

Abstract EFAS/DGA 2007

Impact of impulsive noise after shooting on hearing assessment using Pure Tone Audiometry, High Frequency Audiometry and Otoacoustic Emissions registration.

Kantor, I., Jurkiewicz, D., Usowski, J., Rapiejko, P.

ENT Department of the Military Medical Institute in Warsaw. Poland

When we attempt to evaluate risk of noise and implement preventive actions of hearing organ damage it is predominantly important to evaluate influence of noise on humans in real life situations. It concern especially impulsive noise occurring during shooting. In cases of exposure to impulsive noise the only method of hearing organ evaluation is through the assessment of TTS (temporary Threshold shift).

The aim of the study was hearing assessment in soldiers' thus after exposure to impulsive noise during military shooting exercises. Hearing assessment was performed using Pure Tone Audiometry (PTA) for air conduction, High Frequency Audiometry (HFA) (ranges from 10 000 Hz to 16 000 Hz) and using Spontaneous Otoacoustic Emission (SOAE), Click Evoked Otoacoustic Emissions (TEOAE) and Distortion Products of Otoacoustic Emissions (DPOAE). Hearing assessment was performed before shooting and immediately after shooting with hearing protectors, after shooting without hearing protectors (up to 10 minutes after shooting). No statistically significant deviations was found for all examined frequencies in PTA, HFA and in Otoacoustic Emissions for right and left ear in tests done at the same time. TEOAE rise is a compared by lower results of threshold audiometry. It means that a negative correlation between TEOAE Otoemission results and PTA results is also characteristic.

Only connection of PTA, HFA and SOAE (evaluation of number of registered peaks before and after shooting) and TEOAE can help in early detection of hearing impairment caused by exposition to impulsive noise during shooting.

