

Exercise program improved health of lung transplant patients and cut cardiovascular risk

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Lung transplant patients who took part in a three-month structured exercise program when they were discharged from hospital improved their health-related quality of life and reduced their risk of cardiovascular problems.

Those are the key findings of research published in the [American Journal of Transplantation](#).

"People who have received lung transplants often have weak muscles and limited endurance due to their [sedentary lifestyle](#) before their transplant and the drugs they need to take after surgery," explains lead author Dr. Daniel Langer, a Belgian expert in [respiratory diseases](#) and rehabilitation.

Recent research by the authors showed that transplant patients often remain inactive after surgery. Up to a half also develop illnesses such as osteoporosis, [high cholesterol levels](#) and diabetes, with around 90% developing [high blood pressure](#). It is well known that these health problems can be prevented by a physically active lifestyle.

"We were keen to explore whether an [exercise training](#) intervention would be capable of partially reversing these remaining limitations in muscle function, enabling patients to improve [exercise capacity](#) and increase their participation in daily activities."

Forty patients who had not experienced complications after single or double lung transplants were randomly allocated to two groups, with 21 patients taking part in a three-month exercise initiative and the other 19 forming the control group. Demographics for both groups, who had an average age of 59, were similar.

Patients in the [intervention group](#) exercised three times a week following their discharge from hospital, with each session lasting about 90 minutes. The training included cycling, walking, stair climbing and [resistance exercise](#) using leg press equipment. Exercise intensity increased during the three-month training programme.

The control group did not take part in the training regime. However, all the patients took part in daily mobility exercises in hospital after surgery, for an average of six weeks. This included walking, cycling, [stair climbing](#) and resistance exercises.

The authors compared daily walking, physical fitness, quality of life and ill health from cardiovascular disease between the two groups. This included monitoring their blood pressure during normal activities over a 24-hour period.

Key findings included:

- One year after hospital discharge 18 patients remained in the intervention group, with 16 in the control group. Five patients were lost to severe medical complications and one was unwilling to continue.
- After a year, the patients in the intervention group were walking an average of 85 minutes a day (plus or minus 27 minutes), while the control group were walking an average of 54 minutes a day (plus or minus 30 minutes).

- Quadriceps muscle force, how far the patients could walk in six minutes and self-reported physical functioning were significantly higher in the patients who exercised.
- Average 24-hour diastolic and systolic blood pressure was significantly lower in the treated patients.

"Our study showed patients who had uncomplicated lung transplant surgery benefitted greatly from supervised exercise training, which was initiated immediately after they were discharged from hospital," concludes Dr. Langer, from the Faculty of Kinesiology and Rehabilitation Sciences and the Respiratory Rehabilitation and Respiratory Division at University Hospitals KULeuven.

The patients who took part in the exercise program engaged in more physical activity in the first year following hospital discharge, which in turn resulted in favorable health outcomes.

They achieved better physical fitness against a number of key measures, reported better physical functioning and had lower blood pressure and better cardiovascular health than the patients in the control group.

"We believe that this research underlines the considerable benefits of structured exercise programmes following uncomplicated lung transplant surgery," the authors note.

More information: Langer et al. Exercise Training After Lung Transplantation Improves Participation in Daily Activity: A Randomized Controlled Trial 2012; [DOI: 10.1111/j.1600-6143.2012.04000.x](https://doi.org/10.1111/j.1600-6143.2012.04000.x)

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