

## 202.10

INDEPENDENT COMPONENTS OF THE LATE POSITIVE EVENT-RELATED POTENTIAL IN A VISUAL SPATIAL ATTENTION TASK: --

NORMAL AND CLINICAL SUBJECT DIFFERENCES. M. Westerfield,<sup>1,3</sup> J. Townsend,<sup>2,3</sup> \* J. Covington,<sup>3</sup> S. Makeig,<sup>4,5</sup> T.J. Sejnowski<sup>2,4</sup> & E. Courchesne<sup>2,3</sup>

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The late positive event-related potential (ERP), a complex response dominated by the P300, reflects cognitive processes including attention. Although it has been shown that the late positive ERP is not a unitary response, overlapping spatial and temporal characteristics make the separation of contributing subcomponents difficult. Independent Components Analysis (ICA) can decompose complex ERP data into temporally independent and spatially fixed components. When applied to data recorded from normal subjects during a visual attention task, ICA revealed 3 independent components of the response to target stimuli: an early onset frontal positivity, a large parietal positivity, and a post-motor positivity that peaked approximately 200 ms following the button press and reversed polarity near the vertex. A fourth, frontally maximal component was elicited by 'no-go' stimuli.

Traditional analyses of late positive ERP data recorded from subjects with autism revealed differences from normal control data in both amplitude and latency, despite no differences in accuracy of task performance. ICA decomposition of these data suggests an explanation of these differences. While analogs of the subcomponents present in the normal data were also apparent in the autism data, the proportional contribution to the overall waveform was substantially different between the two groups. This may reflect differential use of the brain systems involved in the attentional processes utilized in this task, or differences in the distribution of visual attention resources.

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