

## **Temporal resolution assessment in cochlear implant recipients using an auditory gap detection test**

*Dr Paris Binos SLP*

*Cyprus University of Technology*

**Introduction:** The aim of segmentation of acoustic events is to get closer as possible to the natural signal. Acoustic perception is directly associated with the quality of information carried by the acoustic signal represented by an envelope function (E) and the high-frequency fine structure (FS). Research revealed that individuals with sensorineural hearing loss (SNHL) deal with great difficulties during encoding or use temporal-FS (TFS). The ear can discriminate two signals and the shortest time needed defined as temporal resolution. These temporal resolution difficulties linked with auditory ability and can be assessed by a gap detection test named GIN test (Gaps-in-Noise test).

**Aim:** To explore the role of GIN test as a valuable diagnostic tool for the assessment of temporal resolution ability of individuals wearing cochlear implants and the endeavors at increasing the transmission of TFS to CI users based on literature findings.

**Method:** According to ASHA (2005) testing temporal resolution a component of auditory processing is recommended as one part of the minimal test battery. A literature search was conducted in two databases of Google Scholar and Pubmed/Medline searching peer-reviewed papers focused on cochlear implantation, temporal resolution, GIN and temporal cues difficulties. Inclusion and exclusion criteria were established focusing on manuscripts of the last two decades. Based on the current exclusion criteria, papers about the use of GIN in other conditions (such as C-APD or other Hearing Aids) or patients without SNHL were excluded.

**Results:** The current literature findings showed that temporal processing can be assessed by GIN-test and it can be seen as the most fundamental element of auditory processing. Any recorded difficulties in temporal processing affect language and phonological development, language learning, auditory discrimination and reading.

**Discussion/Conclusion:** CI children provide reliable GIN test results when combined with early implantation and oral education. GIN test needs more research to establish it as a valid clinical screening tool for the detection of temporal resolution deficits of CI individuals.

## References

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