

## **SOUND ATTENUATION VALUE IN MECHANICAL AND ELECTRONIC EARMUFFS**

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This study is an experimental study, which compares sound attenuation in mechanical (without volume control) and electronic (with volume control) earmuffs. The purpose of this study was to determine whether there is a differences of sound attenuation between mechanical earmuff, electronic earmuff with volume control off, electronic earmuff with volume control minimum, electronic earmuff with volume control half and electronic earmuff with volume control maximum. Method of measurement used was Real Ear Attenuation at Threshold (REAT) where sound attenuation is obtained from differences of hearing threshold with and without earmuff fitted. Measurement of sound attenuation was done using two types of sound stimuli, which were warble tone and narrow band noise. 26 subjects with normal hearing threshold bilaterally were participated in this study. Earmuffs used in this study were Clarity C3 Earmuff (mechanical earmuff) and Impact Electronic Earmuff (electronic earmuff). Data obtained were analyzed using Repeated Measure ANOVA test. Descriptive analysis was also done for the calculation of mean and standard deviation of sound attenuation across frequencies tested. The result showed that there is no significant difference for sound attenuation in mechanical and electronic earmuff when the volume control was off ( $p>0.05$ ) for both stimuli tested. However, the result for both stimuli tested showed there is a significant difference of sound attenuation in electronic earmuff when the volume control positioned at minimum, half and maximum ( $p<0.05$ ) where less sound attenuation was found when the level of the volume control was increased. This study also found that sound attenuation in mechanical earmuff is much bigger than electronic earmuff when volume control positioned at minimum, half and maximum. As a conclusion, sound attenuation for both stimuli tested is much bigger showed both by mechanical and electronic earmuffs with volume control off than electronic earmuff with volume control positioned at minimum, half and maximum.

Mohd. Shah, N. S. 2008. Sound Attenuation Value in Mechanical and Electronic Earmuffs. Bachelor of Audiology Thesis. Universiti Kebangsaan Malaysia.