

SPEECH RECOGNITION FROM DIFFERENT ANGLES IN NOISE USING ELECTRONIC EARMUFF

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The ability to recognize speech in quiet is dependent upon the angle of speech signal and the localization cues. However, the ability to recognize speech in noisy environment is affected when subjects using hearing protection devices (HPDs) than threshold for sentences (RTS) delivered from different angle of speaker (60°, 120°, 240°, 300°) without using electronic earmuff in quiet and when using electronic earmuff in noisy environment at level 85dBA(from angle 0° and 180°). RTS or measured for each angle of speakers. 30 young adults with normal hearing (15 male and 1 female) and age from 20 to 30 years old were involved in this study. The mean RTS shows there is a significant difference between the angles from front and angle from back in quiet without HPD [$F(2,279,66.099) = 43.028, p < 0.05$, with effect size >0.14 and power of study $<80\%$]. However, mean RTS in noisy environment with electronic earmuff at minimum volume shows that there is no significant difference between each angle of speakers [$F(93, 870) = 1.784, p > 0.05$, effect size <0.14 and power of study $<0.80\%$]. While there is no significant difference between each angle of speaker in different volume control [$F(1,29)=0.375, p > 0.05$ with effect size <0.14 and power of study $<0.80\%$]. In conclusion, the angle with lowest RTS showed better recognition ability for that angle. The ability to hear speech sound in noisy environment with HPD did not influenced by volume control. It also did not influence which angle the subject hear the speech signal when wearing the HPD.

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