

**Event related potential correlates of auditory attention in real-life settings.**

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Traditional EEG research has established a respectful understanding of the neural correlates of behaviour within highly controlled laboratory settings using reliable and replicable paradigms. Technological advances mean it is now possible to step outside the laboratory with a fully mobile EEG system and using those same paradigms, obtain quality recordings equalling those achieved in meticulous research environments (De Vos et al., 2013; Debener et al., 2012). This study employed a mobile EEG system to collect ERP measures of auditory endogenous attention, using a manual response to a three-stimulus oddball task (two infrequent stimuli; one target, one distractor, each presented at 14% probability) in environments reflecting real-life settings; namely seated (indoors, outdoors); and walking (indoors, outdoors). Data from 18 participants demonstrated that for both the N1 and P3 ERP components there were no discernible differences in attentional processing between each of the recording conditions, however, the oddball paradigm generated significant main effects of the three stimulus tones for each ERP component. Further analysis revealed that processing the infrequent target stimulus in each of the walking conditions resulted in relative attenuation of P3 amplitude in comparison to the seated conditions, and differential N1 modulation to infrequent stimuli in both seated conditions and indoors walking condition that was entirely absent in the outdoors waking condition. Data suggest there are subtle influences on auditory attentional processes which result directly from being outdoors and also, walking. Evidently, when transposing laboratory based interpretations of cognitive processes to real life settings, researchers must first consider the complexity of disentangling cognitive interactions within naturally encountered, stimulus rich environments.

De Vos, M., Gandras, K., & Debener, S. (2013). Towards a truly mobile auditory brain-computer interface: Exploring the P300 to take away. *International Journal of Psychophysiology*, 91(1), 46–53.  
Debener, S., Minow, F., Emkes, R., Gandras, K., & de Vos, M. (2012). How about taking a low-cost, small, and wireless EEG for a walk? *Psychophysiology*, 49(11), 1449–53.