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## The implication of peripheral hearing loss on temporal auditory processing in children

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**Background:** This study included 2 groups: a study group of 60 children with mild to moderate sensorineural hearing loss (SNHL); and a control group of 30 normal hearing children. The children's age ranged from 6-12 years.

**Objective & Methods:** To study temporal auditory processing abilities in SNHL children using behavioural [Auditory fusion test (AFT); Duration pattern test (DPT); Pitch pattern sequence test (PPST); time compressed sentence test (TCST)] and electrophysiological measure [Mismatch negativity (MMN)]. And to study whether there is a correlation, if any, between results of behavioural tests and MMN in assessment of temporal auditory processing.

**Results:** The SNHL subgroups showed statistically significant lower scores in AFT, TCST, DPT and PPST as well as longer MMN latency than their controls. Age had significant effect on temporal auditory processing tests results and on MMN parameters but gender and aetiology of SNHL had no effect. There was no statistically significant correlation between results of behavioural tests and MMN in normal as well as SNHL children.

**Conclusion:** Sensorineural hearing loss affects temporal auditory processing abilities reflected on both behavioural & electrophysiological test results. Age showed maturational effect on behavioural tests in all subjects, but this effect was not reflected on the MMN results of the controls, despite of the significant effect of SNHL on MMN parameters. There was no correlation between behavioural & electrophysiological test results.

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## Speech auditory evoked potentials in dyslexia

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**Background:** Dyslexia has been used to refer to the specific learning problem of reading. The temporal auditory processing deficit theory suggests that one causal deficit of dyslexia is an impaired ability to process sounds.

**Objectives:** To study auditory temporal processing in children with dyslexia using two electrophysiological tests.

**Subjects & Methods:** 80 children participated in this study. They were divided into control group with 30 children and study group with 50 children. All participants had normal hearing sensitivity, normal middle ear function with average intelligence. All children were examined using speech auditory brainstem response and cortical auditory evoked potentials with /da/ speech stimulus at intensity 90 dBnHL.

**Results:** It showed that there was significant statistical difference between control and study group in both electrophysiological tests. Prolonged latency and reduced amplitude were recorded in children with dyslexia in S-ABR as well as in cortical auditory evoked potentials.

**Conclusions:** Children with dyslexia are deficient in auditory temporal processing and encoding of auditory information. Electrophysiological tests are sensitive in cases of dyslexia, so they were considered good diagnostic tests in such cases.

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