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Cut-off of the Physical Performance Test to detect functional status impairment and mortality risk in interstitial lung disease

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European Respiratory Journal 2025 66(suppl 69): PA674; DOI: https://doi.org/10.1183/13993003.congress-2025.PA674

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This article appears in:

European Respiratory Journal

Vol 66 Issue suppl 69

Abstract

Functional status (FS) is a key outcome in people with interstitial lung disease (ILD). Physical Performance Test (PPT) is a FS measure. However, cut-off points to determine FS impairment and mortality risk as estimated by the 6-minute walk test (6MWT) with the PPT in people with ILD are lacking. This study explored thresholds of PPT to identify FS impairment and mortality risk in people with ILD.

A cross-sectional study was conducted. FS was assessed with the PPT, short (PPT-28) and long (PPT-36) versions. FS impairment was defined as a 6MWT of less than 70% of the predicted value. Cut-offs of 6MWT for mortality risk (250, 330 and 350m) were also explored. Optimal cut-off values were determined based on the highest Youden index in receiver operating characteristic (ROC) analysis.

85 people with ILD were included (68±11 years; 53% male; FVCpp 81±22; DLCOpp 57±21). A cut-off of <19.5 for PPT-28 identified FS impairment and mortality risk across all 6MWT cut-offs. For PPT-36, a cut-off of <28.5 detected FS impairment, while <27.5 (6MWT<350m) and <26.5 (6MWT<330m and <250m) identified mortality risk.

In ILD, cut-off values of <19.5 for PPT-28 and <28.5 and <26.5 for PPT-36 may be used to detect FS impairment and mortality risk as estimated by the 6MWT, respectively. This information can now be used to provide tailored interventions.

		Gold standard	Cut-off	AUC (95%CI)	Sensitivity	Specificity
PPT-28	Functional Impairment	6MWTpp<70%	**19.5**	0.759 (0.613-0.905)	81.7%	54.5%
	Risk of mortality	6MWT<250m	**19.5**	0.846 (0.669-1.022)	82.7%	85.7%
		6MWT<330m	**19.5**	0.761 (0.597-0.924)	83.1%	63.6%
		6MWT<350m	**19.5**	0.764 (0.613-0.914)	82.9%	58.3%
PPT-36	Functional Impairment	6MWTpp<70%	**28.5**	0.850 (0.741-0.958)	67,6%	90.9%
	Risk of mortality	6MWT<250m	**26.5**	0.952 (0.903-1.002)	84.0%	100.0%
		6MWT<330m	**26.5**	0.855 (0.727-0.982)	85.5%	72.7%
		6MWT<350m	**27.5**	0.850 (0.731-0.969)	72.9%	83.3%

Figure 1- Cut-offs of the physical performance test (PPT), PPT-28 (7 tasks) and PPT-36 (9 tasks) versions to detect functional status impairment based on the cut-off of 70% predicted of the six-minute walk test – 6MWT (6MWTpp) and mortality risk based on cut-offs of the 6MWT of 250m, 330m and 350m, in people with Interstitial lung disease. The respective areas under the curve (AUC) and 95% Confidence Intervals (95% CI), sensitivity and specificity are shown.

Footnotes

Cite this article as *Eur Respir J* 2025; 66: Suppl. 69, PA674.

This article was presented at the 2025 ERS Congress, in session "Advances in exercise testing for respiratory disease".

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