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Title: Resistance training with elastic tubing in patients with COPD: Functional capacity and correlation with muscle strength

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Body: Resistance training is golden evidence for the treatment of systemic muscle disorders in COPD patients. Aims: Analyze the percentage gain in functional capacity in COPD patients undergoing resistance training and correlate this data with muscle strength. We assessed 44 stable COPD (FEV1% 53,25±20,81; age 65,84±8,63; BMI 25,51±4,21;) undergoing resistance training for 8 weeks. 27 subjects (FEV1% 57,70±23,68 ; age 65.81 ± 8.6; BMI 25.99 ± 3.9) underwent conventional resistance training (CT) and 17 (FEV1% 46,19±12,88; age 65.88 ± 9.0; BMI 24.74±4.6) trained with elastic tubing (ET). Functional capacity was evaluated by the six-minute walk test (6MWT) and muscle strength by dynamometry. The CT was performed at moderate intensity at 60-80% of 1 maximum repetition (3 x 10) and ET group trained at sets of 2-7 repetitions, individually determined by resistance to fatigue test, both performed knees flexion and extension, shoulders flexion and abduction and elbow flexion. Statistical analyses were performed using test T Student for parametric data or Mann Whitney for non parametric data and correlations by the Spearman coefficient. Results: The comparison between groups showed significant difference (p=0.02) in the 6MWT. The ET group demonstrated 14,74% gain and the CT 7,86%. It was observed a positive correlation between functional capacity and knee extension: CT (r=0.53); ET (r=0.64), shoulder flexion: CT (r=0.39), ET (r=0.69), shoulder abduction: CT (r=0.39), ET (r=0.59), elbow flexion: ET (r=0.55). Conclusion: The elastic tubing, compared to conventional training, proved to be more efficient in improve functional capacity and also showed a higher correlation with muscle strength in COPD patients.