

Short-term homeostasis of REM sleep assessed in an intermittent REM sleep deprivation protocol in the rat

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An intermittent rapid eye movement (REM) sleep deprivation protocol was applied to determine whether an increase in REM sleep propensity occurs throughout an interval without REM sleep comparable with the spontaneous sleep cycle of the rat. Seven chronically implanted rats under a 12:12 light-dark schedule were subjected to an intermittent REM sleep deprivation protocol that started at hour 6 after lights-on and lasted for 3 h. It consisted of six instances of a 10-min REM sleep permission window alternating with a 20-min REM sleep deprivation window. REM sleep increased throughout the protocol, so that total REM sleep in the two REM sleep permission windows of the third hour became comparable with that expected in the corresponding baseline hour. Attempted REM sleep transitions were already increased in the second deprivation window. Attempted transitions to REM sleep were more frequent in the second than in the first half of any 20-min deprivation window. From one deprivation window