**THE SCIENCE BEHIND CANCER REHAB**

* **Exercise requirements are not being met.** “Fewer than 10% of cancer survivors will be active during their primary treatments and only about 20%-30% will be active after they recover from treatments" ([Rock et al. April 2012).](https://onlinelibrary.wiley.com/doi/full/10.3322/caac.21142)
* Preoperative exercise remodels tumour vascularity, accelerates the regression and delays regrowth of pancreatic ductal adenocarminoma [(Bedoya et al. Sept 2019).](https://www.nature.com/articles/s41598-019-49582-3.epdf?shared_access_token=4mcYVlXT_YfkvJ6zSembSNRgN0jAjWel9jnR3ZoTv0Pa4E-ZKLfcEzG3I-BmNJrIMFRfCUNVfK5VlwcKyagdhSFTBdCz8eVcYUtjjxaXVnzWEZQaWw6-d_nava_v0Jhw08PWy70WUxotwyO8bF9u_Q%3D%3D)
* This systematic review of RCT’s found that “exercise interventions in patients with cancer, especially when supervised, have statistically significant [...] **benefit on self-reported QoL and physical function**” [(Sweegers et al. April 2018)](https://www.ncbi.nlm.nih.gov/pubmed/28954800). “Beneficial effects on QoL include image/self-esteem, emotional well-being, sexuality, sleep disturbances, social functioning, anxiety, fatigue and pain” [(Mishra et al. Aug 2012)](https://www.ncbi.nlm.nih.gov/pubmed/22895974).
* A systematic review/meta-analysis found that exercise during hospitalization for patients undergoing allogenic stem cell transplantation lead to a **higher quality of life** and **less fatigue at discharge**[(van Haren et al. April 2013).](https://www.ncbi.nlm.nih.gov/pubmed/23224217)
* This Cochrane review specific to breast cancer found that **early rehab intervention** in the form of structured and supervised exercise **resulted in greater benefits to shoulder functioning and range of motion**. ([McNeely, et al. 2010)](https://www.ncbi.nlm.nih.gov/pubmed/20556760). Movement coaching generally has shown to promote injury reduction and have functional day to day carry-over [(Frost et al. Sept 2015)](https://www.ncbi.nlm.nih.gov/pubmed/25763518)
* Studies in the breast cancer population have shown that: **a higher BMI or a monthly 10lb fluctuation in weight** correlates with an i**ncreased risk of lymphedema** [(Jammallo et al. Nov 2013)](https://www.ncbi.nlm.nih.gov/pubmed/24122390). Furthermore, a poor continuum of care is evident due to reported poorly managed treatment side effects ([Binkley et al. April 2012).](https://www.ncbi.nlm.nih.gov/pubmed/18478275)
* Functional problems are prevalent among cancer outpatients and are rarely documented by oncology clinicians due to time restrictions. They include fatigue management, bladder/bowel dysfunction, pain and insufficient strength for ADL’s. [(Cheville et al. Jan 2009).](https://www.ncbi.nlm.nih.gov/pubmed/18478275)
* This study demonstrated that prehab reduced the occurrence and severity of postoperative complications after pulmonary lobectomy [(Fairuz et al. April 2018)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5949464/). Studies have shown that **prehab fitness is related to improved surgical outcomes** and post-operatively patients demonstrate better psychosocial well-being [(Myers et al. July 2016).](https://www.ncbi.nlm.nih.gov/pubmed/27399826)
* Only **9% of older adults with cancer**used physical or occupational therapy, despite having a potentially **modifiable functional limitation** detected by comprehensive geriatric assessment.[(Pergolotti et al](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4459887/))
* Less than 30% of outpatients with cancer and women with advanced cancer who had functional limitations used rehabilitation services. ([Cheville et al](https://www.ncbi.nlm.nih.gov/pubmed/11519031))
* Prehab adherence and partaking in rehab plan can impact treatment related toxicities, lessen post-operative complications and impact survivorship [(Jones, Haykowsky et al 2007).](https://academic.oup.com/oncolo/article/12/10/1156/6398876?login=true)
* Many preclinical studies of physical activity, but not all ([40](https://journals.lww.com/acsm-msse/Fulltext/2019/11000/American_College_of_Sports_Medicine_Roundtable.24.aspx#R40-24)), show **substantial reductions in tumor growth**in response to exercise with some studies citing reductions ranging between 31% and 67% ([28,38,40](https://journals.lww.com/acsm-msse/Fulltext/2019/11000/American_College_of_Sports_Medicine_Roundtable.24.aspx#R28-24)). (Patel et al. 2019)
* Exercise combined with chemotherapy in mouse models has delayed tumor growth of breast cancer and melanoma more than chemotherapy alone ([42,43](https://journals.lww.com/acsm-msse/Fulltext/2019/11000/American_College_of_Sports_Medicine_Roundtable.24.aspx#R42-24)); suggesting that **exercise could act synergistically with drug delivery to increase treatment efficacy**([Patel et al. 2019).](https://journals.lww.com/acsm-msse/Fulltext/2019/11000/American_College_of_Sports_Medicine_Roundtable.24.aspx)