

HEMISPHERIC DIFFERENCES IN THE P100 AND N170 DURING IMPLICIT PROCESSING OF FACIAL VALENCE

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According to neuropsychological theories of emotion, left and right frontal brain areas are differentially involved in positive and negative emotions. However, the right rather than the left posterior cortex appears to be involved in affective face perception, irrespective of emotional valence. Here we investigated the asymmetries in early ERP components to lateralized neutral and emotional stimuli. ERPs were recorded from 32 right-handed subjects (18–35 years old; 16 men) while they performed a sex classification task with neutral, happy and fearful faces. Pictures of faces were shown for 150 ms to the left or right of a central fixation cross. There were two blocks with 90 faces each, to have each face shown once to the left and once to the right visual half field (VHF). The order of blocks was counterbalanced. At lateral occipito-parietal sites, we found significant interactions of facial valence, VHF, and hemisphere for both the P100 and N170. For the P100, hemispheric differences were more pronounced for the ipsilateral than for contralateral presentations, with the right hemisphere exhibiting the largest P100 amplitudes, especially for neutral and happy faces. For the N170, hemispheric differences were more pronounced for contralateral than for ipsilateral presentations, with larger right than left N170 amplitudes. For ipsilateral presentations, we found larger N170 asymmetries for happy and fearful than for neutral faces. Together, these results suggest the preferential processing of affective faces by the right posterior areas, irrespective of emotional valence.