

SPEECH RECOGNITION FROM DIFFERENT ANGLES WHEN USING MECHANICAL EARMUFFS

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Speech recognition from different angle can be influenced by the use of mechanical earmuff and type of noise. An experimental study was conducted to compare reception threshold for sentences (RTS) with the use of mechanical earmuff in high and low frequency noise from different azimuth. 30 young adults with normal hearing bi laterally, age range from 19 to 29 years old were involved in this study. All subjects were screened and fulfill all inclusion criteria of this study. Malay Hearing in Noise Test in Malay Language (MyHINT) was used to determine RTS from different angle (60°, 120°, 240 ° and 300° azimuth) in these 4 conditions (RTS without mechanical earmuff, RTS with mechanical earmuff, RTS with mechanical earmuff in 85dBA high frequency noise and RTS with mechanical earmuff in 85dBA low frequency noise). The results revealed that there is a significant difference between RTS obtained with and without using mechanical earmuff in quiet conditions [$F(1,29) = 466.04, p < 0.005, \text{effect size} > 0.14, \text{power of study} > 80\%$] as well as RTS when using mechanical earmuff in different types of noise [$F(1,29) = 489.73, p < 0.05, \text{effect size} > 0.14, \text{power of study} > 80\%$]. Furthermore, post hoc Bonferroni test revealed that RTS from different angle was not significant difference in RTS obtained when using mechanical earmuff in noises [$F(3,87) = 0.10, p > 0.05, \text{effect size} < 0.14, \text{power of study} < 80\%$]. However, the findings showed that speech recognition from different angles is better without the use of mechanical earmuff in quiet and when using it in high frequency noise compared to in low frequency noise. As a conclusion, the use of mechanical earmuff and the different types of noise does affect the speech recognition ability from different angle.

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