

# Do children with Autism Spectrum Disorder perceive emotional faces differently?

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## Abstract

Regarding potential differences of people with Autism Spectrum Disorders (ASD) in processing (emotional) faces, results are ambiguous. Some studies have shown differences when faces are presented in different orientations (upright, inverted) or with different emotions, some failed to do so (e.g., Rosset et al., 2008). Quite consistently, research has revealed higher reaction times (RTs) for participants with ASD when facial emotions had to be recognized (e.g., Van Geest et al., 2002) and no difference in sensitivity to the Thatcher illusion (e.g., Rouse et al., 2004). We wanted to investigate and clarify if the combination of orientation (upright/inverted), Thatcherisation (yes/no) and emotion (neutral/happy/sad) influence the perception of faces (RTs and accuracy of oddness ratings) differently in a group of children with ASD (N = 10; Mage = 12.3 years; SDage = 3.0) and an age- and IQ-matched control group (CG; N = 17; Mage = 12.2 years; SDage = 1.0). Participants had to evaluate 192 faces according to their oddness (instead of grotesqueness because the concept of oddness was more comprehensible for 12 years old boys). Consistent with previous results, the ASD group was substantially slower compared to controls (M = 1341.2 ms; SD = 636.2 vs. M = 986.9 ms; SD = 241.8;  $F(1,25)=4.94$ ,  $p=.04$ ,  $\eta^2 = .17$ ), which might indicate simpler facial processing strategies in people with ASD, e.g. by focusing on more featural aspects of faces. The ASD group reveals a considerably bigger drop in performance for inverted compared to upright faces (23% vs. 15%,  $p < .001$ ) compared to the CG and significantly more correct responses to happy (M = 80.2%; SD = 20.2)

compared to sad ( $M = 66.0\%$ ;  $SD = 23.2$ ) or neutral faces ( $M = 68.5\%$ ;  $SD = 19.7$ ), whereas there is no such difference in the CG. Our data display a further step towards a comprehensive understanding of ASD.

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