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Nasal-Temporal Asymmetries in Suprathreshold Facial Expressions of Emotion

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Abstract
In this study, we investigated nasal-temporal asymmetries resulting from exposure to visible facial expressions of emotion. The literature has so far reported attentional asymmetries on spatial perception, and nasal-temporal asymmetries resulting from backward masked visual stimuli activated through non-conscious perception. To our knowledge however, no attempt has been made to test such asymmetries with un-masked, consciously visible emotional stimuli. Here, we report on response differences in binocular and monocular viewing on the perception of visible facial expressions of affect. In Study 1, 24 right-handed adults completed a speeded forced-choice paradigm, in which they binocularly viewed bilateral displays of a neutral face in one hemifield, simultaneously paired either with a happy or angry face of variable emotional salience in the opposite hemifield, for 50ms; the task was to indicate the left-right location of the emotional face. In Study 2 (N=23, right-handed), participants completed the same paradigm mononocularly while alternately patching either left and right eye in successive blocks. Under binocular viewing, we found an overall advantage for localising happy faces, further intensified when displayed in the right visual hemifield, and evident even when the emotional expression was extremely subtle. For monocularly viewed stimuli, we observed a response latency asymmetry with faster responses to temporally viewed happy faces. However there was higher overall accuracy for nasal stimuli regardless of emotion, further intensified when the emotional face appeared on the left. Our findings show that the nasal-temporal asymmetries previously associated exclusively with the non-conscious perception of emotional stimuli, manifest as 'trigger-happy' responses when emotional stimuli become visible. This asymmetrical reduction in response latency for nasal stimuli could be attributed an overall attentional bias towards the temporal area ipsilateral to the open eye. This however does not appear to increase our detection accuracy, suggesting that a subcortically driven increase in vigilance does not necessarily make for more efficient responses.