

INPLASY

Physiotherapy interventions in patients undergoing lung resection surgery. A protocol for a scoping review

INPLASY202520056

doi: 10.37766/inplasy2025.2.0056

Received: 10 February 2025

Published: 10 February 2025

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Piloting of the study selection process.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202520056

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 February 2025 and was last updated on 10 February 2025.

INTRODUCTION

Review question / Objective - What physiotherapy interventions for patients undergoing LRS have been evaluated in the immediate postoperative phase?

Background Patients undergoing lung resection surgery (LRS) may experience complications in the postoperative period. Atelectasis, pleural effusion, and pneumonia are the most common pulmonary complications. Additionally, arrhythmias, pressure injuries, and hypotension are frequent extrapulmonary issues. These complications can prolong patients' hospital stays, elevate healthcare costs, and limit access to healthcare services for other patients in high-demand settings.

The Enhanced Recovery After Surgery (ERAS®) protocol for lung surgery recommends early preventive mobilisation within the first 24 hours (immediate postoperative period). However, it indicates that the benefit of using incentive

spirometry devices is uncertain and that non-invasive mechanical ventilation should not be employed routinely for all patients.

Rationale The current evidence regarding physiotherapy interventions for individuals undergoing LRS is inconsistent and disorganised. Although systematic reviews exist to determine the effectiveness of specific interventions on various short- and long-term clinical outcomes, little has been explored to understand and summarise in detail the design and implementation of these interventions. In addition, physiotherapy interventions are generally delivered as multimodal or multicomponent interventions, so primary studies considering this approach could have been excluded from systematic reviews.

METHODS

Strategy of data synthesis Our search strategy will consist of a three-stage process:

Step 1: We conduct an exploratory search in PubMed and Google Scholar to identify the 'seed references' to begin constructing our search strategy.

Step 2: Utilising the concepts identified in the initial phase, we devised our search strategy for MEDLINE (Ovid). This search strategy for MEDLINE (Ovid) comprised terms for study participants (LRS) and physiotherapy interventions (exercise, rehabilitation, breathing exercises, and early mobilisation, among others).

Step 3: We will conduct forward and backward citation searches, considering studies that meet the eligibility criteria for our scoping review.

Eligibility criteria Participants: We will include studies that have enrolled adult patients (over 18 years) undergoing LRS.

Concept: We will include studies that have assessed the short-term effects, efficacy, effectiveness or efficiency (cost-effectiveness) of physiotherapy interventions for patients undergoing LRS. Interventions may incorporate but are not limited to, actions or therapies designed to prevent or improve impairments in respiratory, cardiovascular, neuromusculoskeletal and movement-related functions and associated pain management.

Context: We will include studies conducted wholly or partly in a hospital setting. We will consider the immediate postoperative phase following LRS, irrespective of the hospitalisation unit (intensive care, intermediate, acute, basic, recovery unit, among others).

Resource Type: We will include primary observational, quasi-experimental, or experimental studies. These may have any design (clinical trials, cohort, case-control, cross-sectional, case series, and case reports, among others), and temporality (prospective or retrospective).

Source of evidence screening and selection We will review all studies in duplicate. First, we will check the titles and abstracts of the records, rating them as included or excluded. Records voted as included by at least one of the reviewers will proceed to the full-text reading phase. A researcher will retrieve the full manuscripts and identify those that could not be obtained.

Duplicates will also do the full-text check. We will check the eligibility criteria against the information reported in the manuscripts, excluding those that do not meet all of them. At this stage, we will assign a reason for excluding studies. At this stage, we will resolve conflicts by consensus or a third-party reviewer.

Data management We will conduct data extraction in duplicate. The unit of analysis will be the study, meaning that records or reports corresponding to the same study will be grouped. For the extraction, we will utilise the most recent report of the study; however, if we uncover any information in previous versions of the study, these will also be considered. Through discussions among the researchers, we have developed a standard form for data extraction. All reviewers participating in the data extraction process will be piloted at this stage, using five studies.

Reporting results / Analysis of the evidence We will detail the results for all included studies, categorised by the countries involved and based on World Bank income level data.

Presentation of the results We will present the findings of our scoping review in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR). We will generate figures to illustrate the study designs and physiotherapy interventions reported.

Language restriction None.

Country(ies) involved Chile.

Keywords Pulmonary Surgical Procedures; Physical Therapy Modalities; Breathing Exercises; Rehabilitation.

Dissemination plans The results of our review will be presented at conferences focused on physiotherapy, thoracic surgery, or respiratory diseases. Furthermore, these findings will be published in one or more articles in peer-reviewed scientific journals.

Contributions of each author

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