

## CARDIAC REHABILITATION &amp; COVID

**P366 EFFECTS OF EXERCISE REHABILITATION IN PATIENTS WITH LONG COVID-19**

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Moving from the first COVID-19 pandemic to the chronic phase of COVID-19, more than 50 long-term detrimental effects have been recognized in the so-called long COVID-19 syndrome. The exact mechanisms underlying the exercise capacity reduction and functional limitations are unknown, however, rehabilitation could play a pivotal role. The aim of this study was to evaluate whether a combination of aerobic and resistance training performed in the same session for 8 weeks could be well-tolerated and effective in long COVID-19 patients with reduced exercise capacity [ $<85\%$  of predicted peak aerobic capacity ( $VO_{2peak}$ )] at 3-month from hospital discharge after COVID-19. The exercise training program included 3 exercise sessions per week. Each session included: a) aerobic exercise (starting at 30 min and increasing to 60 min) with 5 min warm-up and 5-min cool down; b) nine major muscle group resistance exercises (for the lower extremity: leg extension/flexion, abduction/

adduction, and leg press; for the upper extremity: push-up/pull-down; for the core muscles: abdomen, back). The intensity of aerobic exercise was defined according to VO<sub>2</sub>peaktest results targeting the 80% level of lactate threshold in Watts. Resistance training load was determined for each muscle groups according to the results of the maximal dynamic strength testing (1RM; one repetition maximum) and was confirmed and updated after 4 weeks by defining new 1RM values. Resistance training prescription loading was defined as 40% of 1RM, 2 sets (3 sets for last two weeks) and 12 repetitions for each muscle group. The duration of a single training session was approximately 90 min. Out of 220 patients screened, 50 patients (aged 55.8±9.7 years, 15 women, body mass index 26.6±5.2 kg/m<sup>2</sup>) were enrolled. Mean exercise training sessions was 66.1±34.0; none of the patients dropped out from the study. VO<sub>2</sub>peak increased 15% and peak ventilation 9% ( $p < 0.001$  for both). After the training program, mean percentage of VO<sub>2</sub>peak significantly increased (+14.2%,  $p < 0.001$ ). Muscle strength increased markedly for all major muscle groups ranging from 16% to 33% increase ( $p < 0.010$ ). An exercise rehabilitation with combined aerobic and resistance exercises for 8 weeks increases markedly both cardiorespiratory and musculoskeletal fitness in long COVID-19 patients. These results may highlight the importance of regular exercise rehabilitation aiming to promote daily activities, independent living, and better quality of life.