

The Literature on CAEP

Selected research papers

Most of the original spadework on CAEP was undertaken in the 1960s & 1970s (before the auditory brainstem response became the "hot" topic and diverted everyone's interest!) so much of the literature is quite old. The following list is by no means exhaustive and mainly reflects this author's subjects of interest within this field. Recent research papers are not included in this list.

Albera R, Canale G, Magnano M, Lacilla M, Morra B, Rugiu MG & Cortesina G. 1991. Relations between pure-tone audiometry and cortical evoked auditory potentials. *Acta Otolrhino aryngol Ital.* 11(6): 551-562

Alberti PW, Hyde ML & Riko K. 1987. Exaggerated hearing loss in compensation claimants. *J Otolaryngol.* 16(6): 362-366

Antinoro, F. & Skinner, P.H. 1968. The effects of frequency on the auditory evoked response. *J Aud Res,* 8, 119-123.

Appleby S. 1964. The slow vertex maximal sound evoked response in infants. *Acta Otol (suppl)* 206: 146-152

Beagley H.A. 1973. Electrophysiological methods in the diagnosis and management of deafness. *Minerva Otorinolaringologica,* 23(4): 173-181.

Bourbon, W.T., Will, K.W., Gary, H.E. & Papanicolaou, A.C. 1987. Habituation of auditory event-related potentials: a comparison of self-initiated and automated stimulus trains. *Electroenceph Clin Neurophysiol,* 66, 160-166.

Butler R. 1972. The influence of spatial separation of sound sources on the auditory evoked response. *Neuropsychologia.* 10(2): 219-226

Coles RRA & Mason SM. 1984. The results of cortical electric response auditory in medic-legal investigations. *Br J Audiol.* 18: 71-78

Cone-Wesson B & Wunderlich J. 2003. Auditory evoked potentials from the cortex: auditory applications. *Curr Opin Otolaryngol Head Neck Surg.* 11(5): 372-377

Davis H & Zerlin S. 1966. Acoustic relations of the human vertex potential. *J Acous Soc Am.* 39:109-116

Davis H., Mast T., Yoshie N. & Zerlin S. 1966. The slow response of the human cortex to auditory stimuli: recovery process. *Electroenceph Clin Neurophysiol* 21:105-113

Henry G & Teas D. 1968. Averaged evoked responses and loudness: analysis of response estimates. *J Speech Hear Res.* 11(2): 334-342

Hone SW, Norman G, Keogh I & Kelly V. 2003. The use of cortical evoked response audiometry in the assessment of noise-induced hearing loss. *Otolaryngol Head Neck Surg* 128: 257-262

Hoth, S. 1993. Computer-aided hearing threshold determination from cortical auditory evoked potentials. *Scand Audio.,* 22(3), 165-177.

Hyde M, Alberti P, Matsumoto N & Li YL. 1986. Auditory evoked potentials in audiometric assessment of compensation and medicolegal patients. *Ann Otol Rhinol Laryngol.* 96: 514-519

Hyde M. 1997. The N1 response and its applications. *Audiol Neurootol.* 2(5): 281-307

Lammertmann, C., Fujiki, B., Lütkenhöner, B. & Hari, R. Short-term decrement of the auditory N1m response. In *Biomag2000, Proc. 12th Int. Conf. on Biomagnetism.* Eds. J Nenonen, RJ Ilmoniemi, T Katila, pp. 50-53. Espoo, Finland: Helsinki University of Technology.

- Lightfoot G, & Kennedy, V. Cortical electric response audiometry hearing threshold estimation: Accuracy, speed and the effects of stimulus presentation features. *Ear & Hearing* 2006, 27(5):443-456
- Martin BA & Boothroyd A. 1999. Cortical, auditory, event-related potentials in response to periodic and aperiodic stimuli with the same spectral envelope. *Ear Hear.* 20(1): 33-44
- McCandless, G.A. & Best, L. 1964. Evoked responses to auditory stimuli in man using a summing computer. *J Speech Hear Res*, 7, 193-202.
- Nelson, D.A., Lassman, F.M. & Hoel, R.L. 1969. The effects of variable-interval and fixed-interval signal presentation schedules on the auditory evoked response. *J Speech Hear Res*, 12(1), 199-209.
- Ozesmi C, Dolu N, Suer C, Golgeli A & Ascioğlu M. 2000. Habituation of the auditory evoked potential in a short interstimulus interval paradigm. *Int J Neurosci.* 105(1-4): 87-95
- Pantev C, Eulitz C, Hampson S, Ross B & Roberts LE. 1996. The auditory evoked "off" response: sources and comparisons with the "on" and "sustained" responses. *Ear Hear.* 17(3): 255-265
- Polich, J., Aung, M. & Dalessio, D.J. 1988. Long latency auditory evoked potentials: intensity, inter-stimulus interval and habituation. *Pavlov J Bio. Sc.* 23, 35-40.
- Prasher D, Mula M & Luxon L. 1993. Cortical evoked potential criteria in the objective assessment of auditory threshold: a comparison of noise induced hearing loss with Meniere's disease. *J Laryngol Otol.* 107(9): 780-786
- Prosser, S., Arslan, W. & Michelini, S. 1981. Habituation and rate effect in the auditory cortical potentials evoked by trains of stimuli. *Arch Otorhinolaryngol*, 233, 179-187.
- Rapin I. 1964. Practical considerations in using the evoked potential technique in audiometry. *Acta Otol (suppl)* 206: 117-122
- Roeser R & Price L. 1969. Effects of habituation on the auditory evoked response. *J Aud Res.* 9(4): 306-313
- Rothman H, Davis H & Hay I. 1970. Slow evoked cortical potentials and temporal features of stimulation. *Electroenceph Clin Neurophysiol.* 29(3): 225-232
- Skinner P & Jones HC. 1968. Effects of signal duration and rise time on the auditory evoked potential. *J Speech Hear Res.* 11(2): 301-306
- Stappels, D. 2002. Cortical event-related potentials to auditory stimuli. In: Katz J. *Handbook of Clinical Audiology* (5th Ed). Lippincott Williams & Wilkins. ISBN 0-683-30765-7.
- Tsu B, Wong LL & Wong EC. 2002. Accuracy of cortical evoked response audiometry in the identification of non-organic hearing loss. *Int J Audiol.* 41(6): 330-333
- Van Maanen, A & Stapells, DR. 2005. Comparison of multiple auditory steady-state responses (80 versus 40 Hz) and slow cortical potentials for threshold estimation in hearing-impaired adults. *Int J Audiol.* 44: 613-624. PDF version
- Vaughan H & Ritter W. 1970. The sources of auditory evoked response recorded from the human scalp. *Electroenceph Clin Neurophysiol.* 28(4): 360-367
- Walter WG. 1964. Retrospective summary of definitive tests for hearing in young children. *Acta Otol. (suppl)* 206: 162-172
- Woods, D.L. & Elmasian, R. 1986. The habituation of event-related potentials to speech sounds and tones. *Electroenceph Clin Neurophysiol*, 65, 447-459.

The following is a list of text books and chapters relating to this topic, some old and out of print, others more recent.

Van Dun B. (Ed) The use of cortical auditory evoked potentials in diagnosis and treatment of hearing disorders Seminars in Hearing, Thieme, 2016. 37 (1).

Pratt H & Lightfoot G. Physiological Mechanisms Underlying MLRs and Cortical EPs. In: Tremblay KL & Burkard RF (Eds) Translational Perspectives in Auditory Neuroscience. Hearing Across the Life Span – Assessment and Disorders. Plural Publishing, 2012.

Dobie RA. Medical-Legal Evaluation of Hearing Loss. (2nd Ed). Singular, 2001. ISBN 0-7693-0052-9.
Standard reference text on the subject. Included here because of the author's comment on the slow vertex response (cortical ERA): "This appears to be an uncommonly sensitive test which has been surprisingly little-used in the United States."

Gibson WPR. Essentials of Clinical Electric Response Audiometry. Churchill Livingstone, 1978. ISBN 0 443 01322 5.

A superb and comprehensive text on ERA methods of the late 1970s. The original "ERA bible" for many (older!) ERA practitioners.

Hall JW III. Handbook of Auditory Evoked Responses. Allyn & Bacon, 1992. ISBN 0-205-13566-8.
An excellent review of material up to the early 1990s.

Hall JW III & Mueller HG III. Audiologists' Desk Reference Vol 1. Singular, 1997. ISBN 1-56593-269-2.

Katz J. Handbook of Clinical Audiology (5th Ed). Lippincott Williams & Wilkins, 2002. ISBN 0-683-30765-7.
Chapter by David Stapells:

A comprehensive and authoritative review. The P1-N1-P2 response is "the (threshold estimation) measure of choice for most older children and adults". "It is unfortunate that especially in the United States, the P1-N1-P2 slow cortical response is underused, having been replaced by the ABR".

McPherson DL. Late Potentials of the Auditory System. Singular, 1996. ISBN 1-56593-163-7.

Reneau JP & Hnatiow GZ. Evoked Response Audiometry. University Park Press, 1975. ISBN 0-8391-0752-8.
A thorough distillation of cortical ERA research papers up to the mid-1970s.