# Traumatic Brain Injury Prevention Strategies for Older Adults

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# Disclosures

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The content of this presentation is solely my responsibility and does not necessarily represent the official views of the National Institutes of Health, the Department of Veterans Affairs, or the United States government.

# Background

Falls are a common cause of traumatic brain injury (TBI) in older adults

| Age | 65-74 | 75-84 | 85+ |
|---|---|---|---|
| Percent of TBI caused by falls | 55% | 73% | 85% |

*Dams-O'Connor K. J Neurotrauma 2013;30:2001-2013*

# Opportunities for prevention

Fall → Impact → Injury

# Prevention of falls

Exercise (recommended by US Preventive Services Task Force)

- 15% relative reduction in falls in randomized trials
  - Supervised individual or group classes, physical therapy
  - Often include gait, balance and functional training
  - Typically, 2-3 sessions/week x 12 months
  - Virtually all studies in person

Research agenda: How to make exercise more accessible and enjoyable

*Nicholson WK. JAMA 2024;332:51-57; Guirguis-Blake JM. JAMA 2024;332:58-69*
*Delbaere K. BMJ 2021;372:n740. Tejeda CJ. AMIA Annu Symp Proc 2023;699-708.*

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# Prevention of head impact upon falling

Continuous video recording of common areas in long-term care facilities provides insights into "landing patterns" of falls

- Head most vulnerable to injury upon impact: 40% injury probability

Holding weight-bearing objects during fall reduced odds of head impact by one-half to two-thirds

- Chairs/wheelchairs, tables/counters, regular/rolling walkers

Research agenda: Making assistive devices more friendly and convenient to use

*Komisar V. BMC Geriatr 2022;22:343. Komisar V. J Gerontol Med Sci 2021;76:1463-1470.*

# Prevention of injury upon impact

Strong associations between antithrombotic use and incident subdural hematoma (a source of TBI)

- Over past two decades, marked rise in use of antithrombotic (anticoagulant and antiplatelet) medication

Research agenda: how and when to de-escalate (or never start) antithrombotic therapy as risk/benefit ratio becomes unfavorable

- ↓ duration of dual antiplatelet therapy after percutaneous coronary intervention

- Using holistic outcomes in trials of anticoagulation for atrial fibrillation to determine true net benefit

*Gaist D. JAMA 2017;317:836-846. Geller AI. Thromb Res. 2023;225:110-115. Troy A. JAMA Health Forum. 2021;2(7):e211693. Ijaz SH. Curr Probl Cardiol. 2023;48(5):101608. Shah SJ. NEJM Evidence 2022;1(3)*

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# Understanding who is at risk

Better prediction of risk for fall-related TBI could target risk reduction to those most in need

- Depends on accurately measuring risk factors for falls, head impact, and injury upon impact

Currently, limited prediction tools at point of care

- HAS-BLED for bleeding risk

Research agenda : how to integrate existing data sources for better prediction of TBI risk

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# Thank you!

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