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Physiotherapy in Cancer-Related Fatigue: Exercise Prescription Across the Cancer Care Continuum A Narrative Review

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Abstract:
Background: Cancer-related fatigue (CRF) is a persistent, distressing sense of physical, emotional or cognitive exhaustion related to cancer or its treatment and disproportionate to recent activity. Unlike ordinary tiredness, it may not resolve with rest and can restrict function across diagnosis, active treatment, survivorship and advanced disease. Objective: To synthesize evidence published from 2012 through 2021 on physiotherapy assessment and exercise prescription for CRF across the cancer-care continuum. Methods: A structured narrative review considered peer-reviewed English-language studies, systematic reviews and guidance published between January 2012 and December 2021. Evidence concerning aerobic, resistance, combined, mind–body and behaviourally supported exercise was interpreted clinically. Results: Exercise is one of the best-supported non-pharmacological interventions for CRF. Benefits are generally modest but clinically meaningful for selected patients. Effective programmes use individualized aerobic or combined aerobic and resistance exercise, progressive dosing, symptom monitoring and strategies that avoid prolonged inactivity. Screening must identify anaemia, infection, cardiopulmonary disease, pain, sleep disturbance, nutritional problems, depression and treatment toxicity. Exercise should be adapted to cancer type, treatment phase, bone integrity, blood counts, neuropathy and patient goals. Conclusion: Physiotherapists can translate CRF evidence into safe, flexible and function-focused programmes from active treatment through survivorship and palliative care. Exercise should not be framed as simply overcoming tiredness through willpower. Larger pragmatic studies are required in advanced cancer, under-represented populations and resource-limited settings.

Keywords: cancer-related fatigue; exercise; physiotherapy; oncology rehabilitation; aerobic training; resistance training; survivorship

Introduction

Fatigue is among the most common and disruptive symptoms experienced by people with cancer. Cancer-related fatigue differs from ordinary tiredness because it can be severe, persistent, disproportionate to activity and incompletely relieved by rest. It may involve physical exhaustion, reduced motivation, cognitive slowing and emotional distress. The symptom can appear before treatment, worsen during chemotherapy or radiotherapy and persist for years in survivors (Bower, 2014). CRF interferes with walking, self-care, employment, family roles and treatment participation. Patients may reduce activity to conserve energy, yet prolonged inactivity contributes to deconditioning, weakness and lower confidence. This creates a cycle in which fatigue reduces movement and reduced movement increases the effort required for daily tasks.

Exercise is one of the most consistently supported non-pharmacological interventions. Cochrane evidence from the specified period reported that aerobic exercise reduced fatigue in adults with cancer (Cramp & Byron-Daniel, 2012). Meta-analyses and guidelines later strengthened the conclusion that appropriately prescribed aerobic, resistance or combined exercise can improve fatigue and physical function (Campbell et al., 2019; Mustian et al., 2017).

The instruction to exercise can nevertheless be harmful if delivered without assessment. Fatigue may reflect anaemia, infection, cardiopulmonary compromise, endocrine disorder, sleep disturbance, pain, nutritional deficiency, depression or disease progression. Cancer treatments create specific precautions including bone fragility, neuropathy, thrombocytopenia and surgical restrictions. Physiotherapists therefore contribute not generic motivation but clinical screening, dose selection, monitoring and functional progression.

This narrative review examines exercise prescription across diagnosis, active treatment, recovery, survivorship and advanced disease using evidence published from 2012 through 2021. It emphasizes individualized clinical practice and avoids presenting exercise as a cure or moral obligation.

Review Aim and Method

The aim is to synthesize evidence relevant to physiotherapy management of CRF and translate it into a continuum-based exercise framework. Questions include how fatigue should be assessed, which exercise modes are supported, how dose is modified during treatment, how safety is monitored and what barriers affect implementation.

The literature period was restricted to January 2012 through December 2021. Priority was given to peer-reviewed English-language systematic reviews, meta-analyses, randomized trials, clinical guidance and mechanistic reviews concerning adults with cancer, fatigue, physical activity and exercise. Publications outside the predefined window were excluded.

A narrative design was selected because populations, cancers, treatments, fatigue measures and exercise programmes vary substantially. No participant data were collected and no meta-analysis was performed. Evidence was interpreted conservatively. Average benefit did not imply universal response, and a statistically significant fatigue change was not assumed to restore participation without functional assessment.

Understanding Cancer-Related Fatigue

CRF is multidimensional. Physical fatigue may present as heaviness, weakness and reduced endurance. Cognitive fatigue involves difficulty concentrating or sustaining mental effort. Emotional fatigue can

include diminished motivation and distress. These dimensions overlap but may respond differently to intervention.

Mechanisms are complex. Inflammation, hypothalamic–pituitary–adrenal dysregulation, circadian disruption, autonomic changes, anaemia, altered energy metabolism and skeletal-muscle dysfunction have been proposed (Bower, 2014). Treatment can add nausea, pain, hormonal change, sleep disruption and reduced intake. No single mechanism explains every patient.

Fatigue is influenced by behaviour and environment. Hospital visits, travel, caregiving, financial stress and disrupted routines consume energy. Advice that ignores these demands can be unrealistic. Physiotherapy goals should prioritize activities that matter most and reduce unnecessary effort.

Deconditioning is both cause and consequence. Reduced activity lowers aerobic reserve and strength, so ordinary tasks use a larger proportion of capacity. Exercise can improve reserve and task efficiency even when it does not remove the biological source of fatigue. This distinction supports realistic expectations.

CRF should not be equated with laziness or weak motivation. Patients may already expend substantial effort to meet daily demands. Therapeutic communication validates the symptom while offering graded strategies. Blame undermines trust and adherence.

Screening and Assessment

Routine screening is recommended because patients may not report fatigue spontaneously. A simple 0–10 rating can identify severity and prompt assessment. Persistent moderate or severe fatigue requires exploration of onset, pattern, interference and associated symptoms (Berger et al., 2015; Bower et al., 2014).

History includes cancer type, stage, treatment, medication, sleep, pain, mood, intake and activity. Red flags include fever, acute breathlessness, chest pain, bleeding, new neurological deficit, severe dizziness, rapidly worsening fatigue or symptoms suggesting disease progression. These require medical evaluation.

Laboratory and medical contributors such as anaemia, thyroid dysfunction, infection and electrolyte disturbance are managed by the appropriate team. Physiotherapists do not diagnose these through exercise testing but should recognize when fatigue is disproportionate or changing.

Patient-reported measures include the Brief Fatigue Inventory, Functional Assessment of Chronic Illness Therapy–Fatigue and multidimensional scales. The same tool should be repeated when possible. Scores are complemented by questions about self-care, walking, work and social participation.

Physical assessment includes resting and exertional symptoms, vital signs when indicated, strength, sit-to-stand, gait, balance and endurance. The six-minute walk test can be useful in stable patients. Neuropathy, lymphoedema, bone pain and surgical limitations influence testing.

Baseline activity should be understood. A low fatigue score in a person who has abandoned all activity may conceal disability. Conversely, a high score in a person maintaining work and caregiving may reflect excessive demand. Capacity and performance should both be recorded.

Evidence for Exercise

The exercise evidence is stronger than for many pharmacological approaches to CRF. Cramp and Byron-Daniel (2012) concluded that exercise has beneficial effects, particularly aerobic exercise. Fong et al. (2012) found positive effects of physical activity on physical function, psychological outcomes and quality of life in survivors.

Mustian et al. (2017) compared pharmaceutical, psychological and exercise interventions and reported that exercise and psychological interventions were effective for CRF, supporting non-pharmacological care. The magnitude of benefit varied, and combination with routine medical management remained necessary.

The 2019 international multidisciplinary roundtable concluded that aerobic exercise, resistance exercise and combined training can improve fatigue and other cancer-related outcomes, and advised avoiding inactivity (Campbell et al., 2019). This provides a strong foundation for physiotherapy prescription.

Systematic reviews also highlight heterogeneity. Programmes vary in supervision, duration, intensity and cancer population. Participants enrolled in exercise trials may be healthier and more motivated than routine patients. Results should be applied using clinical reasoning rather than a single protocol.

The evidence supports exercise as treatment, not merely prevention. Patients with established fatigue can benefit when dose is appropriate. Lack of immediate improvement does not necessarily indicate failure; maintaining function during intensive treatment may be meaningful.

Aerobic Exercise Prescription

Aerobic exercise improves cardiorespiratory capacity and reduces the relative effort of daily tasks. Walking and cycling are common because they are accessible and scalable. Mode should account for neuropathy, balance, joint pain and preference.

Intensity can be prescribed through heart-rate response, talk test or rating of perceived exertion. During treatment, perceived exertion is often practical because medication, anaemia or autonomic effects alter heart rate. Light-to-moderate effort may be an appropriate starting point, progressed according to tolerance.

Accumulated bouts are useful for severe fatigue. Three ten-minute walks may be more achievable than one 30-minute session. Duration can progress before intensity. On difficult treatment days, a shorter session may preserve routine without excessive burden.

Interval exercise alternates work and recovery and can improve tolerability. High-intensity approaches may benefit selected, stable patients but are not required for CRF improvement and need screening. The safest prescription is individualized, not automatically low or high intensity.

Monitoring includes symptoms during exercise and recovery over 24–48 hours. A transient, manageable increase in tiredness can occur. Persistent worsening that disrupts function suggests excessive dose or a medical contributor. The plan is adjusted rather than abandoned.

Walking goals should not be based solely on step counts. Purposeful activity, environment and baseline matter. A patient with bone pain or falls risk may require cycling or supervised training. Aerobic progression remains linked to meaningful function.

Resistance and Combined Training

Resistance exercise addresses muscle loss, weakness and impaired task performance. Cancer treatment, inactivity and ageing can reduce muscle mass and power. Improved strength can lower the effort required for transfers, stairs and carrying.

Assessment guides selection of major muscle groups and functional movements. Sit-to-stand, step-ups, heel raises, rowing and pressing can be performed with body weight, bands or weights. Technique and breathing are emphasized. Loads begin conservatively and progress through repetitions, resistance or complexity.

Combined aerobic and resistance training is supported by guideline evidence for fatigue (Campbell et al., 2019). The modes can occur in the same or separate sessions. Total weekly burden matters; adding components without reducing dose may overwhelm a fatigued patient.

Bone metastases require site-specific modification. Exercises loading affected regions may be restricted, and new focal bone pain requires medical review. Thrombocytopenia, severe anaemia, surgery and central lines also influence exercise. Decisions follow oncology guidance and current status.

Resistance training is not contraindicated solely because a patient is weak. Weakness may make it more necessary, but supervision and dose change. Functional tasks can provide the initial stimulus when formal weights are impractical.

Progress is documented by load, repetitions, quality and function. Improved chair rise despite unchanged fatigue score remains valuable. Conversely, increased strength does not justify ignoring worsening systemic symptoms.

Mind–Body and Flexible Activity Options

Yoga and related mind–body exercise may improve fatigue, sleep and quality of life in some cancer populations. A Cochrane review reported benefits for quality of life and fatigue in women with breast cancer, although evidence varied (Cramer et al., 2017). These approaches may suit patients preferring lower-impact, integrated movement.

Yoga programmes require adaptation for surgery, bone disease, neuropathy and balance. Generic classes may not be safe. The therapeutic component includes breathing, movement and relaxation rather than extreme postures.

Tai chi, qigong, aquatic exercise and dance have been studied with mixed certainty. They may provide enjoyable activity, balance and social connection. Limited evidence should be communicated honestly. Preference can support adherence when safety is established.

Flexibility and mobility exercises reduce stiffness but are unlikely to treat CRF alone. They are combined with aerobic or strengthening activity when possible. Gentle movement may be the entry point for severely fatigued patients.

No exercise mode is universally best. The programme should be feasible, valued and progressive. Enjoyment is not trivial; sustained participation is required for adaptation.

Exercise During Active Treatment

Active chemotherapy and radiotherapy create fluctuating symptoms. Exercise should be planned around predictable treatment cycles while remaining flexible. Stable days may support moderate training; nausea, infection or severe fatigue may require reduced dose or rest.

Patients should avoid inactivity without being pressured to meet a rigid target. A “minimum viable session” of mobility, light strengthening or a brief walk can preserve engagement. The next session is adjusted according to recovery.

Blood counts and medical status influence decisions. Exact thresholds vary by service and must be interpreted with symptoms and oncology guidance. Fever, active infection, uncontrolled vomiting, bleeding, severe anaemia symptoms or unstable cardiopulmonary status preclude routine progression.

Chemotherapy-induced peripheral neuropathy affects balance and foot sensation. Supported exercise, cycling or supervised walking may be safer. Hand neuropathy can affect grip on equipment. Foot and skin inspection are important.

Radiotherapy site and skin reaction influence clothing, heat and movement. Pelvic or abdominal treatment may affect bowel symptoms and hydration. Exercise location should allow dignity and access.
The goal during active treatment may be maintenance rather than improvement. Preserving walking and independence through cumulative therapy is a meaningful success. Reassessment identifies when the programme can progress after treatment.

Post-Treatment Survivorship

Fatigue may persist after treatment even when routine tests are reassuring. Survivors can become trapped between expectations to "return to normal" and ongoing symptoms. Physiotherapy validates the experience and provides graded restoration.
Post-treatment exercise can progress toward public-health activity levels, but the route is individualized. Aerobic capacity, strength, balance and confidence are reassessed. A gradual increase reduces boom-and-bust cycles in which excessive activity is followed by prolonged rest.
Return to work requires task analysis, pacing and progressive exposure. Commuting, concentration and household roles add to workload. Exercise is one component of a broader return plan.
Persistent pain, sleep disturbance, depression and fear of recurrence may maintain fatigue. Interdisciplinary care is appropriate. Physiotherapists address movement and function without claiming that exercise alone resolves every contributor.
Long-term adherence is supported by autonomous goals and enjoyable activity. Monitoring may become less frequent. Survivors should know when new or worsening fatigue warrants medical reassessment rather than assuming it is a permanent treatment effect.

Advanced Cancer and Palliative Care

Exercise can remain relevant in advanced cancer, but goals and dose change. Priorities may include transfer independence, walking to the bathroom, reducing caregiver burden, comfort and participation in valued activities. Survival or fitness targets may be inappropriate.
Short, symptom-limited sessions are often preferable. Bed or chair exercise, supported standing and brief walking can maintain function. Rest is incorporated without framing it as failure. Day-to-day variability is expected.
Bone metastases, cachexia, pain, cardiopulmonary involvement and neurological deficits require careful modification. Prognosis and treatment goals are discussed with the team. Exercise should not consume limited energy needed for meaningful activity.
Patient preference is central. Some patients value structured movement; others prioritize comfort. Physiotherapy remains goal-concordant and can shift from training to positioning, equipment and caregiver education.
Evidence is less robust in advanced disease, so claims should be cautious. Feasibility and individual benefit do not establish universal effectiveness. Compassionate clinical reasoning takes precedence over protocol completion.

Behaviour Change, Pacing and Energy Management

Fatigue often produces avoidance and fear of worsening. Education explains that graded activity can improve capacity, but the programme should not dismiss symptom limits. Collaborative experiments help patients learn an achievable dose.

Pacing distributes demanding tasks and planned recovery. It is not prolonged inactivity. Patients can prioritize essential activities, alternate heavy and light tasks and use equipment or environmental changes to reduce wasted effort.

Goal setting is specific and meaningful. “Walk for ten minutes after breakfast on four days” is clearer than “exercise more.” Logs can record activity, fatigue and recovery without becoming burdensome.

Boom-and-bust behaviour is addressed by setting upper as well as lower limits. On a good day, patients may overdo activity and worsen fatigue. Consistency supports adaptation. Progression is deliberate rather than driven by guilt.

Family education reduces conflicting messages. Caregivers can encourage activity while respecting symptoms. They should not pressure the patient or take over all tasks unnecessarily. Shared goals support independence.

Digital support may help reminders and monitoring, but technology is optional. Phone calls, paper logs and group programmes are alternatives. The best strategy is one the patient can sustain.

Safety and Clinical Escalation

Exercise prescription begins with medical stability. Red flags include chest pain, acute breathlessness, syncope, fever, new neurological deficit, uncontrolled bleeding, suspected thrombosis and sudden severe fatigue. These trigger medical review.

Bone integrity, infection risk, blood counts, wounds, lines and lymphoedema risk are considered. Resistance and impact are modified according to affected sites. There is no single list that replaces oncology-specific judgment.

Falls risk may increase with neuropathy, weakness or medication. Balance assessment, footwear, assistive devices and supervision are incorporated. Exercise in an unsafe environment is avoided.

Hydration, temperature and nutrition influence tolerance. Patients exercising during treatment may need shorter sessions and longer recovery. Persistent post-exertional worsening requires reassessment of dose and contributors.

Adverse events and near misses should be documented. Safe care does not mean eliminating all exertion; it means selecting and monitoring an appropriate challenge with a clear response plan.

Service Delivery and Equity

Cancer exercise services can be delivered in hospitals, community settings, homes or remotely. A stepped model provides education to all, supervised care for higher-risk patients and transition to independent activity when appropriate.

Referral should occur early, including during treatment. Waiting until severe deconditioning develops makes recovery harder. Screening in oncology clinics can identify fatigue and functional decline.

Rural patients face travel, cost and workforce barriers. Home programmes, telephone support and local physiotherapy can extend access. Remote models require connectivity and an alternative for people without technology.

Financial, cultural and language barriers affect participation. Programmes should use understandable materials, flexible schedules and low-cost exercise options. Attendance-based success metrics may overlook excluded patients.

Services should measure uptake, adherence, functional outcomes, fatigue, safety and patient experience. They should also report who declines and why. Equity is part of quality, not an optional addition.

Clinical Decision-Making Across the Continuum

A useful physiotherapy pathway begins with triage rather than an automatic exercise prescription. The therapist first establishes whether the person is medically stable, whether fatigue is plausibly related to cancer or its treatment, and whether a reversible contributor requires attention. The next decision is the level of supervision. A medically stable survivor with mild fatigue and previous exercise experience may need education, a written plan and periodic review. A person receiving intensive treatment, living with metastatic disease, or presenting with falls, neuropathy, marked deconditioning or multiple comorbidities benefits from closer monitoring and interdisciplinary communication. This stratification directs resources toward risk without denying lower-risk patients timely support.

Goal setting should connect physiological targets with participation. Improving peak oxygen uptake is valuable, but patients commonly care more about preparing a meal, walking with family, returning to employment or completing treatment with less disruption. The therapist can translate each participation goal into component demands. For example, independent shopping requires walking tolerance, lower-limb strength, balance, carrying capacity and recovery between tasks. Baseline measures then become meaningful because they relate to a valued activity rather than an abstract test score. Short-term goals should be observable, achievable within the treatment cycle and reviewed when symptoms change.

Exercise dose is best understood as a flexible range. Frequency, intensity, time and type are adjusted together, while progression depends on response. On a good week, a patient might complete three 25-minute walks and two resistance sessions. During a difficult treatment week, the same programme may become several five- to ten-minute walks, one light resistance session and mobility practice. This is dose modification, not failure. Maintaining some safe activity may protect routine and self-efficacy, while temporary recovery days prevent an excessive symptom burden. When tolerance returns, the previous dose is approached gradually instead of compensating with an abrupt increase.

The symptom-response rule should be explicit. Mild, short-lived tiredness after training can be acceptable when it resolves by the next day and does not reduce essential activity. A large or prolonged increase in fatigue, dizziness, unusual breathlessness, pain, fever or functional deterioration indicates that the dose or medical status should be reviewed. Patients can record exercise duration, perceived exertion, fatigue before and after activity, and next-day recovery. The diary is not intended to create surveillance anxiety; it provides enough information to identify patterns and guide shared decisions.

Progression can occur through duration before intensity in markedly deconditioned patients. Once continuous or accumulated activity is tolerated, workload can rise in small increments. Resistance progression may begin by improving technique and repetitions, then increasing load. Only one major variable should usually change at a time. Deloading is appropriate during treatment transitions, acute illness or cumulative toxicity. Periodic reassessment of fatigue severity, walking capacity, strength and participation shows whether the programme is producing benefit and whether the original goals remain relevant.

Complex presentations require coordinated care. Anaemia, endocrine disturbance, cardiopulmonary toxicity, sleep disorder, depression, pain, malnutrition and medication effects can coexist with deconditioning. Physiotherapy addresses movement and functional consequences but should not imply that exercise alone resolves every cause. Referral to oncology, nursing, dietetics, psychology, occupational therapy or palliative care should follow identified needs. Communication should include current precautions, response to activity and the functional consequence of symptoms. This integrated

approach is consistent with guideline recommendations that fatigue management combine education, activity and treatment of contributing factors (Berger et al., 2015; Bower et al., 2014).

Clinical review should also distinguish fatigue from exertional intolerance. A patient may describe "fatigue" when the limiting problem is breathlessness, muscle weakness, orthostatic symptoms, pain or fear. Observing a transfer, short walk and recovery can reveal the dominant limitation. If weakness is prominent, resistance and task practice may take priority. If cardiorespiratory deconditioning dominates, accumulated aerobic training may be emphasized. If distress or sleep disruption is central, exercise remains useful but should be paired with the relevant supportive intervention. Individualization therefore means choosing a leading target while retaining a whole-person perspective.

Implementation benefits from a written transition plan. At the end of supervised rehabilitation, the patient should know the weekly activity target, acceptable symptom response, warning signs, options for difficult days and how to restart after interruption. Community facilities and home programmes should be matched to affordability, transport, safety and preference. Follow-up at planned intervals can detect declining adherence or new treatment effects before substantial deconditioning recurs. Survivorship care is stronger when exercise is treated as a continuing health behaviour rather than a short episode that ends at discharge.

Quality of care can be evaluated without collecting research data. Services may monitor whether fatigue is screened, whether moderate or severe symptoms prompt assessment, whether eligible patients receive exercise advice, and whether high-risk patients are referred appropriately. At the individual level, success may include reduced fatigue interference, improved walking or strength, achievement of a participation goal, and confidence to self-manage fluctuations. These outcomes acknowledge that symptom elimination is not always possible, especially in advanced disease, while meaningful function can still improve.

An illustrative pathway demonstrates the approach. A patient beginning adjuvant chemotherapy reports moderate fatigue and has stopped walking because of concern about overexertion. Assessment finds medical stability, reduced endurance and no red flags. The initial programme uses ten-minute walks on four days, two brief sessions of sit-to-stand and upper-limb resistance, and daily mobility. Perceived exertion and next-day recovery guide dose. During the post-infusion period, walking is divided into shorter bouts; later in the cycle, duration rises. If dizziness or prolonged deterioration appears, training pauses and the oncology team reviews the patient. The example is not a universal protocol; it shows how assessment, flexibility, safety and progression operate together.

Documentation should make clinical reasoning visible. Notes should state the fatigue rating and interference, relevant treatment status, precautions, baseline functional findings, agreed goals, prescribed dose, modification rules and escalation advice. At review, the therapist records adherence, symptom response and the reason for progression or regression. Clear documentation supports continuity when care moves between oncology, rehabilitation and community teams. It also prevents a common error in which a generic recommendation to "stay active" is given without enough specificity for a fatigued person to act safely.

Technology can support this pathway when it reduces, rather than increases, burden. A simple telephone review, step counter or electronic activity diary may help maintain contact during treatment and reveal declining activity. Remote supervision can improve access for people living far from cancer centres, but it does not remove the need for risk screening. Patients with unstable symptoms, high fall risk or uncertain technique may require an in-person assessment before remote care. Digital targets should

remain individualized: an arbitrary step goal can be discouraging or unsafe when treatment effects fluctuate. Technology is therefore an adjunct to clinical reasoning and human support, not a substitute for either.

Family members and caregivers can reinforce pacing, accompany walks and assist with transport, yet their expectations may also unintentionally encourage excessive rest or excessive effort. With the patient's permission, brief education can clarify that planned activity and recovery are both legitimate parts of rehabilitation. Employers may need practical recommendations about graded return, task rotation and rest opportunities. Occupational demands should be considered early because work can consume most available energy, leaving insufficient capacity for self-care. Physiotherapy planning is more realistic when domestic, occupational and caregiving workloads are counted as activity rather than ignored.

Finally, communication style matters. Patients may interpret exercise advice as blame, particularly if they have already struggled to meet family or work expectations. The therapist should acknowledge the biological and treatment-related basis of CRF, explain the average evidence without promising cure, and invite the patient to choose feasible activities. Shared decision-making respects uncertainty and autonomy. A small programme completed consistently is more useful than an ideal prescription that conflicts with symptoms, resources or values. This therapeutic alliance is central to sustained participation across a changing cancer trajectory.

Practical Programme Details

Patient education should distinguish planned exercise, general activity and unavoidable daily workload. This helps prescribe a recoverable training dose and prevents domestic or occupational effort from being overlooked. Exercise may be accumulated in short bouts when continuous activity is unrealistic. Warm-up and cool-down permit symptom observation, while hydration, suitable footwear and an uncluttered environment reduce avoidable risk. After several missed sessions, training should restart below the previous peak rather than resume automatically at full dose. Review should ask not only whether exercise was completed, but what enabled or prevented it. These practical details often determine whether an evidence-based recommendation becomes sustainable behaviour. Written instructions should use familiar language and provide examples for good, average and difficult days. Where possible, the patient should demonstrate the exercises and explain the modification rules back to the therapist. This confirms understanding and exposes uncertainties before independent practice. A programme that is simple to remember, easy to record and adaptable to treatment effects is more likely to persist than a complex schedule requiring ideal conditions.

Limitations and Research Priorities

Exercise studies vary in cancer type, treatment, fatigue severity and intervention dose. Small samples and selective recruitment limit generalizability. Fatigue instruments differ, and blinding is difficult.

Future trials should report frequency, intensity, time, type, supervision and adherence. Core outcomes should include fatigue, physical function, participation, quality of life and adverse events. Clinically important change should accompany statistical significance.

Research is needed in advanced cancer, older adults, multimorbidity, rural populations and people with severe baseline fatigue. Implementation studies should compare supervised, hybrid and home models.

Mechanistic studies may clarify responders, but clinical function remains central. Economic evaluations should include patient costs and workforce requirements. Long-term studies should examine persistence after programmes end.

The evidence supports exercise but not a universal prescription. Precision should arise from assessment and response, not from unsupported algorithms or cancer diagnosis alone.

Conclusion

CRF is a complex, multidimensional symptom that can persist across the cancer-care continuum. Exercise is among the best-supported non-pharmacological interventions, with aerobic, resistance and combined programmes offering modest but meaningful benefit for many patients.

Physiotherapists contribute through screening, functional assessment, individualized dose, symptom monitoring, pacing and progression. Exercise must be adapted to treatment phase, bone integrity, blood counts, neuropathy, comorbidity and patient goals. It complements rather than replaces medical evaluation and psychosocial or nutritional care.

The practical principle is to avoid unnecessary inactivity while respecting biological illness and recovery needs. Safe, flexible and goal-concordant exercise can preserve independence during treatment and support recovery afterward. Future research should strengthen evidence for under-represented populations and scalable delivery.

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