

Hearing Safety

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Why is it vital to have your newborn baby's hearing screened?

"Hearing loss is one of the most common conditions present at birth and occurs more than any other condition for which newborn screening programs already exist."

Joanne Charlebois
Executive Director,
CASPLA
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It is vital to check the hearing health of your newborn **by one (1) month of age** because undiagnosed conditions that can cause developmental delays can be avoided with screening. If hearing loss is confirmed, an appropriate intervention should be in place by six (6) months of age

"Most deaf and 'hard of hearing' children whose hearing loss is identified early, and who receive the support they need, will develop appropriate communication and will be able to develop to their full potential alongside their peers," says Joanne Charlebois, Executive Director of Canadian Association of Speech-Language Pathologists and Audiologists (CASPLA).

"The prevalence of hearing loss in newborns ranges from one to three per 1000; equal to **approximately 1100-1200 new cases in Canada per year**. In children with high risk factors for hearing loss such as prematurity or low birth weight, the prevalence of

hearing loss can be as high as one in 100.

Hearing loss can affect a child's understanding and use of language as well as many other aspects of their development. Research shows that communication development in children with hearing loss is delayed compared to children with normal hearing. There is clear evidence that early identification of hearing loss can significantly reduce these negative consequences; which is why organizations like the Canadian Association of Speech-Language Pathologists and Audiologists (CASPLA) and VOICE for Hearing Impaired Children are working hard to make universal newborn hearing screening (UNHS) a reality across Canada."

Universal Newborn Hearing Screening

- ➔ Screening tests are quick, easy, painless and cost-effective.
- ➔ UNHS is a standard of care in Canada with the exception of Alberta, Saskatchewan, Manitoba and Newfoundland. A program is presently being implemented in Quebec.



Important Factors



- ➔ Babies who are deaf babble for a few months and then stop.
- ➔ Newborns can be tested for hearing loss and fitted with a hearing aid.
- ➔ Specialized testing used with neonates is non-invasive and can assess hearing in each ear.
- ➔ An audiologist is the primary health care professional who evaluates, treats, and guides you and your family to manage hearing loss and balance disorders.

In 2008, the **Canadian Association of Speech-Language pathologists and Audiologists** (CASLPA-ACOA) revised the 2008 Hazardous Products Act for noisy toys. Their primary concern are toys that possess unacceptable noise conditions which have the potential to harm children's hearing and lead to serious communication and learning difficulties.

In Canada, regulations exist under the '*Hazardous Products Act*', which bans toys emitting noise levels exceeding 100 decibels (dB). While CASLPA supports Health Canada's efforts to protect children's hearing, they have found that 100 dB is an unsafe level, and can result in noise-induced hearing loss, therefore, they are continuing to re-examine and research safer levels to protect children's hearing.

The toy industry in Canada is a 1.4 billion dollar business. Over 60% of children's toys are manufactured in China and due to the numerous recalls that have occurred over a short period of time, the Canadian Government has been forced to consider the important issues of toy safety and:

1. conduct research on potential hazards associated with consumer products,.
2. raise awareness of potential risks of injury through product safety advisories, warnings and recalls; and
3. develop and enforce product safety regulations and standards.

Facts About Hearing Health and Noise



- ➔ The majority of toys (53%) designed for the 0-3 age group are held much closer to the ear than the distance specified in the current law's measurement protocol and therefore it was observed that a large majority of toys are likely to cause hearing loss in the long run, even with very short periods of use.
- ➔ Canadian consumers feel protected and trust that the products they purchase for their children are safe, but are unaware that the current noise level regulations are not only inadequate but could potentially cause irreparable damage to their children's hearing.
- ➔ Children are more susceptible to the effects of noise because they have smaller ear canals therefore sound travelling will arrive at their eardrums at a greater intensity than an adult who has a larger ear canal. Repeat exposure wears down the hair cells in the ear and eventually causes permanent damage.
- ➔ The World Health Organization defines the noise safety limit for children at 75 dB (decibels).
- ➔ Toys found in the Canadian marketplace exceeded the 100 dB level imposed by the current **'Hazardous Products Act'**.
- ➔ Toys come from anywhere and everywhere! They can be purchased on the internet or in any foreign country where noise standards for children do not exist.
- ➔ Children who suffer hearing loss caused by excessive noise have a decreased quality of life and educational experiences, as well as potential effects including tinnitus, balance problems, nausea, tension, anxiety, sleep disturbance, irritability and headaches.
- ➔ **Loud toys are an under-recognized hazard to infants and children.**

DID YOU KNOW?

- ➔ To clean the outer ear use a damp, soft wash cloth, alcohol based wipes or a cotton swab (Q-tip).
- ➔ Never use a Q-tip to clean the inner ear because if it is inserted it could push wax further into the ear canal causing impaction.
- ➔ Do not use household objects or anything sharp such as car keys, pens or toothpicks to clean the ear.
- ➔ Ear wax is naturally produced to protect your eardrum from potential hazards such as unwanted bacteria, insects and water. A small amount of ear wax is healthy to have in the ear canal.
- ➔ Use baby oil, mineral oil or olive oil as a softener to loosen excessive build-up of wax.

Children and noise

MAGNITUDE AND EFFECTS OF SOUND

COMMON EXAMPLE	dBA	EFFECT
Breathing	0-10	Hearing threshold
Conversation at home	50	Quiet
Freeway traffic (15 m), vacuum cleaner, noisy party	70	Annoying , intrusive, interferes with phone use
Average factory, train (at 15 m)	80	Possible hearing damage
Jet take-off (at 305 m), motorcycle	100	Damage if over 1 minute
Thunderclap, textile loom, chain saw, siren, rock concert	120	Human pain threshold
Toy cap pistol, Jet takeoff (at 25 m), firecracker	150	Eardrum rupture

CHILDREN AND NOISE: SETTINGS

Noise at home	50 - 80 dB A
Home appliances	78 - 102 dB A
Noise in incubators	60 - 75 dB A, peak sounds 120 dB A
Noise in hospitals	> 70 dB A
Day-care institutions	75 – 81 dB A
Noise from toys peak sounds	79 - 140 dB A
Background noise in schools	46.5 – 77.3 dB A

IMPAIRED COGNITIVE FUNCTION

- ❖ Chronic noise exposure impairs cognitive function
 - Reading comprehension
 - Long term memory
- ❖ Dose-response relationships
 - Supported by both laboratory and field studies
- ❖ Study of possible mechanisms and noise reduction interventions
 - Tuning out of attention / concentration
 - Impairment of auditory discrimination

"...hearing is a precious gift that must be safeguarded for life."

Children and youth are vulnerable to hearing loss because they are undulated with noise through their entertainment choices, i.e. digital audio players, smartphones, gaming consoles, car stereos, concerts, and dance clubs. The American Medical Association revealed in a recent study that one in five teens now has some degree of hearing loss, a 30% increase over the preceding decade. Exposure to noise seems to be a significant factor to this unprecedented incidence of hearing loss in teenagers and young adults, given the fact that ear infections have dropped by 30% over the same decade.

In 2006, the Hearing Foundation of Canada launched its '**Sound Sense Program**', teaching children in elementary schools how to avoid noise induced hearing loss and "save their hearing for the music". In 2011, the program reached over 14,000 children and their families in 400 schools across Canada. Their mission is to obtain a partnership with the government and non-profit organizations that will allow them to reach every child and every parent with the message that hearing is a precious gift that must be safeguarded for life.

Music occurs outside of the major frequencies of the human voice and over exposure to loud music causes loss of discrimination at low frequencies which may not be detected without formal testing for years. 'Walkman' equipment is designed for emissions not higher than 80 dB, but the combination of an immature hearing system and prolonged use may cause cumulative damage. Technology can be modified to bypass factory-imposed limitations and result in very loud music/noise exposure. Loss of concentration because of the focus on the music, in the presence of a potentially dangerous situation makes a young person more vulnerable to accidents.



Teenagers should be instructed to use personal hearing protection as soon as they start being exposed to high noise levels, not only at work, but also at technical and polytechnical schools. If noise-abatement measures are not taken, good hearing will not be preserved and noise-induced tinnitus will not be prevented. The extent of hearing impairment in teenagers caused by occupational noise exposure, and exposure at technical and polytechnical schools is unknown. There are insufficient numbers of studies on somatic, psycho-social and behavioural effects of noise in teenagers.

Safety Tips to Protect your Children's Hearing

- ➡ Purchase toys that have on/off switches.
- ➡ Purchase toys with volume control. If a toy seems too loud for your ears, it is probably too loud for your child.
- ➡ Check for noise level labels on toys.
- ➡ Teach your children about the potential danger to their ears from noisy toys and noisy activities. These types of toys include cap guns, musical toys, toy phones, horns, sirens, and



even squeaky rubber toys, which can produce noise as high as 90 to 120 decibels. Noise at this level is painful and can result in permanent hearing loss.

- ➔ Teach your children the proper way to handle their toys. Toys should be played with at arms length, not at face/ear level.
- ➔ Reduce time your child spends playing with noisy toys.
- ➔ Monitor the noise level of your children's environment, i.e. home, school, child car settings, etc.
- ➔ Supervise young children when they play with toys that emit sounds.
- ➔ Turn down the volume of toys with headsets, i. e. personal stereos.
- ➔ Purchase alternate toys such as books and puzzles that target language and literacy skills.
- ➔ Always buy toys from trustworthy shops and online outlets. They care about the toys they sell and will usually accept returns. Rogue traders, however, tend to ignore health and safety needs and may also deal in fake toys. Carefully check toys purchased online, toys given to children as gifts, and toys bought second-hand.
- ➔ Read all warnings and instructions. Be aware of age and safety recommendations – take them seriously.
- ➔ Share these tips with friends and relatives that may be purchasing toys for your child.

Hearing Organizations

Canadian Working Group on Childhood Hearing (CWGCH) provides leadership in the development and dissemination of guidelines for early hearing detection and intervention in Canada. Please click on [Canadian Working Group on Childhood Hearing \(CWGCH\)](#) to obtain more information or email them at CWGCH@hc-sc.gc.ca).

The **Canadian Association of Speech-Language Pathologists and Audiologists (CASPLA)** is the national professional association representing speech-language pathologists, audiologists and supportive personnel. For more information, news updates, articles and resources related to communication disorders please visit www.speechandhearing.ca

VOICE for Hearing Impaired Children is a parent support organization that strives to ensure that all children with hearing loss have their rights upheld with access to services with developing their abilities to learn to HEAR, LISTEN and SPEAK. For more information please go to www.voicefordeafkids.com or call 1-866-779-5144.

The Hearing Foundation of Canada (THFC) is a national non-profit, charitable organization committed to eliminating the devastating effects of hearing loss on the lives of Canadians by promoting prevention, early diagnosis, leading edge medical research and successful

intervention. For more information please go to www.hearingfoundation.ca or call them at 1-866-HEAR YOU (432-7968).

References and Resources

1. [Canadian Association of Speech-Language pathologists and Audiologists \(CASLPA-ACOA\)](#)
2. [Health Canada – Hazardous Products Act](#)
3. [World Health Organization – Children and Noise](#)
4. [Children's Health & the Environment – A Review of Evidence. Tamburlini G. et al., eds. EEA- WHO](#)
5. [The Hearing Foundation of Canada \(THFC\)](#)

