Factors Influencing Lower Extremity Muscle Strength in Interstitial Pneumonia Patients:
The Association of Isometric Knee Extension Strength with Respiratory Function,
Dyspnea and Exercise Capacity

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Purpose: The aim of this study was to clarify factors that can affect lower extremity muscle strength in stable interstitial pneumonia (IP).

Methods: We examined the relationship between lower extremity muscle strength and respiratory function, dyspnea, and exercise tolerance in 107 patients with stable IP.

Result: Isometric knee extension strength was associated with % DLco, the modified Medical Research Council (mMRC) dyspnea scale, and the 6-minute walk test. Moreover, logistic regression analysis to determine an dependent variable for whether a value of 0.50 kgf/kg of isometric knee extension strength caused movement impairment revealed the mMRC dyspnea scale grade as a factor that affected isometric knee extension strength (odds ratio 0.480, 95% CI 0.242–0.953). In addition, when the mMRC scale was Grade 1 or more, the results indicated that more than one half of the IP patients had a level of lower extremity muscle strength that fell below the level at which movement impairment begins.

Conclusion: Lower limb muscle strength in IP patients was related to the level of respiratory failure, exercise tolerance, and dyspnea. Especially, it was revealed that when dyspnea is exacerbated in daily life, it can lead to a reduction in lower extremity muscle strength that may impair mobility.