

Accepted Manuscript

The MMN as a viable and objective marker of auditory development in CI users

Risto Näätänen, Bjørn Petersen, Ritva Torppa, Eila Lonka, Peter Vuust

PII: S0378-5955(16)30607-4

DOI: [10.1016/j.heares.2017.07.007](https://doi.org/10.1016/j.heares.2017.07.007)

Reference: HEARES 7398

To appear in: *Hearing Research*

Received Date: 20 December 2016

Revised Date: 16 June 2017

Accepted Date: 18 July 2017

Please cite this article as: Näätänen, R., Petersen, B., Torppa, R., Lonka, E., Vuust, P., The MMN as a viable and objective marker of auditory development in CI users, *Hearing Research* (2017), doi: 10.1016/j.heares.2017.07.007.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Table of contents

Abstract	3
1. Introduction	3
1.1. The cochlear implant (CI).....	3
1.2. CI functionality.....	4
1.3. Technical limitations of the CI	5
1.4. Additional factors having an influence on the CI outcome	5
1.5. Outcome measures.....	6
1.6. What is the MMN and what can be studied with the MMN?.....	7
1.7. Source localization	8
2. MMN, speech perception and language development in CI users	9
2.1. Pioneering studies.....	9
2.2. MMN development in adults with CIs	10
2.3. Auditory development in children with CIs indexed by the MMN.....	11
2.4. MMN as an indicator for good vs. poor CI speech performance	13
3. MMN in clinical testing and training – Refinement of the methodology.....	15
3.1. MMN in individual CI users.....	16
4. MMN in relation to music perception in CI recipients.....	17
4.1. Results from odd-ball paradigms –neural responses for changes in musical syntax, timbre, attack time and melodic contour	18
4.2. Multi-feature MMN paradigms	19
4.3. Musical multi-feature paradigm – distinct MMNs for several musical features	20
4.4. Cortical processing of musical sounds in children with CIs.....	22
4.5. MMNs in CI children who sing.....	23
4.6. MMN for music in adolescent CI users.....	24
5. Practical issues in MMN recording and analysis in CI recipients	25
5.1. Within-block MMN vs. across-block MMN	25
5.2. Dealing with electric artefact from the CI.....	26
5.3. Electrodes used for recording and quantification of the MMN.....	28

Download English Version:

<https://daneshyari.com/en/article/5739326>

Download Persian Version:

<https://daneshyari.com/article/5739326>

[Daneshyari.com](https://daneshyari.com)