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

Yuta HAYASHI, PT, MSc, Shinnosuke HATO, PT, MSc, Mayuko ISHIMOTO, PT,
Yuho KANAYA, SW
Tsukui Corporation

Megumi SUZUKAWA, PT, PhD
University of Human Arts and Science

Hiroyuki SHIMADA, PT, PhD
National Center for Geriatrics and Gerontology

**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.