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The role of sleep in emotional memory processing in PTSD patients

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Sleep appears to play an important role in emotional memory processing and emotional coping. Disturbed sleep (nightmares and insomnia) is one of the key symptoms of posttraumatic stress disorder (PTSD) and may play an important role in the aetiology and/or maintenance of PTSD. Polysomnographic studies in PTSD patients have reported mainly on changes in REM characteristics and arousal regulation. However, little is known about the relation between sleep disturbances and emotional memory processing in PTSD. A previous sleep study in healthy subjects suggests the occurrence of adaptive changes in sleep architecture after emotional experiences, which benefit emotional housekeeping and the attenuation of emotional responses towards negative emotional experiences (manuscript under submission). The current controlled patient study assesses the impact of an induced, emotionally distressing experience on sleep parameters in PTSD patients, including the distribution of sleep stages, REM sleep-related variables, and EEG power spectral parameters. In addition, we will analyse how sleep changes in response to the stressor relate to emotional attenuation over sleep. The main experimental groups are traumatized police officers and veterans with PTSD (N = 25) and without PTSD (N = 25). We will also include a control group of non-trauma exposed controls (N = 25). The experimental set up involves presentation of neutral or distressing film fragments in the evening, followed by polysomnography (EEG - F3, F4, C4, O2- referenced to linked A1 + A2; EOG; EMG; ECG; respiratory signals; limb movements) of undisturbed, whole night sleep, and cued recall of film content on the next

evening. The order of the film conditions is counterbalanced across subjects. Emotional state and physiological measurements (ECG, respiratory effort, GSR, and plethysmogram) are assessed before and after film viewing and cued recall. Physiological signals are recorded during the film and stills as well. Preliminary results will be presented and discussed.