Realcare: recovery after lung resection: study design and preliminary results

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Background
Although lung resection still provides the best long-term outcome for lung cancer, it is also associated with a considerable decay of physical and psychosocial health status. Physical activity (PA) is considered beneficial for post-surgery recovery, and patients often are encouraged to increase PA in daily life. Surprisingly, only few studies objectively assessed daily PA in lung cancer patients, and none of these studies examined possible associations between daily PA and recovery of health status following lung resection. Therefore, our study aims to explore the relationship between daily PA and recovery of physical and psychosocial health status in lung cancer patients treated with lung resection.

Methods
Lung cancer patients undergoing curative lung resection at the Nederlands Kanker Instituut-Antoni van Leeuwenhoek Hospital in Amsterdam are enrolled in the study before surgery (T0). Follow-up measurements are scheduled at 1 (T1), 3 (T2) and 6 months (T3) post-surgery. PA levels are measured for three days on all occasions using a triaxial accelerometer and expressed as amount of activity in counts per minute. Secondary outcome measures include VO\textsubscript{2max}, pulmonary function, six-minute-walking-distance, times standing on the 30-seconds-chair-stand test, quality of life, mental distress, fatigue, and pain. The aim is to include 60 patients by October 2015.

Results
So far, 22 lung cancer patients (11 male; mean age 63.1±10.2 yrs) were included, with a dropout rate of 18%. Nineteen patients underwent lobectomy, and 3 segment resection. Neo-adjuvant concurrent chemo radiotherapy was given to three patients. Five other patients received adjuvant chemotherapy. Overall, post-surgery recovery was characterized by a decrease in health status one month post-surgery, with complete recovery to pre-surgery levels at six months after surgery. Higher levels of daily physical activity were associated with better quality of life and less reported fatigue and distress. Ambulant monitoring revealed decreased levels of physical activity in 70% and 42% of the patients at three and six months after surgery, respectively, as compared to pre-surgery levels.

Conclusions
As was expected from earlier research, physical and psychosocial outcome measures worsened following lung resection, but returned to baseline levels at 6 months post-surgery. Importantly, higher levels of daily activity were associated with better health status. A next step would be to investigate whether ambulant monitoring of both symptoms and daily activity optimizes recovery of health status after lung resection.