

Departmental Seminar

Emotion Regulation after 24-hour Sleep Deprivation

12:30 p.m. – 1:30 p.m. | August 30, 2017 (Wednesday)

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



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Abstract

Sleep deprivation is suggested to impact emotion regulation but few studies have directly examined it. In Study 1, 51 young healthy adults were randomly assigned to a sleep control (SC, n=25) group or a sleep deprivation (SD, n=26) group. In the morning after sleep manipulation, all participants completed an emotion regulation task with electroencephalographic (EEG) recordings, in which they implemented a given emotion regulation strategy (distraction, reappraisal or suppression) towards unpleasant pictures. The event-related potential (ERP) data suggested that reappraisal in the SD group was significantly less effective in attenuating the centroparietal late positive potential (LPP) towards unpleasant pictures than the SC group. There was only a statistical trend to the diminishing influence of sleep deprivation on the attenuating effect of distraction on LPP amplitudes. Suppression was ineffective in attenuating the LPP towards unpleasant pictures in both groups. Findings in Study 1 suggest that sleep loss may generally diminish the effectiveness of adaptive emotion regulation strategies, particularly the strategy of reappraisal. Study 2 investigated 8-minute resting-state EEG measures before the emotion regulation task in Study 1. The power ratio of theta and beta bands over the prefrontal region (frontal theta/beta ratio) and the difference in alpha band power between the right and left frontal hemispheres (frontal alpha asymmetry) were calculated to index the prefrontal cortical control over the subcortical emotional reactivity. Significantly higher frontal theta/beta ratio and marginally more left-lateralized alpha band were found the SD group compared with the SC group. The findings in Study 2 converged in suggesting poorer functioning of the emotional regulatory neural network in a resting state after sleep deprivation.

~All are Welcome~

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