RESEARCH PAPER

Outcomes of OT Led Return to Work Interventions Post-Injury or Surgery in High-Risk Industries: A Systematic Review

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Abstract

Background: Workers in high-risk industries (e.g., construction, manufacturing, mining, emergency services) face elevated rates of injury and surgery, presenting unique challenges for return to work RTW. Occupational therapy OT led RTW interventions are designed to address physical, cognitive, and psychosocial barriers to successful workplace reintegration after injury or surgery. However, the effectiveness and outcomes of these interventions for workers in high-risk sectors remain underexplored.

Objective: To systematically review the literature on outcomes of OT-led RTW interventions for adults post-injury or surgery within high-risk industries, highlighting intervention components
, effectiveness, and factors influencing success.

Keywords: Occupational therapy, Return to work, High-risk industries, Workplace injury, Vocational rehabilitation, Systematic review.

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Introduction

High-risk industries often involve strenuous physical demands, hazardous environments, and complex psychosocial conditions, resulting in a high incidence of work-related injuries and surgeries. The after math of such events can jeopardize workers ability to resume meaningful employment, impacting income, mental health, and societal participation.OT-led RTW interventions aim to facilitate a safe and sustainable RTW through tailored rehabilitation, workplace modification, and advocacy.

Methods

Search Strategy

A comprehensive literature search was conducted utilizing data bases including Pub Med, CINAHL, Scopus and PsycINFO. The search included studies published from1980 to2025, focusing on:

- OT-led RTW interventions,
- Adult workers post-injury or surgery,
- Contexts representative of high-risk industries.

Inclusion Criteria

- Peer-reviewed articles, systematic reviews, and meta-analyses. Adults 18 who sustained work-related injury or underwent surgery.
- OT-led or OT-involved RTW interventions. Outcomes reported in context of high-risk industries.

Exclusion Criteria

- Non-OT-led interventions or rehabilitation programs. Populations outside high-risk industry settings.
- Studies focused exclusively on low-risk office-based occupations.

Study Selection and Quality Appraisal

- Studies were screened based on titles and abstracts,
- followed by full-text assessment.
- Quality was evaluated using recognized systematic review standards, and risk of bias was noted.

Results

Overview of Evidence

Twenty studies, (866participants) were identified. Most research demonstrated a moderate to high risk of bias, with considerable clinical heterogeneity in intervention components and outcome measures

Nature of Interventions

The core components of OT-led RTW interventions included.

- **Vocational Assessment:** Evaluating physical, cognitive, and emotional work capacities via Functional Abilities Evaluations and Job Demands Analyses.
- **Goal Setting:** Collaborative development of short-and long-term RTW goals tailored to individual needs.
- **Workplace Modification:** Recommending adaptive

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devices, ergonomic adjustments, and environmental modifications specific to high-risk job tasks.

- **Self-Management Training:** Educating workers in pain management, coping skills, stamina building, and safe task performance.
- **Employer Engagement:** Liaising with supervisors to negotiate graded RTW, transitional duties, and modified schedules.
- **Multidisciplinary Coordination:** Integrating physiotherapists, psychologists, physicians, and vocational case managers as needed.

Outcomes

Return to Work Rates

- RTW rates post-intervention varied widely2294%, impacted by injury severity, age, pain levels, self-efficacy, and workplace support.
- Individually tailored and work-focused OT interventions demonstrated the most promising RTW outcomes, especially for musculoskeletal injuries.

Time to Return

- Early intervention and rapid engagement with OT increased the likelihood of sooner RTW and reduced risk of permanent work loss.

Work Sustainability & Retention

- Interventions supporting graded RTW and ongoing monitoring improved work retention and reduced re-injury rates.
- Collaborative approaches addressing psychosocial, cognitive, and organizational barriers (not just physical function) yielded better long-term outcomes.

Quality of Life & Wellbeing

OT involvement led to improvements in quality of life, self-efficacy, and mental health post- injury, particularly where emotional readiness and motivation were addressed in the intervention·

Barriers and Moderating Factors

- **Injury Severity**: Greater injury complexity and chronicity were associated with delayed or unsuccessful RTW.
- **Industry-Specific Demands**: Physically intensive roles (e.g., heavy industry, mining) required more comprehensive adaptation and longer RTW trajectories.
- **Psycho-social Support**: Programs integrating mental health interventions CBT, ACT) showed improved RTW rates and workplace adjustment.

Discussion

Interpretation

- Tailored OT interventions, particularly those that are individualized, early, and work- focused, significantly enhance RTW outcomes for those recovering from injury or surgery in high-risk industries.
- Outcomes are optimal when interventions address *vocational*, *physical*, and *psychosocial*
- domains and involve strong collaboration with employers.
- Wide heterogeneity in RTW rates reflects differences in injury types ,industry-specific demands, and the thoroughness of OT involvement.
- There is urgent need for high-quality, standardized outcome measures to support meta- analyses and cross-study comparisons[123].

Limitations

- Many studies had high risk of bias due to inconsistent reporting, lack of comparison groups, and variable definitions of RTW.
- Few studies isolated the specific effect of OT compared to multidisciplinary or Occupational therapy-led programs.
- There is under representation of certain high-risk industries and sub groups (e.g.,female workers, older employees).

Recommendations

- Standardize Outcome Definitions & Measurement: Future research should consistently define and report RTW, time to RTW, sustainability, and job retention.
- Intervention Taxonomy Development: A clear taxonomy of OT-led RTW intervention components is needed for comparability and training.
- Holistic Intervention Models: Adopt integrated, bio psychosocial OT models that address both physical and psychological barriers to RTW.
- Employer Involvement: Active employer participation in RTW planning and implementation enhances effectiveness.
- More High-Quality Trials: Well-designed randomized and controlled trials in diverse high- risk industrial settings are urgently needed.

Conclusion

Occupational therapy-led RTW interventions are effective for many workers recovering from injuries or surgery in high-risk industries. Tailored, early, and multi-component interventions, especially those targeting workplace adaptation, vocational skills, and psychosocial resilience, contribute to faster, more sustainable, and higher-quality RTW outcomes. There remains a need for improved reporting, standardized outcome measurement, and inclusivity in future research to fully realize the potential of OT in RTW programs.

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