

Szacowanie ryzyka uszkodzenia słuchu u żołnierzy służby zasadniczej

Evaluation of the risk on hearing loss at soldiers

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Summary

Introduction: Noise produced by weapons may be harmful to soldiers during military service. Exposure to impulse noise during compulsory military service depends on the number of shots, explosion impulses, distance of injured ear from causal firearm as well as on the use of hearing protectors. Weapons produce impulse noises, which are characterized by peak pressure level and frequency. The purpose of this work was to calculate and estimate risk on hearing at soldiers during one year of the military service. **Material and methods:** The study compared three groups of soldiers with different kind of exposure to noise divided according total noise exposure. In order to evaluate the amount of the exposure to impulse noise the total level of noise and the spectrum analysis were performed for all types of weapons, which were used during military service. The equivalent continuous A-weighted sound pressure level, $L_{A_{eq, T_e}}$ [dB], maximum A-weighted sound pressure level, $L_{A_{max}}$ [dB] and C weighted peak sound pressure level, $L_{C_{peak}}$ [dB] were measured. **Results:** The highest total exposure to noise concerned group I (2222,9 kPa²/s for right ear and 22212,8 kPa²/s for left one) with total exposure time 248,3 minutes. In the II group estimated total exposure to noise was 611,8 kPa²/s for right ear and 743,6 kPa²/s for left one. In the III group least exposed to noise, estimated total exposure to noise was 103 kPa²/s for right ear and 109 kPa²/s for left one with total time exposure 17,8 minutes. **Conclusions:** Difference between groups is dependent on kind of military service. Estimated exposure to weapons noise may prevent soldiers before hearing loss. We did not notice differences between sites of ears.