Duke University School of Medicine

Doctor of Physical Therapy

Functional Outcomes Associated with Exercise Rehabilitation in Lung Transplant Candidates: A Systematic Review and Meta-Analysis

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Background

- Lung transplantation is a treatment option for select patients with end-stage lung disease to extend survival and improve quality of life (QOL).
- Pre-transplant physical capacity is a major determinant of transplant selection, waitlist and transplant survival, and post-transplant physical capacity.
- Overall, candidates have poor fitness and the pre-transplant waiting period is an opportunity to implement exercise rehabilitation.
- Pre-transplant exercise rehabilitation aims to preserve or improve functional status and readiness for surgery.

Purpose

Examine exercise rehabilitation protocols and their effects on physical capacity and QOL in transplant candidates.

Methods

Data Sources
- MEDLINE, CINAHL, Cochrane, Web of Science, EMBASE, and PsycINFO were searched from 1968 to 2019

Inclusion Criteria
- Adults on transplant waitlist and participating in a structured exercise rehabilitation program

Risk of Bias (ROB)
- Modified Downs & Black's Checklist (MDB)
- Physiotherapy Evidence Database (PEDro)

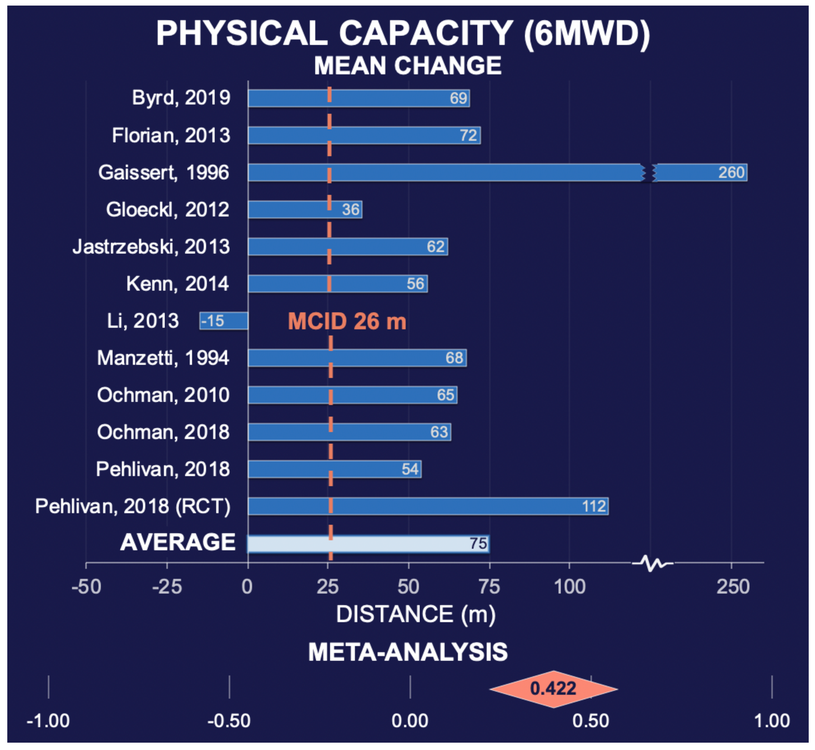
Outcomes
- Physical capacity and QOL

Meta-Analysis
- Cohen's G was calculated for 6MWD, physical quality of life (PQOL), and mental quality of life (MQOL).

https://ehealth.eletsonline.com/2017/10/lung-transplantation-another-glorious-chapter-for-pgimer-chandigarh/

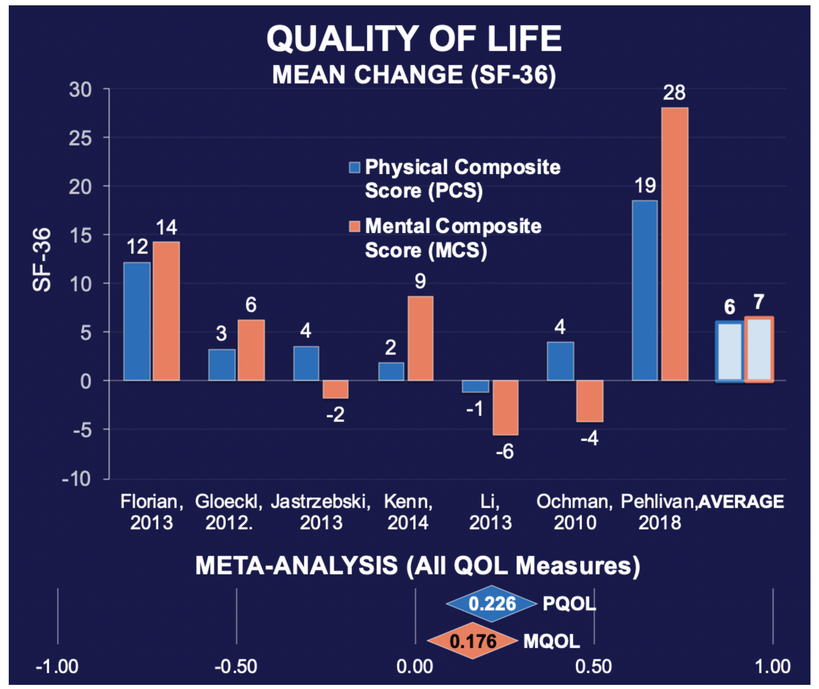
Results

- **Eligibility**: Of 775 articles, 12 met eligibility: 5 prospective cohort studies, 4 retrospective cohort studies, 3 RCTs
- **Demographics**: 1,633 lung transplant candidates (mean age 50.9, 50% male)
- **ROB**: Mean 18.75/27 MDB, 8/11 PEDro
- **Protocols**: Aerobic training in 12/12 studies; varied in mode, duration, and frequency
- **6MWD** – 6-Minute Walk Distance, key waitlist criterion: 11/12 improved



Results

- **SF-36** – 36-item Short-Form Health Survey, common QOL measure: 7/8 improved PCS, 5/8 improved MCS
- **Other QOL:** Disease specific (e.g., Quality of Life Index) or generic (e.g., EQ5D)



Conclusions

Evidence supports the use of exercise rehabilitation in the pre-transplant period to improve physical capacity and QOL.

Clinical Relevance

Currently, exercise rehabilitation is not a ubiquitous component of pre-lung transplantation programs. This review highlights the importance of exercise. More research is needed to investigate rehabilitation protocols that will optimize clinical and patient-valued outcomes.

Acknowledgements / References

For contact information, references, or a full list of included articles, please scan our QR code!