

# Examination of the Association of Diet and Persistent Cancer-Related Fatigue: A Pilot Study

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**P**ersistent cancer-related fatigue (PCRF), defined as an unusual, constant, subjective sense of tiredness not relieved by rest (Morrow, 2007), is one of the most common symptoms experienced by cancer survivors (Montazeri, 2008). Rates of significant PCRF in patients with cancer range from 30%–82% within the first five years after diagnosis, and are as high as 34% in the 5–10 years after diagnosis (Bower et al., 2006). PCRF is associated with decreased quality of life (Alexander, Minton, Andrews, & Stone, 2009; Kim et al., 2008; Reid-Arndt, Hsieh, & Perry, 2009), decreased sleep quality and/or quantity (Alexander et al., 2009; Kim et al., 2008), depression (Bower, 2005), and impaired cognition (Bower, 2008). Individualized nutritional counseling has been found to be beneficial for decreasing fatigue and improving quality of life in patients with cancer receiving treatment (Ravasco, Monteiro-Grillo, & Camilo, 2007; Ravasco, Monteiro-Grillo, Vidal, & Camilo, 2005) and has been recommended by the National Comprehensive Cancer Network ([NCCN], 2012) for patients with cancer in treatment and during their long-term follow-up.

In contrast, nutritional recommendations for fatigue in cancer survivors have not been examined and no clinical guidelines have been proposed. To date, few options exist for dietary treatment of PCRF. Recommended interventions include addressing anemia and encouraging adequate protein and caloric intake (Carroll, Kohli, Mustian, Roscoe, & Morrow, 2007; Mustian et al., 2007). Growing evidence, however, suggests an inflammatory basis for chronic fatigue in cancer survivors (Bower, Ganz, Irwin, Arevalo, & Cole, 2011; Collado-Hidalgo, Bower, Ganz, Cole, & Irwin, 2006; Collado-Hidalgo, Bower, Ganz, Irwin, & Cole, 2008; Ganz & Bower, 2007). Foods such as fruits, vegetables, and fatty fish, as well as nutrients such as carotenoids, omega 3 fatty acids, and antioxidant vitamins, have been shown to decrease inflammatory

**Purpose/Objectives:** To examine associations between diet and persistent cancer-related fatigue (PCRF) in cancer survivors.

**Design:** A cross-sectional pilot study.

**Setting:** A university cancer center in Michigan.

**Sample:** 40 adult cancer survivors who were recruited from July 2007 to August 2008 and had completed all cancer treatments at least 12 weeks prior to recording their dietary intakes and fatigue severity.

**Methods:** Participants' fatigue was assessed with the Brief Fatigue Inventory (BFI). Based on the BFI score, participants were placed into one of three fatigue levels: no fatigue, moderate fatigue, or severe fatigue. Dietary data were collected using a four-day food diary and analyzed using Nutrition Data System for Research software. Diet data were collected during the same week that fatigue was measured.

**Main Research Variables:** Fatigue and dietary intake.

**Findings:** Mean daily intake of whole grains, vegetables, and, in particular, green leafy vegetables and tomatoes were significantly higher in the nonfatigued group compared to fatigued cancer survivors. Also, cancer survivors reporting no fatigue had significantly higher intakes of certain anti-inflammatory and antioxidant nutrients.

**Conclusions:** Increased consumption of whole grains, vegetables, and foods rich in certain anti-inflammatory nutrients was associated with decreased levels of PCRF. Additional rigorous studies are required to investigate possible mechanisms and causal relationships regarding the benefits of particular diets on PCRF.

**Implications for Nursing:** Nurses, as one of the main providers of care to cancer survivors, should continue to follow National Comprehensive Cancer Network recommendations until additional data on diet and fatigue are evaluated.

**Knowledge Translation:** Nurses should be aware of national guidelines for nutritional recommendations for treating cancer-related fatigue. In addition, nurses should ask about and record the cancer survivor's typical dietary intake. Referrals to registered dietitians, in accordance with national guidelines for cancer survivors, should be considered when advising a fatigued patient.