



GRADED EXPOSURE & OPTIMAL LOADING: EVEN FOR PATIENTS WITH CANCER

Nadine Stunzi, B.Sc. with honors, MPT - Tall Tree Health Cancer Rehab Program Director

It's amazing to think that only a few decades ago post-operative knee replacement patients were on bed rest for up to 30 days. Conversely, today's rehab protocol promotes patients to start walking on day one and with frequent loading on their new knee joint. This shift represents a very significant change in the understanding of stress and load of the body; what we once thought was harmful, now actually promotes healing. We've come to understand that load can help regenerate and optimally align tissues, as seen in the latest tendon research¹. Furthermore, studies have shown that sedentary behaviours have ample negative health impacts; a month's bed rest may reduce overall life expectancy and recent studies found an association between "sedentary time and risk of endometrial, colon and lung cancers"². In the world of pain science, we've come to learn that avoidance behaviour and absence of graded exposure in chronic MSK related pain, in other words 'just resting', can cause pain to persist³. Similarly, in concussion research, graded exposure treatments have shown to be very effective as opposed to the past protocol of isolation and sensory withdrawal. Hence, it should be of no surprise science has more to tell us in other realms of medicine about how 'optimal load' and 'graded exposure protocols' may be of benefit.

Consider cancer, if you were to see someone undergoing chemotherapy or a stem cell transplant and they were looking very fatigued; I think there would be the temptation to prescribe rest. After nearly a decade of vague exercise guidelines and nearly a 250% increase in the amount of cancer and exercise randomized trials, an international round table was recently held. Consolidation of new research allowed for new guidelines stating that exercise is very effective in cancer prevention, symptom control and can "improve longevity among cancer survivors"⁴.



MEMBERS' PERSPECTIVE: RESEARCH

18 / 2020 - ISSUE 01

Specific doses of exercise have shown to impact cancer-related health outcomes, including quality of life, fatigue, anxiety, physical function, and depressive symptoms⁵. In terms of cancer prevention, there is strong evidence that physical activity lowers the risk of acquiring six cancer types: colon, breast, kidney, endometrium, bladder, stomach, and esophageal adenocarcinoma⁶. In animal studies, it was found that exercise combined with chemotherapy can impact tumour vascularity and is more effective than stand-alone chemotherapy; suggesting that exercise could increase drug treatment efficacy⁷. The new general guidelines state that cancer patients should build slowly towards 150 minutes/week of moderate to vigorous aerobic exercise and two resistance training sessions.

Although the guidelines are promising, it opens up many other questions surrounding safe exercise and barriers to access. Is any cancer patient safe to just walk into a gym? Can personal trainers run cancer and exercise classes? How can we remove some of the barriers to safe exercise but assure clinical safety? We can safely say that patients with no complex health history, no physical impairments, and an avid exercise history are safe to begin self-guided-exercise! Bearing in mind that one visit with a physiotherapist may suffice in establishing safe entry to strength and aerobic training if needed. On the contrary, cancer treatments for most patients can have a myriad of effects; hence some patients are recommended to consult with a medical professional for a pre-exercise medical evaluation and may do best with supervised exercise. Recent studies advise that patients with MSK pain/dysfunction, peripheral neuropathies, arthritis, lymphedema, and poor bone health should consult with a medical professional⁸ prior to commencing an exercise program⁹.

Considering the new guidelines, we might ask what is the role of physiotherapy? As stated in the journal of *Medicine & Science in Sports & Exercise* by Dr. Campbell, physical therapy "might be a bridge to inform appropriate modifications to an individual's exercise program and/or correct toxicities, impairments and limitations that prevent a survivor from working toward recommended levels of exercise"⁶. In my opinion, physical therapists with specialized cancer training are qualified clinicians that should be utilized to meet the gap in care. We can provide medical clearance for exercise, individualized programs around impairments and promote patient self-management. This can be achieved through education on: self-guided RPE, heart rate monitoring and exercise termination criteria including blood chemistry profiles. Improvements in anxiety, depressive symptoms, health-related quality of life, physical functioning, appear to be greater in supervised training programs or those having a larger supervised component than those that are predominantly unsupervised or home-based⁴. We hope that these new guidelines only further encourage physiotherapists working in oncology to promote the value of our profession, get patients with cancer exercising safely and effectively while bettering patient outcomes.

References

⁸an oncologist, family physician or physiotherapist with advanced training in cancer rehabilitation.

¹ Cook, J.L. and C.R. Pundam. "Is Tendon Pathology a Continuum? A Pathology Model to Explain the Clinical Presentation of Load-Induced Tendinopathy." *British Journal of Sports Medicine* 43, no. 6 (2008): 409-16.

² Patel, Alpa V., Christine M. Friedenreich, Steven C. Moore, Sandra C. Hayes, Julie K. Silver, Kristin L. Campbell, Kerri Winters-Stone, et al. "American College of Sports Medicine Roundtable Report on Physical Activity, Sedentary Behavior, and Cancer Prevention and Control." *Medicine & Science in Sports & Exercise* 51, no. 11 (2019): 2391-2402.

³ Booth, John, G. Lorimer Moseley, Marcus Schiltensell, Aidan Cashin, Michael Davina, and Markus Hibzacher. "Exercise for Chronic Musculoskeletal Pain: A Biopsychosocial Approach." *Musculoskeletal Care* 15, no. 4 (2017): 413-21.

⁴ Giza, C. C., J. S. Katcher, S. Ashwal, J. Barth, T. S. D. Getchius, G. A. Gioia, G. S. Gronseth, et al. "Summary of Evidence-Based Guideline Update: Evaluation and Management of Concussion in Sports: Report of the Guideline Development Subcommittee of the American Academy of Neurology." *Neurology* 90, no. 24 (2013): 2250-57.

⁵ Schmitz, Kathryn H., Anna M. Campbell, Martijn M. Stuiver, Bernadine M. Pinto, Anna L. Schwartz, G. Stephen Morris, Jennifer A. Ligibel, et al. "Engaging Clinicians to Help Patients Move through Cancer." *CA: A Cancer Journal for Clinicians* 69, no. 6 (2019): 468-84.

⁶ Campbell, Kristin L., Kerri M. Winters-Stone, Joachim Wiskemann, Anne M. May, Anna L. Schwartz, Kerry S. Courneyes, David S. Zucker, et al. "Exercise Guidelines for Cancer Survivors." *Medicine & Science in Sports & Exercise* 51, no. 11 (November 2019): 2375-90.