

## **Abstract**

The frequency following response (FFR) is an auditory evoked potential (AEP) that measures the sustained brainstem activity from a stimulus. Comparisons of individuals who are proficient in one spoken language and individuals who are proficient in two spoken languages have shown a significant difference in FFR amplitude at the fundamental frequency of a speech stimuli. This study examined whether proficiency in more than two spoken languages affects an individual's FFR during speech presentation. To investigate this, the stimulus “/da/” was presented to normal hearing participants who were either proficient in two spoken languages or three or more spoken languages and FFR results were gathered. The results were then compared between individuals in the two groups. T-tests did not show a significant difference in the amplitude of the fundamental frequency upon analysis ( $p = > 0,05$ ). Upon exclusion of outliers a significant difference was discovered in the fundamental frequency amplitude during FFR in the periodic portion of the stimulus ( $p = 0,044$ ), as well as in the amplitude peak for the entire stimulus duration ( $p = 0,029$ ). The results also showed that multilinguists tended to have an average higher amplitude and bigger variance in their FFR results. This study therefore concludes that further research is required within the field to clarify potential differences between bilingualism and individuals who are proficient in more than two languages during FFR.

**Keywords:** AEP, auditory evoked potentials, bilingualism, FFR, frequency following response, fundamental frequency, multilingualism