Memory in Older Adults: The Effect of Associative Memory Exercises

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Abstract:
- Two associative memory exercises targeting the connection between the left and right brain hemispheres were designed and applied to 15 elderly between 70 to 90 years of age.
- 14 volunteers (2 males) with no cognitive impairment and 1 diagnosed AD volunteer participated in this study during 2 months.
- We hypothesize that regular and frequent exercise of associative memory improves mental state.
- The encouraging results suggest the proposed games could be used as a tool to improve the cognitive state of the older population.

Introduction

Struggling with memory functions represents a source of worry, fear and complaints among the elderly.

- Higher memory problems are present in complex tasks, which includes free and cued recall, source memory and associative memory.
- **Associative Memory**: It occurs with the creation of association links between different items without previous connections and later retrieve these new associations.
- Deficits in memory are related with age and are more pronounced in Alzheimer’s disease subjects.
- **Brain plasticity**: New findings over the last 20 years have shown that our brain is dramatically plastic it can adapt, rewire, heal, renew, and even into old age, not only change its structure but also generate new neurons.
- In this study we investigate the effect of associative memory exercises in older adults.

Methods

**Brain Exercises**
- Played by every volunteer three times in a week for 8 consecutive weeks.
- Each game was played two times each session.

1. **Word-Image Association**

   - Designed for each volunteer one week after the end of the study.

2. **Associative Memory**

   - Designed to train the connection between different parts of the brain.

   - The encouraging results suggest the proposed games could be used as a tool to improve the cognitive state of the older population.

Some Related Publications


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Results

**Word-Image Association game**

- The encouraging results suggest the proposed games could be used as a tool to improve the cognitive state of the older population.

**Associative Memory game**

- The encouraging results suggest the proposed games could be used as a tool to improve the cognitive state of the older population.

**Wechsler Memory Scale**

- The encouraging results suggest the proposed games could be used as a tool to improve the cognitive state of the older population.

Conclusions

- Overall the current results are encouraging and suggest that the designed computer games could be used as a tool to help improve mental cognition in the elderly population. Therefore the frequent use of the proposed memory exercises regularly may help in delaying the onset of Mild Cognitive impairment or dementia.