

Research Question

How does assistive technology support independence with meal preparation in adults with cognitive impairment following brain injury?

Introduction

- Traumatic brain injury (TBI) and acquired brain injury (ABI) often results in cognitive impairments that affect independence with daily activities.
- Meal preparation is a complex Instrumental Activity of Daily Living (IADL) requiring memory, planning, and executive functioning.
- The Cognitive Orthosis for coOKing (COOK) is assistive technology designed to improve safety and independence during meal preparation (Pinard et al., 2021).
- This review examined the effectiveness of assistive technology in supporting independence among adults with brain injury.

Methods

Design: Systematic review following PRISMA guidelines.

Databases: CINAHL Complete, MEDLINE, Google Scholar

Dates of Search: May 20, 2026 - May 29, 2026

Search Terms: Variations of: traumatic brain injury, occupational therapy, and assistive technology

Inclusion Criteria: Adults $\geq$ 18 years, cognitive impairment following TBI/ABI, related to occupational therapy, and peer-reviewed articles published between 2021-2026

Results of search: 69 records identified, 29 screened after duplicates removed, eight full-text articles reviewed, six studies included in final review

Results

- Theme 1: Usability of COOK
- COOK was easy to learn and use
 - Improved confidence during meal preparation
 - Increased number and variety of meals prepared
 - Users reported feeling safer while cooking
 - Technical support and software bugs were common concerns.
- Theme 2: Efficacy of COOK
- Reduced need for assistance during meal preparation
 - Fewer cooking errors and safety risks.
 - improved independence and task performance.
 - Reduced caregiver burden
 - Supported community living and participation

Figure 1. Themes from Studies in Systematic Review



Image from Canva

References



Discussion

As highlighted in Figure 1, the Cognitive Orthosis for coOKing (COOK) positively affected several aspects of functioning in adults with cognitive impairment following brain injury, including:

- 🔍 **Meal Preparation:** Increased meal variety and successful completion of cooking tasks.
- 💪 **Independence:** Reduced assistance needed and improved task performance.
- 😊 **Confidence:** Greater confidence and self-efficacy while cooking.
- 🛡️ **Safety:** Fewer cooking errors and improved perceived safety.
- 👨👩👧 **Caregiver Burden:** Reduced caregiver stress and support needs.
- 🏠 **Community Living:** Enhanced participation and independent living.

Technology limitations were software bugs and the need for technical support (Gognon-Roy et al., 2023). Occupational therapists can use COOK as an evidence-based approach to supporting independence with meal preparation for adults with cognitive impairment.

Conclusion

Evidence from six studies suggests that COOK assistive technology can improve independence, safety, and participation in meal preparation for individuals with cognitive impairment following brain injury. Participants demonstrated improved task performance, reduced need for assistance and increased confidence. Additional research with larger and more diverse populations is needed to strengthen the evidence and examine long-term outcomes.