
Emotion and Brain-Body Activation

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Abstract

Emotion appears to be a key link between mental states and physical disease (Lane et al., 2009). It is also known that emotional visual information receives an attentional priority capture and activates brain-body responses that could be critical to the emotional regulation and general adaptation. However, emotional processing involves cerebral, physiological and behavioral responses which integration remains poorly explored. Consequently, we aimed to develop a neurophysiological approach linking central and peripheral neural reactivity to emotion. To this end, we carried out simultaneous recordings of evoked-related magnetic fields (ERFs) and skin conductance responses (SCRs), a reliable autonomic marker of emotional arousal, during the presentation of emotional scenes to healthy participants. Firstly, scenes were centrally presented to 18 participants. ERFs results revealed a greater activity at 180 ms in an occipito-temporal component for emotional pictures relative to neutral ones; this emotional arousal effect was significantly correlated with late-coming increases in SCRs magnitude. Secondly, the same pictures were presented at 12° of eccentricity in the left or the right visual fields to 16 participants. Results showed a differential hemispheric contribution in the emotional processing. Importantly, the observed differential hemispheric impact of emotional stimulations persists at body level, as revealed by SCRs magnitude differences. In conclusion, this integrated approach allowed us to identify an early brain-body impact of emotional arousal and a hemispheric specialized effect of emotional valence processing.

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