to alarm bells set off by Canadian and international researchers, the Hearing Foundation became increasingly concerned about this issue and its impact on the future of our young people. As a result, the Hearing Foundation designed, with the help of the

Ontario Trillium Foundation – an award winning and unique preventative education programme called *Sound Sense/Oui à l'ouïe*.



Students learn just how loudly they listen to their MP3 players

# Preventing Noise Induced Hearing Loss

*Sound Sense* is a hearing health programme designed to teach elementary school students about the dangers of noise-induced hearing loss. This programme, available in English and French, complements the Healthy/Active Living module within most provincial elementary school curricula. *Sound Sense* focuses on the value that young people place on music as a way to engage them in a discussion about their hearing. For students who are at the start of the active, noisy teenage years, music becomes increasingly important – because how they listen to music will likely play a key role in preventing noise-induced hearing loss.

## The Sound Sense Programme

The Sound Sense Programme is delivered by trained facilitators, including audiologists and people with existing hearing loss. The classroom presentation includes:

- Interactive discussions that make students aware of how their hearing connects them to others and the world around them
- A partially animated DVD that shows how hearing works and the fundamentals of noise-induced hearing loss



Spike is the engaging host on the *Sound Sense* programme DVD

- Testing of students listening levels using a sound meter and MP3 player
- Discussions on ways to practice safe listening
- Take-home materials for students (earplugs, stickers) and parents (information sheets)
- Materials for teachers that include posters, a backpack for programme materials, and fact sheets on improving classroom acoustics.

By establishing *Sound Sense*, the Hearing Foundation is building on a growing body of international research that is indentifying hearing loss at younger ages and that is showing the value of preventative education. For example, the Royal National Institute of Deaf People, in the United Kingdom, highlights a Norwegian study where the incidence of some form of hearing loss among 18 year-olds increased from 15% to 35%, within the space of 10 years. This was strongly linked to an increase in leisure noise exposure. Within seven years of beginning a comprehensive public information campaign, however, these levels dropped by more than half, to 15%. Early results from a scientific outcome study by Vancouver researchers are showing that *Sound Sense* may have a similar impact on Canadian students.

In the past several years, the *Sound Sense* message has been delivered to more than 3,000 elementary schools across Canada. As part of its long-term strategy to deliver the message of noise-induced hearing loss, the Hearing Foundation is now in the early stages of piloting a complementary programme to engage high school students. These students are in their prime listening years and are exploring lively social activities and playing their music loudly.

## The Hearing Foundation: High School Students, Medical Researchers and Musicians

In the fall (autumn) of 2008, the Hearing Foundation brought together high school students (including many with hearing loss), medical researchers, musi-

cians and songwriters for Canada's first 'Youth Listening Summit'. In two days of discussions, research briefings and other activities, this diverse group designed the basics of what will become an interactive presentation for Canadian High School students. Using a mix of live presentations by working musicians and using social media such as Facebook<sup>a</sup> and Twitter,<sup>b</sup> the programme will engage high school students on their own terms in a discussion on listening behaviour and hearing loss.

This programme will be piloted in three high schools in Ontario, Canada, by mid-2009 and, then, evaluated to determine how best we can use this model to involve students across the country.

While the elementary school *Sound Sense* programme and its emerging high school counterpart are on the front lines of addressing what we believe is a growing public health challenge, much more needs to be done. The Hearing Foundation of Canada is only one of many non-profit organisations across the world that are trying to highlight the challenge of noise-induced hearing loss, with the purpose of alerting and advising governments, health care providers, researchers and the public.

<sup>a</sup>Facebook - Facebook is a social networking website that is operated and privately owned by Facebook Inc (Wikipedia)

<sup>b</sup>Twitter - Twitter is a free social networking and micro-blogging service that enables its users to send and read messages known as tweets. Tweets are text-based posts of up to 140 characters displayed on the author's profile page and delivered to the author's subscribers who are known as followers (Wikipedia)

For more information on the Foundation's work, please visit [www.hearingfoundation.ca](http://www.hearingfoundation.ca)