# EEG markers of target fixation in a natural search task

Risto, M., Brouwer, A.M. & Erp, J.B.F. van

We investigated the possibility to differentiate between target and non-target fixations in a natural search task using only EEG. Five subjects searched for a tube in photographs of outdoor scenes. As soon as they found the target or decided that there was no target present, they pressed a button. EEG traces synchronized to the first target fixation in hit trials showed a positive peak compared to the last fixation in correct rejection trials. We propose that this peak is a P300. It started to arise before target fixation, suggesting that the target had been recognized before that. Previously, fixation duration was proposed as a more efficient alternative to fixation-locked ERPs. However, we found that differences in fixation duration only emerged when including all as compared to only the first target fixations. Thus, for real time use, EEG has the potential to identify target fixations earlier than fixation duration.