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Physical Performance Associated with a Decline in ADL in Frail Elderly People Using Long-term Care Insurance with a Day-care Service

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Purpose: The purpose of this study was to examine the relationship between physical performance and a decline in activities of daily living (ADL) in elderly people who were certified by Japanese long-term care insurance.

Methods: The subjects were 2,695 elderly people who used day-care services (mean age: 81.9 ± 6.7 years; men: 916; women: 1,779). The 13 motor subscales of the Functional Independence Measure were used to assess ADL. The subjects were divided into two groups: the ADL independent group, who scored ≥ 6 points in all ADL measures, and the ADL care need group, who scored ≤ 5 points for at least one item in all ADL measures. Physical performance tests included grip strength, the chair stand test 5 times, one leg standing with the eyes open, walking speed, and the timed "up & go" test. The multiple logistic regression analysis was used to identify the relationships between ADL status and physical performances which were showed significant differences in univariate analysis.

Results: The multiple logistic regression model showed that all physical performances were significantly associated with a decline in ADL. By the analysis for the level of care, the moderately disabled group, performance in grip strength, the chair stand test 5 times, walking speed and the timed "up & go" test were significantly associated with a decline in ADL. In the severely disabled group, walking speed was significantly associated with a decline in ADL. Walking speed showed a particularly strong correlation with a decline in ADL (moderately disabled: OR, 2.56; 95% CI, 1.57–4.16; $p<0.01$; severely disabled: OR, 2.36, 95% CI, 1.12–5.50; $p<0.05$).

Conclusions: Our results suggest that targeted intervention to improve walking speed may be useful for preventing a decline in ADL in elderly people.