

Clinical Characteristics and Impact of Sarcopenia on Adverse Outcomes in Interstitial Lung Disease: A Systematic Review and Meta-Analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International
Platform of Registered Systematic Review and Meta-Analysis Protocols
(INPLASY) on 7 July 2025 and was last updated on 7 July 2025.

INTRODUCTION

Review question / Objective The aim of this study was to investigate the clinical features of interstitial lung disease and the impact of sarcopenia on adverse outcomes, which could help in clinical recognition and management of the disease, leading to targeted interventions to improve patient outcomes.

Condition being studied Interstitial lung disease (ILD) comprises over 200 disorders characterized by inflammation and fibrosis of the pulmonary interstitium. ILD primarily manifests as reduced lung volumes, impaired gas exchange, and dyspnea, progressing to respiratory failure and death, posing a significant threat to health.

METHODS

Participant or population Interstitial lung disease (ILD).

Intervention Sarcopenia.

Comparator No sarcopenia.

Study designs to be included Prospective or retrospective cohort studies.

Eligibility criteria Inclusion criteria: Age ≥ 18 years; Diagnosis of ILD based on current guidelines, incorporating medical history, clinical data, and multidisciplinary discussion; Sarcopenia diagnosis incorporates criteria from the Asian Working Group for Sarcopenia 2019 (AWGS 2019) and the European Working Group on Sarcopenia in Older People 2 (EWGSOP2) and CT imaging-based quantification of skeletal muscle; Reporting adjusted hazard ratios (HR) with 95% confidence intervals (CI) for mortality risk in ILD with sarcopenia using Cox proportional hazards models; Quantitative data regarding sarcopenia (mean $\pm$ standard deviation [SD]) should be obtainable or convertible through algorithm.

Exclusion criteria: Duplicate publications; Case reports, conference abstracts, reviews, meta-analyses, animal/cell studies, commentaries, or letters; Studies unrelated to ILD with sarcopenia; Insufficient data for effect size extraction; Non-English publications.

Information sources PubMed, Embase, Cochrane Library, Web of Science, Scopus, and Ovid databases.

Main outcome(s) Age, Smoking history、 GAP score、 FEV1%, FVC%, FEV1/FVC% 、 DLCO%、 BMI, HGS, 6WMD 、 ASMI and Impact of sarcopenia on Mortality hazard ratio.

Quality assessment / Risk of bias analysis Newcastle-Ottawa Scale (NOS).

Strategy of data synthesis Data was analyzed using stata software.All studies that performed pooled analysis were initially tested for heterogeneity using Cochran's Q statistic and inconsistency value (I²). If a p-value of <0.05 or I²≥50% indicated remarkable heterogeneity, a random-effect model and the DerSimonian–Laird (DL) method were ultimately. employed to synthesize the data.

Subgroup analysis Subgroup analyses were stratified by sarcopenia diagnostic criteria(Subgroup 1: AWGS 2019, Subgroup 2: EWGSOP2, Subgroup 3: CT imaging-based quantification of skeletal muscle) and adverse outcome follow-up duration(Subgroup4: ILD patients; Subgroup5: IPF patients).

Sensitivity analysis Sensitivity analyses were performed by the stata software to reflect the sensitivity of an article by the change in the effect size after excluding that article.

Country(ies) involved China.

Keywords Interstitial Lung Disease ; Sarcopenia; Meta-Analysis.

Contributions of each author

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Author 2 - Xuan Wang.
Author 3 - Weiwei Yuan.
Author 4 - Yahui Yang.
Author 5 - Ting Lu.
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