

Current Physiotherapy Management Approaches for Viral Respiratory Infections: A Narrative Review

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Article Received: 22.09.2026

Article Accepted: 04.10.2026

Article Published: 17.10.2026

ABSTRACT

Viral respiratory infections represent a significant global health burden and can lead to considerable respiratory impairment and functional limitations. Physiotherapy plays an important role in the management of these conditions across acute, hospitalized, and post-recovery phases; however, the available evidence is diverse and lacks uniformity. The purpose of this narrative review was to evaluate current physiotherapy management approaches for viral respiratory infections and to identify existing gaps in evidence and clinical practice. A narrative literature review was conducted using open-access, peer-reviewed articles with valid DOIs obtained from databases such as PubMed, Google Scholar, and other scientific sources. Studies published between 2019 and 2025 focusing on physiotherapy interventions for viral respiratory infections were included. The reviewed literature highlights the effectiveness of physiotherapy interventions such as breathing exercises, airway clearance techniques, positioning, early mobilization, and pulmonary rehabilitation in improving respiratory function and functional outcomes, particularly during and after COVID-19 infection. However, the review also identifies several gaps, including limited evidence beyond COVID-19, lack of standardized physiotherapy protocols, and insufficient high-quality randomized controlled trials with long-term follow-up. In conclusion, physiotherapy is an essential component in the management of viral respiratory infections, but further research is required to establish standardized, evidence-based guidelines and improve preparedness for future respiratory viral outbreaks.

Keywords: *Viral Respiratory Infections; Physiotherapy; Pulmonary Rehabilitation; COVID-19.*

INTRODUCTION

Viral respiratory infections continue to be a major health concern worldwide and affect people of all age groups. These infections are caused by various viruses such as influenza viruses, respiratory syncytial virus (RSV), and, more recently, the severe acute respiratory syndrome coronavirus-2. They commonly involve the respiratory system and can present with symptoms ranging from mild respiratory tract infections to severe conditions like viral pneumonia and acute respiratory distress syndrome. The COVID-19 pandemic, in particular, brought global attention to the immense burden of viral respiratory infections on healthcare systems and highlighted the need for effective, multidisciplinary approaches to patient management. (1,4,8)

Role of Physiotherapy in Viral Respiratory Infections

Physiotherapy plays an important role in the management of viral respiratory infections across different stages of the disease. During the acute phase, physiotherapy interventions such as breathing exercises, positioning, airway clearance techniques, and early mobilization are used to improve ventilation, reduce respiratory complications, and prevent functional decline. In the post-acute and recovery phases, pulmonary rehabilitation and functional training help in improving exercise tolerance, respiratory function, and quality of life. The COVID-19 pandemic significantly expanded the role of physiotherapy in respiratory care and generated a growing body of evidence related to physiotherapy management in viral respiratory conditions. (1,3,5)

Viral respiratory infections not only affect the pulmonary system but also have a significant impact on overall physical function and quality of life. Prolonged illness, hospitalization, and reduced physical activity often result in muscle weakness, decreased endurance, and impaired functional mobility. Patients recovering from viral respiratory infections frequently report persistent symptoms such as breathlessness, fatigue, and reduced ability to perform activities of daily living, even after resolution of acute infection. (1,5)

Physiotherapy interventions aim to address these impairments by promoting optimal respiratory mechanics, improving ventilation-perfusion matching, and enhancing physical conditioning. Techniques such as breathing

exercises and positioning help improve lung expansion and reduce the work of breathing, while airway clearance techniques assist in the removal of retained secretions. Early mobilization plays a crucial role in preventing complications related to prolonged bed rest, including muscle atrophy, joint stiffness, and reduced cardiovascular endurance. (1,3,4)

In recent years, particularly during the COVID-19 pandemic, the scope of physiotherapy in respiratory care has expanded significantly. Physiotherapists have been actively involved in acute care settings, intensive care units, and post-acute rehabilitation programs. This expansion has contributed to a growing body of literature supporting the safety and effectiveness of physiotherapy interventions in managing viral respiratory conditions. However, variations in clinical practice and limited standardized guidelines continue to present challenges in ensuring uniform care across different healthcare settings. (1,3,5)

Therefore, a comprehensive understanding of current physiotherapy management approaches is essential for optimizing patient outcomes and improving preparedness for future viral respiratory outbreaks. By reviewing existing literature and identifying gaps in evidence, physiotherapists can contribute to the development of standardized, evidence-based practices that enhance the quality of respiratory care. (1,4,8)

Methodology

This study was conducted as a narrative literature review to analyze current physiotherapy management approaches for viral respiratory infections and to identify existing gaps in evidence and practice. This narrative review allows a comprehensive and descriptive synthesis of available literature without strict methodological restrictions, making it suitable for undergraduate research.

Search Strategy

A systematic search of relevant literature was carried out using electronic databases such as PubMed, Google Scholar and Scopus. Keywords used for the search included “viral respiratory infections”, “COVID-19”, “pneumonia”, “respiratory physiotherapy”, “pulmonary rehabilitation”, and “physiotherapy management”. Relevant articles were screened based on their titles and abstracts, followed by full-text review.

Inclusion Criteria

- Peer-reviewed articles related to physiotherapy management of viral respiratory infections
- Studies published in the English language
- Open-access articles with full-text availability
- Studies conducted on human subjects
- Studies conducted on adult patients
- Articles published between 2019 and 2025

Exclusion Criteria

- ☐ Paid or subscription-based articles without free full-text access
- ☐ Studies focusing on non-viral respiratory conditions
- ☐ Animal studies
- ☐ Articles not related to physiotherapy or rehabilitation interventions
- ☐ Non-English language publications

Characteristics Of Included Studies

Table 1: Summary of Included Studies

S.no.	Author (Year)	Study Design	Population	Intervention	Key Findings
1.	Thomas et. al. (2022)	Clinical recommendations	Adults with COVID- 19	Respiratory physiotherapy , early mobilization	Physiotherapy is essential in acute and post- acute COVID- 19 management.

2.	Abdelftah et. al. (2024)	Case series	Hospitalized patients with COVID-19	Breathing exercises, positioning	Individualized physiotherapy programs improved respiratory function and functional status
3.	Javaherian et. al. (2023)	Randomized controlled trial	Severe COVID-19 pneumonia	Pulmonary physiotherapy	Pulmonary physiotherapy was safe and effective.
4.	Abdullahi (2020)	Critical review	COVID-19 patients	Chest physiotherapy	Chest physiotherapy is beneficial in selected COVID-19 patients.
5.	Perez et. al. (2023)	Systematic review	Post COVID-19 patients	Pulmonary rehabilitation	Physiotherapy improved functional capacity and quality of life.
6.	Pietranis et al. (2024)	Randomized controlled trial	Post COVID-19 syndrome	Pulmonary rehabilitation	Significant improvement in respiratory function and exercise tolerance.
7.	Ponce-Campos et. al. (2022)	Intervention study	Post-COVID-19 respiratory sequelae	Breathing and aerobic exercises	Structured physiotherapy improved lung function and exercise capacity.
8.	Lodhi et al. (2025)	Systematic review	Viral pneumonia patients	Chest physiotherapy	Physiotherapy reduced complications and improved respiratory function.
9.	Zade et al (2023)	Case report	Bronchopneumonia	Airway clearance techniques	Early physiotherapy improved respiratory symptoms.

10.	Nandanwar et al. (2022)	Case report	ARDS with bronchopneumonia	Pulmonary rehabilitation	Pulmonary rehabilitation improved respiratory function and recovery.
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This table summarizes key physiotherapy - related studies included in the narrative review.

Results

The included studies demonstrated that physiotherapy interventions such as breathing exercises, airway clearance techniques, early mobilization, and pulmonary rehabilitation were consistently associated with improvements in respiratory function, exercise tolerance, and functional outcomes in patients with viral respiratory infections. Most evidence was derived from COVID- 19 related studies, with structured rehabilitation programs showing better outcomes in post-acute and recovery phases.

Review Of Literature

Physiotherapy Management in Acute Viral Respiratory Infections

In the acute phase of viral respiratory infections, physiotherapy focuses on optimizing ventilation, reducing respiratory complications, and preventing functional decline. Commonly used interventions include breathing exercises, appropriate positioning, airway clearance techniques, and early mobilization, depending on the patient's clinical status. Evidence from recent literature, particularly during the COVID-19 pandemic, highlights the importance of individualized physiotherapy interventions to ensure patient safety while improving respiratory efficiency. Clinical practice recommendations emphasize cautious application of respiratory physiotherapy techniques, especially in patients with severe illness, to balance therapeutic benefits and potential risks. (1, 3, 4)

Physiotherapy Interventions in Hospitalized Patients

In hospitalized patients with viral respiratory infections, physiotherapy interventions focus on maintaining respiratory function and preventing secondary complications associated with prolonged bed rest. Common physiotherapy measures include breathing exercises, positioning, airway clearance techniques, and gentle range of motion exercises. Early mobilization, when clinically feasible, plays an important role in reducing deconditioning and improving functional outcomes. Studies conducted during the COVID-19 pandemic demonstrated that structured and individualized physiotherapy programs can be safely implemented in hospital settings and contribute to improved respiratory status and overall recovery. (2,3)

Pulmonary Rehabilitation in Post-Viral and Post-COVID Conditions

Following recovery from the acute phase of viral respiratory infections, many patients continue to experience symptoms such as breathlessness, fatigue, and reduced exercise tolerance. In such cases, pulmonary rehabilitation plays an important role in restoring functional capacity and improving quality of life. Physiotherapy interventions during this phase commonly include breathing exercises, aerobic training, strengthening exercises, and functional activities tailored to the patient's tolerance level. Evidence from post-COVID rehabilitation studies suggests that structured physiotherapy programs can lead to significant improvements in respiratory function, physical endurance, and overall daily functioning. (5,6,7)

Identified Gaps in Physiotherapy Management

Despite the growing body of literature on physiotherapy management of viral respiratory infections, several gaps remain. Most available evidence is largely derived from studies conducted during the COVID-19 pandemic, with limited research focusing on other viral respiratory infections such as influenza and RSV. There is a lack of standardized physiotherapy protocols regarding the type, intensity, and duration of interventions across different stages of illness. Additionally, high-quality randomized controlled trials are limited, and long-term follow-up data on functional outcomes are scarce. These gaps highlight the need for further research to establish evidence-based and standardized physiotherapy guidelines for managing viral respiratory infections. (1, 4, 8)

Several authors have explored the role of physiotherapy interventions in the management of viral respiratory infections, particularly during the COVID-19 pandemic. Thomas et al. (2022) provided comprehensive clinical practice recommendations highlighting the importance of respiratory physiotherapy, early mobilization, and individualized rehabilitation strategies across acute and post-acute phases of COVID-19. Their work emphasized patient safety and clinical decision- making rather than experimental outcomes, laying a foundational framework for physiotherapy practice in viral respiratory conditions. (1)

Building upon these recommendations, experimental and interventional studies further evaluated the effectiveness of structured physiotherapy programs. Javaherian et al. (2023) conducted a randomized controlled trial in hospitalized patients with severe COVID-19 pneumonia and demonstrated that pulmonary physiotherapy was both safe and effective in improving respiratory outcomes. Similarly, Abdelftah et al. (2024) reported improvements in respiratory function and functional status through individualized physiotherapy programs in hospitalized COVID-19 patients. Compared to earlier guideline-based approaches, these studies provided stronger clinical evidence by incorporating outcome measures and controlled study designs. (2,3) Post-acute and rehabilitation-focused studies demonstrated even more consistent functional benefits. Perez et al. (2023) and Pietranis et al. (2024) showed that structured pulmonary rehabilitation programs led to significant improvements in exercise tolerance, respiratory function, and quality of life in post-COVID patients. These later studies suggest that comprehensive rehabilitation programs combining breathing exercises, aerobic training, and functional exercises yield better long-term outcomes compared to isolated or acute-phase interventions alone. Collectively, the literature indicates a progressive improvement in physiotherapy research, moving from expert recommendations to high-quality randomized trials and structured rehabilitation models demonstrating superior patient outcomes. (5, 6)

Discussion

The present narrative review highlights the important role of physiotherapy in the management of viral respiratory infections across different stages of illness. Findings from the reviewed literature suggest that physiotherapy interventions such as breathing exercises, airway clearance techniques, positioning, early mobilization, and pulmonary rehabilitation contribute positively to respiratory function and overall recovery. Evidence from studies conducted during the COVID-19 pandemic particularly emphasizes the safety and effectiveness of individualized physiotherapy interventions when applied according to the patient's clinical condition. These findings support the integration of physiotherapy as a key component of multidisciplinary care in viral respiratory infections. (1,3,5)

However, the review also reveals several limitations within the existing literature. Most studies focus predominantly on COVID-19, with comparatively fewer studies addressing physiotherapy management in other viral respiratory infections. Variations in intervention protocols, outcome measures, and duration of treatment make it difficult to establish uniform clinical guidelines. Additionally, limited high-quality randomized controlled trials and insufficient long-term follow-up data restrict the generalizability of findings. Addressing these limitations through well-designed studies may strengthen the evidence base and improve physiotherapy practice in managing viral respiratory infections. (4,8)

From a clinical perspective, these findings highlight the importance of integrating physiotherapy as a core component of multidisciplinary care in viral respiratory infections. The progression of evidence suggests that early initiation of physiotherapy, followed by structured rehabilitation in the recovery phase, yields better functional outcomes compared to isolated or delayed interventions. However, variations in treatment protocols and outcome measures across studies limit the ability to establish uniform clinical guidelines. Addressing these gaps through standardized protocols and high-quality research may enhance physiotherapy practice and improve patient-centered outcomes in future viral respiratory outbreaks. (4,8)

Conclusion

This narrative review concludes that physiotherapy plays a vital role in the management of viral respiratory infections across acute, hospitalized, and post-recovery phases. Current evidence supports the use of physiotherapy interventions such as breathing exercises, airway clearance techniques, early mobilization, and pulmonary rehabilitation in improving respiratory function and functional outcomes. However, the review also identifies important gaps in standardized treatment protocols and limited high-quality evidence beyond COVID-19-related studies. Addressing these gaps through future research may help in developing evidence-based physiotherapy guidelines and improving preparedness for managing viral respiratory infections. (1,5)

Limitations

The review included only open-access articles, which may have limited the inclusion of some relevant studies. Most of the available literature focused on COVID-19, with limited evidence related to other viral respiratory infections. Additionally, the narrative review design does not involve systematic data analysis, which may limit the ability to draw strong causal conclusions.

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