



How Exercise Can Benefit Patients With Cancer

Thirty years ago, the first article on exercise for patients with cancer appeared in the cancer research literature (Winningham, MacVicar, & Burke, 1986). The time from that first article to the present has included oncology nurses taking the lead in investigations related to exercise and cancer-related symptoms, most notably cancer-related fatigue (CRF). The Oncology Nursing Society (ONS) has been instrumental in publishing much of the research on exercise and cancer and continues in that tradition by issuing this supplement to the *Clinical Journal of Oncology Nursing*. In addition, ONS has facilitated the translation of research findings to practicing oncology nurses by convening meetings, participating in expert opinion consensus groups, and disseminating evidence through Putting Evidence Into Practice resources.

Oncology nurses continue to advance the science of exercise in cancer in basic and biobehavioral sciences. The completion of the human genome project in 2003 harkened the “-omics” era, and nurse scientists are now investigating the genomics, proteomics, and metabolomics of exercise interventions on carcinogenesis, cancer recurrence, and cancer-related symptoms. For example, researchers at the National Institute of Nursing Research are studying the association and expression of genes related to cellular energy pathways in patients with prostate cancer undergoing external beam radiation therapy who have CRF (Filler et al., 2016; Saligan, 2015). These studies are intended to reveal the mechanism by which exercise attenu-

ates symptoms like CRF. Other nurses are building on the increasing interdisciplinary research base related to the behavioral aspects of exercise and cancer. These investigations have informed the design of exercise programs and have brought together teams that include exercise physiology technologists, physical therapists, psychologists, social workers, nutritionists, and oncologists to test exercise interventions for efficacy in alleviating functional decline and cancer- and treatment-related symptoms, and in improving quality of life and general wellness.

This supplement highlights only a small sampling of the work on exercise and cancer being done in the research and service communities. Sincere thanks are extended to the contributors who delivered the content in this supplement: the guidelines, the descriptions and essential contributions of multiple disciplines involved in the provision of exercise services to cancer survivors, the examples of successful cancer exercise programs, and the lived experience of exercise in

cancer survivorship. This supplement aims to offer practical pathways for action regarding exercise in the care of cancer survivors from treatment through recovery.

References

- Filler, K., Lyon, D., McCain, N., Bennett, J., Jr., Fernández-Martínez, J.L., deAndrés-Galiana, E.J., . . . Saligan, L. (2016). Relationship of mitochondrial enzymes to fatigue intensity in men with prostate cancer receiving external beam radiation therapy. *Biological Research for Nursing*, 18, 274–280. doi:10.1177/1099800415617848
- Saligan, L.N. (2015). *Radiation-related fatigue: Phenotyping, pathogenesis, treatment*. Retrieved from <http://clinicalcenter.nih.gov/ccc/nursepractitioners/pdfs/Saligan-NP.pdf>
- Winningham, M.L., MacVicar, M.G., & Burke, C.A. (1986). Exercise for cancer patients: Guidelines and precautions. *Physician and Sportsmedicine*, 14, 125–134. doi:10.1080/00913847.1986.11709201

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