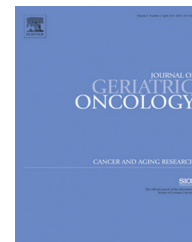


Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect



## Physical resilience of older cancer survivors: An emerging concept

Wei Duan-Porter<sup>a,b,c,\*</sup>, Harvey J. Cohen<sup>b,c,d,e</sup>, Wendy Demark-Wahnefried<sup>f,g</sup>,  
Richard Sloane<sup>c,d,e</sup>, Jane F. Pendergast<sup>c,d,h</sup>, Denise C. Snyder<sup>i</sup>, Miriam C. Morey<sup>b,c,d,e</sup>

<sup>a</sup>Health Services Research and Development, Durham VA Medical Center, Durham, NC, USA

<sup>b</sup>Department of Medicine, Duke University School of Medicine, Durham, NC, USA

<sup>c</sup>Duke University Claude D. Pepper Older Americans Independence Center, Durham, NC, USA

<sup>d</sup>Duke University Center for the Study of Aging and Human Development, Durham, NC, USA

<sup>e</sup>Geriatrics Research, Education and Clinical Center, Durham VA Medical Center, Durham, NC, USA

<sup>f</sup>Department of Preventive Medicine, Department of Nutrition Sciences, University of Alabama, Birmingham, AL, USA

<sup>g</sup>Comprehensive Cancer Center, University of Alabama, Birmingham, AL, USA

<sup>h</sup>Department of Biostatistics and Bioinformatics, Duke University School of Medicine, Durham, NC, USA

<sup>i</sup>Duke Office of Clinical Research, Duke University School of Medicine, Durham, NC, USA

### ARTICLE INFO

#### Article history:

Received 20 January 2016

Received in revised form

25 April 2016

Accepted 18 July 2016

#### Keywords:

Physical resilience

Functional decline

Resistance

Recovery

Cancer survivors

### ABSTRACT

**Objectives:** To characterize factors contributing to physical resilience in older cancer survivors, as demonstrated by resistance to decline or recovery (resilience).

**Materials and Methods:** We conducted a secondary analysis of data from a randomized controlled trial of cancer survivors  $\geq 65$  years old and  $\geq 5$  years from cancer diagnoses. Physical function was assessed quarterly over 2 years, with Short-Form 36 physical function subscale. Participants with  $\geq 2$  follow-up assessments ( $n = 594$ ) were evaluated for physical resilience: 1) Resistance was defined as lack of any decline, where decline was a drop of  $\geq 13$  points, and 2) resilience (i.e., recovery) was defined as regaining  $\geq 50\%$  of lost function, subsequent to decline.

**Results:** Mean age was 73.1 years and 89.1% were Caucasian. Forty-nine percent ( $n = 289$ ) were resistant to decline in function; these individuals were younger, had higher education and income, were more likely to be Caucasian, and had higher baseline physical function (mean difference [MD] 7.8 points, 95% CI 5.0–10.8) and general health (MD 7.5 points, 95% CI 4.9–10.1). Fifty-seven percent ( $n = 137$  of 239) demonstrated resilience, with 91.2% ( $n = 125$ ) recovering within 6 months of declines; these participants had higher baseline physical function (MD 6.6 points, 95% CI 1.8–11.4), but similar pre-decline function. More participants who were resistant, and more who showed resilience, reported high self-efficacy and social support.

**Conclusions:** The majority of older cancer survivors exhibited physical resilience; this was associated with high baseline health, physical function, self-efficacy, and social support. Assessing and targeting psychosocial factors may be important for interventions seeking to promote physical resilience.

Published by Elsevier Ltd.

\* Corresponding author at: 508 Fulton St, Durham VA Medical Center, Durham, NC 27705, USA. Tel.: +1 919 286 0411x4048; fax: +1 919 416 5839. E-mail address: [wei.duan-porter@duke.edu](mailto:wei.duan-porter@duke.edu) (W. Duan-Porter).

## 1. Introduction

There are currently over 8 million U.S. cancer survivors who are 65 years or older, and this population is increasing rapidly, given aging of the population, higher incidence of cancer among older individuals, and improved overall survival.<sup>1-3</sup> The National Cancer Institute and the Institute of Medicine have declared that improving oncology care for older adults is a national priority; in particular, we need to more robustly address functional outcomes and quality of life during and after oncology interventions.<sup>1-3</sup> Physical resilience is an emerging concept that addresses the person-level ability to resist or recover from new declines in physical function.<sup>4</sup> Greater understanding of factors contributing to physical resilience among older adults could enable efforts to improve function and health for older cancer survivors. In a recent systematic review, we found few studies that explicitly evaluated physical resilience.<sup>4</sup>

Previous work has shown that older adults generally demonstrate substantial variation in overall trajectories of physical function and health, in addition to important fluctuations over time for each individual.<sup>5-7</sup> While many older individuals experience episodes of functional disability, these are often followed by recovery.<sup>8,9</sup> Factors associated with recovery have included baseline cognitive function, physical activity and function, chronic health conditions, and sensory impairments.<sup>8-10</sup> For older cancer survivors, it is unknown whether similar patterns of decline and recovery occur, or if similar factors are associated with resistance to decline or recovery. Cancer survivors have lower general health and physical functioning than those without a history of cancer,<sup>11-13</sup> and thus, cancer survivors may have decreased capacity to resist further functional decline, or recover after new declines. Moreover, considering the history of severe illness and often complex treatments experienced by older cancer survivors, factors important for physical resilience in the general older population may be more or less relevant for this at-risk group.

In order to address these important questions, we conducted a secondary analysis of data collected over a 2-year period in the Reach out to Enhance Wellness (RENEW) study, a randomized controlled trial aimed at improving physical function in older, overweight and obese cancer survivors.<sup>14,15</sup> Primary RENEW study results have been published, showing that the diet and exercise intervention successfully reduced the decrease in physical function at 12 months, compared with wait-listed controls.<sup>14</sup> First, we determined which RENEW participants were resistant to decline (i.e. lacked any new, meaningful declines) as measured by the 36-item Medical Outcomes Study Short-Form (SF36) physical function subscale. We compared pertinent characteristics between individuals who were resistant vs. those who exhibited declines. Then, we looked for resilience among those who had declined, and summarized key characteristics for those who were resilient, compared to those who were not.

## 2. Materials and Methods

### 2.1. Study Design and Participants

RENEW was conducted from July 1, 2005 through May 17, 2007, and tested a set of behavioral interventions to improve diet and

exercise for overweight and obese cancer survivors, 65 years or older, and a minimum of 5 years out from their cancer diagnoses (prostate, breast, or colorectal); detailed study protocol and eligibility criteria have been published elsewhere.<sup>14,15</sup> Briefly, the behavioral intervention was delivered over 12 months and consisted of 15 telephone-based counseling sessions, automated telephone prompts, and personalized workbooks and newsletters. Participants were randomized to intervention ( $n = 319$ ) or wait-listed control ( $n = 322$ ), with control individuals receiving the intervention during the second year. The original primary outcome was self-reported physical function at 12 months, as assessed by the SF36 physical function subscale and self-reported lower extremity functioning. During the 2-year period, all study participants were assessed every 3 months for physical function, self-efficacy for diet and exercise (both endurance and strength), and self-reported physical activity.

In order to have sufficient data to evaluate physical resilience, we selected participants who had a minimum of 2 follow-up assessments for examining resistance, and at least 2 follow-up assessments post-decline (see decline definition below) for recovery.

### 2.2. Ethical Approval

All study procedures performed were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The RENEW study was approved by all participating institutional review boards and informed consent was obtained from all individual participants in RENEW.

### 2.3. Resistance to Decline and Resilience

We first examined resistance to decline by determining which participants had no decline during the follow-up period, using the SF36 physical function subscale. The SF36 is a previously validated and widely employed instrument for measuring health and quality of life; it has established mental health and physical function components.<sup>16,17</sup> We calculated the difference between SF36 physical function scores and the average of 2 preceding consecutive assessments, and set a minimum threshold of 13 points for meaningful decline. Previous work has shown that a change of 6.5 points in SF36 physical function scores to be clinically relevant<sup>17</sup>; thus, in order to increase the likelihood of capturing important new changes in physical function, rather than random variability, we set the required minimum change to be twice this minimally clinically important difference. The change in SF36 function meeting this threshold is termed the "decline amount," and the average of 2 preceding assessments, the "pre-decline function."

Next, we evaluated participants who had declines, in order to determine if they recovered, thus demonstrating resilience. To identify stable and clinically meaningful recovery, we required that participants regain 50% or more of the decline amount, on at least 2 consecutive post-decline assessments. For those who demonstrated resilience, we also evaluated who had complete recovery (i.e., regaining at least 90% of the decline amount), compared with partial recovery (i.e., 50-89% of the decline).

Download English Version:

<https://daneshyari.com/en/article/5502419>

Download Persian Version:

<https://daneshyari.com/article/5502419>

[Daneshyari.com](https://daneshyari.com)