Title: Evidence for single limb exercise in patients with COPD or chronic heart failure – A systematic review

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Body: Background: Although single limb exercise (SLE), i.e. training using one arm and/or one leg at a time, has been used in patients with COPD or chronic heart failure (CHF) the evidence for SLE has not been evaluated systematically and remains unclear. Objectives: Our hypothesis was that SLE is beneficial for patients with COPD or CHF. The aim of this systematic review was to investigate the current evidence for SLE compared to any comparator and regarding exercise capacity, quality of life (QoL) or dyspnea in patients with COPD or CHF. Methods: CENTRAL, PubMed and PEDro databases were searched for randomized controlled trials fulfilling inclusion criteria. Extraction of data, evaluation of study quality using the PEDro scale and the Cochrane risk of bias tool was performed by two review authors. Data and evidence for SLE were summarized in accordance with GRADE guidelines. Results: Six RCTs, (two in COPD, and four in CHF) met the inclusion criteria. COPD: Low quality evidence indicates improved exercise capacity but no difference on dyspnea after one-legged cycling compared to two-legged cycling. CHF: Low quality evidence indicate improved exercise capacity after single limb strength training compared to a control and two-legged cycling and improved QoL compared to a control. Meters walked and some QoL outcomes improved more after two-legged knee extension compared to one-legged knee extension. No differences between regimes on other exercise capacity and QoL outcomes was found. Conclusions: The strength of the overall evidence to support the use of SLE regimes compared to other exercise regimes or control in patients with COPD or CHF is low and further research is requested.