

# Physical Rehabilitation and Occupational Therapy



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## KEYWORDS

- Physical activity • Physical therapy • Occupational therapy • Exercise • Rehabilitation
- Head and neck cancer

## KEY POINTS

- Head and neck cancer can lead to dysfunction and disfigurement, affecting the physical function and quality of life of patients.
- The American Cancer Society's Head and Neck Survivorship Care Guidelines recommend a full rehabilitation assessment of all patients after their treatments to manage many of the complications that may impact long-term recovery and function.
- Evidence supports the role of physical activity and exercise as an important rehabilitation tool that can improve strength, endurance, physical function, and quality of life, and decrease symptom burden after surgery and other treatments.
- Physical therapy techniques help to optimize jaw, neck, and shoulder function.
- Occupational therapy techniques help to enhance quality of life through modified activities and improved return to work outcomes.

## INTRODUCTION

Patients with head and neck cancer (HNC) can become debilitated directly by disease and secondarily by treatment, which affect structures and function in the head and neck region, as well as other body sites and systems. The results often lead to local and regional disfigurement and dysfunction. Inherently, this disease and its associated treatment also impact psychosocial as well as physical aspects of function in patients.<sup>1-3</sup> With advancements in early detection, tumor characterization, and management, emerging evidence supports the role of rehabilitation to improve the physical and psychosocial function of patients once diagnosed.<sup>4</sup> The changing epidemiology of HNC posed by the increasing incidence of cancers associated with the human

papillomavirus has resulted in a younger average age at diagnosis and an improved rate of response to treatment.<sup>5</sup> With more patients surviving after treatment of HNC, strategies to improve patient function are more important than ever.

In 2016, the American Cancer Society published the Head and Neck Cancer Survivorship Care Guidelines and outlined recommendations for the rehabilitation of patients with HNC after treatments.<sup>6</sup> The guidelines specifically recommend that primary care providers, including the primary oncologist, assess patients for spinal accessory nerve (SAN) palsy, cervical dystonia and muscle spasms, neuropathies, shoulder dysfunction, trismus, postoperative lymphedema, weight management, fatigue, sleep disturbance, self-image concerns, depression, and anxiety. As indicated,

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patients should be referred to appropriate physical therapists, occupational therapists, or exercise specialists for rehabilitation programs. The guidelines also recommend that patients with HNC should be counseled on regular participation in physical activity in accordance with public health guidelines to achieve 150 minutes of moderate or 75 minutes of vigorous aerobic activity per week, plus strength training at least 2 days per week (Box 1).<sup>6</sup>

Despite increasing evidence and clear recommendations that support the role of rehabilitation in patients with cancer, the clinical support and resources remain lacking for patients to undergo efforts before and after treatment. The inability to access care for rehabilitation results in functional decline that brings to bear longer recovery time, impaired quality of life, and increased health care costs. Not only is rehabilitation critical to the recovery of patients after cancer treatment, it is also cost effective.<sup>9</sup> Translating evidence-based guidelines for rehabilitation into clinical practice offers an effective and valuable opportunity to improve outcomes in patients with HNC.

This chapter presents the unique physical challenges faced by survivors of HNC and specific interventions of rehabilitation that are supported by a growing body of evidence. Exercise therapy strategies to boost physical and psychosocial functioning, as well as specific physical therapy (PT) and occupational therapy (OT) for patients in this unique population are also discussed.

**Box 1**  
**Physical activity guidelines for cancer survivors**

Based on the American Counsel of Sports Medicine Roundtable meeting on

Exercise for Cancer Survivors<sup>7</sup> and American Cancer

Society's Guidelines for Cancer Survivors<sup>8</sup>

- 150 minutes of moderate intensity aerobic exercise or 75 minutes of vigorous aerobic exercise per week
- 2 to 3 days of strength training per week
- Flexibility training on most days of the week
- Overall, avoid inactivity and return to daily activities as soon as possible

*Data from Rock CL, Doyle C, Demark-Wahnefried W, et al. Nutrition and physical activity guidelines for cancer survivors. CA Cancer J Clin 2012;62(4):243–74; and Schmitz KH, Courneya KS, Matthews C, et al. American College of Sports Medicine roundtable on exercise guidelines for cancer survivors. Med Sci Sports Exerc 2010;42(7):1409–26.*

## HEAD AND NECK CANCER: SPECIFIC CHALLENGES AND THE ROLE FOR REHABILITATION

HNC and related treatments can affect the bones, joints, muscles, glands, lymphatics, and neurovascular tissue in patients, impairing vital functions of respiration, auditory, olfactory, and gustatory sensation, mastication, and communication. Muscle or nerve damage can also affect the musculoskeletal function of the cervical and thoracic spine and shoulders, causing persistent pain and difficulties with activities of daily living (ADLs).

Although surgery specifically aims to remove tumor and ameliorate some of the physical and functional implications related to the tumor extent, complications commonly affect soft tissues and organs, such as SAN palsy, cervical dystonia, cervical neuropathies, and shoulder dysfunction. Additional effects may include impaired oral function, airway patency, mastication, and speech. The removal of lymphatic tissue may result in lymphedema of the face and neck region. Many patients report ongoing fatigue, which may be related to deconditioning, loss of lean muscle mass, and sleep disturbance. Finally, the physical and functional changes that occur after surgery can profoundly impact body image and mood. Fortunately, rehabilitation can compensate for the detrimental side effects of surgery, as well as the cancer-fighting therapies of radiation and chemotherapy, to help patients recover after treatment of cancer. These challenges and the associated pathophysiology—the physical, psychological, and functional impacts—and the rehabilitation recommendations are summarized in Table 1.

## PHYSICAL ACTIVITY AND EXERCISE FOR THE PATIENT WITH HEAD AND NECK CANCER

Importantly, physical activity, or overall body movement, is differentiated from exercise, a subset of physical activity that is intended for rehabilitation and health benefit.<sup>20</sup> In this section, we discuss the role for overall physical activity and the specific role for exercise as a therapy in prehabilitation and rehabilitation.

Evidence supporting the benefit of overall activity for survivors of HNC has grown substantially over the last 15 to 20 years.<sup>7</sup> Clearly, physical activity plays an important part in preparing patients to withstand difficult treatments and to recover after treatment.<sup>7</sup> The physical and psychosocial benefits of physical activity are summarized in Table 2. Moreover, improved outcomes in survival with reduced rates of recurrence, cancer-specific

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