

Sleep-dependent emotion regulation

Results:

Goal: Recent neuroimaging studies support that emotion regulation could be strengthened by sleep. First, MRI findings (Yoo et al., 2007; Walker et al., 2011) have demonstrated that REM sleep decreases amygdala reactivity to intrinsically emotional stimuli, previously experienced. Second, one study (Pace-Schott et al., 2009) suggests that sleep reduces affective impact of an emotional learning. The main goal of our work is to identify neural activities during sleep as the cause of reduced emotional reactivity for a new emotional learning.

Methods: Two groups, a “sleep” group (13 participants) and a “wake” group (15 participants) have performed the protocol. Both groups watched a set of 15 short neutral and scary movies (4 sec each) ended with the presentation of neutral pictures. Conditioned neutral pictures (previously associated to scary movies) were next presented alone, immediately after the conditioning and after a 12hr delay. Physiological and psychological responses to conditioning pictures were measured. For the sleep group, sleep EEG was recorded during 3 consecutive nights, the last one following the conditioning protocol.

Results and discussion: Main results showed that emotional responses were reduced in the sleep group compared to the wake group. In the sleep group, significant differences were observed between the control night and the ‘emotional’ night only for the theta band during the REM sleep. By contrast EEG activity during both light and deep sleep appears to be globally unaffected by experimental conditions. This result suggests that theta rhythm is increased during REM-sleep subsequent to emotional learning, sustaining emotional adaptation process.

Published works:

Area(s) of interest:

Sleep, emotion, neuroscience

Researchers' Contacts:

Pascal HOT, PhD
Maître de Conférences des Universités
Département de Psychologie

LPNC-UMR CNRS 5105, Université de Savoie
UFR LLSH, Jacob-Bellecombette
BP1104, 73000 Chambéry, Cedex, France