



Colloquium

The Institute Colloquium: The memory function of sleep

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Host:

Whereas memories are encoded and retrieved optimally when the brain is awake, the consolidation of memory requires an offline mode of processing as established optimally only during sleep. Recent studies have elucidated some of the neurophysiological mechanisms underlying the consolidation of memories during sleep, especially in the hippocampus-dependent declarative memory system. This system is capable of rapidly forming an initial memory representation for an episode upon its one-time occurrence, and is thus at the basis of the formation of any long-term memory. Consolidation of hippocampus-dependent memories represents an active system consolidation process that takes place mainly during slow wave sleep (SWS) rather than REM sleep. It selectively strengthens memories of future relevance and leads to a qualitative transformation of the memory representation. System consolidation during sleep critically relies on the neural reactivation of newly encoded memory representations in hippocampal circuitry, which likely stimulate a gradual redistribution of the representations towards extra-hippocampal, mainly neocortical networks serving as long-term store. Hippocampal memory reactivations are driven by the <1Hz EEG slow oscillations that dominate SWS and are generated in neocortical networks partly as a function of the prior use of these networks for encoding of information. By synchronizing hippocampal memory reactivations with specific activity from other brain areas, including thalamo-cortical spindles, slow oscillations enable persisting plastic changes underlying the long-term storage of memories in the neocortex.

Monday, April 27, 2015 04:30pm - 05:30pm

Raiffeisen Lecture Hall, Central Building



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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