

# The Effectiveness of Exercise Interventions for Improving Health-Related Quality of Life From Diagnosis Through Active Cancer Treatment

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About 1.6 million Americans faced a new diagnosis of cancer in 2014 (American Cancer Society, 2014). Most of those individuals will undergo one or more cancer treatments, such as surgery, radiation, chemotherapy, hormone therapy, immunotherapy, targeted treatments, or bone marrow transplantation. In addition to possibly curing or mitigating the effects of the disease, cancer therapies may affect the well-being of people with cancer during the weeks, months, or years of the treatment regimen.

Quality of life, or health-related quality of life (HRQOL) when used in reference to medical conditions and treatments, refers to a person's overall functioning and well-being. HRQOL is subjective and multidimensional and includes psychological, social, physical, spiritual, and occupational functioning, as well as somatic experiences, such as symptoms (International Society for Quality of Life Research [ISOQOL], 2013). With a diagnosis or active treatment, people with cancer experience many adverse outcomes that negatively affect HRQOL (Aziz, 2007; Aziz & Rowland, 2003; Cramp & Byron-Daniel, 2012; Ganz et al., 2004; Lee et al., 2007).

The benefits of exercise for a number of outcomes, including health status, length of survival, HRQOL, and risk of premature death, are gaining attention (Cramp & Byron-Daniel, 2012; Stevinson, Lawlor, & Fox, 2004; Warburton, Nicol, & Bredin, 2006). Despite this large and growing body of evidence documenting exercise's beneficial effects (Courneya & Friedenreich, 2007), people with cancer often participate in low levels of exercise or do not exercise at all (Blanchard et al., 2003; Courneya & Friedenreich, 2007). Systematic reviews on the effects of exercise interventions immediately before or during active cancer treatment exist (Cramp & Byron-Daniel, 2012; McNeely et al., 2006; Stevinson et al., 2004); however, no systematic review has examined the effect of exercise on (a) overall HRQOL, HRQOL

**Purpose/Objectives:** To evaluate the effectiveness of exercise interventions on overall health-related quality of life (HRQOL) and its domains among adults scheduled to, or actively undergoing, cancer treatment.

**Data Sources:** 11 electronic databases were searched through November 2011. In addition, the authors searched PubMed's related article feature, trial registries, and reference lists of included trials and related reviews.

**Data Synthesis:** 56 trials with 4,826 participants met the inclusion criteria. At 12 weeks, people exposed to exercise interventions had greater improvement in overall HRQOL, physical functioning, role functioning, social functioning, and fatigue. Improvement in HRQOL was associated with moderate-to-vigorous intensity exercise interventions.

**Conclusions:** Exercise can be a useful tool for managing HRQOL and HRQOL domains for people scheduled to, or actively undergoing, cancer treatment. More methodologically rigorous trials are needed to examine the attributes of exercise programs most effective for improving HRQOL.

**Implications for Nursing:** Evidence from this review supports the incorporation of exercise programs of moderate-to-vigorous intensity for the management of HRQOL among people scheduled to, or actively undergoing, cancer treatment into clinical guidelines through the Oncology Nursing Society's Putting Evidence Into Practice resources.

**Key Words:** quality of life; health status; anxiety; depression; fatigue; exercise; survivors; yoga; resistance training; physical activity

*ONF*, 42(1), E33–E53. doi: 10.1188/15.ONF.E33-E53

domains (e.g., physical, psychological, economic, social, spiritual well-being), or both; or (b) disease- or treatment-related symptoms (e.g., chronic fatigue) among adults with cancer immediately before or during active cancer treatment.

This review, originally published as a Cochrane systematic review (Mishra, Scherer, Snyder, et al., 2012), seeks to answer the question: What are the effects of exercise interventions on HRQOL and HRQOL domains