patients and also by respiratory muscle limitation in 10% of the patients.

Conclusions: Based on admission diagnosis of 40 patients, 90% were defined as subject to pulmonary rehabilitation and in 10% were receiving cardiac rehabilitation. They divided into three specific functional recovery programs: ventilatory function recovery program (60%), cardiac function recovery program (30%), respiratory muscles recovery program (10%).

Leg Muscle Blood Flow During 1 and 2-Leg Knee Extension Exercise in Patients with COPD and Aged-Controls

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Background: In chronic obstructive pulmonary disease (COPD), leg muscle blood flow may be compromised during dynamic exercise due to the competing influence of respiratory muscle work for available cardiac output. This study examined the flow demand limits of skeletal muscle flow in varying muscle mass recruitment. It employed one leg knee extension (1L-KE) and two-leg knee extension (2L-KE) to examine the mass-specific work rates at which peripheral circulatory function may become compromised due to elevated respiratory demands.

Methods: Three male COPD patients (70 ± 5 yr; $FEV_1/FVC = 42 \pm 11\%$) and two aged-controls (74 ± 1 yr; $FEV_1/FVC = 76 \pm 5\%$) completed three sets of 7-minute steady state 1L-KE and 2L-KE at 20, 40 and 65% (SS20%; SS40%; SS65%) of previously determined ergometer-specific peak power, separated by rest periods of 15 min. Leg muscle blood flow (BF) was determined using pulsed Doppler sonography of the femoral artery during incremental exercise loads and post-exercise. ECG, blood pressure, ventilatory parameters and VO_2 were obtained continuously, and

dye dilution cardiac output was measured at rest and during exercise.

Results: Preliminary data showed that, for each exercise intensity, the required VO_2 is similar in both groups. However, the workloads in COPD are between 60% and 82% of the control group workloads. During 1L-KE and 2L-KE, BF is consistently higher in COPD compared to controls. For 1L-KE, the increase in BF from rest (mean $\pm$ SD in ml/min; COPD vs controls) are SS20%: 763 ± 244 vs 105 ± 34 ; SS40%: 1157 ± 597 vs 310 ± 97 ; SS65%: 1493 ± 348 vs 424 ± 45 . BF relative to workload is at least 3-fold higher in COPD compared to controls for all exercise intensities.

Conclusions: These data suggest that mean muscle blood flow may not be compromised during knee-extensor exercise in COPD patients, and ongoing data will clarify whether this is a compensatory response to altered peripheral muscle metabolic function.

A Written Action Plan for Early Treatment of COPD Exacerbations: An Important Component to the Reduction of Hospitalizations

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Background: This study explored the role of a written action plan in reducing hospitalizations as a com-