INTRODUCTION

• Sleep is critical for motor learning and the consolidation of memories.
• Sleep may interact with other learning variables such as type of instruction.
• Sleep opportunity affects skill learning in neurologically intact people who are given explicit instruction prior to acquisition; implicit motor learning is time dependent (i.e. the performance of people given no instruction prior to acquisition improves both following a period of sleep and a period of being awake).
• Consistent with work that demonstrates a preferential enhancement of explicit awareness and retention following a period of sleep.
• To date, no research has examined the effect of sleep on motor skill learning following stroke.

METHODS

Task Serial Reaction Time (SRT) task

Participants included 20 healthy young people (10 females and 10 males) non-stroke participants and 6 stroke participants. (n=6) Participants: 27.1 yrs (4.9) Sex: Female 27 and Male 16.

METHODS (cont’d)

Task Description: Participants were seated before a computer with a standard keyboard. The central four keys on the keyboard (V, B, N, M) were colored red, yellow, blue, and green respectively. Participants practiced the SRT at 15 blocks during acquisition. The blocks consisted of a 10-element repeating sequence (repeated 10 times each block for 100 responses each block) except for block 1 and 14 which were comprised of 100 pseudo-random stimuli. The retention test consisted of 2 blocks: the first a random block followed by another repeating block. Simple RT was acquired using a 50 stimulus response test.

RESULTS

Experiment 1

(a) Implicit no-sleep condition: 9 implicit no-sleep condition of the 28 participants (57%) in the implicit condition gained a better than chance amount of explicit awareness. Those subjects were removed from analysis.

Acquisition: All groups demonstrated faster RT for the repeated as compared to random sequence across acquisition practice.

Comparison of implicit no-sleep group (p<.001) showed significantly faster RT at Session 2 retention.

The Role of Sleep and Knowledge in Motor Skill Learning
Siensgukon, CF1 & Boyd, LA1,2

REFERENCES


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