

# Change in Exercise Tolerance, Activity and Sleep Patterns, and Quality of Life in Patients With Cancer Participating in a Structured Exercise Program

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**Purpose/Objectives:** To investigate the feasibility of an exercise program patterned after a phase II cardiac rehabilitation program to improve selected physiologic and psychological parameters of health in patients with cancer.

**Design:** Prospective, repeated measures study.

**Setting:** Two major military medical centers in the southwestern United States.

**Sample:** 62 patients diagnosed with cancer within the previous two years. Ages ranged from 24–83 ( $\bar{X} = 59$ ). Half of the participants were male and half were female. Minorities made up 29% of the sample. Participants had a wide range of cancer diagnoses and all stages of cancer. Fifteen subjects were undergoing treatment when they enrolled in the study. More than half of the subjects exercised prior to their cancer diagnoses, but fewer than half were able to resume an exercise routine following their cancer diagnoses.

**Methods:** Subjects met two days each week for 12 weeks for exercise and education.

**Main Research Variables:** Exercise tolerance as measured with a graded exercise test, activity and sleep patterns as measured with a wrist actigraph, and quality of life (QOL) as measured with the Cancer Rehabilitation Evaluation System–Short Form.

**Findings:** Significant improvements were observed over time in exercise tolerance, selected activity and sleep patterns, and QOL among the 46 (74%) subjects who completed the program.

**Conclusions:** Patients with various types and stages of cancer can safely exercise using a cardiac rehabilitation model and can realize significant improvements in exercise tolerance, selected activity and sleep patterns, and QOL.

**Implications for Nursing:** Most people are aware that regular exercise is part of a healthy lifestyle. After cancer diagnosis and treatment, patients experience uncertainty regarding how to resume exercise or how to begin an exercise program as part of their rehabilitation. Participation in a structured exercise program can provide patients with a safe environment within which to exercise at an intensity appropriate to their individual needs.

### Key Points . . .

- More than 40 studies published since 1980 have demonstrated that physical activity in patients with cancer improves functional capacity and quality of life.
- Structured cardiac rehabilitation programs have been offered for more than 60 years and are the best developed and tested of the exercise rehabilitation models for chronically ill patients.
- Between 44% and 75% of patients with cancer experience difficulty sleeping. Exercise improves sleep in the general population, but the effect in patients with cancer is unknown.
- Outcomes in patients with various types of cancer at all stages can be improved by participation in a 12-week exercise program patterned after a phase II cardiac rehabilitation program.

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In the United States today, almost nine million people have a history of cancer (American Cancer Society, 2003). The majority are survivors, but approximately four million people are living with cancer (American Cancer Society). Medical care for people with cancer has concentrated almost exclusively on diagnosis and treatment until the past decade, when rehabilitation and health promotion