Combined Effect of Progressive Resistance Training and Physical Activity Counseling in Patients with Chronic Obstructive Pulmonary Disease
—A Randomized Controlled Crossover Study—

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[ABSTRACT]

[Background/Purpose]
This study investigated the effects of combined progressive resistance training (PRT) and counseling on physical activity (PA) in patients with chronic obstructive pulmonary disease (COPD).

[Methods]
Eleven out-patients with COPD (mean age 71.3 ± 6.8 years, height 1.62 ± 0.1 m, body weight 65.1 ± 11.1 kg) were randomized into the PRT group and control (CON) group with a one week washout period between groups. Participants in the PRT group completed an 8-week program involving once a week PRT and counseling. The PRT group performed four resistance training sessions, wherein the load on the modified Borg scale was 4–7 per set; each week the set or number of repetitions was increased, or the rest time between sets was decreased. Counseling was done via pedometer feedback. The CON group maintained their usual lifestyle. The evaluations were performed at baseline and post the intervention. The primary outcomes were assessed by measuring PA using a pedometer and quadriceps muscle strength (QS) using a dynamometer. The secondary outcome, quality of life, was evaluated using COPD assessment test (CAT). An unpaired t-test was used to compare the results between the PRT group and control group.

[Results]
There were no baseline differences between the groups. After 8-weeks, PA and QS were significantly higher in the PRT than in the CON group (p < 0.05). The PRT group showed significant improvements in PA and QS (p < 0.05). There was no significantly difference in CAT score between the groups.

[Discussion/Conclusion]
The present study demonstrates that eight weeks of combined PRT and counseling performed once a week resulted in increased daily step counts and QS in patients with COPD. Our study indicates that PRT programs could be useful in improving PA in patients with COPD.

[Ethical consideration]
The study was approved by the regional ethics committee and conducted in accordance with the Declaration of Helsinki.