

The Effects of Exercise on Cognition and ADLs in Males with Dementia

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Exercise Science

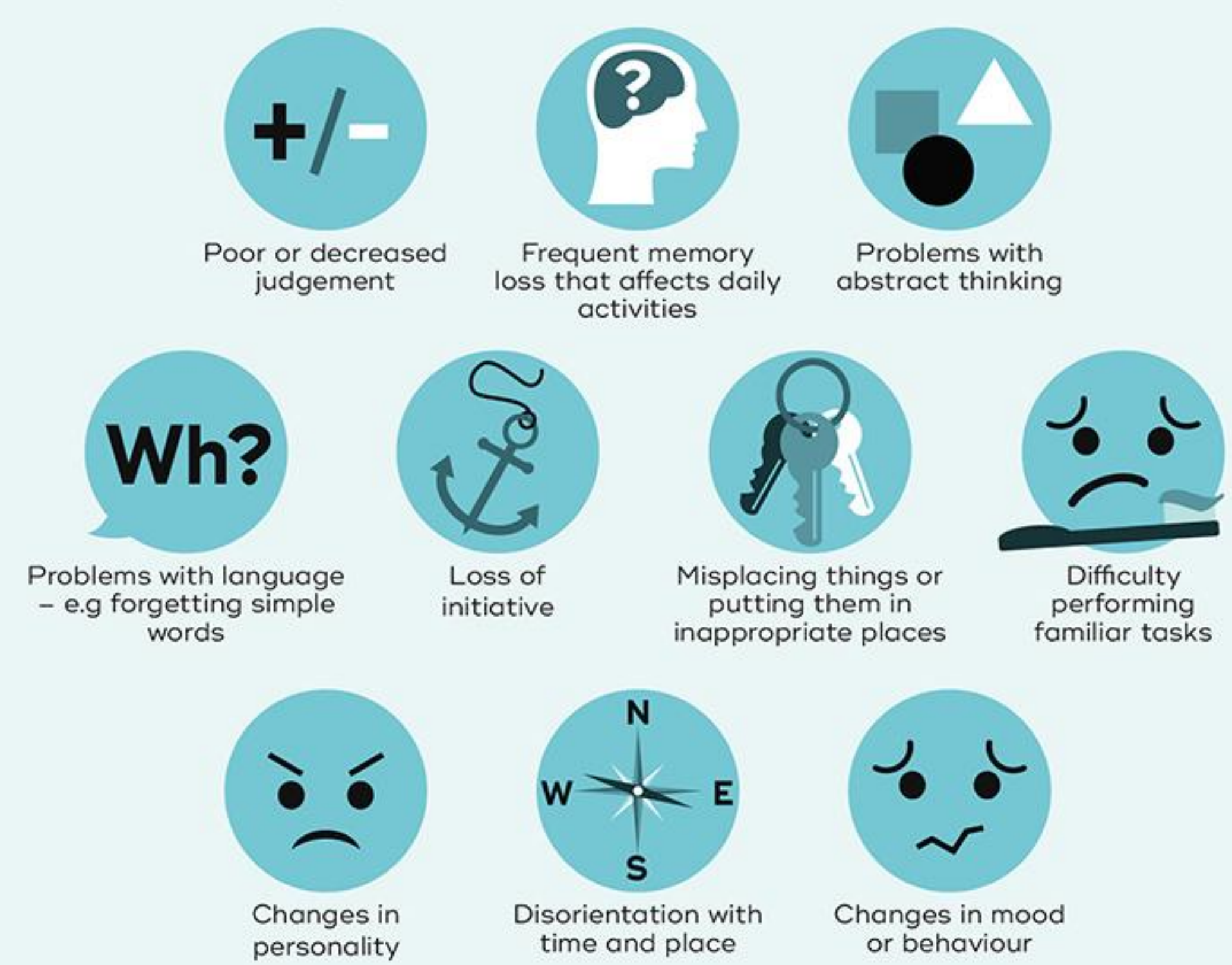
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Abstract

- A total of 54 participants were recruited from nursing homes in the Charlotte, NC area.
- Physical and occupational therapists met with the control and intervention groups twice a week for 16 weeks.
- The MMSE, Katz ADL, 30 Second Chair Stand Test and 6 Meter Walking Test were used to assess participants at baseline, 4, 8, 12, and 16 weeks.
- An independent samples t-test was used to compare baseline and 16 week test results. Linear analyses were used to examine other factors.

Introduction & Review of Literature

- Dementia kills one in three seniors, which is higher than the mortality rate of breast and prostate cancer combined (“Alzheimer’s Facts and Figures Report”, 2019).
- Alzheimer’s disease and stroke are known as the two most common causes of dementia, causing roughly 80% and 20% of dementia cases (“Dementia Statistics, n.d.”).



<https://qbi.uq.edu.au/dementia/dementia-signs-and-symptoms>

- Recent research has shown that exercise can cause improvements in cognition and Activities of Daily Living (ADLs) in those with mild dementia (Choi, Kim & Yi, 2018).
- As of 2017, the prevalence of dementia shows that there are about 50 million people who are affected by the disease, while the incidence suggests that there are around 10 million cases each year (“Dementia”, 2017).
- The Berg-Balance Test, 30 Second Chair Stand Test, and the 6 Meter Walking Test are all valid and reliable ways to assess participants (Telenius, Engedal & Bergland, 2015b).
- Doing emotional, manipulative, coordination and recreation exercises resulted in an improvement of cognition and ADLs (Choi, Kim & Yi, 2018).

Purpose & Hypothesis

- The purpose of this study was to identify how a 16 week exercise program affects cognitive functioning and ADLs in male dementia patients living in nursing homes.
- It was hypothesized that a 16 week exercise program would improve cognition and ADLs.

Methods

Participants

- Recruited from nursing homes in Charlotte area
- Must be 65+, have professional diagnosis of dementia, score of 23 or lower on the MMSE, ability to stand and sit without assistance, and ability to walk 6 meters with or without a walking aid
- Informed consent from caregiver
- pre-test questionnaire

Intervention

- Block random assignment was used to divide participants into a control and intervention group
- Occupational and physical therapists met with both the control and intervention groups twice a week for 16 weeks
- Intervention group: walking, sitting, standing, throwing, pedaling
- Control group: reading, playing games, listening to music

Instrumentation

- Participants were assessed at baseline, 4, 8, 12, and 16 weeks using:
- Mini-Mental State Examination (MMSE)
 - Katz ADL
 - 30 Second Chair Stand Test
 - 6 Meter Walking Test
 - Berg-Balance Scale

Results

- Independent samples t-test for baseline and 16 week comparison
- Linear regression analyses

Operational Definitions

- **Dementia**: The clinical syndrome of cognitive decline that interferes with social or occupational functioning (Chertkow, Feldman, Jacova & Massoud, 2013).
- **Katz ADL**: Assessment that measures 6 tasks; bathing, dressing, toileting, transferring to and from a chair, maintaining continence and feeding. If the individual performs a task independently, they receive one point. If they need assistance, no points are given. The Katz ADL is a reliable and valid test (Arika et al., 2015).
- **Mini-Mental State Examination (MMSE)**: A common assessment used to measure cognitive functioning in people with dementia. The maximum score on the Mini-Mental State Exam is 30 points. A 20-24 suggests mild dementia, while a 13-20 suggests moderate dementia and a score below 12 suggests severe dementia (“Medical Tests”, n.d.).
- **Berg-Balance Scale**: Instrument that uses 14 different techniques involving standing, sitting, turning, and single leg mobility to measure balance in older adults. Participants were scored using a scale from 0-4, with 4 being the highest level of functioning (Telenius, Engedal & Bergland, 2015b).
- **Occupational Therapist**: A professional whose main focus is to improve a client’s ability to perform activities of daily living. OT’s practice in a variety of settings, including schools, hospitals, homes, and outpatient facilities (“The Fields,” 2017).

Conclusion

- Limitations of the study are that the sample size may not have been representative of the population and that the frailest dementia patients were not tested.
- It was assumed that the participants were not participating in physical activity outside of the program and that they were truthful throughout the study.
- Further research should be done to evaluate the effects of exercise on cognition and ADLs because of mixed results.

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