

## EDITORIAL

# Language-based auditory training

Farnoush Jarollahi<sup>1,2</sup> 

<sup>1</sup>- Rehabilitation Research Center, Iran University of Medical Sciences, Tehran, Iran

<sup>2</sup>- Department of Audiology, School of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran

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Language deprivation is defined as the persistent lack of unhindered access to natural language during the critical period of language acquisition [1]. Language provides the foundation for understanding how the mind works [2]. The first five years of life is a time-limited window of brain development for establishing first-language fluency [1]. Restricted and delayed access to language adversely affects basic social and cognitive skills. Hence, it is highly important to develop language as quickly and efficiently as possible [2].

Research has strongly demonstrated that language deprivation, especially due to hearing loss, is the main cause of poor language acquisition, which leads to poor educational and health outcomes in the deaf population. The etiology of all these problems is the deaf children's lack of exposure to sign language in their early years of development. In addition, concerns about developmental delays, attention deficit disorder, and socio-emotional problems continue to affect the development of deaf children. Finally, permanent differences are observed in neural structure (such as less myelination of the neurolingual pathways) between deaf people with no mastery over a spoken language and delayed exposure to sign language and those with early exposure to sign

language [1].

Generally, evidence shows that auditory and oral approaches that reject early and comprehensive use of sign language do not yield ideal developmental results in all deaf children. In addition, when all such efforts fail, it is too late to use sign language as a backup plan to correct the effects of early language deprivation. Conversely, sign languages appears to be necessary not only for the optimal development of deaf children but also for the desirable outcomes of cochlear implant, as in children with cochlear implants who use sign language compared to those who do not know sign language, the outcomes of speech and language development are better and more successful [1]. Therefore, it is clear that deaf children need language acquisition and not just speech [3].

Moreover, the sense of hearing has an important role in language acquisition and prevention of language deprivation [4]. Different techniques are currently available for developing auditory skills [5]. Since 1990, I have been using the Erber method [6], which is a very flexible method to develop the auditory skills of hearing-impaired children in Iran [7], and can be applied to any age and any degree of hearing loss with a variety of response methods. Since 2005, I have combined language with auditory skill training firstly because of the importance of early language acquisition, and secondly, because of the importance of the residual hearing and receiving speech sounds in helping to reduce early language deprivation. I have observed the significant outcomes of this method in better speech comprehension, more successful communication with hearing

**Corresponding author:** Rehabilitation Research Center, Iran University of Medical Sciences, Shahid Shahnazari St., Madar Square, Mirdamad Blvd., Tehran, 15459-13487, Iran. Tel: 009821-22228051, E-mail: jarollahi.f@iums.ac.ir

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people, academic achievements, and the possibility of studying in the mainstream method.

However, deaf and hearing-impaired people should communicate with each other, which is best possible with sign language, for their emotional development, psychologically healthy personality, self-belief and self-confidence. In Iran, sign language is still a taboo, and since sign language is not available to deaf children, they do not receive the appropriate rehabilitation and educational training to better understand oral and written concepts, and consequently will have communication difficulties and face complex challenges in society.

Given the importance of good and active listening in the process of language and speech acquisition, the adverse consequences of impaired hearing can truly be prevented when auditory skills exercises are combined with language exercises and the total communication method is used to interact with hearing-impaired or deaf children.

I have the experience of teaching some hearing-impaired children who used hearing aids, and since their parents were deaf, they used sign language to communicate with their parents. Therefore, these children were able to use a rich maternal language, proper speech and the ability to communicate with both hearing and hearing-impaired people.

In conclusion, I would like to share the following suggestions with the readers for better rehabilitation outcomes for hearing-impaired children using hearing aids or cochlear implants:

- Using auditory training exercises for good listening is worthwhile when combined with rich linguistic content (in all its dimensions, especially with emphasis on syntax, semantics and pragmatics).
- Language development of hearing-impaired children will not be rich unless they are properly exposed to language stimuli before the age of six months old.
- A hearing-impaired child will not be exposed to rich language stimuli unless sign language is used in addition to oral and auditory communications.

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