High intensity interval training optimizes health outcomes during chemotherapy treatment for breast cancer: the OptiTrain randomized controlled trial

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Introduction
Exercise during and after cancer treatment is an effective and safe way to counteract cancer related fatigue (CRF), other symptoms and to improve health related quality of life (HRQoL). High-intensity interval training (HIIT) in this population are not well established although HIIT has proven beneficial for the health of other clinical populations.

Method
Aim
To compare the effects of resistance and high-intensity interval training (RT–HIIT), and moderate-intensity aerobic and high-intensity interval training (AT–HIIT) to usual care (UC) in women with breast cancer undergoing chemotherapy. The primary endpoint was CRF.

Results
Piper Fatigue Scale (PFS): The RT–HIIT group was superior to UC for maintaining stable CRF: total CRF (p = 0.02), behavior/daily life (p = 0.01), and sensory/physical (p = 0.03) CRF.

EORTC QLQ C30: Role functioning significantly improved while cognitive functioning was unchanged for RT–HIIT compared to declines shown in the UC group (p = 0.04). AT–HIIT significantly improved emotional functioning versus UC (p = 0.01) and was superior to UC for pain symptoms (p = 0.03).

Memorial Symptom Assessment Scale (MSAS): RT–HIIT reported a reduced symptom burden, while AT–HIIT remained stable compared to deteriorations shown by UC (p < 0.01). Only RT–HIIT was superior to UC for total symptoms (p < 0.01).

Exercise during chemotherapy treatment had a positive impact on the women’s experience of physical function, mental wellbeing and also increased their feeling of social support, which was important to motivate adherence to exercise when the side effects became more severe.

Conclusion
A 16 week program of resistance (RT) and high intensity interval training (HIIT) was effective in preventing increases in CRF and in reducing symptom burden for women during chemotherapy for breast cancer. Exercise was perceived as a tool that supported health processes and gave the women a feeling of getting respite from the illness. These findings add to growing body of evidence supporting the inclusion of structured exercise prescriptions, including RT-HIIT, as a vital component of cancer rehabilitation.

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