

European Respiratory Society Annual Congress 2013

Abstract Number: 7122

Publication Number: 369

Abstract Group: 11.1. Lung Cancer

Keyword 1: Rehabilitation **Keyword 2:** Gas exchange **Keyword 3:** Skeletal muscle

Title: Effect of training on maximal oxygen uptake and muscular strength after lung cancer surgery – A randomized controlled trial

Mrs. Elisabeth 499 Edvardsen elisabeth.edvardsen@nih.no ^{1,2}, Prof. Ole Henning 1301 Skjonsberg o.h.skjonsberg@medisin.uio.no MD ², Mr. Fredrik 1302 Borchsenius frbo@uus.no MD ² and Prof. Sigmund A. 1303 Anderssen sigmund.a.anderssen@nih.no ¹. ¹ Department of Sports Medicine, Norwegian School of Sport Sciences, Oslo, Norway, 0806 and ² Department of Pulmonary Medicine, Oslo University Hospital, Ullevaal, Oslo, Norway, 0405 .

Body: Background: Lung cancer surgery may result in severe deconditioning, having a negative effect on their daily life activity. The effect of physical training following lung resection has not been thoroughly investigated. The aim was to study the effect of a training program after surgery in lung cancer. The primary outcome was change in maximal oxygen uptake (VO_{2max}) and secondary outcomes included change in muscular strength and total muscle mass. Methods: The effect of supervised endurance- and strength training program (60 min three times a week for 20 weeks) in 62 lung cancer patients (female=31) were studied during a single-blind, randomized controlled trial 5-7 weeks after surgery. The control group received standard post-operative care. VO_{2max} was directly measured on a treadmill. Muscular strength was assessed by measuring explosive and endurance strength, and muscle mass was measured by DXA-scan. Results: Of the 55 patients who fulfilled the intervention, the 25 in the training group had a significant improvement in VO_{2max} from 19.2 ± 5.15 to 23.3 ± 5.2 ml•kg⁻¹•min⁻¹ (p<0.001), compared to 18.1 ± 5.5 to 19.5 ± 6.0 in the control group (p=0.269). The difference between the groups was 17 % (p=0.003). The corresponding differences between the groups in strength measurements were; 1RM Leg Press, 23 % (P<0.001), Chair Stand, 20 % (P<0.001), Stair Run for 15 seconds, 12 % (P=0.013), total muscle mass, 3 % (P=0.009). Conclusion: In newly resected lung cancer patients, hard training was well tolerated and resulted in a significant increase in VO_{2max} and muscular strength compared to controls. This study may form a basis for exercise therapy after lung cancer surgery.