

# The Impact of Caffeine on Short-Term Memory in Post-Secondary Students

## Introduction

Intake of caffeine has been linked to improving memory in older adults due to its effect on reducing mental decline, as well as, significantly improving sustained attention and working memory. Therefore, the benefits of caffeinated substances on mental performance in post-secondary students was to be further explored.

## Purpose

The objective of this study was to observe the effects of caffeine on short-term memory (STM) in post-secondary students, as multiple studies were already conducted on older populations.

## Methods

Unaware of which pill was given first, participants were administered one 200mg caffeine pill (a) and one Vitamin D supplement which is the placebo (b). Participants waited either 30 minutes or 45 minutes after ingestion of the respective pills, before conducting the Rey Auditory Verbal Learning Test (RAVLT), which consisted of a series of trials to test their word recall.

a)



b)



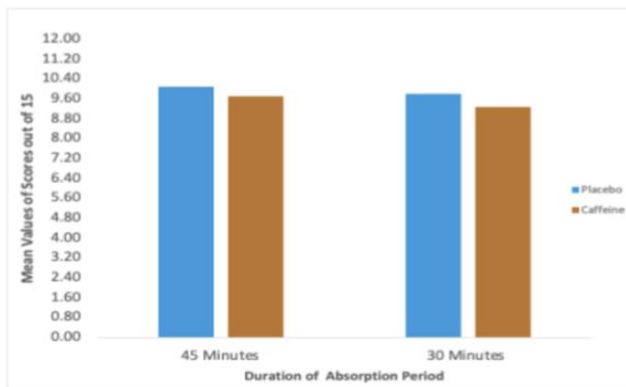
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Table 1  
Mean Values for 45-min vs 30-min Test

	45-Min	30-mins
PLACEBO	10.1	9.8
CAFFEINE	9.7	9.3

Figure 1

Mean Values of 45-min vs 30-min Placebo vs Caffeine



Note: Illustrates the mean values of the 45-minutes and 30-Minutes for Caffeine vs Placebo Data

## Results

On average, participants in Group B who waited 45 minutes between caffeine pill ingestion and completing the RAVLT evaluation generally retained more words (10.7 words) than Group A who waited 30 minutes after caffeine pill administration (9.3 words). The difference between both groups being a total of 0.4 words. On the other hand, while the placebo trials for 45-minutes (10.1) were performed better than the 30-minutes (9.8), the caffeine trials accounted for a slightly greater difference in between STM and word retention.

## Discussion

The results satisfy the prolonged hypothesis where caffeine reaches its peak levels 30 to 60 minutes following consumption because the 45-min group recalled slightly more words during the caffeine and placebo trials (Heffron, 2013).

Future researchers may benefit from obtaining a larger pool of test subjects, while administering caffeine dosages relative to participants' body mass. In addition, various forms of STM assessments, as well as, consideration of motivating factors of participants can be implemented to improve further research to contribute to the field of study.

## Conclusion

Consistent with previous studies, the intake of caffeine has improved memory and attentional span in individuals, more specifically, older adults. While consumption of caffeine can positively affect memory in post-secondary students, it is important to consider the peak times for optimal caffeine effects, along with consumption habits, and the time of day effect may contribute to impacts of caffeine on STM.

## References

Heffron, T. M. (2013, August 1). *Sleep and Caffeine*. Sleep Education. <http://sleepeducation.org/news/2013/08/01/sleep-and-caffeine>.