
Reduced BOLD response in the striatum during the receipt of social rewards in Autism Spectrum Disorder (ASD)

Sonja Delmonte*^{†1}, Joshua Balsters², and Louise Gallagher³

¹Psychiatry, Trinity College Dublin (TCD) – Trinity Centre, St. James's Hospital, Dublin 8, Ireland

²Trinity College Institute of Neuroscience – Lloyd Building, Trinity College Dublin, Dublin 2. , Ireland

³Psychiatry, Trinity College Dublin – Trinity Centre, St. James's Hospital Dublin 8. , Ireland

Abstract

The 'Social Motivation Hypothesis' posits that impairments in social interaction in ASD are due to a failure to associate social stimuli with emotional rewards. In this study we examined BOLD response in the striatum in ASD during the receipt of social and monetary rewards. 21 ASD participants and 21 controls performed adapted versions of the Social and Monetary Incentive Delay Tasks. Reward feedback consisted of either a smiling face or a coin. A 2-by-2 ANOVA carried out in SPM8 (Factors: group (ASD/CON) and reward type (Social /Monetary)) indicated a significant interaction in the striatum during the receipt of rewards (uncorrected $p < 0.001$; extent threshold 10; SVC (striatum) $p < .05$ FWE). Follow up t-tests indicated that this was due to reduced activity in the striatum in the ASD group during the receipt of social rewards but not monetary rewards. These results suggest that there may be a specific deficit in the processing of social rewards in ASD, characterised by a hypo-responsive striatal response to positive social feedback.

*Speaker

[†]Corresponding author: sdelmont@tcd.ie