

# Central Auditory Processing Skills in children with a history of early-onset Otitis Media: A scoping review

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**Background:** Central auditory processing is characterized by the perception and processing of neural information related to the auditory inputs through the human ears and it is vital for speech perception, language skills, and complex learning functions. Auditory deprivation in the early years of life impacts neural maturation of the central auditory nervous system and lowers the ability to process neural information related to aural inputs. Otitis media is known to be the most frequent middle ear infection and a common reason for auditory deprivation among the paediatric population worldwide. Hence, this study focused on auditory deprivation due to otitis media during the early years of life. Many primary pieces of research have been conducted to assess the long-term influence of auditory deprivation due to otitis media on central auditory processing, which lasts over years even after the resolution of the middle ear condition. This study reviewed literature where the long-term effect of otitis media is assessed through behavioural and electrophysiological measures, in children with a history of otitis media within the first five years of their lives.

**Objectives:** To summarize Audiological assessments used to evaluate central auditory processing and to describe central auditory processing skills in children with a history of early-onset otitis media.

**Methods:** This review followed the methodological framework outlined by Arksey & O'Mally (2005) and developed by Levac et al. (2010). Studies conducted from 2000-2020 involving human participants aged  $\leq 18$  years, belonging to any gender or geographical context, having a history of otitis media within the first 5 years of life, having normal hearing and normal middle ear condition by the time of study conducted, were included in the review. Studies involving participants with any type of hearing loss before the age of 05 years due to other reasons except otitis media, comment/text literature, and studies with no free accessibility to the full text, and an English translation were excluded. Literature was searched in PubMed, EBSCO host, and Scopus databases, and eligibility was assessed by two reviewers independently. Included studies were critically appraised using standard tools. Extracted data were reported following the systematic reviews and meta-analyses extension for scoping reviews checklist.

**Results:** The review resulted in 13 eligible articles. Some have used behavioural measures only (08), and electrophysiological measures only (03) while 02 have used both. Poor auditory processing skills and alterations in electrophysiological measurements were reported in children with a history of otitis media within the first five years of their lives, compared to children without a history.

**Conclusion:** As per the reviewed studies, there is a negative association between central auditory processing and the history of otitis media within the first five years of life, which persists beyond its resolution.

**Keywords:** *Central auditory processing, Central auditory processing disorder, Otitis media*