

be interesting to conduct experiments with CI subjects without musical background in future studies.

**Conflicts of interest:** All authors declare no actual or potential conflicts of interest.

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### Primary hearing health: action to raise awareness on secondary education

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**Keywords:** health literacy, school, noise, hearing loss

**Background,** With the evolution of technology, young people increasingly use portable devices for entertainment, learning and as a means of communication. Most of the use of these devices involves excessive and unnecessary exposure to noise and/or high intensity sounds, which can cause hearing loss. The aim of this work was to know the receptiveness on lecturing sessions to raise awareness of hearing health and risk behaviors in the eighth year of secondary education and what are the activities/exercises more appropriate for knowledge consolidation.

**Materials and Methods,** Within the curricular unit “Clinical Education” programme of the bachelor of science degree in Audiology from the School of Health, Polytechnic of Porto (ESS-P.Porto), a lecture was held to raise awareness for students attending the eighth year of secondary education, complemented with a set of age-appropriate activities, promoting hearing health literacy. The acquisition of knowledge was assessed with 3 activities: legend of figures (first), matching pictures (second) and cross-words (third).

**Results,** A total of 98 students (47 female and 51 male) participated, regarding the number of 100% Correct/Wrong answers completed, the first activity with a score of 30/0, the second 1/12 and the third a score of 8/16. It appears that figure labelling (first activity) is the most effective for content acquisition, comparing to the crosswords with the lowest score (16 students not hit a single correct answer) may be due to the complexity of the terms (anatomy and symptoms): “eardrum, stapes, incus, malleus, cochlea, sound, ear wax, tinnitus, otitis, deafness”.

**Conclusions,** The educational sector, due to its scope, is an important partner for the implementation of awareness and promoting individual and group preventing behaviors, aiming to the well-being of the entire school community. Thus, secondary education schools are the best institutions for health literacy on hearing preservation, being the figures labeling the most effective knowledge consolidating activity in 8th grade.

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### P300: hemispheric differences with verbal and non-verbal stimuli and age effect

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**Keywords:** P300; Verbal and non-verbal stimuli

**Background:** P300 is a result of focusing attention on rare stimuli, among other stimuli and investigates skills such as attention and memory. The latency of the P300 is an evaluation parameter that changes with age and acoustic signal processing occurs differently between verbal and non-verbal stimuli, and may interfere with latency and amplitude patterns. This study aims to verify if there are hemispheric differences when comparing the values of latencies and P300 amplitudes with verbal stimuli and nonverbal stimuli, and to evaluate the effect of age.

**Material and Methods:** Twenty-five individuals from both genders in the age group of 20 to 55 years were divided into two groups, which differed in terms of age, being a group of 20 to 39 years and another group of 40 to 55 years. We evaluated P300 right and left results with verbal and nonverbal stimuli.

**Results:** There were no statistically differences between the two groups of different ages; in comparison with the two types of stimulus, was only significant in the right ear for both verbal stimuli as nonverbal; between the two ears only when the stimuli were verbal.

**Conclusion:** It is important to note that latencies and amplitudes show differences only in right ear with both types of stimuli and between the ears is only significant when the stimuli are verbal.

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### Usher syndrome - hearing and balance disorder plus visual impairment

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**Keywords:** Usher syndrome, hereditary hearing loss, vestibular dysfunction, retinitis pigmentosa

**Background:** Usher syndrome is characterized by the association of sensorineural hearing loss with or without vestibular dysfunction and visual impairment (retinitis pigmentosa). With a prevalence estimated to be 3-8 per 100,000 individuals, Usher syndrome can be divided in three types, where type I is the most severe form. Most individuals with Usher syndrome type I are born with severe to profound hearing loss, abnormalities of the vestibular system and progressive vision loss becomes apparent in childhood. Usher syndrome type II is characterized by mild to severe hearing