

Departmental Seminar

Relationships between Visual Awareness and Approach-withdrawal Behaviours

11:30 a.m. – 12:30 p.m. | June 21, 2017 (Wednesday)

Rm 813, 8/F, The Jockey Club Tower | Centennial Campus | The University of Hong Kong



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Abstract

We examined the behavioural and neural effects of higher cognitive mechanisms on automatic and elaborate motivational responses elicited by visual material presented in *absence* (i.e. subliminal stimuli) and *presence* of visual awareness (i.e. optimal stimuli), respectively. Specifically, we first delineated automatic and elaborate approach and withdrawal behaviours during self-pain experience before and after passive viewing of negative *or* vicarious pain images at subliminal *or* optimal exposure (N=155). As a second step, we analysed encephalographic recordings taken while participants viewed negative *and* neutral images presented at subliminal *and* optimal exposure before and after right dorsolateral prefrontal cortex (rDLPFC) inhibition or sham via repetitive transcranial magnetic stimulation (rTMS) (N=48). Subsequently, participants completed attention and affective tasks. Findings strikingly indicated that in *absence* of visual awareness, visual material that reflects self-oriented threat (i.e. negative images) may trigger automatic withdrawal to enhance individual survival, while images reflecting other-oriented threat (i.e. vicarious pain images) may rather provoke automatic approach to promote survival of group members. Automatic negative processing was revealed to occur along two distinct neural networks that are implicated in attention orienting and stimulus encoding. Crucially, neural patterns and approach-withdrawal responses to subliminal and optimal negative images were modulated by rDLPFC activity, confirming the effects of higher cognitive processes on both automatic and elaborate negative processing. Implications for healthy and clinical populations, and areas of future research using integrative behavioural-neuroimaging methods will be discussed.

~All are Welcome~