The Psychophysiology of Face Perception in Autism Spectrum Conditions

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Social deficits are part of the diagnostic criteria for Autism Spectrum Conditions (ASC). Faces are a rich source of social information and this dissertation presents four experiments which investigated face processing in ASC and typical development using Event-Related Potential (ERP) methods. In particular, this thesis investigated the N170 component which is related to the detection of faces and the N250 component which is related to the processing of face familiarity.

In Experiments 1 and 2, the generalisation of the face detection system to non-face objects was investigated. In the typical control group, the N170 was larger to face-like objects than non-face like objects but his generalisation of the N170 across non-face objects was reduced in ASC suggesting that the face detection system in ASC is narrowly defined. In Experiment 3 the relationship between attention and the N170 was investigated. Participants with ASC did not show the same modulation of the N170 due to attention as shown by typical controls, suggesting that directed attention does not enhance the face detection system in ASC.

In Experiment 4, the acquisition of new face representations was investigated. Participants with ASC showed a decreased N250 compared to typical controls for faces that became familiar during the experiment. This suggests that new face representations are not formed as effectively in ASC. Together, these results suggest that the face perception deficits that are characteristic of ASC are related to multiple stages of face processing including detection, attention and familiarity processing.