



Music Perception and Rehabilitation in Deaf Patients: Present Knowledge and Future Directions

Frosolini A^{1,2*}, Badin G¹ and Cosimo de Filippis¹

¹Department of Neuroscience DNS, Audiology Unit, University of Padova, Italy

²Department of Medical Biotechnologies, Maxillofacial Surgery Unit, Italy

***Corresponding author:** Andrea Frosolini, Department of Neuroscience DNS, Audiology Unit, University of Padova, 31100 Treviso, Department of Medical Biotechnologies, Maxillofacial Surgery Unit, University of Siena, 53100 Siena, Italy, Email: andreafrsolini@gmail.com

Keywords: Deaf Patients; Food and Drug Administration; Otorhinolaryngologist

Editorial

Cochlear implants are globally considered the standard medical treatment for severe and profound sensorineural hearing loss, both in children and adults, who have not obtained a concrete benefit from hearing aids [1].

According to estimates by the Food and Drug Administration, from the first approval in 1985 until December 2019, more than 730,000 devices have been implanted and registered worldwide, of which 118,000 in adults and 65,000 in children in the USA alone.

The management of the cochlear implant requires the synergistic action of a multidisciplinary team, which includes audiologist, phoniatician or otorhinolaryngologist, speech therapist, audiometrist, neuroradiologist for the selection of candidates, intervention and follow up. In some situations it is necessary to involve a psychiatrist, psychologist or paediatrician [2].

As illustrated so far, cochlear implantation has been shown to significantly improve speech perception. Nevertheless, the “auditory world” is not made up exclusively of language [3]. Music is a form of communication widely present in daily life, especially in moments of free time and entertainment, it is a cultural phenomenon that promotes social participation and has positive effects on mood.

Music perception is one of the major challenges for cochlear implant recipients, who are rarely able to achieve

good perception through conventional technology. In fact there are some biological, technological and acoustic limitations that hinder the perception of music in these patients [4].

Verbal rehabilitation after the activation of the cochlear implant is a consolidated reality in clinical practice, it is effective and takes advantage of different programs elaborated on the clinical characteristics of the patients, while a formal musical rehabilitation path is still missing [5]. Currently existing music rehabilitation programs are not very numerous and are quite heterogeneous. As suggested by Limb, this lack of availability reflects a lack of understanding of the ability to perceive music, which represents one of the most elaborate forms of human auditory perception [6].

Music training can be performed in several different ways, in presence individually or with group sessions and/or in a telemedicine setting. Moreover self training can be performed. Nonetheless, the involvement of Music Therapists, Psychologists and Audiologists should be mandatory.

Three main categories of music rehabilitation programs have been identified in the existing literature: listening and singing, playing at least one instrument, and listening alone. All three types of training have been shown to determine an improvement in the perception of music, which was significantly greater in particular in the singing group [7].

The duration of the training is not homogeneous. In the 10 studies considered in a recent review by Shukor and colleagues, six had a duration between 5 weeks and 3 months, two between 3 and 11 months and two longer than

Editorial

Volume 7 Issue 4

Received Date: December 01, 2022

Published Date: December 09, 2022

DOI: [10.23880/pprij-16000316](https://doi.org/10.23880/pprij-16000316)

12 months. In half of the cases the musical training was conducted in rehabilitation centres, while the remaining at home. It has been observed that subjective perception of sound could be directly proportional to the duration of music therapy. In fact, music training longer than 12 months has a highly greater size effect in music perception than rehabilitation training shorter than 3 months however, the improvement is significant in both cases [8,9].

In conclusion of this editorial, there is a dearth of knowledge in the field on music perception and rehabilitation on deaf patients and multidisciplinary work is needed to enhance comprehension of the phenomenon with the objective to improve quality of life of Cochlear Implant users.

References

1. Freni F, Gazia F, Slavutsky V, Perello Scherdel E, Nicenboim L, et al. (2020) Cochlear implant surgery: Endomeatal approach versus posterior tympanotomy. *Int J Environ Res Public Health* 17: 4187.
2. Mandalà M, Mazzocchin L, Ward BK, Viberti F, Bindi I, et al. (2022) Retrospective evaluation to assess reliability of electrophysiological methods for diagnosis of hearing loss in infants. *Brain Sci* 12: 950.
3. Sorrentino F, Gheller F, Lunardi G, Brotto, D, Trevisi, P, et al. (2020) Cochlear implantation in adults with auditory deprivation: What do we know about it?. *Am J Otolaryngol* 41(2): 102366.
4. Frosolini A, Parrino D, Mancuso A, Coppola N, Genovese E, et al. (2022) The music-related quality of life: Italian validation of MuRQoL into MUSQUAV questionnaire and preliminary data from a cohort of postlingually deafened cochlear implant users. *European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery* 279(10): 4769-4778.
5. Hwa TP, Wen CZ, Ruckenstein MJ (2021) Assessment of music experience after cochlear implantation: A review of current tools and their utilization. *World J Otorhinolaryngol Head Neck Surg* 7(2): 116-125.
6. Lehmann A, Limb CJ, Marozeau J (2021) Editorial: Music and cochlear implants: Recent developments and continued challenges. *Front. Neurosci* 15: 736772.
7. Ab Shukor NF, Han W, Lee J, Seo YJ (2021) Crucial Music Components Needed for Speech Perception Enhancement of Pediatric Cochlear Implant Users: A Systematic Review and Meta-Analysis. *Audiol Neurootol* 26(6): 389-413.
8. Gfeller K, Driscoll V, Schwalje A (2019) Adult cochlear implant recipients' perspectives on experiences with music in everyday life: A multifaceted and dynamic phenomenon. *Front Neurosci* 13: 1229.
9. Frosolini A, Badin G, Sorrentino F, Brotto D, Pessot N, et al. (2022) Application of Patient Reported Outcome Measures in Cochlear Implant Patients: Implications for the Design of Specific Rehabilitation Programs. *Sensors (Basel, Switzerland)* 22(22): 8770.

