

## Research Question

Does exercise improve quality of life in adults with ABI?

## Introduction

Acquired Brain Injuries (ABIs) can have long-term effects on individuals. Many adults with ABIs struggle with memory, attention, depression, work, and social activities. These challenges can greatly reduce their quality of life. Because their challenges are complex, it's important to find effective ways to help improve the lives of people living with ABI. Exercise is one intervention that may help people with ABIs. Several studies have looked at how different types of physical activity can improve cognition, emotional health, and everyday functioning. Exercise programs and combining exercise with mindfulness may improve sleep, mood, and focus. Evidence suggests exercise can be a useful part of recovery for people with ABIs. More research is needed to understand how to use it effectively in occupational therapy.

## Method

**Review process:** Adhered to PRISMA guidelines Four independent reviewers screened, selected, and assessed the studies for quality and data extraction.

**Date of search:** May 19 and June 6, 2025, with an additional search on June 24, 2025

**Inclusion criteria:** Peer-reviewed articles and published in English from 2015 to 2025

**Exclusion criteria:** Systematic reviews, dissertations, and presentations

**Databases:** EBSCOhost, MEDLINE, Academic Search Complete, and CINAHL Complete via Hawai'i Pacific University's library.

**Search terms:** Combinations of brain injury, exercise, quality of life, and cognitive or emotional health.



## Results

Twenty-seven articles were initially found. Five studies met the inclusion criteria. The articles were assessed according to their risk of bias, level of evidence, and quality. The information from these articles was divided into two themes: Cognitive Health and Activity Participation.

The studies had several limitations outlined below:

- Small sample sizes across all studies that limited the generalizability of the outcomes.
- Self-reported measures that may cause bias and prevent objectivity, and limit generalizability of the outcomes (Vargas et al., 2024; Varner et al., 2021)
- Attrition rate could have skewed the results in one study (Lilliecreutz et al., 2017)

## References



## Discussion

Exercise-based and technology-supported interventions are effective to enhance cognitive outcomes for individuals with ABIs. Physical activities and assistive technology led to improvements in cognitive domains (e.g., attention, information processing) and occupational performance. It is important to incorporate client centered interventions in treatment programs. Future research should prioritize utilization of standardized assessments for quality of life, as well as an emphasis of client-centered practice.

## Conclusion

This systematic review demonstrated that exercise could play an important role in improving quality of life for adults with acquired brain injuries. Across the studies reviewed, physical activity was linked to improvements in cognitive health and increased participation in meaningful activities. Although some of the studies had limitations, such as small sample sizes or reliance on self-reported data, the overall findings support exercise as a beneficial and safe intervention for adults with ABIs. As occupational therapists who support recovery for people with ABIs, incorporating structured, client-centered exercise programs could be a valuable approach. Future research with larger sample sizes and more rigorous study designs is needed to strengthen the evidence and guide best practices in the field.

## Implications for Occupational Therapy

- Integrate structured physical activity into treatment plans to support cognitive recovery and improve participation in daily activities.
- Rehabilitation programs may benefit from combining mindfulness practices with exercise.
- Community-based exercise programs can be valuable for long-term engagement, social participation, and motivation.
- Assistive and adaptive technologies should be tailored to the unique cognitive and physical needs of individuals with ABI to promote engagement, independence, and motivation.