

**Resistance Exercise, Muscle Strength, Physical Function and Quality of Life in Head and Neck Cancer Patients Undergoing Chemoradiation**

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**ABSTRACT**

Chemoradiation therapy (CRT) is the standard of care treatment for Head and Neck Cancer (HNCA) patients. Despite its established therapeutic efficacy, adverse effects accompanying CRT result in clinically-meaningful declines in muscle strength, physical function and quality of life (QOL). The adverse effects observed during CRT place HNCA patients at heightened risk for functional decline, mortality, and morbidity. Accordingly, there is a pressing need to evaluate the utility of supportive care interventions, such as resistance exercise (RE), to attenuate the deleterious effects observed during CRT. **PURPOSE:** Determine the utility of implementing a group-mediated cognitive behavioral (GMCB) RE intervention in the treatment of HNCA patients undergoing CRT. In the current study, we evaluated the effects of the RE intervention for attenuating the typical declines observed in satisfaction with life (SWL), quality of life (QOL), muscle strength, and physical function. **METHODS:** The HNCaRE study was a single-arm, pilot trial in 20 HNCA patients undergoing CRT. Assessment of outcomes were obtained at baseline, 3-months, and 6-month follow-up visits. **RESULTS:** Results of a completer's (n=11) repeated measures ANOVA analysis yielded a non-significant effect for satisfaction with life (p=0.19), upper body strength (p=0.57), and physical function (p=0.38). Significant results were found for QOL (p=0.04). Although the results of the ANOVA analysis were non-significant for muscular strength, physical function, and SWL, the effect size calculations revealed meaningful declines in SWL from baseline to 6-months ( $d = -.138$ ). Significant decrease in QOL ratings from baseline to 6-months ( $d = -1.162$ ). Small increase in chest press from baseline to 6-months ( $d = -.080$ ). Small increase in 400 meter walk from baseline to 6-months ( $d = -.206$ ). **CONCLUSION:** Findings from the HNCaRE pilot trial support the feasibility of implementing a GMCB-based RE intervention among HNCA patients undergoing CRT and provide evidence of the preliminary efficacy of this approach for meaningfully attenuating the magnitude of the declines in strength, physical function, QOL, and SWL. These promising results underscore the potential utility of integrating the GMCB RE intervention in the supportive care of HNCA patients undergoing CRT.