

## BRAIN OSCILLATIONS - INDICATORS FOR SERIAL PROCESSING IN INEFFICIENT VISUAL SEARCH?

Julie Palix, Claude-Alain Hauert, Ute Leonards

The electroencephalographic (EEG) N2pc component, originally suggested as neurophysiological correlate of visuospatial shifts of attention, seems rather related to target detection and distractor suppression. This reopens the debate of whether a shifting focus of attention, and thus serial processing, exists in inefficient visual search. Reasoning that search rate (in ms/item) for target absent (TA) trials should indicate the speed with which attention can be shifted for a given search type, we here investigated whether repetitive EEG frequency components correlate with search rate in an inefficient search task. Search rate was about 67ms/item for target present (TP) trials and 186ms/item for TA trials. Wavelet analysis of response-locked EEGs revealed significant differences in EEG beta-frequency bands (12-21Hz) between TP and TA conditions, moving in time from frontal to central electrodes, presumably related to decision making. More importantly, low frequency modulations (~7Hz) of response-locked EEG gamma-frequency bands (44-75Hz) over posterior electrodes correlated with search rate for TA trials. Given that gamma-oscillations are thought to be related to visual processing and attention, such EEG modulations might indeed reflect a shifting focus of attention, and thus serial processing, in inefficient visual search; however, alternative interpretations will also be discussed.