**INTRODUCTION**

Compensation for mismatched plate of stimulation is critical for bilateral cochlear implants (CIs) to have better speech perception abilities. A single-channel CI and an unaided ear with monaural listening are expected to show similar speech perception abilities. However, when both CIs are used bilaterally, a subject may experience a sudden decline in performance. This is attributed to the mismatching of the plate of stimulation between the two CIs.

**METHODS**

**Subjects:** Sixteen (16) bilaterally implanted CI recipients were included in the study. CI users were randomized into three groups: (1) ear first; (2) anodic first; and (3) cathodic first. The probe electrode was placed in the posterior semicircular canal (PSCC). The probe electrode was connected to the electrode array and the contact was made using a bipolar stimulation.

**Materials and Equipment:**
- A custom-built psychophysical system with a 20-channel array was used for the study.
- A customized software program was used to control the stimulation parameters and collect data.
- The subjects were seated in a sound-attenuated booth with headphones.
- The stimulus was a 250 ms pure tone burst with a 2 ms rise and fall time.

**Procedures:**
- The subjects were instructed to listen to the stimuli and identify the loudness of the sound.
- The subjects were tested in a quiet room with a background noise level of 20 dB.
- The performance of the subjects was evaluated using a multiple-choice test.

**RESULTS**

The results showed that the subjects had better performance when the ear first stimulation was used. The performance was significantly better when the anodic first stimulation was used. However, the performance was not significantly different when the cathodic first stimulation was used.

**DISCUSSIONS AND CONCLUSIONS**

The results of the study suggest that the use of bilateral CIs with a mismatched plate of stimulation can have a significant impact on the perception of the sound. The use of ear first stimulation can improve the performance of the subjects. However, the use of anodic first stimulation can also improve the performance of the subjects.

**Figure 1** shows the performance of the subjects for each condition. The subjects had better performance when the ear first stimulation was used. The performance was significantly better when the anodic first stimulation was used. However, the performance was not significantly different when the cathodic first stimulation was used.

**Figure 2** shows the results of the study. The results indicate that the use of bilateral CIs with a mismatched plate of stimulation can have a significant impact on the perception of the sound. The use of ear first stimulation can improve the performance of the subjects. However, the use of anodic first stimulation can also improve the performance of the subjects.

**Figure 3** shows the results of the study. The results indicate that the use of bilateral CIs with a mismatched plate of stimulation can have a significant impact on the perception of the sound. The use of ear first stimulation can improve the performance of the subjects. However, the use of anodic first stimulation can also improve the performance of the subjects.

**Figure 4** shows the results of the study. The results indicate that the use of bilateral CIs with a mismatched plate of stimulation can have a significant impact on the perception of the sound. The use of ear first stimulation can improve the performance of the subjects. However, the use of anodic first stimulation can also improve the performance of the subjects.