Introduction

• Members of drum and bugle corps rehearse and perform upwards of 12-14 hours per day for approximately 80 days each summer. A recent study revealed sound level exposures exceeding 90 times the recommended noise dosage according to the National Institute for Occupational Safety and Health (NIOSH) standards placing these individuals at risk for muscle induced hearing loss (Presley, 2007).

• In this study, none of the participants wore hearing protection devices (HPDs). This appears to be typical in this population. However, factors specific to non-use in drum and bugle corps have yet to be uncovered.

• The purpose of this study was to uncover the effects of hearing conservation education to include otoacoustic emissions screenings (OAE) and an educational presentation on the attitudes of percussionists in drum and bugle corps. Pre- and post-surveys were administered using a 5-point Likert Scale to assess knowledge base and attitudes towards hearing and use of hearing protection.

Methods

• 69 participants from two drum and bugle corps located in the Midwest
  * 81% male, 19% female
  * Mean age: 20.2 years (range 18-31 years)
  * Instruments played included 15 snares, 10 tenors, 10 bass drums, 6 cymbals, 28 front ensemble

• Procedures:
  * Pre-survey and OAE screenings
  * Educational Presentation: Noise Exposure, Hearing Loss, HPDs (all participants were given Ety-Plugs™)
  * Post survey (returned within a week following the presentation).

• Data analysis: Chi-Square “Goodness of Fit” Test

Knowledge about Noise Exposure

- A2: If the environmental noise is too high, adjusting the volume of the iPod louder could make the noise go away. (Chen et al., 2008)
- A5: Noise and loud sounds are natural parts of our society. (Widen et al., 2009)
- A7: I need to hear everything in my environment, regardless of how loud. (D11)
- C7: If I can’t tell I have a hearing problem, then I probably don’t have any hearing loss. (Chen et al., 2008)

Knowledge about Noise Exposure

Hearing Damage & Treatment

- C1: Medication and surgery are able to cure hearing loss and bring it back to normal levels. (Chen et al., 2008)
- C5: If I can’t tell I have a hearing problem, then I probably don’t have any hearing loss.

Hearing Protection Use

- B7: It is unnecessary to use earplugs when I am at rock concert, dance or sporting event. (Widen et al., 2006)
- D11: Using hearing protection will make it hard to hear instructions on the field and in the (press) box.

Results and Discussion

• Three additional questions in the post-training survey assessed the effectiveness of the training on HPD use. Participants expressed that they were more likely to wear HPDs as a result of:
  * Being educated about the options regarding hearing protection designed for musicians (87%)
  * Learning the results of their individual OAE screening (90%)
  * Experiencing simulations of tinnitus and hearing loss (86%)

• From pre- to post-survey, there was a significant positive change in attitude toward HPDs (p = 0.021).

• This study targeted three areas of participant knowledge:
  * Noise exposure: These results supported the hypothesis that many young adults have received limited education regarding the dangers of noise exposure. The educational program appeared to positively impact attitudes toward noise.
  * Noise induced hearing loss and treatment: Over half of the participants (56%) were unaware that medication and surgery cannot cure hearing loss prior to educational intervention. Twenty-two percent were not aware prior to intervention that they could have hearing loss without noticing, which decreased to 10% following intervention.

• Hearing Protection Devices (HPDs): Of concern was the finding that after the training, a majority (64%) of participants maintained the attitude that using HPDs would make it hard to hear instructions. This finding indicates a need for further investigation of the effects of HPDs on listening and playing in an ensemble and how to overcome these issues.

Acknowledgements


References


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