

# Emerging Physiotherapy Strategies to Enhance Functional Recovery in Head and Neck Cancer Survivors: A Mini Review



**Janani Arul\***

Assistant Professor, VYMAK College of Physiotherapy, Whitefield, and Bangalore, India

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**\*Corresponding author:** Janani Arul, Assistant Professor, VYMAK College of Physiotherapy, Whitefield, and Bangalore, India

## Abstract

Head and neck cancer (HNC) survivors often face long-term difficulties after undergoing surgery, radiotherapy, and chemotherapy. Common complications such as neck pain, stiffness, swallowing problems, lymphedema, fatigue, and restricted movement can significantly affect physical function and overall quality of life. The first year after treatment is particularly critical, as many patients experience rapid physical decline and slower recovery without proper rehabilitation support. Physiotherapy plays an essential role in addressing these challenges, helping survivors regain mobility, strength, and independence while improving comfort and daily function. Recent research highlights several effective physiotherapy interventions. Complete Decongestive Therapy (CDT) and Manual Lymphatic Drainage (MLD) have been shown to reduce swelling, relieve discomfort, and improve overall well-being in patients with head and neck lymphedema.

Manual therapy techniques, when combined with stretching and strengthening exercises, help relieve radiation-related fibrosis, reduce pain, and restore neck and shoulder mobility. Structured exercise programs that incorporate aerobic, resistance, and flexibility training enhance strength, endurance, and energy levels. A recent randomized controlled trial by D'Silva et al. (2025) reported that supervised physiotherapy-led exercise significantly reduced sarcopenia and improved quality of life during chemo-radiotherapy. Emerging innovations such as tele-rehabilitation, wearable fitness tracking, and personalized home-based exercise programs are making physiotherapy more accessible and patient-centered. Collectively, these advances underscore the importance of early, structured, and multidisciplinary physiotherapy interventions to promote functional recovery, prevent long-term complications, and enhance quality of life in head and neck cancer survivors.

**Keywords:** Physiotherapy; Head and Neck Cancer; Radiotherapy; Chemotherapy

**Abbreviations:** HNC: Head and Neck Cancer; CDT: Complete Decongestive Therapy; MLD: Manual Lymphatic Drainage; QOL: Quality of Life; PRO: Patient Reported Outcome

## Introduction

Head and neck cancer (HNC) represents a diverse group of malignancies affecting the oral cavity, pharynx, larynx, and surrounding structures. Advances in multimodal treatments, including surgery, radiotherapy, and chemotherapy, have significantly improved survival rates. However, these interventions often lead to a range of long-term functional impairments in survivors, including reduced cervical mobility, dysphagia, trismus, pain, lymphedema, and fatigue. Despite improvements in oncological treatment, many head and neck cancer survivors continue to experience persistent impairments due to these consequences, which impact their physical function, independence, and quality of life (QOL). These complications are particularly severe in the first year after treatment, which is

characterized by fast physical decline and poor recovery without rehabilitation intervention [1]. Physiotherapy plays a crucial role in the rehabilitation of HNC survivors by addressing these functional limitations, preventing secondary complications, and promoting overall recovery.

In recent years, there has been a surge of interest in emerging physiotherapy strategies that go beyond conventional exercise programs, incorporating targeted interventions such as manual therapy, neuromuscular re-education, lymphedema management, respiratory exercises, and technology-assisted rehabilitation. Early and structured physiotherapy interventions are increasingly recognized as essential for optimizing functional recovery, particularly during the first year post-treatment, which is

considered a critical window for rehabilitation [2,3]. Physiotherapy has developed as an important part of multidisciplinary care, with recent advancements enhancing its scope through technology-enabled interventions and individualized protocols. Clinical practice in head and neck cancer (HNC) survivorship varies greatly, and there are still few standardized physiotherapy standards, despite growing evidence. With the goal to summarize innovations in physiotherapy treatment, emphasize novel approaches, and provide insight about their clinical relevance and potential to enhance functional outcomes and quality of life in HNC survivors, this mini-review synthesizes recent evidence from systematic reviews, scoping reviews, and descriptive studies published in the last five years.

## Physical Function in the First Year After Treatment

Evidence from exploratory descriptive studies and recent findings in the Asian Pacific Journal of Cancer Prevention (APJCP, 2022) highlight that the first year following treatment is a critical window for functional recovery in head and neck cancer survivors.

**a)** During this period, many patients experience marked impairments in strength, flexibility, and endurance, along with persistent limitations in neck and shoulder function that interfere with daily activities.

**b)** Research further indicates that survivors who engage in early, structured physiotherapy demonstrate more favorable recovery trajectories compared to those who do not receive targeted rehabilitation.

**c)** Baseline functional assessments and ongoing monitoring are therefore essential for designing individualized programs that address evolving needs.

**d)** Recent advances include the use of wearable devices and patient-reported outcome (PRO) measures, which enable objective tracking of physical activity, endurance, and overall recovery progress [4].

## Rehabilitation Interventions: A Scoping Perspective

A scoping review highlights that physiotherapy extends beyond lymphedema management to include broader rehabilitation goals:

**I.** Musculoskeletal Care: Interventions for cervical stiffness, shoulder dysfunction, and scar-related restrictions.

**II.** Swallowing and Airway Support: Collaborative programs with speech-language pathologists improve swallowing efficiency and airway safety.

**III.** Exercise Programs: Aerobic and resistance training counteract fatigue and deconditioning.

**IV.** Psychosocial Gains: Rehabilitation improves confidence, social reintegration, and QOL.

Current evidence underscores the importance of integrating physiotherapy early within the oncology care pathway to prevent long-term complications and support functional recovery. Recent developments highlight the growing role of tele-rehabilitation platforms that enable remote service delivery, along with the adoption of progressive resistance exercise protocols, which have been shown to be both safe and feasible for head and neck cancer survivors [5].

## Lymphedema Management in HNC Survivors

Lymphedema is a frequent complication of HNC treatment, occurring both externally (face and neck) and internally (pharynx and airway). It results in cosmetic disfigurement, dysphagia, dyspnea, and psychosocial burden.

**a. Complete Decongestive Therapy (CDT):** The gold standard, combining manual lymphatic drainage (MLD), compression therapy, therapeutic exercise, and skin care.

**b. Manual Lymphatic Drainage (MLD):** Effective in reducing external swelling and improving comfort.

**c. Exercise and Postural Therapy:** Cervical and shoulder mobility exercises support lymphatic return.

**d. Patient Self-Management:** Education in self-massage, daily exercise, and long-term care is essential.

Systematic reviews consistently demonstrate that Complete Decongestive Therapy (CDT) and Manual Lymphatic Drainage (MLD) are effective rehabilitation strategies for managing lymphedema in head and neck cancer survivors. These interventions not only reduce external swelling but also contribute to improvements in comfort, functional capacity, and overall quality of life (QOL). Although research on internal lymphedema is still limited, current evidence suggests that early referral to physiotherapy plays a vital role in minimizing the risk of fibrosis, airway compromise, and irreversible functional loss. Building on these foundations, recent advances in clinical practice and research have introduced innovative approaches such as individually tailored compression garments, structured home-based CDT protocols to enhance accessibility, and digital education platforms designed to support patient self-management and long-term adherence. Together, these emerging strategies highlight the expanding role of physiotherapy in addressing both the physical and psychosocial consequences of lymphedema in this population [6].

## Manual Therapy for Neck Pain and Quality of Life

Neck pain is common in HNC survivors, often caused by radiation-induced fibrosis, surgical scarring, and soft tissue changes.

**a)** Soft Tissue Mobilization and Myofascial Release: Reduce tightness and adhesions.

**b) Joint Mobilization/Manipulation:** Restore cervical spine mobility.

**c) Complementary Therapeutic Exercises:** Strengthening and stretching maximize outcomes.

Systematic reviews show that combining manual therapy with structured exercise leads to meaningful improvements in pain management, cervical mobility, and overall quality of life (QOL) among head and neck cancer survivors. Recent innovations include the use of ultrasound-guided fibrosis assessment, which allows clinicians to individualize manual therapy protocols and apply them safely in patients with treatment-related anatomical changes [7].

## Clinical Implications

**a. Central role of physiotherapy:** Physiotherapy is a key component of head and neck cancer (HNC) rehabilitation, addressing musculoskeletal, lymphatic, and functional impairments.

**b. Early intervention:** Introducing physiotherapy within the first year post-treatment is critical to reduce chronic complications and support long-term functional recovery.

**c. Effective modalities:** Manual therapy and Complete Decongestive Therapy (CDT) effectively reduce pain and swelling, while structured exercise programs improve strength, endurance, and fatigue.

**d. Self-management Support:** Training survivors in self-management strategies enhances adherence, independence, and long-term outcomes.

**e. Multidisciplinary approach:** Collaborative care involving physiotherapy, oncology, surgery, and speech-language therapy ensures comprehensive survivorship management.

**f. Recent innovations:** Advances such as tele-rehabilitation, wearable devices, and survivorship programs enhance accessibility, personalization, and continuity of care [6,8].

**g.** A recent randomized controlled trial by D'Silva et al. (2025) demonstrated that structured, physiotherapist-supervised exercise programs significantly improved muscle mass, physical performance, and overall quality of life in HNC patients undergoing chemo-radiotherapy.

**h.** The program, combining aerobic, resistance, and flexibility training, effectively reduced sarcopenia and fatigue, highlighting the importance of exercise-based rehabilitation during active treatment.

**i.** These findings reinforce the growing evidence that early, tailored physiotherapy interventions are safe, feasible, and essential for maintaining function and enhancing survivorship outcomes in HNC care [9].

## Conclusion

The rehabilitation challenges encountered by HNC survivors are complicated and go beyond tumor control. Restoring function, lowering complications, and improving quality of life all depend on physiotherapy treatments, such as manual therapy, lymphedema management, structured exercise, and patient education. Over the past five years, there has been consistent evidence to support the inclusion of physical therapy in cancer care, especially in the first year following treatment when survivors are most at risk. The advantages of early referral, technology-enabled care, and tailored rehabilitation programs are highlighted by recent advances. Current data strongly support early, multidisciplinary physiotherapy as a standard of care in HNC survivorship pathways, regardless of whether more high-quality trials are required.

## References

1. Cheng JT, Leite VF, Tennison JM, Gutierrez C, Kline-Quiroz C, et al. (2023) Rehabilitation Interventions for Head and Neck Cancer-Associated Lymphedema: A Systematic Review. *JAMA Otolaryngol Head Neck Surg* 149(8): 743-753.
2. Kelly C, Grainne S, John Ed OC, Conor B, Paul Lennon (2025) Physical function of head and neck cancer survivors in the first year after treatment: an exploratory descriptive investigation, *Br J Oral and Maxillofac Surg* 63(9): 657-663.
3. Rogers SN (2019) Physical function of head and neck cancer survivors in the first year after treatment: An exploratory descriptive investigation. *Eur Arch Otorhinolaryngol*.
4. (2022) Physical function and rehabilitation needs in head and neck cancer survivors. *Asian Pacific Journal of Cancer Prevention*.
5. Murphy BA, Deng J (2020) Rehabilitation interventions in head and neck cancer: A scoping review. *Curr Opin Oncol*.
6. Yang W, Du Y, Chen M, Li S, Zhang F, et al. (2023) Effectiveness of Home-Based Telerehabilitation Interventions for Dysphagia in Patients With Head and Neck Cancer: Systematic Review. *J Med Internet Res* 25: e47324.
7. Pattanshetty RB, Patil SN (2021) Role of Manual Therapy for Neck Pain and Quality of Life in Head and Neck Cancer Survivors: A Systematic Review. *Indian J Palliat Care* 28(1): 99-112.
8. Lynch PT, Horani S, Lee R, Sumer BD, Lee SC (2021) Effectiveness of physical activity interventions in improving objective and patient-reported outcomes in head and neck cancer survivors: A systematic review. *Oral Oncol* 117: 105253.
9. D'Silva C, Shetty V, Fernandes D, Jean-Pierre B, Kumari NS (2025) Effect of Structured Exercise-based rehabilitation on Sarcopenia and Quality of life among Head and Neck Cancer Patients Undergoing Chemo-radiotherapy: A Randomized Controlled Trial. *Asian Pacific Journal of Cancer Prevention* 26(5): 1653-1660.



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