

Physical Therapy Goals and Exercise Participation during Fast-Track Inpatient Rehabilitation Following Lung Transplantation: A Program Evaluation

Truong I, Gill A, Kelly T, Ng J, et al. *OJTR* 2026 May 14, 72-85 | DOI: [10.4236/ojtr.2026.142007](https://doi.org/10.4236/ojtr.2026.142007)

Study Highlights

Background: A fast-track inpatient rehabilitation program was developed for lung transplant recipients with few complications and higher levels of physical function. However, the length of stay in rehabilitation was not meeting the target of 7 days.

Objective: To compare physiotherapy goals, rehabilitation progression, and outcomes between the traditional fast-track inpatient protocol and a new protocol.

Methods: This single-center retrospective chart review included adult lung transplant recipients who underwent a fast-track inpatient rehabilitation stream. The new protocol involved increasing cycling endurance time, frequency of independent walking sessions, and number of repetitions for muscle training.

Results: Of 396 lung transplant recipients during the study period, 33 were admitted to the fast-track inpatient rehabilitation (13 received the traditional protocol and 20 the new protocol). The analysis showed that patients managed using the new protocol walked further on Day 1 than those receiving traditional care. However, they showed little additional improvement by Day 6, whereas the traditional care group demonstrated greater gains in walking distance over the same period. Patients in the new protocol group also had higher ambulation goals and more goals related to greater independence in transfers and exercise.

Conclusions: This study showed that lung transplant recipients who underwent the new protocol achieved comparable walking distance and exercise participation to those following the traditional protocol, but with a shorter length of stay.

Table 2. Change in walking distance during inpatient rehabilitation, mean $\pm$ SD, n (%)

	Traditional Protocol (n = 12)	New Protocol (n = 19)	P
Distance Walked on Day 1 (meters)	69 $\pm$ 44	109 $\pm$ 56	0.043*
Distance Walked on Day 6 (meters)*	137 $\pm$ 55	128 $\pm$ 64	0.696
Change Score (meters) ^{b,c,d,e}	67 $\pm$ 81	13 $\pm$ 68	0.058
Gait Aid on Day 1 (Traditional Protocol n = 13; New Protocol n = 20)			0.241
No Aid	0 (0)	3 (15)	
Rollator Walker	10 (77)	15 (75)	
Two-Wheeled Walker	3 (23)	2 (10)	
Gait Aid on Day 6 (Traditional Protocol n = 13; New Protocol n = 18)			0.266
No Aid	4 (30)	6 (33)	
Rollator Walker	8 (62)	7 (39)	
Two-Wheeled Walker	1 (8)	1 (6)	
Cane	0 (0)	4 (22)	

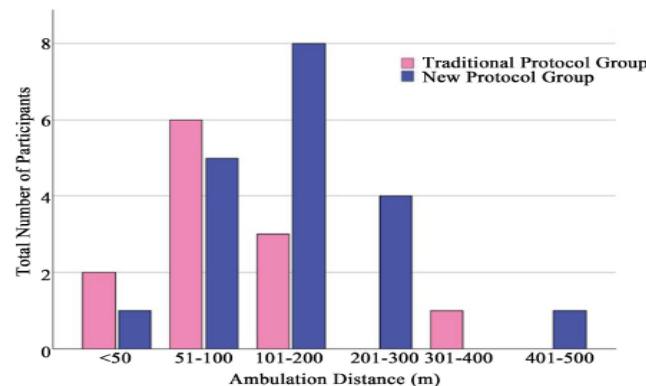


Figure 1. Ambulation distance goals set for the traditional protocol and new protocol groups.

Reviewer's Comments

- The findings of this study showed that some patients that followed a new rehabilitation protocol may obtain similar goals and outcomes than a traditional protocol, but in less rehabilitation time.
- The generalizability of these findings may be limited, as not all lung transplant centers have streamlined access to inpatient rehabilitation facilities, and this study included a highly selected group of patients in the fast-track rehabilitation program.
- This findings of this study emphasize the important role of careful monitoring and measurement of aerobic exercise training when comparing the efficiency of two interventions.

Limitations

- The study's small sample size, highly selected sample from one center and the country's universal healthcare coverage limit the generalizability of the findings.
- Comparison between the two protocols in this study is limited due to the incomplete evaluation of exercise prescription and program progression, particularly the lack of data on exercise intensity during therapy sessions. Also, the new protocol started on Day 0 compared to Day 1 for the traditional protocol. This group had an extra-day of therapy, limiting the possibility of comparison and could explain the difference on walking distance on Day 1.

A silver lining in the VAD sky? Impact of a silver dressing on left ventricular assist device-associated driveline infections

Baudart S, Klein L. *JHLT Open*, 2026; 13 | DOI: [10.1016/j.jhlto.2026.100556](https://doi.org/10.1016/j.jhlto.2026.100556)

Study Highlights

Objective: To assess whether a weekly driveline dressing protocol incorporating a non-activated silver patch reduces the incidence and delays the onset of driveline infections (DLIs) in adult left ventricular assist device (LVAD) recipients compared to a standard 3-day chlorhexidine-based dressing routine.

Methods: A single-centre, prospective randomized controlled trial evaluating 23 adult patients undergoing primary durable LVAD placement (11 control, 12 silver intervention). The intervention arm utilized weekly dressing changes with a non-activated silver patch, chlorhexidine cleansing, windowed occlusive dressing, and silicone anchors. The control arm received standard dressing changes every 3 days without an antimicrobial patch. Primary endpoints at 18 months included first DLI rate, total DLI events per patient-year (EPPY), and time to initial infection.

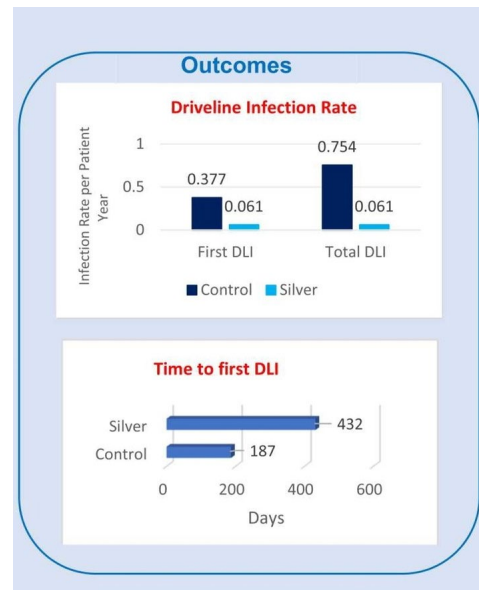
Results: Over an 18-month mean follow-up, the silver dressing cohort exhibited significant reductions in both first DLI rate (0.061 vs. 0.377 EPPY, $p=0.01$) and total DLI rate (0.061 vs. 0.754 EPPY, $p=0.002$) compared to controls. Mean time to initial infection was substantially prolonged in the silver group (432 vs. 187 days, $p=0.05$).

Conclusions: A weekly driveline management protocol utilizing a non-activated silver patch reduces driveline infection rates, extends time to first infection, and reduces monthly supply costs without compromising patient comfort or compliance.

Comparison of DLI incidence rates and mean time to first infection over 18-month follow-up between weekly silver patch dressing and standard control protocols.

Outcome	Control	Silver
First DLI	0.377 EPPY	0.061 EPPY
Total DLI	0.754 EPPY	0.061 EPPY
Time to DLI	187 days	432 days

84% relative reduction in first DLI event rate



Reviewer's Comments

- The study evaluates a bundled intervention: silver patch, weekly dressing frequency, reduced driveline manipulation and standardised securement; the independent effect of silver cannot be isolated.
- Findings are promising, but should be considered hypothesis-generating rather than practice-changing due to small single-centre sample size.
- Cost savings were limited to dressing-supply expenditure and do not represent a full health-economic evaluation.
- Future multicentre studies should investigate whether the observed benefit is attributable to silver antimicrobial activity, reduced dressing-change frequency & manipulation, or both & could consider use of intention-to-treat analysis, blinded endpoint adjudication where feasible, standardised DLI definitions, and sufficient power to adjust for sex, BMI, INTERMACS profile, caregiver factors & centre-level practice.

Limitations

- Small single-centre cohort with final analysis of 23 patients; underpowered for robust adjusted analysis. Raw participant-level infection numbers and confidence intervals not reported.
- Randomisation procedure was only briefly described; baseline imbalance included all three female participants in the control arm, all of whom developed infection.
- Two intervention patients were excluded after protocol adjustment; both subsequently developed DLI, which may have favoured the silver group.
- One control patient who died during index admission was also excluded; limited information is provided regarding the reason for death.
- Primary analysis did not follow intention-to-treat principles, an important limitation in a small randomised study.
- No predetermined power calculation or pre-specified early-stopping plan was reported, and confidence intervals/raw participant-level infection numbers were not clearly presented.
- Among respondents, both protocols received favourable ratings, but the very small sample and unclear survey completeness limit inference.

Occupational therapy predicts post-operative left ventricular assist device (LVAD) self-care, hospital length of stay, and discharge disposition

Asiello JD, Cannone K, Lam N, Taubert A, et al. *JHLT Open* 2026 Mar 27;12:100545 | DOI: [10.1016/j.jhlto.2026.100545](https://doi.org/10.1016/j.jhlto.2026.100545)

Study Highlights

Background: For Left Ventricular Assist Device (LVAD) recipients, inability to manage the device and sub-optimal self-care has morbidity and mortality implications which may also impact on length of stay and discharge destination. Pre-operative Occupational Therapy (OT) assessments can provide insight into the self-care abilities and functional needs of this population. Understanding the issues that may contribute to sub-optimal self care may optimise candidate assessment, discharge planning and functional outcomes.

Objective: To investigate the relationship between pre-operative OT assessments and post-operative LVAD self care, length of stay and discharge disposition.

Methods: A single centre retrospective medical records review of HeartMate 3™ LVAD patients over a 6 year period. Data was gathered on multiple predictor variables including daily activity performance (measured by AM-PAC 6 clicks), grip strength, vision and cognitive function (measured by MoCA and ACLS-5) and LVAD battery management assessment (a performance based scale developed by clinicians at the research institution), as well as post-operative LVAD self care, length of stay and discharge disposition.

Results: 100 LVAD recipients met the inclusion criteria. Pre-operative OT evaluation and participant age were associated with post-operative LVAD self care. Vision and cognitive processing were also identified as key components of LVAD self care. The only variable that was significantly positively associated with length of stay was the LVAD Battery Management Assessment. Discharge disposition was most strongly associated with performance on the LVAD Battery Management Assessment, grip strength and ACLS-5.

Conclusions: This study shows that pre-operative OT assessment incorporating performance-based evaluations are aligned with patient LVAD self care ability post-operatively.

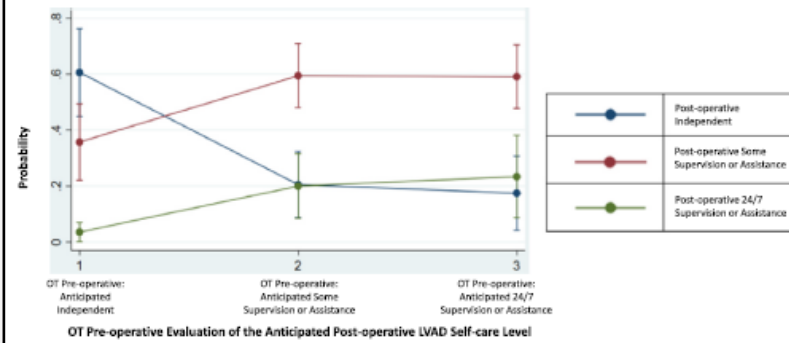


Figure 3 Relative importance of occupational therapy pre-operative evaluation items to actual post-operative self-care status at discharge. AM-PAC = Activity Measure for Post-acute Care, OT = occupational therapy, SF = Short form.

Table 5 Linear Regression Model Examining the Association Between Items on the Pre-operative Occupational Therapy Evaluation and Post-implant Length of Stay

Items	Coefficient	SE	p-value	95% CI
Vision (Ref: Intact)				
Impaired but WFL	-6.88	10.788	0.525	-28.38–14.62
Impaired	1.68	7.18	0.815	-12.62–15.99
MoCA	-0.88	0.586	0.136	-2.05–0.28
Allen Cognitive Level Screen-5	5.04	4.911	0.308	-4.75–14.83
LVAD Battery Management Assessment	1.04	0.582	0.001	0.78–3.10
AM-PAC daily score	0.17	0.544	0.752	-0.91–1.26
Grip strength	-0.31	0.611	0.616	-1.52–0.91

R² = 0.12569; Adjusted R² = 0.1857; F (7,73) = 3.61, p < 0.002. WFL = within functional limits MoCA = Montreal Cognitive Assessment, AM-PAC = Activity Measure for Post-Acute Care Daily Activity Short Form

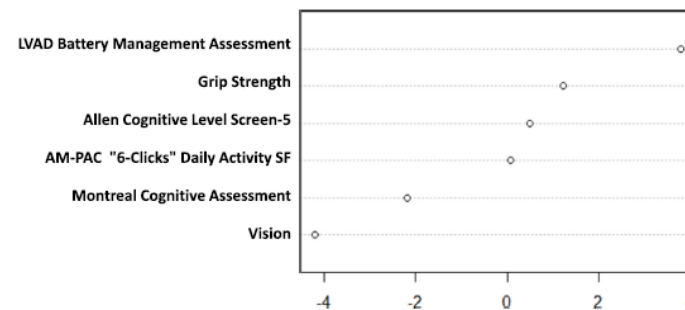


Figure 4 Relative importance of occupational therapy pre-operative evaluation items to post-operative discharge disposition. AM-PAC = Activity Measure for Post-acute Care, OT = occupational therapy, SF = Short form.

Reviewer's Comments

- The findings support incorporating structured OT assessment into LVAD candidacy evaluation, although predictive performance was only modest.
- Pre-operative OT evaluation may highlight specific areas for targeted prehabilitation and rehabilitation and facilitation of early discharge planning.
- Whilst useful preliminary evidence, further prospective research is required to substantiate findings and investigate if any of these factors are amenable to prehabilitation before integration into routine clinical practice.

Limitations

- The participants were largely white, non-Hispanic males, limiting generalisability across the LVAD population.
- Retrospective design and incomplete clinical records increased the risk of bias and uncontrolled confounding.
- Single centre design means findings may not be reflective of OT practice internationally.
- Several assessment tools lacked validation and established psychometric properties for the LVAD population.