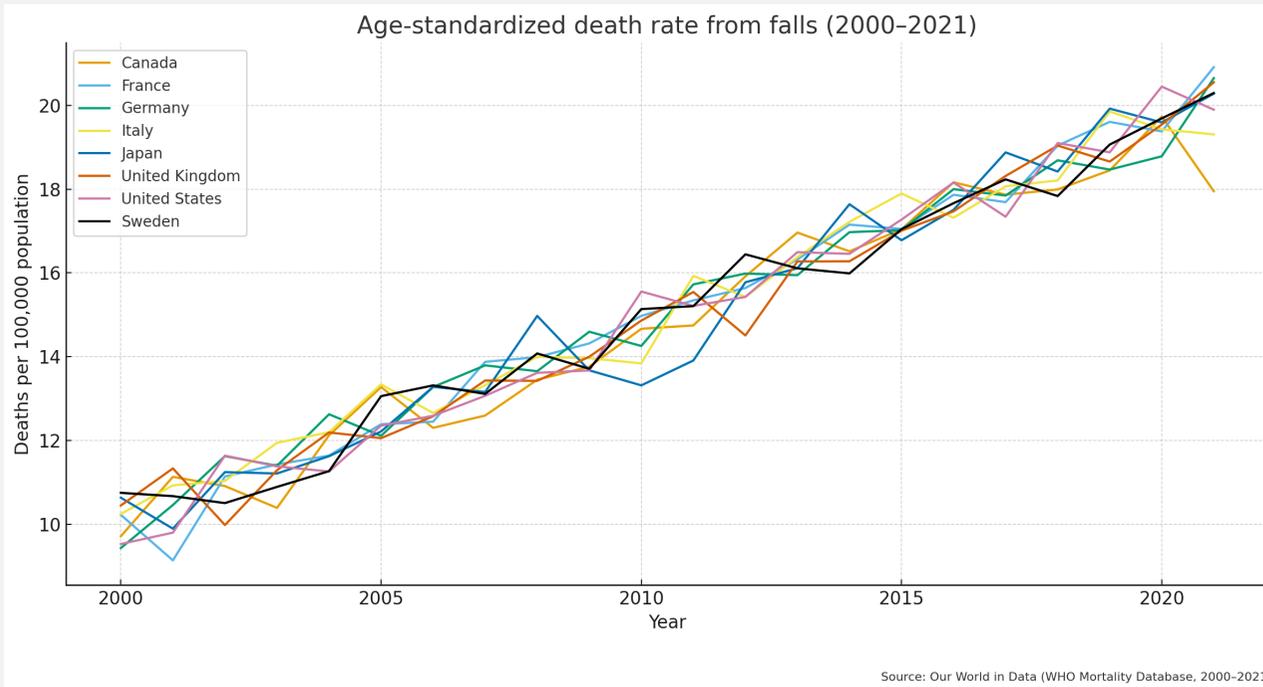


Development of the Japanese Version of the Fall Prevention Assessment Tool “Strömqvist Båathe Falling Competence Test” (SBFC-Test)

INTERNATIONAL CONFERENCE
SAFE FALLING for the ELDERLY through JUDO

University of **UH** **TOKAI** UNIVERSITY **IJF ACADEMY** **JUDOs** judospace.com **DEFIER**

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Fatality rate due to falls G7+Sweden

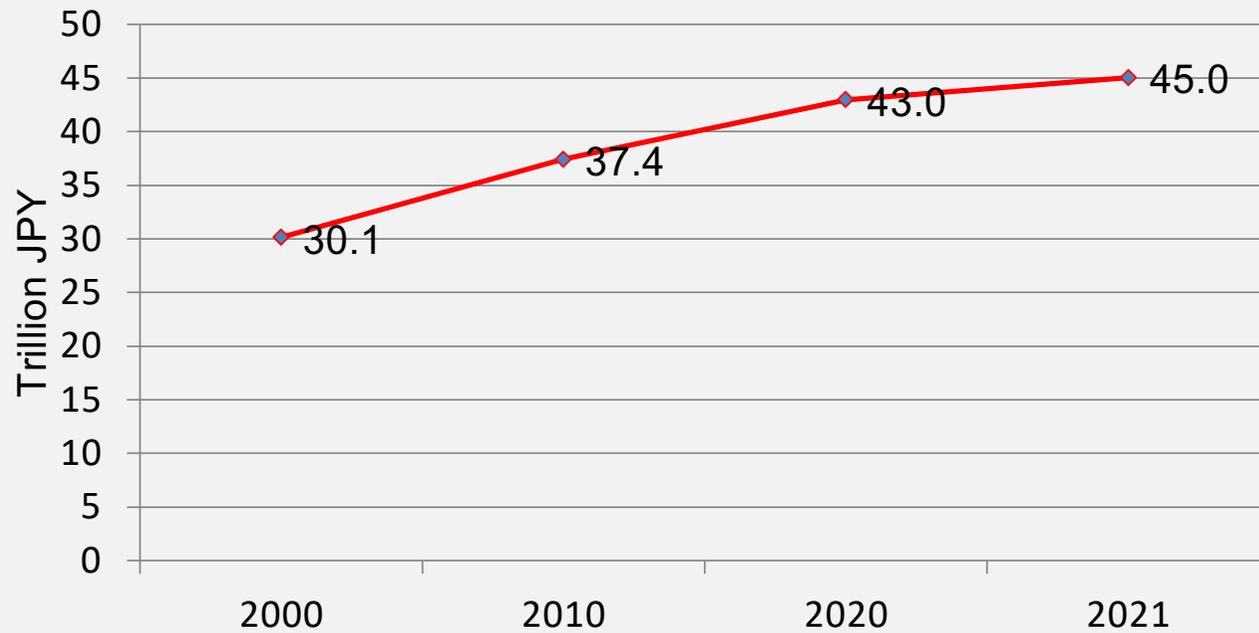
(2000-2021)

Falls-related mortality in G7 + Sweden (2000-2021)

2000 vs 2021 (Deaths per 100k, ratio)

- **Canada: 9.7 → 18.0 (1.8x)**
- **France: 10.2 → 20.9 (2.0x)**
- **Germany: 9.4 → 20.6 (2.2x)**
- **Italy: 10.2 → 19.3 (1.9x)**
- **Japan: 10.6 → 20.3 (1.9x)**
- **United Kingdom: 10.5 → 20.5 (2.0x)**
- **United States: 9.5 → 19.9 (2.1x)**
- **Sweden: 10.8 → 20.3 (1.9x)**

Medical Expenditures (in Trillion JPY)

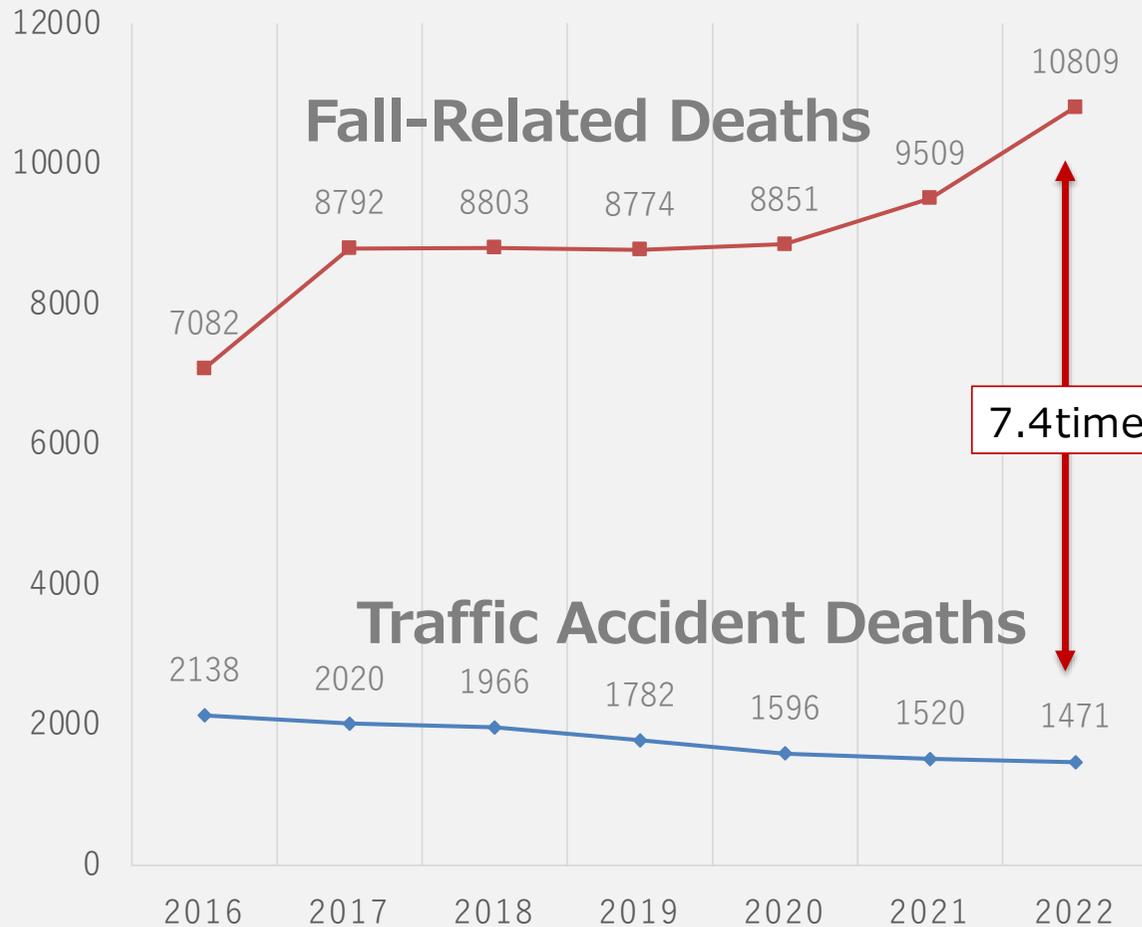


Sources: MHLW 'National Medical Care Expenditure' (FY2000, 2010, 2020, 2021).
Values are official totals in trillion JPY.

Trends in Japan's
National Medical
Expenditures

(2000-2021)

(Number)



Ministry of Health, Labor and Welfare in Japan

Traffic accidents and fall-related deaths among Japanese seniors age 65 and above

Despite the number of traffic accident fatalities decreasing year by year, falls, slips, and falls from height are on the rise, reaching approximately **7.4 times the level of traffic accidents.**

Main Causes for dependance on nursing support or care

	Dependence on nursing support		Dependence on nursing care	
1	Joint disease	19.3	Dementia	23.6
2	Age-related frailty	17.4	Cerebrovascular disease	19.0
3	Fracture/Fall	16.1	Fracture/Fall	13.0

2022 in Japan

- Fractures and falls rank third among causes requiring support or nursing care.
- This increases the risk of developing joint disorders, dementia, and other conditions.



Importance of assessing fall risks and implementing appropriate countermeasures.

- Most tools focus on predicting whether a fall will occur.
- Lacking perspective on damage mitigation (safe falling techniques) .
- Challenges remain in evaluation accuracy and practical applicability in the field.

Pre-fall



Situations where you are able to control your balance during daily life and exercise

Conventional Evaluation

- Prediction of fall occurrence
- Focused on physical factors

Limitations of existing fall risk assessment tools

Lack of sufficient methods to protect the body during a fall.



Insufficient Fall Management Education

Shifting Perspective: From “Not Falling” to “Falling Safely”

- Assessing self-efficacy, physical ability and breakfall skills safely
- A comprehensive tool combining practical evaluation and psychological aspects

Fall Landing



A situation where it is impossible to restore the lost balance and avoid falling

SBFC

- safety even if you fall
- Physical and psychological assessment

Features of Strömqvist Bååthe
Falling Competence
(SBFC)

- Falls as a major cause of fractures and the need for long-term care among the elderly
- Existing assessment tools have focused excessively on predicting fall occurrence
- SBFC focuses on the individual ability to handle falls safely (falling competence)
- Developed in Sweden from research on elderly rehabilitation



– Fall Safety for the Elderly

In Sweden, four people aged 65 or older die every day from falls. Judo-based fall training, along with strength-, coordination- and balance training, can reduce the harmful effects of falls.

Background for the
development of SBFC

“Strömqvist - Bååthe Test” - Measuring Falling Competence - Backwards:

1a) Would you be confident lying down on your back and lifting your head from the mat (tuck your chin in) and put your arms beside you (palms down) and then standing up again?

0.5

YES, SURE (go to 1b - 0.5 points) UNSURE (stop test) NO/REFUSES (stop test)

Points

1b) Performs the exercise – Lies down on the back, lifts the head of the mat, lays arms beside and then stands up again from the floor without help:

1.0

Successful (go to 2a) Cannot lift the head off the mat (stop test)

Points

Cannot get down on the mat (stop test) Cannot get up from the mat independently (stop test)

2a) Would you be confident sitting down on your buttocks (legs forward) and fall backward safely?

1.5

YES, SURE (go to 1b - 0.5 points) UNSURE (stop test) NO/REFUSES (stop test)

Points

2b) Performs the exercise – Falls backward safely from sitting (legs forward) (no instruction given):

Successful (go to 3a) Not rolling up with legs (stop test) Puts down hand/hands (stop test) Puts down elbow/lower arm/s (stop test) Does not hold up the head (stop test)

2.0

Other injury prone maneuver: (stop test)

Points

3a) Would you be confident falling backwards safely from a squatting position?

YES, SURE (go to 1b - 0.5 points) UNSURE (stop test) NO/REFUSES (stop test)

2.5

Points

3b) Performs the exercise – Falls backward safely from squatting (no instruction given):

Successful (go to 4a) Not rolling up with legs (stop test) Puts down hand/hands (stop test)

Puts down elbow/lower arm/s (stop test) Not holding up head (stop test)

Other injury prone maneuver: (stop test)

3.0

Points

4a) Would you be confident falling backwards safely from a standing position?

YES, SURE (go to 1b - 0.5 points) UNSURE (stop test) NO/REFUSES (stop test)

3.5

Points

4b) Performs the exercise – Falls backward safely from standing (no instruction given):

Successful (= 4p) Does not bend knees (stop test) Not rolling up with legs (stop test) Puts
down hand/hands (stop test) Puts down elbow/lower arm (stop test)

Does not hold up head (stop test) "Crawling" instead of rolling backwards (stop test)

Other injury prone maneuver: (stop test)

4.0

Points

TOTAL POINTS BACKWARD FALL _____ (SCORE 0-4)

"Strömquist-Bååthe Test" for measuring Falling Competence Backwards, Sideways & Forward: Copyright: K.

Strömquist Bååthe & M. Tonkonogi, University of Dalarna, developed 2018 - 2019. [English translation May 2023.](#)

Tests may be used free of charge by trained test leaders with the acknowledgement of the correct test name as well as simple registration of the use by e-mail to: ksb@du.se stating: when and how the test will be used as well as name of point of contact, e-mail and name of institution/club/company

Components of SBFC

- **Skill in falling techniques (backward, sideways, forward)**
- **0 to 4-point scale evaluation for each direction**
- **Self-efficacy (level of confidence) is also measured**

The Significance of Japanese Version Development

- **Tools suitable for Japan's elderly population are needed**
- **Translation and adaptation aligned with cultural and physical activity habits**
- **Verification of validity and reliability remains a future challenge**

Beaton DE, et al. Spine. 2000.

Necessity of SBFC

Research Phase:

Translation

→ **Validity Verification**

→ **Intervention Study**

1. Translation

The English version verified by the University of Adelaide was translated by three individuals with judo expertise (7th dan, 4th dan, 2nd dan) and experience in English translation.

We collaborated to adjust the Japanese version while mutually comparing cultural and linguistic nuances.

2. Validity Verification

Subjects:

72 elderly individuals aged 65 and older
(mean age 69.3 ± 4.5)

Method:

Administered the Japanese version (backward translation) item by item with explanations provided during responses.

Methods

Research Phase

- **Clinical Application:**
Utilization in nursing facilities and community senior classes,
Integration with fall prevention programs

1. Exercise intervention

Subjects: 72 elderly individuals participating in the fall prevention program

Dates: June 30, July 7, 14, 28, and August 4, 2025 (5 sessions total)

Duration: 90 minutes

Content: Implementation of a 5-session fall prevention program utilizing judo techniques

Participants completed the SBFC (backwards) questionnaire before attending the first session. They completed the SBFC (backwards) questionnaire again after the fifth session. Results from the first SBFC were compared with results from the fifth SBFC.

Methods

**Clinical
Application**

“Strömqvist – Båathe Test” (SBT) 転倒能力評価テスト – 後方 –

1a) 仰向けの状態になり床から頭を上げ（あごを引いて）、腕は体の横に（手のひらは下）して、その後、再び立ち上がることが十分にできると思いますか？

はい、十分にできます（1bの質問へ－0.5点） 不安です（中止） できません/やめておきます（中止）

0.5

Points

1b) 運動の実施 – 仰向けに寝転がりマットから頭を上げ、腕は体の横にして、補助なしで床から再び立ち上がる –

できた（2aに進む） 床から頭を上げることができない（中止）
 床に横たわることができない（中止） 床から一人で立ち上がることができない（中止）

1.0

Points

2a) 長座（お尻をついて脚を伸ばした状態）で安全に後ろに転がるのが十分に出来ると思いますか？

はい、十分にできます（2bに進む－0.5点） 不安です（中止） できません/やめておきます（中止）

1.5

Points

2b) 運動の実施 – 長座から後ろに転がる（指示なし）

できた（3aに進む） 脚を巻き上げない（中止） 片手もしくは両手をつく（中止）
 片肘/前腕もしくは両肘/前腕をつく（中止） 頭を上げることができない（中止）
 ケガのリスクがある動作をする（中止）

2.0

Points

Japanese version

3a)しゃがんだ状態から安全に後ろに転がる事が十分に出来ると思いますか？

はい、十分にできます (3bに進む-0.5点) 不安です (中止) できません/やめておきます (中止)

2.5

Points

3b) 運動の実施 -スクワット姿勢から安全に後ろに転がる (指示なし) :

できた (3aに進む) 脚を巻き上げない (中止) 片手もしくは両手をつく (中止)
片肘/前腕もしくは両肘/前腕をつく (中止) 頭を上げることができない (中止)
ケガのリスクがある動作をする (中止)

3.0

Points

4a) 立った状態から安全に後ろに転がる事が十分に出来ると思いますか？

はい、十分にできます (4bに進む-0.5点) 不安です (中止) できません/やめておきます (中止)

3.5

Points

4b) 運動の実施 -立った状態から安全に後ろに転がる (指示なし)

できた (4点) 膝を曲げない (テスト中止) 脚を巻き上げない (テスト中止)
片手もしくは両手をつく (テスト中止) 片肘/前腕もしくは両肘/前腕をつく (テスト中止)
頭を上げることができない (テスト中止) 後ろに転がる代わりに腹ばいになる (テスト中止)
ケガのリスクがある動作をする (テスト中止)

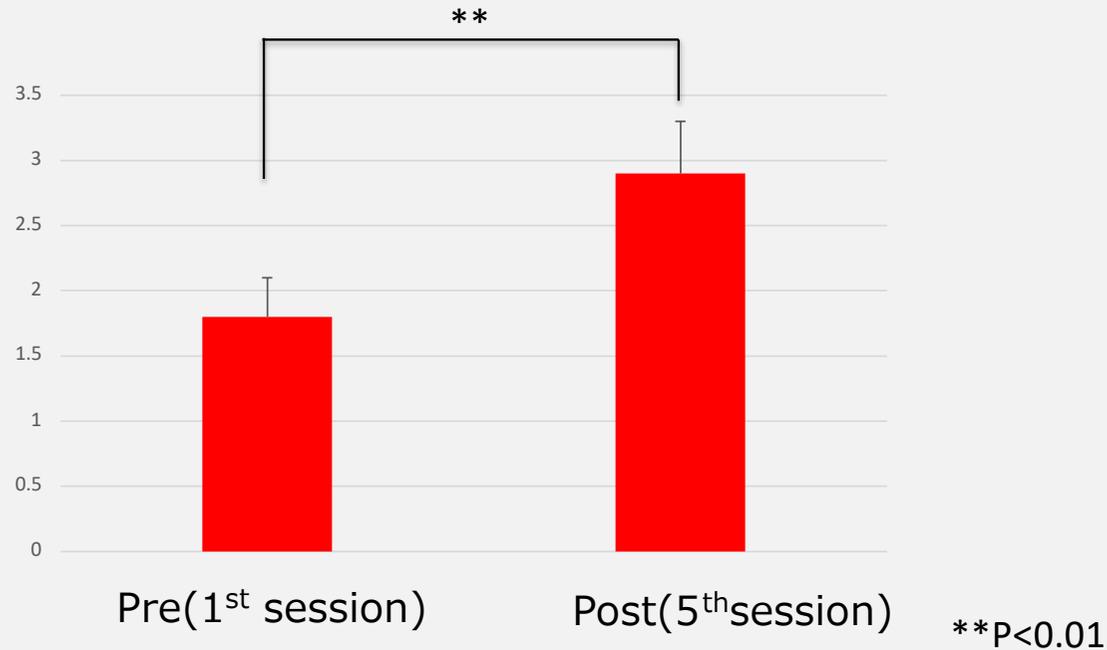
4.0

Points

後方への転倒の合計ポイント _____ (スコア 0-4)



Scenes from a Fall Prevention Class



Pre : Ave. Score 1.8 ± 0.3

Post : Ave. Score 2.9 ± 0.4

Pre(1st session)

Having never learned how to fall properly and unable to stabilize their neck, they had a strong fear of rolling backward, resulting in a low SBFC score.

Post(5th session)

The SBFC score significantly increased after completing the program incorporating judo characteristics, enabling evaluation of the fall prevention program's effectiveness.

Results and Discussion

Significant Changes in SBFC Score

- **Preventing falls requires both prevention and harm reduction.**
- **SBFC is a useful assessment tool that offers a new perspective.**
- **Therefore the development of a Japanese version holds significant academic and practical value.**
- **Developing programs with fall management in mind is now an urgent priority.**

Conclusions

1. Strömqvist Bååthe K, et al. Eur Rev Aging Phys Act. 2020.
2. Strömqvist Bååthe K, et al. BMC Geriatr. 2021.
3. Beaton DE, et al. Spine. 2000.
4. Sherrington C, et al. Br J Sports Med. 2017.

Thank you.

