In Reply

We appreciate the interest of Scharhag-Rosenberger et al. in our paper [1]. Scharhag-Rosenberger et al. disagree with one of our conclusions, specifically, that cardiopulmonary exercise testing (CPET)—or any form of exercise testing—is not required as an aspect of pre-exercise participation screening in the majority of cancer patients. The authors cite four main arguments to support this viewpoint: that the risk of an exercise-related serious adverse event (SAE) was assessed during CPET procedures as opposed to exercise training sessions, that the use of formal exercise testing provides additional advantages not mentioned, that exercise clearance augments cancer patients confidence to exercise, and that our conclusions were based on a relatively small sample size.

First, we thought that assessment of exercise-related SAEs during CPET procedures might provide initial insight into the question of interest because these tests are performed in conjunction with rigorous monitoring of subjects' responses to exercise stress. We operationalized SAEs as any life-threatening event during CPET but also were able to evaluate the incidence of positive tests, as determined by specific electrocardiogram changes according to established criteria [2, 3]. To our knowledge, no exercise training study to date has assessed the risk of exercise training-related events using this level of monitoring. Second, we agree that CPET, or any other formal exercise testing procedures, may provide additional value beyond pre-exercise screening. We fully endorse the use of cardiorespiratory fitness testing for these purposes, as advocated previously by our group [4]. In this paper [1], we thought it was important to focus attention on the appropriateness and extent of pre-exercise screening as opposed to optimal methods for monitoring and prescribing exercise training. Third, we are unaware of any formal evidence supporting the argument that pre-exercise participation screening with exercise testing augments cancer patients' confidence and subsequent adherence. From anecdotal experience, the notion that use of any pre-exercise screening augments cancer patients feelings that they can participate in and benefit from exercise appears reasonable and further supports our main conclusion that formalized preparticipation health screening is required in all oncology scenarios [1]. Finally, we also agree that our conclusions are based on a relatively small sample size ($n = 413$). Indeed, we fully acknowledged this limitation in our paper. Nevertheless, our study represented an initial investigation into the question of interest and is currently the only study to date to address this question.

In their concluding remarks, Scharhag-Rosenberger et al. state that exercise testing should be considered for cardiovascular screening in cancer patients. Interestingly, this conclusion matches our own, with the caveat that we recommend such

testing only in patients who are risk stratified as high risk for exercise-related SAEs [1]. The recommendation that exercise testing should be incorporated as part of pre-exercise clearance for all cancer patients has important implications for the field of exercise and oncology clinical trials and practice. Exercise testing, for example, requires specialized personnel and equipment and medical supervision; therefore, these tests may not be available in all settings [4]. The primary goal is to ensure that exercise training is safe for all cancer patients without creating unnecessary barriers to exercise participation. To this end, the major objective of cardiovascular screening is to accurately evaluate patients' cardiovascular disease severity, symptoms, or risk factors to determine the degree of medical evaluation required before initiating an exercise training program or undergoing exercise testing [5]. The extent of pre-exercise clearance required following initial risk classification in the oncology setting requires further investigation and underscores the importance of developing evidence-based, oncology-specific screening guidelines.

We think that, on the basis of our study findings, the conclusion that exercise testing does not need to be an aspect of pre-exercise clearance for the majority of cancer patients remains appropriate. Nevertheless, we acknowledge that our findings are preliminary and hope that it will stimulate further work that extends our initial efforts.

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Disclosures

The authors indicated no financial relationships.

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<http://dx.doi.org/10.1634/theoncologist.2014-0376>