cally significantly so \((P = .05)\). Family subscores of CSK members were similar to those of KRN participants. In contrast, friend subscores of CSK members were \(7.9 \pm 4.9\), significantly greater than those of KRN participants \((4.4 \pm 4.8)\) (Table 1, \(P = .03\)). These data suggest that total LSNS-6 scores tended to be greater in CSK members because their friend subscores were significantly greater. Furthermore, 28% of CSK members and 53% of KRN participants had LSNS-6 scores of less than 12, suggesting that they were socially isolated. These rates were higher than other reports previously published on LSNS scores in community-dwelling elderly adults: 19.4% in Japan and 13.5% to 14.6% in the United Kingdom.\(^{4,6}\)

Friend scores were better in CSK members, probably because they had more opportunity to have friends in the community and because individuals with CRF undergoing LTOT are socially isolated.

Regression analyses revealed that neither total LSNS-6 scores nor family subscores had any association with CAT. In contrast, friend LSNS-6 sub-scores were significantly associated with total CAT scores \((P = .03, 95\% \text{ confidence interval (CI)} = -1.728 \text{ to } -0.120)\). Friend LSNS-6 subscores were significantly associated with items 3 (breathlessness on resting condition, \(P = .02, 95\% \text{ CI} = -0.222 \text{ to } -0.024)\), 4 (breathlessness on exercise, \(P = .04, 95\% \text{ CI} = -0.235 \text{ to } -0.024)\), 6 (outdoor activities, \(P < .05, 95\% \text{ CI} = -0.278 \text{ to } -0.024)\), and 8 (motivation or depression, \(P = .02, 95\% \text{ CI} = -0.251 \text{ to } -0.021)\) on the CAT. Social isolation in terms of relationships with friends was associated with greater breathlessness, limitations in outdoor activities, and depression. This result appears reasonable, because these limitations make it difficult for people to go out to see their friends, and they may subsequently become isolated.

To the best of the authors’ knowledge, this was the first attempt to use LSNS-6 to assess social isolation in individuals with CRF. Although the results demonstrated that LSNS-6 was a promising tool for evaluating social isolation, this study had several limitations; it had a small population with various basic lung disorders, and the data were retrospectively collected, albeit consecutively.

In conclusion, CRF with LTOT caused social isolation, and joining a support group is a solution not only for social isolation, but also for subsequent depression.

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Association Between Anthropometric Factors and Falls in Community-Dwelling Older Adults during a Simulated Slip While Walking

To the Editor: Slip-related falls are a major public health problem facing older adults worldwide. Approximately 25% to 39% of community-dwelling people aged 65 and older experience at least one fall per year, and approximately half of them may have two or more falls.\(^{1–3}\) The primary purpose of this study was to determine whether and to what extent anthropometric factors such as body mass, height, and foot size could predispose older adults to falls after a sudden and unrehearsed slip induced in walking.

Methods

Community-dwelling older adults (N = 187, 129 female; aged 72 ± 5; height 166 ± 9 cm; mass 76 ± 14 kg) participated in the gait-slip experiment. All subjects experienced an unannounced slip while walking on a suddenly unlocked low-friction section of a 7-m walkway under the...
Variables that demonstrated analyses were used to examine the risk factors for falls. For body height and foot size, a distribution of continuous variables and chi-square tests for categorical groups were compared using independent t-tests for

For body height and foot size, a distribution of continuous variables and chi-square tests for categorical groups were compared using independent t-tests for

- Women were approximately 2.6 times as likely to fall as those who were not obese. In the distribution analysis, obesity (odds ratio (OR) = 2.38, 95% confidence interval (CI) = 1.17–4.84, P = .02), female sex (OR = 3.32, 95% CI = 1.37–8.01, P = .008), and being shorter (OR = 11.1, 95% CI = 2.04–60.7, P = .005) remained significant risk factors for falls. There was also a significant interaction between sex and height (P = .02).

### DISCUSSION

Older adults with a body mass index (BMI) of 30.0 kg/m² or greater were 2.5 times as likely to fall as those with a BMI less than 30.0 kg/m² (P < 0.01). Body mass itself did not increase a person’s risk of falls, but shorter stature did (Table 1). This contradicts the static stability concept in which shorter stature, which is associated with a lower center of mass, will be more stable than taller stature. It was also found that body height and foot size were correlated (coefficient of determination = 0.49, P < .001). Individuals who fell had smaller feet than those who recovered; model simulation work has demonstrated that foot size is an important factor in the control of dynamic stability, and the finding of this study supports the theoretical prediction that a longer foot with a larger margin of stability could lower the risk of falling.

The results revealed that women and individuals who were shorter (≤ 165 cm), obese (BMI > 30.0 kg/m²), had smaller feet (≤ 28.5 cm) were at significantly greater risk of falling. Although women were more prone to falling, there was also significant interaction between sex and height. Older men who were 165 cm or shorter were more likely to fall than older women of the same height. Although it is unclear whether height or foot size is the dominant factor, the taller males bear less risk of falls likely due to their longer foot size in comparison with the taller females. The fact that the relationship between height and foot size is more sensitive and stronger in men than in women could explain this. Such findings could provide guidance in developing intervention strategies to reduce falls in older adults.

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**Table 1. Univariate Logistic Regression Analysis of Falls**

| Predictor                  | Odds Ratio (95% Confidence Interval) | P-Value |
|----------------------------|--------------------------------------|---------|
| Height                     |                                      |         |
| Centimeters                | 0.932 (0.898–0.967)                  | <.001   |
| ≤ 165 vs > 165 cm          | 2.937 (1.619–5.325)                  | <.001   |
| Mass, kg                   | 0.993 (0.973–1.014)                  | .51     |
| Age                        | 0.999 (0.994–1.056)                  | .97     |
| Foot size                  |                                      |         |
| Centimeters                | 0.764 (0.657–0.888)                  | <.001   |
| ≤ 28.5 vs > 28.5 cm        | 2.768 (1.526–5.021)                  | .001    |
| Body mass index (obese vs nonobese) | 2.498 (1.294–4.823) | .006    |
| Sex                        | 2.609 (1.375–4.951)                  | .003    |
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PREFERRED FEEDING METHODS FOR DYSPHAGIA DUE TO END-STAGE DEMENTIA IN COMMUNITY-DWELLING ELDERLY PEOPLE IN JAPAN

To the Editor: According to a recent systematic review, the prevalence of individuals with dementia among the elderly Japanese population ranges from 2.9% to 12.5% and has been rising gradually over the past few years. One study reported an increase from 5.8% for those aged 65 to 69 to 77.7% in those aged 95 to 99 in 3,394 participants, with Alzheimer’s disease being the most frequent cause (67.4%), followed by vascular dementia (18.9%), dementia with Lewy body disease (4.6%), and mixed dementia (4.2%). End-stage dementia, such as Alzheimer’s disease, is one of the leading causes of dysphagia. Percutaneous endoscopic gastrostomy (PEG), a method rarely used in elderly adults with degenerative dementia in Western countries, is common in Japan and is used regardless of individual preference. The purpose of this study was to clarify the preference for feeding methods of elderly adults if they develop swallowing difficulty due to end-stage Alzheimer’s disease.

Tosa town in Kochi Prefecture had a population of 4,311 in 2012, of whom 1,739 (40.3%) were aged 65 and older. A comprehensive geriatric assessment questionnaire was mailed to 1,615 elderly people (excluding 124 long-term institutionalized individuals) in 2012 with the support of Tosa health staff. The response rate was 60.8% (n=982) with 587 participants (233 men, 354 women; mean age 76.7 ± 7.6) returning complete questionnaires and 395 with incomplete questionnaires being excluded. Illustrations of feeding methods, including PEG, nasal tube feeding, drip infusion through peripheral vein (DIV), and intravenous hyperalimentation (IVH) were shown to participants along with brief explanations (Figure 1), and participants were asked whether they had experienced any of these methods and whether they had seen these methods administered to their relatives or friends. With regard to participants’ own experiences, DIV was the most frequently experienced method (48.4%), followed by IVH (2.2%) and nasal tube feeding (2.0%); none of the participants had experienced PEG. Participants had seen DIV (64.4%), PEG (19.3%), IVH (17.2%), and nasal tube feeding (34.2%) administered to their families or friends.

With an option to choose oral intake only, participants were then asked, “If you cannot take meals orally because of end-stage Alzheimer’s disease, which feeding method do you prefer?” As for the preferred method, 42.5% of the participants chose DIV, whereas other artificial feeding methods were chosen much less frequently (IVH, 5.1%; PEG, 4.7%; nasal feeding tube, 4.3%); 50.3% chose none of the four methods, responding that they prefer oral intake until the end.

There is insufficient evidence to suggest that enteral tube feeding is beneficial in individuals with advanced dementia. How should a decision regarding feeding method be made for individuals with dysphagia due to dementia? Only 4% to 5% of participants chose artificial methods as a preferred method. The Japan Geriatrics Society has established guidelines for decision-making process regarding artificial hydration and nutrition (AHN) with the concept of advance care planning, which emphasizes the importance of evaluation of swallowing function before introducing AHN and mentions that withdrawal, as well as administration, should be considered while respecting the well-being of...