Cancer Prevention, Aerobic Capacity, and Physical Functioning in Survivors Related to Physical Activity: A Recent Review

Matthew S Wiggins 1
Emily M Simonavice 2
1Department of Kinesiology, University of Wisconsin-Eau Claire, Eau Claire, WI, USA; 2Florida State University, Tallahassee, FL, USA

Correspondence: Professor Matt Wiggins
Department of Kinesiology, University of Wisconsin-Eau Claire, 105 Garfield Ave, PO Box 4004 Eau Claire, WI 54702, USA
Tel 1 715-836-3159
Fax 1 715-836-4074
Email wigginsm@uwec.edu

Abstract: According to recent published reports, over 12 million new cases of cancer were estimated worldwide for 2007. Estimates from 2008 predict that cancer will account for 22.8% of all deaths in the US. Another report stated 50% to 75% of cancer deaths in the US are related to smoking, poor dietary choices, and physical inactivity. A 2004 report indicated obesity and/or a sedentary lifestyle increases the risk of developing several types of cancer. Conversely, several large-scale cohort studies point to a positive relationship between physical activity and a reduction in cancer risk. In addition, research over the past few years has clearly shown cardiopulmonary benefits, increases in quality of life (QOL), and increases in physical functioning for cancer survivors engaged in exercise programs. This review highlights three areas related to cancer and physical activity. First, information concerning the prevention of cancer through physical activity is presented. Second, studies identifying changes in volume of oxygen uptake (VO2) and/or cardiorespiratory functioning involving exercise with cancer survivors are presented. Third, studies identifying positive changes in survivors' physical functional capacity and QOL are presented. Finally, a summary of the review is offered.

Keywords: cancer, cardiorespiratory, exercise, physical activity, volume of oxygen (VO2)

Introduction

According to the most recently published reports on the internet, over 12 million new cases of cancer were estimated worldwide for the year 2007. 1 Incidence and mortality rates continue to grow around the globe, with lung cancer deaths estimated to be near 1 million per year. 2 The American Cancer Society estimated that cancer would account for 22.8% of all deaths in the US in 2005. 3 These deaths are primarily caused by cardiovascular disease which accounts for 26.5% of the total deaths. Between 2000 and 2004, death rates from cancer were highest in men older than 70 years of age with African Americans having the highest death rates of any racial/ethnic group. 4 Mortality rates from cancer in men and women are decreasing at similar rates. 5 Mortality rates from prostate cancer have decreased since 1996. 6 Cancer is the second leading cause of death in the US. 7

This article highlights three areas related to cancer and physical activity. First, research concerning the prevention of cancer through physical activity is presented. Second, results identifying changes in volume of oxygen uptake/cardiorespiratory functioning involving exercise with cancer survivors are presented. Third, studies identifying positive changes in survivors' physical functioning and quality of life through exercise are presented. In summary, physical activity is strongly associated with lowering breast and colon cancer risk, and is moderately associated with reducing prostate, endometrial, and lung cancer risk. Structured exercise helps to increase cardiorespiratory endurance, physical functioning, and perceived quality of life in cancer survivors.