INTRODUCTION
Sleep facilitated off-line motor learning of a continuous tracking task in individuals with stroke.
- Individuals with damage to the prefrontal cortex (as a result of either stroke, tumor, or trauma) benefited from sleep to promote off-line learning of a finger sequencing task.
- Sleep does not appear to be important for learning and memory consolidation in older individuals.
- The role of sleep in off-line motor learning of a task where either spatial or temporal accuracy can be improved to facilitate motor learning is largely unknown.
- Spatial regularities of the SRT task were enhanced by sleep in young, healthy individuals, the motor component improved over the day without sleep.
- Spatial learning is known to be reliant on the hippocampus as well as increase in sleep spindle activity.

METHODS
Participants: 15 individuals with stroke (ST) and 15 sex- and age-matched neurologically intact individuals (CT) practiced a continuous tracking task in the evening (sleep groups) or the morning (no-sleep groups) and underwent retention testing 12 hours later (+/- 1 hour).
Hand Used: ST - ipsilateral hand; CT - same as matched ST

Task Description:
Practice: 10 blocks of 10 trials per block; each trial 1 random and 1 repeated segment in counterbalanced order (12.5s each segment; trial length 25s with 2s baseline trial divider).
Delayed Retention: 1 block of 10 trials

METHODS (cont’d)
Data Analysis:
- **Root Mean Square Error (RMSE)** was calculated for repeated segment of each trial.
- **Median RMSE** was calculated for each block.
- **Time series analysis** decomposed overall tracking accuracy into spatial and temporal components.
- Each participant’s tracking error data points were serially correlated with the target pattern data points until maximum correlation coefficient achieved (Fig 2)

RESULTS
Temporal Tracking Accuracy: Only the stroke sleep group demonstrated off-line improvements at retention.