Department of Occupational Therapy, College of Public Health and Health Profession

Feasibility and effectiveness of pre-operative rehabilitation training and education on occupational performance in people with lower limb amputation – a scoping review

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BACKGROUND

- The amputee population faces many challenges and barriers to occupational performance and participation (Hijmans, 2020).
- Pre-operative strength training and patient education could be a feasible and impactful method of promoting an improved recovery process following amputation (Gailey, 2020).
- A recent review on the beneficial effects of pre-rehabilitation on postoperative outcomes in patients with lower-limb amputation only included two studies(Hijmans, 2020).

AIMS

- Understand better how the pre-operative rehabilitation and education program has been developed and implemented clinically, and the potential benefit of postoperative patient outcomes.

METHODS

- A systematic scoping review
- Question asked user profile, assessment training process, maintenance/usage accidents
- Three databases were searched during June 2024: Pubmed, Cumulated Index to Nursing and Allied Health Literature (CINAHL) (EbscoHost), and Web of Science.
- Key search terms: Amputation, pre-operative, rehabilitation training, education, and postoperative.
- Inclusion: within the last 10 years; pre-operative rehabilitation training or education programs on people with lower amputations, and report postoperative outcomes.
- Title and full text screening using Covidence.
- Extraction: a standard form. One author extracted, another. Revise PEDRo scale for quality assessment. Cochrane Risk of Bias Tool for bias assessment.
- Synthesizes matrix: title, participant information, pre-operative training and education, postoperative outcomes, and conclusions

RESULTS

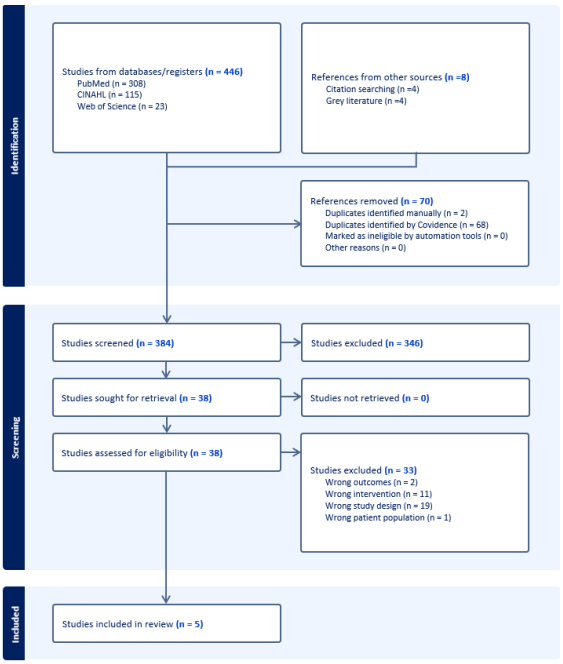


Figure 1. PRISMA diagram flow of the search results

Pre-Operative Rehabilitation Benefits

- Pre-op rehab **positively** impacts post-op functional outcomes (all five articles)
- **Decreased** hospital length of stay (Fulton et al., 2022; Matheny et al., 2023).
- **Feasibility** (Bowrey et al., 2018; Daso et al., 2022; Fulton et al., 2022; Matheny et al., 2023).
- **Increased** engagement with prosthetic (Silva et al., 2021; Matheny et al., 2023)

Table 1. Cochrane Risk of Bias tool of the included Level IV studies

Domain	Bowrey et al., 2018 [6]	Daso et al., 2022 [7]	Fulton et al., 2022 [8]
Bias due to confounding	Moderate Risk	Moderate Risk	Moderate Risk
Bias in the selection of participants for the study	Low Risk	Serious Risk	Low Risk
Bias in the measurement of interventions	Low Risk	Low Risk	No Information
Bias due to departures from intended interventions	Moderate Risk	No Information	Serious Risk
Bias due to missing data	No information	No Information	No Information
Bias in the measurement of outcomes	Low Risk	Low Risk	Low Risk
Bias in the selection of the reported result	Low Risk	Moderate Risk	No Information

CONCLUSIONS

- Pre-operative rehabilitation training is feasible and positively contributes to post-operative functional outcomes in patients with lower limb amputation.
- The strength of the evidence is low due to the limited evidence and the poor methodological quality rating.
- No standardized pre-operative programs and/or protocols can be delivered across various settings.

KEY TAKEAWAYS

- Pre-operative rehabilitation programs are feasible and can be integrated into existing pre-surgical protocols.
- A more accessible and evidence-based pre-operation rehabilitation program is needed.
- Prosthetists and therapists should advocate for a pre-rehabilitative team for patients needing to receive a lower limb amputation to improve functional outcomes following the amputation.



Scan the QR code for references

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