

# Prevalence and Correlates of Strength Exercise Among Breast, Prostate, and Colorectal Cancer Survivors

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**S**trength exercise, or resistance training, is any type of activity that involves the repetitive use of muscular force against an external resistance or body weight, such as weightlifting, push-ups, sit-ups, yoga, and Pilates (U.S. Department of Health and Human Services [USDHHS], 2008). Systematic reviews have documented that strength exercise improves many health outcomes in cancer survivors, including muscular strength and endurance, lean body mass, fatigue, and quality of life (Cheema, Gaul, Lane, & Fiatarone Singh, 2008; Cramp, James, & Lambert, 2010; DeBacker, Schep, Backx, Vreugdenhil, & Kuipers, 2009; Strasser, Steindorf, Wiskemann, & Ulrich, 2013). One trial even reported that strength exercise improved chemotherapy completion rate in patients with breast cancer (Courneya et al., 2007). In addition, some studies have suggested that strength exercise may result in larger improvements in quality of life than aerobic exercise in prostate cancer survivors (Segal et al., 2009). Strength exercise has even been found to be safe and feasible for cancer survivors with advanced disease (Bourke et al., 2014; Cormie, Newton, Spry, Joseph, Taaffe, & Galvão, 2013; Galvão et al., 2014). These studies have led the American Cancer Society (Rock et al., 2012) and the American College of Sports Medicine (Schmitz et al., 2010) to recommend at least two days per week of strength exercise for cancer survivors.

Despite this recommendation, few studies have examined the prevalence and correlates of strength exercise among cancer survivors. Speed-Andrews et al. (2013) examined strength exercise among 600 colorectal cancer survivors and found that only about 25% reported meeting the strength exercise guidelines. In addition, the study found that colorectal cancer survivors were more likely to meet the guidelines if they were male, married, in better health, and not obese. Short et al. (2014) reported on the strength exercise behavior of 330 breast cancer survivors and found that less than 25% were meeting the strength exercise guidelines. Breast cancer survivors who had higher outcome expectan-

**Purpose/Objectives:** To identify and compare the prevalence and correlates of strength exercise among breast, prostate, and colorectal cancer survivors.

**Design:** Cross-sectional, descriptive survey.

**Setting:** Nova Scotia, Canada.

**Sample:** 741 breast, prostate, and colorectal cancer survivors.

**Methods:** A stratified sample of 2,063 breast, prostate, and colorectal cancer survivors diagnosed from 2003–2011 were identified and mailed a questionnaire. Descriptive, chi-square, and logistic regression analyses were used to determine any correlations among the main research variables.

**Main Research Variables:** Strength exercise behavior; medical, demographic, and motivational correlates using the Theory of Planned Behavior.

**Findings:** Of 741 respondents, 23% were meeting the strength exercise guidelines of two or more days per week. Cancer survivors were more likely to meet guidelines if they were younger, more educated, had a higher income, better perceived general health, fewer than two comorbidities, and a healthy body weight. In addition, those meeting guidelines had significantly more favorable affective attitude, instrumental attitude, injunctive norm, perceived behavioral control, planning, and intention. The correlates of strength exercise did not differ by cancer site.

**Conclusions:** The prevalence of strength exercise is low among breast, prostate, and colorectal cancer survivors in Nova Scotia and the correlates are consistent across those survivor groups.

**Implications for Nursing:** Nurses should take an active role in promoting strength exercise among cancer survivors using the Theory of Planned Behavior, particularly among those survivors at higher risk of not performing strength exercise.

**Key Words:** cancer survivorship; strength exercise; comparison; prevalence; correlates

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cies, task self-efficacy, barrier self-efficacy, behavioral capability, social support, and goal setting were more likely to be meeting the strength exercise guidelines.