

# Analysis of the impact noise on the hearing of military personnel of special operations: a proposal for prevention

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The practice of shooting is an activity that exposes the military to impact noise. The effects of this type of noise is characterized by cochlear hearing loss, tinnitus, ear fullness, increased heart rate, muscle contraction, and others. This is an important health problem in military life that needs attention and the deployment of a Hearing Conservation Program, which aims to identify risks, to follow the health hearing and to develop measures of prevention and awareness. The aim of this study was to analyze the effects of noise impact on the hearing of military that practice shooting for the deployment of a Hearing Conservation Program. This was a case-control study with 115 military (65 military of the Special Operations Company – exposed group; and 50 military of administrative departments – unexposed group). Initially, it was conducted an evaluation of the noise emitted by the guns during a shooting practice. After this, the invited participants signed a consent form, answered a questionnaire, and conducted audiometry and evoked otoacoustic emissions (transient and distortion product) tests. As a result, the noise level was measured between 118 and 133 dB(C). In the questionnaire, 78% of the subjects in the exposed group answered that noise can cause hearing loss, 96.9% reported that the best way to be protected against the intense noise of the firearm is to use hearing protectors, and 92% always use hearing protectors in practice. However, 32.3%

had never received guidance on the use of hearing protection. About aural and extra-aural effects, it was observed tinnitus after target practice (23%), and temporary hearing loss (7.6%). At the hearing profile, 25% of the exposed group showed hearing loss suggestive of NIHL, a significant difference when compared to the control group. The otoacoustic emissions were present in both ears in only 21.4% of the exposed group, also with a statistically significant difference when compared with the control group. In otoacoustic emissions distortion product, the difference was not significant between groups, but it was observed lower amplitude in the group exposed to noise. These results show that the level of noise emitted by firearms exceeds the limits established by NR15. And although the military had knowledge of the importance of using hearing protection when exposed to noise of weapons, many of them have never received guidance about the correct use. There are significant differences in the hearing quality of the military exposed to noise of the firearm when compared to military of administrative services. In conclusion, this population requires the implementation of a Hearing Conservation Program aiming not only to prevent hearing loss but also to awareness the military about the importance of the correct use of hearing protectors and maintain them hearing health.

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