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# Temporary hearing threshold shift at the Valpaços Scouts Fanfare

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## **INTRODUCTION:**

Noise is present in our daily life at several places and activities, i.e., at home or at work, or even when we listening to music. Without noticing, we can be exposed, directly or indirectly, to high levels of sound pressure that sometimes are assessed as harmless because they are enjoyable. This is the case of music. In general, music is seen as an enjoyable sound, and can be listened by hobby or due to professional activities. However, when exposed to high levels of sound pressure, health effects can arise, particularly at hearing level (Sataloff, 2006). Noise- induced hearing loss, tinnitus, hyperacusis, diplacusis and implications in performance are some of the effects found in previous studies with professional musicians, particularly in classic musicians (O'Brien *et al.*, 2008). However, other groups of musicians, mainly non-professional musicians can also be exposed to high noise levels. The scouts' fanfare musicians are one of these groups. The noise levels in the course of rehearsals and performances can be high and carried out in places with poor acoustical conditions. Furthermore, most of the musicians making up these groups have low sensibility to the noise problem, and no risk reduction measures are implemented. Bearing this in mind, it is important the analysis of the problem related with fanfare musicians noise exposition.

## **OBJECTIVES:**

This work aims to analyse the temporary hearing threshold shift at the Valpaços Scouts Fanfare due to the noise levels exposition in the course of rehearsals.

## **MATERIALS AND METHODS:**

Measurements of the noise level and audiological evaluation were performed at Valpaços Scouts Fanfare. A total of 42 subjects, 16 females and 26 males, with ages between 13 and 43 years old, took part in this study. Sound pressure levels exposure has been evaluated with acoustic dosimeters during the entire rehearsal. Before and after music performance, audiological evaluation took place including otoscopy, pure tone audiometry, tympanogram and acoustic reflex test.

## **RESULTS AND DISCUSSION:**

The group showed a temporary hearing threshold shift in both genders ( $p < 0.05$ ). The frequencies 1000Hz and 2000Hz were less affected in both ears. It was found significant statistical differences between the hearing threshold in both ears when the right ear is exposed to higher sound levels ( $p < 0.05$ ). No significant differences exist between both ears ( $p > 0.05$ ) when the left ear is the most exposed. The obtained results for the audiological acuity are related with the high noise levels found in the course of rehearsals. The values of LAeq ranged between 94.8dB(A) and 105.0dB(A) and the values LCpico between 135.1dB(C) and 138.3dB(C). In fact, the values of noise levels found in this study are higher than the values found in other research studies with other type of musicians (MacDonald *et al.*, 2008; O'Brien *et al.*, 2008), suggesting that despite the lower time spend in group rehearsals, the noise levels that fanfare musicians can be exposed are also worrying.

## **CONCLUSION:**

The Valpaços Scouts Fanfare members show a temporary hearing threshold shift due to the sound pressure levels exposition in the course of rehearsals. Temporary, yet significant, this auditory changes place this

musicians at risk for hearing loss. In due to prevent it, is necessary to raise awareness to the problem and develop hearing conservation programs directed to this population.

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