

CHALLENGE Trial 1 Year Feasibility Results—LetterClaire H. Perna¹, Sarah C. Markt¹, Rana R. McKay², and Lorelei A. Mucci¹

We were delighted to read the recent report by Courneya and colleagues on the 1-year feasibility and fitness benefits of a structured exercise program among colon cancer survivors in the CHALLENGE Trial (1). These findings, and the expected 3-year follow-up data, are an important contribution to the nascent body of research examining the effectiveness of sustained exercise behavior change in cancer patients.

The potential survival benefits of exercise to cancer patients have been well documented across multiple sites among men and women in epidemiologic studies (2, 3). With 32 million people living with cancer worldwide, the potential benefit of effective interventions could be enormous (4). However, lifestyle intervention studies pose unique challenges and must achieve balance between complexity to produce optimal behavior change and practicality for scalability. Courneya and colleagues confront these challenges through ongoing sessions of exercise paired with behavior support over three years and multicenter implementation.

We identify key areas warranting further investigation. First, complex exercise regimens may not be necessary to obtain health benefits in cancer patients. Notably, observational studies have shown activities such as brisk walking can produce gains in both survival and quality of life. Although patients broadly may benefit from exercise, there is unlikely to be a single regimen that is optimal for all individuals. Researchers

might improve adherence and sustainability by targeting interventions to meet the needs and limitations of specific patient populations, for instance, by considering age, disease stage, and treatment type. Furthermore, there is growing evidence that tumor heterogeneity contributes to intervention efficacy differences. For example, the effect of exercise on colorectal cancer survival differed for patients by insulin receptor substrate 1 (IRS1) status (5). Through multidisciplinary collaboration, future research may enhance our understanding of interactions between tumor characteristics and physical activity so that interventions can be targeted to provide the greatest benefit. Finally, further investigation is needed to examine the long-term effects of physical activity. Interventions of longer duration, as exemplified by the CHALLENGE Trial, may be required to achieve maximal improvements in quality of life and survival. Furthermore, integrating web-based technologies may enhance adherence over the long term while reducing costs of in-person interactions. There is an urgent need to further develop the evidence base for exercise interventions in cancer patients to maintain positive behavior change over the lifetime and maximize overall health benefit.

We commend the approach taken by Courneya and colleagues and look forward to the 3-year results from CHALLENGE.

Disclosure of Potential Conflicts of Interest

No potential conflicts of interest were disclosed.

Grant Support

C.H. Perna is supported by NIH training grant T32 ES 007069. S.C. Markt is supported by NIH training grant T32 CA 09001. L.A. Mucci and R.R. McKay are Prostate Cancer Foundation (PCF) Young Investigators. R.R. McKay receives research funding from Bayer and Pfizer.

Received May 10, 2016; accepted May 11, 2016; published OnlineFirst July 14, 2016.

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doi: 10.1158/1055-9965.EPI-16-0393

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References

1. Courneya KS, Vardy JL, O'Callaghan CJ, Friedenreich CM, Campbell KL, Prapavessis H, et al. Effects of a structured exercise program on physical activity and fitness in colon cancer survivors: one year feasibility results from the CHALLENGE Trial. *Cancer Epidemiol Biomarkers Prev* 2016;25:969-77.
2. Lee IM, Wolin KY, Freeman SE, Sattlemair J, Sesso HD. Physical activity and survival after cancer diagnosis in men. *J Phys Act Health* 2014;11:85-90.
3. Holmes MD, Chen WY, Feskanich D, Kroenke CH, Colditz GA. Physical activity and survival after breast cancer diagnosis. *JAMA* 2005;293:2479-86.
4. International Agency for Research on Cancer. GLOBOCAN 2012: estimated cancer incidence, mortality and prevalence worldwide in 2012 [Internet]. Lyon, France: International Agency for Research on Cancer; [cited 2 May 2016]. Available from: <http://globocan.iarc.fr>.
5. Hanyuda A, Kim SA, Martinez-Fernandez A, Qian ZR, Yamauchi M, Nishihara R, et al. Survival benefit of exercise differs by tumor IRS1 expression status in colorectal cancer. *Ann Surg Oncol* 2016;23:908-17.