There has been increasing interest in recent years in noise-induced hearing loss among youth from headphone use. However, there are no specific guidelines for the safe limits of exposure to noisy toys for children. Federal regulations specify continuous sounds produced by toys close to the ear should not exceed 65 dBA while all other toys shall not exceed 85 dBA. Nevertheless, many toys exceed these exposure limits.

The purpose of this study is to empirically assess the noise reduction impact of these simple measures—applying tape or glue to the speakers—on a standard group of toys.

Methods and Materials

All toys from the 2010 SHA list (n=18) were tested with a handheld digital sound meter in a standard Position (5.0 cm at speaker (estimated toy near face) and 25 cm) (estimating toy at child’s arm length) from the speaker for each of three conditions: open speaker, taped speaker, and glued speaker.

Pair t-tests were performed to assess mean dBA differences between the following conditions: Open speaker vs. Tape at 0 cm, 25 cm, Open speaker vs. Glue at 0 cm, 25 cm, Tape vs. Glue at 0 cm, 25 cm. The null hypothesis tested was that there was no difference between observations. A two-tailed P-value with Bonferroni adjustment was performed. A P-value <.008 was considered statistically significant because of six comparisons.

Fisher’s exact test was performed to assess percentage of toys 85 dBA and greater before and after interventions. Eighty-five decibels was chosen as a cut off due to published literature indicating that levels below that are safe for most people.

There was no statistical difference in noise level between tape or glue. Tape can be easily applied and the toy can be ready for use immediately. However, parents should be cautioned that in young children, a small piece of tape or glue may be removed by the child and has the low but real risk of serving as a choking hazard. Glue offers a more permanent solution with less risk of aerodigestive foreign body. In the set of toys tested, placement of tape or glue did not seem to alter the function of the toy. It is possible that in some toys, the ventilation of the electronic components may rely on the openings covering the speaker outlet.

Discussion

There are many common, commercially available toys that produce electronic noises that are exceedingly loud. Simple alterations to the toy with tape or glue can significantly reduce the noise produced making them safer for children. Further work is needed to cooperate with toy manufacturers to create toys that are quieter. Until then, this simple method may be included as part of safety counseling of parents or caregivers during normal well-child checks.

References


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