■ Article

Physical and Psychological Effects of a 12-Session Cancer Rehabilitation Exercise Program

Tricia M. Smith, BS, Christine N. Broomhall, RN, BSN, MS, and Anne R. Crecelius, PhD

© Barry Austin/Photodisc/Thinkstock

Background: The positive effects of regular exercise for cancer survivors are becoming increasingly apparent. However, comprehensive examination of the benefits of modest levels of physical activity is somewhat lacking.

Objectives: This study aimed to test the hypothesis that participating in a 12-session exercise program will improve depression, fatigue, aerobic endurance, muscular strength, and quality of life (QOL) in patients with cancer.

Methods: A group of 20 older adult women with a prior cancer diagnosis were evaluated during a 6- to 10-week exercise program that occurred twice weekly. The majority of patients had breast cancer (n = 14), but treatment status varied (11 were currently undergoing treatment, and 9 were post-treatment). Each patient completed initial and exit assessments, which consisted of three physical function tests and three psychosocial questionnaires. Patient charts contained the initial and final assessment scores and personal demographics.

Findings: Analyses of pre- and postprogram data using paired t tests revealed that 12 exercise sessions (each lasting about an hour) significantly improved six-minute walk test, 30-second sit-and-stand test, hand grip strength test (dominant and nondominant hand), and overall QOL scores in patients. As a result, moderate levels of exercise have a beneficial effect in this population.

Tricia M. Smith, BS, is a graduate assistant and student in the Department of Health and Sport Science at the University of Dayton, Christine N. Broomhall, RN, BSN, MS, is an RN and clinical exercise physiologist at Premier Health Miami Valley Hospital in Dayton, and Anne R. Crecelius, PhD, is an assistant professor in the Department of Health and Sport Science at the University of Dayton, all in Ohio. The authors take full responsibility for the content of the article. The authors did not receive honoraria for this work. The content of this article has been reviewed by independent peer reviewers to ensure that it is balanced, objective, and free from commercial bias. No financial relationships relevant to the content of this article have been disclosed by the authors, planners, independent peer reviewers, or editorial staff. Smith can be reached at smitht20@udayton.edu, with copy to editor at CJONEditor@ons.org. (Submitted November 2015. Revision submitted January 2016. Accepted for publication February 4, 2016.)

Key words: cancer rehabilitation; exercise/physical activity; quality of life; fatigue

Digital Object Identifier: 10.1188/16.CJON.653-659

All cancer treatments potentially have serious side effects, including fatigue, muscle or hair loss, nausea, pain, weakness, loss of appetite or ability to perform activities of daily living, depression, anxiety, and sleep disruptions (Hanna, Avila, Meteer, Nicholas, & Kaminsky, 2008). In addition, specific treatments and surgical procedures can lead to lymphedema, restricted range of motion, joint pain, and osteoporosis (Schwartz, Mori, Gao, Nail, & King, 2001; Segal et al., 2001). Together, these can lead to loss of physical function, weight management issues, depression, decreased cardiovascular health, and, ultimately, an overall decline in quality of life (QOL) (Adamsen et al., 2009; Campbell, Mutrie, White, McGuire, & Kearney, 2005; Sandel et al., 2005; Vallance, Courneya, Plotnikoff, Yasui, & Mackey, 2007).

Compared to healthy, aged-matched controls, patients with cancer demonstrate multiple measures of impaired psychological and physical well-being during and after treatment. Aerobic endurance, muscular strength, depression, fatigue, and QOL are commonly assessed health and fitness components that are negatively affected by cancer (Gerritsen & Vincent, 2015).

Background

Aerobic Endurance and Muscular Strength

Aerobic endurance refers to the ability of the body to continuously transport oxygen throughout its various systems for extended periods of time (Adamsen et al., 2009; Segal et al., 2001). In addition, aerobic function and endurance are important during cancer rehabilitation to improve physical strength, adjust to a new lifestyle during or following treatment, and decrease the number of hospitalizations (Wu & McSweeney, 2004). Cardiovascular toxicity can occur from