

## Effects of a specific adapted exercise on chronic cancer-related arm lymphedema: a pilot study

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Secondary arm lymphedema (LE) is among the most dreaded chronic complications in cancer patients that occurs when axillary lymphatic drainage from the arm is interrupted because of axillary lymph node dissection and/or axillary radiation (Ikeda et al., 2014). LE is characterized by accumulation of protein-rich interstitial fluid in the arm, resulting in tissue swelling. Subsequent swelling can cause pain, discomfort, heaviness, distortion, and reduced mobility and function, thereby affecting quality of life. With increased survival rates there is greater emphasis on enhancing quality of life after treatments (Armer et al., 2003), but the secondary LE remains a problem even with modern treatment modalities. Many treatment options for lymphedema are available, but none offer a permanent reduction or elimination of arm swelling (McKenzie and Kalda, 2003). Recent researches support the positive effects deriving from the regular participation in structured adapted physical activity programs in preventing or attenuating cancer treatment-related impairments improving the quality of life (Mirandola et al., 2013). In this context, the aim of our study was to propose and evaluate a specific exercise, planned by an adapted exercise specialist, to reduce LE and improve strength and mobility of the arm, as well as quality of life in cancer survivors. We recruited by Cancer Rehabilitation Center of Florence 20 cancer survivors with chronic moderate-severe arm lymphedema, divided randomly into 4 groups according to the different protocol for duration, frequency and intensity of proposed exercise. Outcome measures, included the arm circumference, ROM of arm and hand-wrist, strength (hand grip test) and quality of life (ULL27 questionnaire), were assessed at baseline, in itinere (1, 2 and 3 months) and post-intervention (6 months). Our preliminary results demonstrated that a structured exercise (10 repetitions x 3 with 1 minute break once a day for 3 times per week) improved shoulder function, reduced and managed LE cancer survivors.

### Keywords

Adapted physical activity, secondary lymphedema, cancer complications, quality of life.