

Csépe Valéria

On the origin and development of the mismatch negativity

EAR AND HEARING 16: pp. 91-104. (1995)

Abstract

This review summarizes a number of findings related to the generation, development, and diagnostic value of mismatch negativity (MMN). The animal analogue of MMN to frequency contrast can be observed in the primary and secondary auditory cortical and also in the association cortical recordings. It is shown that subcortical sensory specific and archicortical structures may also contribute to the processes involved. The results are more complex than would be predicted by the notion that only the primary system plays an active role in the comparison processes reflected by the MMN that and the non-primary pathway acts only as a modulating influence. The fundamental nature of the brain functions reflected by MMN is suggested by the demonstration of MMN in sleep and anesthesia, though in limited conditions.

The postnatal development of automatic stimulus comparison, as indexed by MMN, presents an isochronicity, contrary to other evoked potential components whose development is not complete until puberty. Thus, the MMN provides a stable measure for electrophysiological assessment of auditory perception. This possible diagnostic value of the MMN is shown in studies of aphasics which emphasize the nature of perceptual deficits in the processing various speech and non-speech stimuli.