**Supplementary Information**

Examination of the impact of strength and velocity of the knee and ankle on gait speed in community-dwelling older adults

Atsuki Kanayama1, Mayuka Minami1, Saki Yamamoto2, Toshimitsu Ohmine3, Minami Fujiwara1, Takayuki Murakami1, Shuji Okuno1, Ryoga Ueba1, and Akira Iwata2\*

1Department of Physical Therapy, Faculty of Comprehensive Rehabilitation, Osaka Prefecture University, 3-7-30 Habikino, Habikino city, Osaka 583-8555, Japan.

2Department of Physical Therapy, Faculty of Rehabilitation, Osaka Metropolitan University, 3-7-30 Habikino, Habikino city, Osaka 583-8555, Japan.

3Division of Physical Therapy, Department of Rehabilitation Sciences, Faculty of Allied Health Sciences, Kansai University of Welfare Sciences, 311-1, Asahigaoka, Kashiwara city, Osaka 582-0026, Japan.

\*iwata@omu.ac.jp

**Material on the reliability of ankle plantar flexion angular velocity.**

**Supplemental Table S1.** Characteristics of the participants.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 　 | mean | ± |  SD | range |
| Characteristic |  |  |  |  |  |  |
|  | Age (years) | 77.0 | ± | 9.0 | 60 | - | 90 |
|  | Sex (M/F) | 4 / 6 |
|  | Height (cm) | 153.3 | ± | 7.6 | 144.0 | - | 166.0 |
|  | Weight (kg) | 57.3 | ± | 12.1 | 41.2 | - | 71.0 |
| Plantar flexion angular velocity (°/s) |  |  |  |  |  |  |
|  | Mesurement 1 | 689.1 | ± | 173.7 | 434.0 | - | 973.6 |
| 　 | Mesurement 2 | 680.7 | ± | 215.2 | 393.0 | - | 1061.6 |

The reliability of plantar flexion angular velocity was confirmed via preliminary experiments performed on 10 older adults. SD: standard deviation, M: male, F: female.

**Supplemental Table S2.** Individual ankle plantar flexion angular velocity data.

|  |  |
| --- | --- |
| 　 | Plantar flexion angular velocity (°/s) |
| 　 | Measurement 1 | Measurement 2 |
| No.1 | 627.566 | 568.915 |
| No.2 | 920.821 | 1002.932 |
| No.3 | 808.797 | 754.105 |
| No.4 | 434.017 | 392.962 |
| No.5 | 973.607 | 1061.583 |
| No.6 | 609.97 | 498.534 |
| No.7 | 721.407 | 639.296 |
| No.8 | 633.431 | 604.105 |
| No.9 | 680.352 | 750.733 |
| No.10 | 480.938 | 533.724 |

Ankle plantar flexion velocity was measured on two different days.

Measurement 1 and 2 are the maximum values measured on day 1 and day 2, respectively.

**Supplemental Table S3.** The intraclass correlation coefficient for the test-retest reliability.

|  |  |  |  |
| --- | --- | --- | --- |
| 　 | ICC (1, 1) | 95% CI | p-value |
| Plantar flexion angular velocity (°/s)  | 0.93 | 0.77 | - | 0.98 | <0.01 |

ICC was 0.93, demonstrating excellent reliability of the measurement of plantar flexion angular velocity.

ICC: intraclass correlation, 95% CI: the 95% confidence interval.