

Short-term homeostasis of active sleep and the architecture of sleep in the rat

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1. Sixteen rats were recorded continuously for 3 days using an automated system that detected, quantified, and stored the incidence of cortical delta waves, cortical sigma spindles, hippocampal theta rhythm, and electromyographic activity. A time series then was constructed wherein 15-s epochs were ascribed to one behavioral state: wakefulness (W), quiet sleep (QS), or active sleep (AS, a state also referred to as REM sleep). From those series, AS episodes and non-AS intervals could be determined. Episodes and intervals were defined as lasting at least two epochs and the one-epoch episodes and intervals were incorporated to the ongoing state. 2. Having established the length of each AS episode and non-AS interval, pairings were made, on the one hand between episodes and their preceding intervals, and on the other, between episodes and the intervals that followed. 3. Highly significant correlations were found between the length of AS episodes and the length of the non-AS intervals that