

# Ocena przydatności ochronników słuchu podczas narażenia na działanie hałasu impulsowego

The evaluation of usefulness of hearing protectors while exposure to impulse noise

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## Summary

**Introduction.** It is generally agreed that impulse noise that occurs mainly in industrial processes, military forces and recreational target practice and hunting is especially hazardous to the ear. From the physical point of view the phenomenon is defined as an acoustic pressure disturbance of short duration less than 1 sec and high intensity with the peak sound pressure levels greater than 100 dB SPL. **Materials and methods.** The study included 80 subjects (160 ears) aged 19-23 with correct tympanic membrane and thresholds measured by pure tone audiometry less than 20 dB. They were divided into two groups: I comprised 40 recruit soldiers put to the shooting training and group II consisted of 40 recruit soldiers using hearing protectors during shooting. Transient evoked otoacoustic emission (TEOAE) measurements were performed by ILO 292 Echoport Otodynamics device 3-5 min before shooting and then 2 min, 1, 2 and 3 hours respectively after shooting in both groups. **Results.** It was found that the gunshot impulse noise from kbk AKMS rifle caused in group I temporary hearing threshold shift (TTS) for 1, 2, 3, 4 and 5 kHz frequencies of 1,07; 0,96; 1,41; 0,88 and 1,25 dB SPL respectively. TTS turned out to be maximum at 4 and 5 kHz and minimum at 1 and 2 kHz. In group II the soldiers used ear-muffs post-exposure changes were not significant. **Conclusions.** Short-term impulse noise generated by the rifle gunshots induced threshold shift of hearing. The usage of hearing protectors should be highly recommended because most of them seem to sufficiently attenuate impulse noise from firearms should be highly recommended because most of them seem to sufficiently attenuate impulse noise from firearms.