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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Permalink

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Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 39(0)

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Publication Date

2017

Peer reviewed

Investigating the Impact of Sleep on Eyewitness Memory

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Abstract: How sleep impacts the accuracy of identifications that eyewitnesses make from lineups is unknown. For a comprehensive understanding of eyewitness performance, two types of eyewitness ID accuracy are considered: discriminability (the ability to distinguish innocent from guilty suspects) and reliability (the probability that the identified suspect was the offender). The well-known role sleep plays in memory consolidation should apply to an eyewitness's ability to discriminate, but not necessarily their reliability. That is what we investigated in a large-scale forensically-relevant experiment. We compared discriminability and reliability from sleep (sleep occurs between witnessing a crime and lineup test) and wake (remains awake between crime and lineup) conditions. Furthermore, theorists have long been using signal-detection models to understand recognition memory, but its use is new to the field of eyewitness ID research. Thus, we compared signal-detection models with different decision rules. Our findings shed light on the impact sleep has on eyewitness IDs.