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The role of attention in perceiving social information: behavioral and electrophysiological studies.

Researchers studying attention have long been interested in how humans are able to perceive a particular stimulus at the expense of attending to others. A sequence of 4 experiments were conducted to investigate behavioral and EEG-correlates to manipulations of selective attention while perceiving social stimuli such as faces, bodies, and body parts, and artificial objects *such as houses*. In *Experiment 1*, attention was manipulated *sensu* Lavies' perceptual load theory (PLT) to briefly (200 ms) presented unfamiliar faces and houses. Results show attentional ERP-modulation for faces and houses in that a decreased N170 under high load vs. low load occurred for faces, while the opposite pattern emerged for houses. In *Experiment 2* and 3, we used upright and inverted unfamiliar faces either intact (Exp. 2) or with eyes removed (Exp. 3) and compared N170 responses to upright and inverted human bodies presented either intact (Exp. 2) or with head removed (Exp. 3) under high vs. low perceptual load. Specifically, we tested effects of perceptual load on inversion effects in the N170 for these stimulus classes. The results showed clear inversion effect on both faces with eyes and human bodies under both condition of load. Interestingly this inversion effect was of opposite polarity when eyes were absent. Load affected N170 to upright intact faces, but no load effects were observed to other stimuli. In *Experiment 4*, we measured N250r for unfamiliar faces, body parts, and houses. The results show that N250r occurred only for faces but not for houses or body parts, suggesting the existence of a face-selective attention module that may support encoding under high attentional load. This mechanism, however, may not be available for other natural or artificial objects.