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Occupational Therapy in Oncology: From Prehabilitation to Palliation-Optimizing Function, Quality of Life, and Lymphedema Management

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Abstract

Cancer and its treatments can adversely affect physical function, cognition, emotional well-being, sleep, self-care, occupational performance, and social participation, thereby compromising independence and health-related quality of life. Occupational therapy (OT) addresses these challenges by facilitating engagement in meaningful occupations and supporting functional independence throughout the cancer care continuum. This narrative practice review examines the role of occupational therapy in oncology, encompassing prehabilitation, active treatment, long-term survivorship, and palliative care, with particular emphasis on functional outcomes, quality of life, and cancer-related lymphedema management.

Occupational therapy assessment integrates impairment-level measures with evaluations of activities of daily living (ADLs), instrumental activities of daily living (IADLs), occupational performance, sleep, leisure, environmental barriers, and caregiver needs. Interventions may include task-specific training, graded activity, fatigue and energy conservation strategies, cognitive and psychosocial support, falls prevention, adaptive equipment, orthoses, caregiver education, and environmental modification. In cancer-related lymphedema management, occupational therapists may contribute to surveillance, functional assessment, lymphedema management, self-management education, activity adaptation, and coordinated multidisciplinary care. In advanced disease and palliative care, intervention priorities shift toward comfort, autonomy, energy conservation, meaningful occupational engagement, and caregiver support, guided by the individual's goals and changing clinical needs.

This review presents a participation-centered framework for integrating occupational therapy into comprehensive oncology care. The synthesis is based primarily on literature and references identified in the source conference presentation; no formal systematic search, structured risk-of-bias assessment, or independent grading of evidence certainty was undertaken. Consequently, the findings should be interpreted as a narrative synthesis rather than a systematic evaluation of intervention effectiveness. Future research should examine intervention components and dosage, patient-reported occupational outcomes, equitable access to rehabilitation, and the effectiveness of integrated oncology rehabilitation pathways.

Keywords: Aoccupational therapy; cancer rehabilitation; prehabilitation; survivorship; lymphedema; palliative care; activities of daily living; quality of life

Introduction

Advances in cancer detection and treatment have increased the importance of addressing the functional consequences of cancer across the full disease trajectory. Cancer itself, surgery, systemic therapy, radiotherapy, and prolonged hospitalization may be associated with pain, fatigue, reduced range of motion, weakness, sensory changes, peripheral neuropathy, cognitive difficulties, sleep disturbance, psychological distress, and limitations in daily activities. These problems can affect self-care, household management, employment, education, family responsibilities, leisure, and community participation. Reviews of cancer rehabilitation describe a substantial burden of functional limitations among adults living with cancer (Sleight et al., 2022; Hunter et al., 2017a, 2017b).

Occupational therapy is concerned with the relationship between health, context, occupation, and participation. In oncology, the objective is not limited to improving an isolated impairment; it is to translate changes in physical, cognitive, sensory, and psychosocial performance into meaningful everyday outcomes. The role described by Penfold emphasizes enabling the person to achieve the best possible functional performance in daily life regardless of life expectancy (Penfold, 1996). This principle is relevant from pre-treatment preparation through acute care, long-term survivorship, advanced disease, and end-of-life care.

This article converts a conference presentation delivered at the 9th Edition of the International Conference on Clinical & Translational Oncology, Tokyo, Japan, into a narrative practice review. It organizes the presentation's main themes and selected cited literature into a manuscript format. It is not a report of original patient data, a clinical trial, or a systematic review.

Scope and approach

This manuscript presents a narrative practice review of the role of occupational therapy across the oncology care continuum, from prehabilitation and active cancer treatment to long-term survivorship, and palliative care. The discussion focuses on functional optimization, participation in meaningful daily activities, health-related quality of life, and the prevention and management of cancer-related impairments, including lymphedema.

The review is based primarily on the evidence and references presented in the associated conference presentation, including published reviews, occupational therapy practice guidance, and a feasibility study. The available literature is discussed to highlight clinical applications, emerging approaches, and implications for occupational therapy practice in oncology.

No formal database search, prespecified eligibility criteria, duplicate study screening, or structured risk-of-bias assessment was reported in the source material. The references included in the manuscript are limited to sources identifiable from the original conference presentation, and the discussion is intended to provide a clinically oriented overview rather than an exhaustive synthesis of the available evidence.

Occupational therapy assessment in oncology

A comprehensive occupational therapy assessment should establish the person's occupational profile, priorities, baseline function, barriers to participation, and desired outcomes. Assessment should be individualized according to cancer diagnosis and stage, treatment plan, precautions, prognosis, fatigue and symptom burden, home and work context, and the person's goals. Reassessment is important because functional needs may change between treatment cycles, after surgery, during recovery, and with disease progression.

Impairments and performance components

The presentation identifies sensory-motor, neuromusculoskeletal, cognitive-perceptual, and psychosocial domains. Depending on the clinical question, tools may include manual muscle testing, goniometry, grip and pinch dynamometry, sensory testing, the EORTC QLQ-CIPN20 for chemotherapy-induced peripheral neuropathy symptoms, and bioimpedance spectroscopy or L-Dex measures where clinically indicated for lymphedema surveillance. Musculoskeletal assessment may incorporate range of motion, the Disabilities of the Arm, Shoulder and Hand (DASH) questionnaire, balance measures, the Modified Ashworth Scale when relevant, and jaw-function measures. Cognitive screening may use tools such as the Montreal Cognitive Assessment (MoCA), LOTCA, MMSE, or ACE-III. Psychosocial and health-related quality-of-life assessment may include the EORTC QLQ-C30 and DASS-21.

Occupational performance, context, and participation

Impairment-based measures alone may not adequately reflect an individual's ability to perform everyday activities, maintain independence, and participate in meaningful occupations. Basic activities of daily living (ADLs) can be assessed using standardized instruments such as the Barthel Index, Katz Index of Independence in Activities of Daily Living, and Functional Independence Measure (FIM), while the Functional Assessment Measure (FAM) provides an expanded assessment of functional performance, particularly in neurological rehabilitation. Instrumental activities of daily living (IADLs) can be evaluated using the Lawton–Brody Instrumental Activities of Daily Living Scale. The selection of an appropriate assessment instrument should be guided by the clinical setting, the patient's functional status, the specific domains being evaluated, and the intended purpose of the assessment. Work and role performance may be explored through the role-functioning domain of the EORTC QLQ-C30 and the Work Role Functioning Questionnaire. The Canadian Occupational Performance Measure (COPM) can support collaborative goal-setting around self-care, productivity, and leisure. Sleep assessment may include the Pittsburgh Sleep Quality Index. Environmental barriers, caregiver strain, personal factors, and available support should also be considered; the presentation lists the Caregiver Difficulty Rating Scale and Caregiver Quality of Life Index–Cancer as possible measures. These choices align with the occupation- and context-focused framework described in the Occupational Therapy Practice Framework, Fourth Edition (American Occupational Therapy Association [AOTA], 2020).

Goals of occupational therapy in oncology

The overarching goal is to optimize occupational performance, functional independence, participation, and quality of life. Depending on need, occupational therapy may aim to prevent, reduce, or compensate for cancer- and treatment-related impairments; maintain range of motion and prevent avoidable contracture; support pain management in collaboration with the treating team; improve fine-motor activities; reduce falls risk; and address fatigue, cognitive changes, sleep problems, and psychosocial barriers. Intervention should also support confidence, self-efficacy, social participation, and return to work, education, or family roles. Goals should be framed in terms that matter to the person—for example, dressing independently, preparing a meal with less fatigue, using a phone despite neuropathy, or resuming a valued family activity.

Occupational therapy across the cancer continuum

Prehabilitation

Prehabilitation is a proactive, multidisciplinary intervention designed to optimize an individual's physical, functional, nutritional, and psychosocial status before the initiation of cancer treatment. It aims to prepare patients physically and psychologically for the demands of treatment, enhance treatment tolerance, facilitate postoperative recovery, and minimize treatment-related functional decline. The

presentation recommends starting as early as feasible before surgery or neoadjuvant treatment. A period of approximately three to four weeks is described as commonly supported, although the available interval and appropriate programme vary by diagnosis, treatment pathway, baseline status, and clinical urgency. Multimodal programmes may coordinate exercise, nutrition, psychological support, symptom education, and occupational therapy input.

Occupational therapy contributions include documenting baseline occupational performance, identifying barriers to self-care and mobility, establishing personally meaningful goals, teaching energy conservation strategies where indicated, planning adaptive equipment, educating caregivers, and preparing for likely post-treatment restrictions. Baseline measures may include the COPM, a functional independence measure, quality-of-life assessment, and limb measurements in people at elevated risk of lymphedema. Vagal and Sanzgiri reported a prospective feasibility study of multimodal prehabilitation in patients with bone sarcoma around the knee awaiting endoprosthetic reconstruction; the presentation describes improvements in occupational performance and emotional health with fatigue reduction, while nutritional status was generally maintained (Vagal & Sanzgiri, 2025). As a feasibility study, these findings should not be generalized beyond the population and design studied.

Acute cancer care

During active treatment and acute hospitalization, occupational therapy seeks to maintain safe function and prevent avoidable loss of independence while respecting medical stability, precautions, and treatment-related fluctuations. A systematic review and meta-analysis reported difficulty with basic ADLs in 36.7% and instrumental ADLs in 54.6% of adults with cancer (Neo et al., 2017). These findings reinforce the importance of screening for functional decline rather than waiting for a patient to request rehabilitation.

Potential referral indicators include activities for daily living dependence, reduced mobility or transfer ability, falls or impaired balance, cancer-related fatigue, chemotherapy-induced peripheral neuropathy, upper-limb or hand dysfunction, edema, lymphedema, deep-vein thrombosis, cognitive or neurological changes, trismus, tightness, contracture, deformity, and difficulty resuming prior function.

Interventions may include ADL retraining, transfer practice, graded functional activity, positioning, upper-limb and hand rehabilitation when appropriate, falls prevention, assistive-device prescription, splinting or orthotic intervention when indicated, cognitive rehabilitation, caregiver training, and discharge planning. The intervention plan should be coordinated with oncology, nursing, physiotherapy, rehabilitation medicine, social work, and other relevant professionals. The goal is safe participation in daily occupations during treatment, not simply completion of exercise tasks.

Long-term survivorship

Long-term survivorship may involve persistent or delayed consequences of treatment, including lymphedema, hypertrophic scar, shoulder and neck dysfunction, trismus, cancer related fatigue, reduced endurance, cognitive deficits, sleep disturbance, and difficulty returning to work or family roles. Occupational therapy can combine targeted remediation with compensatory approaches and environmental adaptation. Interventions may include graded activity, motor retraining, cognitive rehabilitation strategies, scar and range-of-motion management within professional scope of practice, assistive technology, orthoses or prostheses when indicated, and training in daily routines.

Fatigue management may include activity analysis, prioritization, pacing, planning, task simplification, and balancing activity with rest. A randomized clinical trial has examined energy-conservation education for cancer-related fatigue (Barsevick et al., 2004). Sleep hygiene and relaxation strategies may be incorporated where appropriate, alongside assessment and referral for persistent sleep disorders. Caregiver education and home modification can reduce barriers to safe participation.

Cancer-related lymphedema: assessment and occupational management

Cancer-related lymphedema may develop following cancer surgery, lymph-node dissection or other lymphatic procedures, and radiotherapy. It is characterized by swelling and may be associated with heaviness, discomfort, restricted range of motion, and altered body image. These manifestations can adversely affect occupational performance, limiting engagement in activities of daily living, including dressing and grooming, as well as instrumental activities such as household management, work, and leisure participation. Consequently, cancer-related lymphedema represents both a physical impairment and a potential barrier to functional independence and participation in meaningful occupations. Early identification, ongoing surveillance, and timely referral for appropriate assessment and management are essential, particularly for individuals at increased risk of developing lymphedema.

Surveillance and functional assessment

Assessment should consider symptoms, onset and pattern of swelling, skin condition, limb function, sensation, pain, range of motion, strength, and the effect on daily occupations. Where available and appropriate, objective surveillance may include standardized limb circumference or volume measurements and bioimpedance spectroscopy/L-Dex. Baseline measurements before treatment can help interpretation of later changes. Assessment methods and thresholds should follow local protocols and the expertise of the treating lymphedema service.

Education and intervention

Occupational therapy interventions for cancer-related lymphedema may include individualized self-management education, skin-care practices, graded use of the affected limb, therapeutic movement, activity modification, and strategies

to promote adherence to prescribed management regimens. Compression therapy, including the use of compression garments or bandaging, therapeutic exercise, manual techniques, and other components of complete decongestive therapy (CDT), should be implemented or coordinated by appropriately trained healthcare professionals according to the patient's clinical presentation and individual needs.

Occupational therapists can facilitate the integration of lymphedema management strategies into daily routines, including dressing, employment, household activities, travel, and leisure participation. They may also provide practical training in garment application, adaptive equipment uses, and task modification to enhance functional independence and support sustained engagement in meaningful occupations. Individualized education should encourage safe and appropriate physical activity while avoiding unnecessary restrictions that may limit functional participation.

Early recognition of potential complications is essential. Sudden or rapidly increasing swelling, new or worsening pain, redness, localized warmth, fever, or other concerning clinical changes warrant prompt medical assessment rather than reliance on routine self-management strategies alone.

The outcomes of occupational therapy extend beyond changes in limb volume to include the individual's capacity for effective self-management, safe and confident use of the affected limb, maintenance of functional independence, and participation in valued social, domestic, and vocational roles. Occupational therapy intervention should be person-centered, function-oriented, and consistent with current clinical guidance and the individual's goals, preferences, and occupational demands.

Occupational therapy in advanced cancer and palliative care

In advanced cancer, occupational therapy goals should be individualized and adapted in response to changes in symptom burden, treatment-related demands, functional status, and prognosis. Palliative occupational therapy does not signify the cessation of rehabilitation; rather, it emphasizes the preservation of meaningful occupational engagement and the achievement of realistic, person-centered goals. Goals should be reviewed frequently and aligned with the person’s preferences, symptom burden, and available support. Intervention may prioritize functional adaptation, symptom management, comfort, energy conservation, psychological well-being, and the maintenance of autonomy in activities of daily living. Through appropriate environmental modifications, task simplification, assistive equipment, and caregiver education, occupational therapists can support dignity, functional participation, and quality of life throughout the course of advanced illness. Ultimately, palliative occupational therapy seeks to maximize quality of life by enabling individuals to retain autonomy, preserve dignity, and engage in personally meaningful occupations for as long as possible, even as illness progresses.

Close collaboration with palliative medicine, nursing, physiotherapy, social work, psychology, and family caregivers is essential.

Implementation considerations and future directions

Integrating occupational therapy into oncology services requires clearly defined referral pathways, role delineation, access to validated assessment instruments, ongoing professional training, and interdisciplinary collaboration across inpatient, outpatient, community-based, and palliative care settings. Early identification of functional impairments should be linked to timely assessment and appropriate intervention, supported by established referral and escalation pathways for concerning clinical signs. Service delivery models should also address barriers to rehabilitation access, including travel distance, financial constraints, health literacy, language differences, caregiver availability, and disparities in the availability of specialized rehabilitation services.

Future research should prioritize prospective evaluations of occupational therapy-led and multidisciplinary oncology rehabilitation programmes, alongside pragmatic studies of prehabilitation across diverse cancer populations. Outcome assessment should extend beyond physiological and impairment-based measures to incorporate functional independence, occupational performance, participation in meaningful activities, return to work, caregiver burden, and patient-reported quality of life.

In cancer-related lymphedema management, the development and evaluation of standardized surveillance and referral pathways represent important priorities. Longitudinal studies examining the relationship between self-management interventions, functional outcomes, and occupational participation may further clarify the contribution of occupational therapy to sustained independence and quality of life. Ultimately, strengthening the integration of occupational therapy into oncology care requires a shift from impairment-focused rehabilitation toward a comprehensive, person-centered approach that prioritizes functional independence, meaningful occupational participation, and quality of life across the entire cancer care continuum.

Limitations

This manuscript is a narrative synthesis derived from a conference presentation and selected references cited in that presentation. It did not use a systematic search strategy or formal critical appraisal, and it does not provide pooled estimates of intervention effects. The article therefore presents a practice-oriented overview and should not be interpreted as a clinical guideline or systematic review.

Conclusion

Occupational therapy plays an important role across the cancer care continuum, encompassing prehabilitation, acute treatment, long-term survivorship, and palliative care. Through the integration of impairment assessment, functional evaluation, and individualized occupational goals, occupational therapy interventions can support symptom

management, preserve functional independence, facilitate adaptation to changing abilities, and promote participation in meaningful daily activities and social roles. Cancer-related lymphedema management further highlights the importance of integrating early identification, symptom management, self-management education, and functional rehabilitation to optimize occupational performance and quality of life. An interdisciplinary, evidence-informed, and person-centered approach is essential to ensure that interventions remain responsive to each individual's clinical status, personal priorities, and evolving needs. Ultimately, the contribution of occupational therapy to oncology extends beyond the management of physical impairments to enabling individuals to maintain autonomy, preserve dignity, and engage in meaningful occupations throughout the cancer journey, thereby making functional well-being and quality of life central components of comprehensive cancer care.

Declarations

Disclaimer (Artificial Intelligence): Author (s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

Ethics Approval

Not applicable. This narrative review does not report new human-participant data.

Consent for Publication

Not applicable to the narrative content.

Conflicts of Interest

Authors have declared that no competing interests exists.

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