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*J Neural Transm (Vienna)*. 2012 Oct;119(10):1223-32. Epub 2012 Aug 22.

## Association of salivary-assessed oxytocin and cortisol levels with time of night and sleep stage.

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### Abstract

There have been proposals for REM to have a function of emotional memory consolidation, and also for REM sleep to be involved in the promotion of attachment behaviour. The hormones cortisol and oxytocin, respectively, may be involved in these proposed REM sleep functions. However, there are conflicting reports on whether levels of cortisol differ between sleep stages when time since sleep onset (SSO) is controlled, and virtually no literature on whether levels of oxytocin differ between sleep stages. This study thus investigated the changes in levels of oxytocin (OT) and cortisol (CT) across the night, and whether these levels differ between REM and N2 sleep when time SSO is controlled. 20 participants (10 males, 10 females, mean age = 20.45, SD = 2.01) were awakened 10 min into REM and N2 sleep periods in the sleep laboratory and gave saliva samples which were assayed for OT and CT. Levels of OT were relatively constant across the night, whereas CT increased significantly. REM and N2 did not differ significantly neither for OT nor for CT. The study has implications for models of sleep-dependent memory consolidation that incorporate the late sleep increase in cortisol as a functional component of memory consolidation, and also for the medical diagnostic assaying of OT during sleep.

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