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Cancer-Related Fatigue: Scientific Progress Has Been Made in 40 Years

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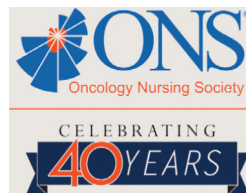
Abstract

Cancer-related fatigue (CRF) is a persistent symptom experienced by survivors throughout their cancer journey. Although the etiology of CRF is unclear, evidence supports improvements in fitness and quality of life. Survivors could benefit from appropriate identification and treatment from oncology nurses.

At a Glance

- Health care has shifted from disease-focused care to wellness care.
- The Oncology Nursing Society's Putting Evidence Into Practice resource on fatigue provides synthesized information about strategies to reduce CRF.
- Oncology nurses play a significant role in increasing awareness about the appropriate identification, recognition, and treatment of CRF.

Graphical Abstract



Keywords

cancer-related fatigue; exercise; nutrition; Putting Evidence Into Practice

Cancer-related fatigue (CRF) is a distressing, persistent symptom that is experienced by survivors during and after treatment. Unsurprisingly, many early CRF studies were

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conducted by nurses. These studies included a look at patients receiving localized radiation treatment (Haylock & Hart, 1979); an exploration of fatigue as a conceptual approach to a clinical problem (Aistars, 1987); the development of a nursing theory focused on fatigue mechanisms (Piper, Lindsey, & Dodd, 1987); an examination of fatigue mechanisms (St Pierre, Kasper, & Lindsey, 1992), as well as of fatigue in advanced cancer (Bruera & MacDonald, 1988) and in non-small cell lung cancer (Sarna, 1993); and a description of fatigue and potential nursing interventions (Nail & King, 1987). Winningham et al. (1994) wrote a state-of-the-science article about fatigue in the cancer experience for the *Oncology Nursing Forum*, and Mock et al. (1997) was one of the first to conduct an exercise study regarding the effects of exercise on fatigue, physical functioning, and emotional distress during radiation therapy for breast cancer. Nurse scholars from the 1970s–2000s were pivotal in advancing the science of fatigue in various cancers and have provided a scientific foundation for those four decades.

During the past 40 years, clinicians, patients, and caregivers have increased their awareness about the appropriate identification, recognition, and treatment of CRF. In addition, objective measures of fatigue (e.g., validation surveys) have increased in number. The Oncology Nursing Society has developed the Putting Evidence Into Practice (PEP) resource, in which teams of nurse scientists, advanced practice nurses, and staff nurses summarize and synthesize information available on a patient-centered topic of interest, such as fatigue. A classification schema that includes the following categories is used to determine the effectiveness of various interventions in addressing the topic of interest: recommended for practice, likely to be effective, benefits balanced with harm, effectiveness not established (these should be carefully considered by the patient and practitioner), effectiveness unlikely, not recommended for practice (these should be avoided), and expert opinion. In the area of fatigue, the PEP resource only suggests exercise as the intervention recommended for practice. Mitchell et al. (2014) published an updated PEP resource for CRF during and following treatment. This article highlights the most recent evidence-based practices for CRF and is a valuable resource for researchers, clinicians, and students.

Shifts in Care

Health care has shifted in the past 40 years and continues to shift from disease-focused care to wellness care. Consequently, increased attention should be paid to healthy lifestyle behaviors, an essential element of treatment in the survivorship continuum (Jacobs et al., 2009). Data invalidating the historic consensus that fatigue is best managed by rest continues to emerge. Increasing physical activity levels during and after treatment has been shown to improve CRF in breast cancer survivors (Cantarero-Villanueva et al., 2013). The etiology of CRF is unclear; however, evidence supports improvements in fitness and quality of life as mediators of the perception of fatigue in a variety of cancers (Buffart et al., 2013). With less than 10% of survivors active during treatment and 20%–30% active after treatment, methods should be developed to effectively integrate exercise into cancer care, as well as to better provide patients with education on the benefits of increasing physical activity during survivorship (Pinto & Ciccolo, 2011).

Improvements in CRF have been shown to be more pronounced using moderate- or vigorous-intensity exercise interventions versus those that are of mild intensity (Mishra et al., 2012). These intensities equate to the differences among a slow walk, a brisk walk, and a jog or run. Fortunately, this finding mirrors guidelines that advocate an individual's commitment to performing at least 30 minutes of moderate- to vigorous-intensity exercise at least five days a week (Schmitz et al., 2010). In reality, not all survivors are able to exercise at such elevated intensities; survivors experiencing severe CRF should be encouraged to perform at least 10 minutes of light exercise, yoga, or stretching daily (Speck, Courneya, Mâsse, Duval, & Schmitz, 2010).

The consensus is that survivors should adopt exercise programs compiled of aerobic, resistance, and flexibility training (Schmitz et al., 2010). Although exercise should be one of the default components of survivorship, the American Cancer Society and the American College of Sports Medicine (ACSM) identify specific precautions that should be taken with survivors, based on individual complications (Rock et al., 2012; Schmitz et al., 2010). Examples include the avoidance of crowds for immunocompromised patients and lower-body exercise for patients with inflammation of the abdomen, groin, or lower extremities, as well as the awareness of fracture risks for patients with musculoskeletal issues. Exercise specialists should be aware of these limitations and continue to be able to quickly determine a safe, effective, and appropriate intervention. These contraindications also highlight the importance of implementing interventions on a case-by-case basis, because evidence suggests that no one-size-fits-all remedy for exercise interventions in cancer care exists (Tomlinson, Diorio, Beyene, & Sung, 2014). A recommendation by an oncologist near the time of diagnosis is a strong predictor of exercise adherence in patients with cancer (Fletcher et al., 1996). However, depending on the study, 28%–50% of oncologists initiate a conversation about exercise as a recommendation therapy (Jones & Courneya, 2002; Segar et al., 1998). The ACSM created the Certified Cancer Exercise Trainer certification to create a route of referral from physician to patient, with the hope of providing an avenue for safe, effective exercise therapy.

Diet and Exercise

In addition to exercise, CRF should be synchronously managed through appropriate diet and adequate nutrition. Nutritional status in the survivor is commonly affected by various problems (e.g., reduced appetite, bowel disturbance, alterations in taste and smell because of single- or multi-agent chemotherapy) (Doyle et al., 2006). These issues commonly result in unintentional weight loss or body fat gain with concurrent loss in lean body mass; both contribute to increased fatigue. During and after treatment, nutritional goals should involve preventing malnutrition as well as achieving or maintaining a healthy weight and lean body mass. Recommendations for survivors include consuming smaller, frequent meals and focusing on nutrient-dense beverages and foods. Because many survivors are at risk not only for fatigue but also for a multitude of chronic diseases, survivors should strive for the suggested amounts of fat (25%–35%), carbohydrates (50%–60%), and protein (at least 0.8 g/kg) for the general adult population (Lichenstein et al., 2006). In addition, lean proteins (e.g., fish, nuts) and a plant-based diet that is high in fruits, vegetables, and unrefined whole

grains and low in saturated fats, red meats, and alcohol consumption are all encouraged in survivorship (Rock et al., 2012).

Studies promote the synergistic effect of proper diet and exercise, rather than either alone, for significant survival advantage and reduced fatigue (Pierce et al., 2007). Survivors should be coached to record all nutritional and physical activity practices, so discussion points can arise when consulting the oncologist, nutritionist, and exercise specialist. Other routes include the promotion of fitness through a letter or customized packet and inclusion of the survivor's support system, all the while keeping in mind the setting of realistic, manageable goals. The application of interventions such as these in the general adult population, let alone for survivors, requires effort from the entire patient care team. However, these lifestyle recommendations are vital for maintaining and improving weight and body composition, which are modifiable factors associated with CRF.

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