

# Objectively Assessed Physical Activity Levels in Spanish Cancer Survivors

Ana Ruiz-Casado, MD, PhD, Ana Soria Verdugo, NP, María J. Ortega Solano, NP, Itziar Pagola Aldazabal, PhD, Carmen Fiuza-Luces, MSc, Lidia Brea Alejo, BS, Julio R. Padilla del Hierro, MSc, Isabel Palomo, BS, Oscar Aguado-Arroyo, NP, MS, Nuria Garatachea, PhD, Héctor Cebolla, PhD, and Alejandro Lucia, MD, PhD

About 65% of adults with cancer will survive five years after diagnosis (National Cancer Institute, 2013). An estimated 13.7 million cancer survivors were living in the United States in 2012, and the figure continues to rise (Siegel et al., 2012), and the figure continues to rise. Despite this trend, cancer survivors do not routinely receive counseling by healthcare professionals on lifestyle habits linked to an improved quality of life and prolonged survival, particularly physical activity (PA) (Daley, Bowden, Rea, Billingham, & Carmicheal, 2008).

According to PA guidelines issued by the U.S. Department of Health and Human Services (2008) and the World Health Organization ([WHO], 2010), adults should undertake 150 minutes per week or more of moderate PA or 75 minutes per week or more of vigorous-intensity PA, or an equivalent combination of the two (i.e., 150 minutes per week of moderate-to-vigorous PA [MVPA]). The American College of Sports Medicine (Schmitz et al., 2010) concluded that regular PA is safe during and after cancer treatment, and that it leads to several improvements in the cancer sequelae, including better physical functioning and health-related quality of life (both during and after treatment) and reduced cancer-related fatigue (McClellan, 2013; Mishra et al., 2012). Such improvements have prompted recommendations for cancer survivors to avoid physical inactivity and to follow international PA guidelines (Demark-Wahnefried & Jones, 2008; Rock et al., 2012; Schmitz et al., 2010). Additional support for encouraging PA in this population is provided by the finding that cardiorespiratory fitness shows significant negative association with cancer mortality (Sui et al., 2007), and that supervised regular PA interventions are effective in improving cardiorespiratory fitness in adults with cancer (Jones et al., 2011). In addition to the independent protective role of cardiorespiratory fitness

**Purpose/Objectives:** To objectively assess physical activity (PA) levels in a cohort of Spanish cancer survivors.

**Design:** Descriptive, cross-sectional.

**Setting:** The Hospital Universitario de Fuenlabrada and two healthcare centers in Madrid, Spain.

**Sample:** 204 cancer survivors and 115 adults with no history of cancer.

**Methods:** Participants wore a triaxial accelerometer for seven or more consecutive days to assess PA levels. Body mass index (BMI), indirect indicators of adiposity (waist circumference, waist-to-hip ratio), and cardiorespiratory fitness also were determined.

**Main Research Variables:** Light, moderate, vigorous, and total PA (sum of the former).

**Findings:** Most (94%) of the cancer survivors met international recommendations for moderate PA, but very few (3%) fulfilled those (75 minutes or more per week) for vigorous PA. Except for lower total (minute per day,  $p = 0.048$ ) and vigorous PA levels ( $p < 0.001$  for both minute per day and minute per week) recorded in the cancer survivors group, no between-group differences were detected ( $p > 0.05$ ). A high percentage of the survivors (33%) were obese (BMI greater than 30 kg/m<sup>2</sup>), and many also showed poor cardiorespiratory fitness (45% were below the 8 metabolic equivalent threshold).

**Conclusions:** Although cancer survivors overall met international PA recommendations for a healthy lifestyle, their BMI and cardiorespiratory profiles were not within the healthy range.

**Implications for Nursing:** Cancer survivors need to be informed about healthy lifestyle habits and should be regularly monitored.

**Key Words:** exercise, oncology, accelerometry, cardiorespiratory fitness, adiposity

against cardiovascular risk, obesity tends to attenuate the protective value of fitness (Carnethon et al., 2003).

Therefore, to design effective PA interventions, PA levels and their relationship with cardiorespiratory