

Exercise in oncology: toward a fifth pillar of comprehensive cancer care

Ejercicio oncológico: hacia un quinto pilar de la atención integral del cáncer

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After communicating a cancer diagnosis, the oncology team stages the disease and defines a therapeutic plan that may include surgery, radiotherapy, and systemic treatments such as chemotherapy, targeted therapies, and immunotherapy. However, structured exercise is still prescribed less frequently, despite existing evidence supporting its role in preserving functional capacity and reducing selected symptoms throughout the disease trajectory [1].

For decades, oncologic care was organized primarily around surgery, radiotherapy, and systemic treatments. Later, the early integration of palliative care broadened this approach by recognizing that symptom control, communication, and functional support must accompany the patient throughout the disease trajectory [2]. Today, scientific evidence is driving a further expansion of the comprehensive care model.

In this editorial, we propose considering exercise as a fifth pillar of comprehensive oncologic care. Rather than a general lifestyle recommendation, it should be understood as a therapeutic intervention that—when prescribed safely and individually—can reduce selected symptoms, preserve functional capacity, and, in specific populations, improve survival outcomes [1,3].

This intervention must meet three conditions: scientific support, clinical appropriateness, and meaningful impact for the patient.

The benefits of exercise extend beyond physical condition. Patients who participate in structured programs may experience improvements in certain psychological symptoms and in their perceived well-being [1].

The phase III, randomized, multicenter Canadian Cancer Trials Group (CCTG) CO.21 CHALLENGE trial enrolled 889 patients with resected stage III or high-risk stage II colon cancer who had completed adjuvant chemotherapy. Across 55 centers, 445 participants were assigned to a structured exercise program for three years, and 444 received health education materials. After a median follow-up of 7.9 years, five-year disease-free survival was 80.3% in the exercise group versus 73.9% in the health education group (HR: 0.72; 95% CI: 0.55–0.94). Findings were also consistent with greater overall survival in the exercise group (HR for death: 0.63; 95% CI: 0.43–0.94); eight-year overall survival was 90.3% versus 83.2%. Musculoskeletal events were more frequent in the exercise group (18.5% vs. 11.5%), underscoring the need for clinical evaluation, individualization, and professional supervision [4].

A subsequent economic analysis of the CHALLENGE trial estimated that the three-year structured program cost approximately CAD \$3,000 per participant and could generate savings for the Canadian health care system by reducing recurrences and subsequent treatments [5]. Although transferability to other health systems requires local evaluation, these findings strengthen the case for studying cost-effective implementation models.

Considering structured exercise as an essential component of oncologic care requires moving from general recommendations to individualized clinical prescription, tailored to the patient's condition and supervised by trained professionals [1,5].

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Today, survival is not the only indicator of therapeutic success. Prolonging survival must be accompanied by efforts to preserve mobility, autonomy, and social participation; functionality is therefore a clinically relevant outcome.

In this scenario, exercise is not limited to prevention: it can also help preserve functional reserve and reduce treatment-associated disability. Oncologic care should therefore be oriented not only toward disease control but also toward preventing avoidable functional decline.

What does the most recent evidence tell us?

Research on oncologic exercise has grown steadily over the past two decades. Several international guidelines recommend incorporating exercise tailored to the patient's clinical condition because of its benefits on physical capacity, strength, fatigue, and other relevant outcomes [1,5,6].

The most common symptom—and one of the most disabling—is cancer-related fatigue. Unlike other clinical symptoms, it responds poorly to pharmacological treatments. The most recent evidence shows that exercise is one of the non-pharmacological interventions with the strongest support for reducing its intensity, while also improving quality of life and functional capacity [1,5].

Cancer-related sarcopenia, characterized by a gradual decline in muscle strength and mass, is another issue of particular importance. Its presence is associated with higher treatment toxicity, increased postoperative complications, longer hospital stays, and reduced survival. Evidence suggests that strength training programs can help preserve muscle mass and promote functional recovery during active treatment [7]. In functional terms, exercise can improve balance, reduce the risk of falling, and facilitate return to work and social activities when clinical conditions allow it. It may also help preserve independence in activities of daily living [5].

Evidence also shows potential benefits for mental health. Supervised exercise programs can reduce symptoms of anxiety and depression and improve perceived well-being, aspects that are especially relevant during prolonged treatments [1,5].

From a biological perspective, changes in inflammatory mediators, body composition, and certain immunological parameters associated with exercise have been described [8]. However, the magnitude of these effects and their direct translation into oncologic outcomes remain under investigation.

In Ecuador, the systematic integration of oncologic exercise represents an opportunity for improvement. It will be necessary to characterize existing capacity—including functional assessments, structured programs, and the availability of trained professionals—as well as to identify barriers and define evaluation and referral pathways adapted to the national context.

Its implementation will require institutional leadership, interdisciplinary training, and public policies that recognize functionality as a priority health outcome.

In health systems with limited resources, the possibility of combining clinical benefit with economic efficiency makes it especially relevant to evaluate oncologic exercise models adapted to the local context [5].

In addition to continuing to generate evidence in other tumor types and contexts, the immediate challenge is to translate available knowledge into safe, accessible, and evaluable care models.

This is not about adding intervention, but about strengthening a truly person-centered approach in which preserving the ability to perform meaningful activities is as relevant as controlling pain and other symptoms.

Integrating oncologic exercise requires clinical evaluation, individualized prescription, professional supervision, and follow-up. Its incorporation does not replace antineoplastic therapies or palliative care; rather, it complements them by helping to preserve function, autonomy, and quality of life.

The challenge for oncologic institutions is to translate available evidence into care pathways that are feasible, safe, and equitable. This requires strengthening interdisciplinary training, establishing evaluation and referral mechanisms, and adapting exercise programs to each patient's clinical and functional characteristics.

Prescribing exercise with clinical rigor does not mean adding one more recommendation but rather broadening the concept of person-centered comprehensive oncologic care, in which preserving the ability to perform meaningful activities is as relevant as controlling the disease, pain, and other symptoms.

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2.1 Ethics committee approval

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2.2 Consent for publication

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2.3 Conflict of interest

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3. References

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