Policy to Practice: Falls in Adults with Intellectual Disabilities

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Outline

- Prevalence of falls
- Risk factors for falls
- Evidence-based fall intervention programs
- Practical applications
- Policy recommendations
What is a fall?

- Definition of a fall varies across studies
- Commonly used:
  - “An unexpected event in which the participant comes to rest on the ground, floor, or lower level.” (Lamb et al., 2005)
  - “A sudden unintentional change in position causing an individual to land at a lower level, on an object, the floor, or the ground, other than a consequence of a sudden onset of paralysis, epileptic seizure, or overwhelming external forces.” (Tinetti et al., 1997)
Types of Falls and Definition

Recurrent (Repeat) Falls
- 2 or more falls in a set time frame

Frequent fallers
- Fallers who have 2 or more falls in a set time frame

Injurious Falls
- Falls that require medical attention
  - Ranges from cuts, fracture, contusions, or head/spinal cord injury
Falls among Adults with ID

- 50-60% of injuries reported in people with ID are due to falls (Hsieh et al., 2001; Sherrard et al., 2004)

- Injury-related visits to ED and hospital admissions in persons with ID are primarily due to falls (Wang et al., 2002)

- Injury due to falls represents one of the leading causes of liability claims against group homes and other care providers (Tidelksaar, 2007)

- 1.7-3.3 times higher in fractures than the general population and falls are the most common cause (Tannenbaum et al 1989; Lohiya et al. 1999)
Falls among Adults with ID (continued)

- Higher rates of osteoporosis, vitamin D deficiency, poor nutrition and sedentary lifestyle increase risk of injury following a fall (Schrager, 2006; Vanlint & Nugent, 2006; Robertson et al, 2000)

- 5-22% of injurious falls are serious.

- Most studies on falls conducted in residential settings with small samples.
Results of Baseline Data from the Longitudinal Health and Intellectual Disability Study (LHIDS)

Survey Question of Falls in LHIDS

- How many falls has the person with ID experienced in the past 12 months?

(A fall is a sudden unintentional change in position causing an individual to land at a lower level, on an object, the floor, or the ground, other than a consequence of a sudden onset of paralysis, epileptic seizure, or overwhelming external forces.)
Prevalence of Falls: LHIDS vs. General Population

Source: Verma et al. Falls and fall-related injuries among community-dwelling adults in the United States.
Fallers and Recurrent Falls

Number of Falls in the Past 12 Months

Percent of Fallers

- One fall: 42%
- 2 falls: 20%
- 3 falls: 13%
- ≥4 falls: 25%

Number of Falls in the Past 12 Months
Fallers Required Medical Care

Age Group

- 18 - 44
- 45 - 64
- 65 & older

Percent of Fallers

- 21
- 27
- 46
Prevalence of Falls by Age Group & Sex

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-44</td>
<td>16.9</td>
<td>25.6</td>
</tr>
<tr>
<td>45-64</td>
<td>26.0</td>
<td>38.0</td>
</tr>
<tr>
<td>65 &amp; older</td>
<td>37.1</td>
<td>48.4</td>
</tr>
</tbody>
</table>
Prevalence of Falls by Diagnosis

<table>
<thead>
<tr>
<th>Diagnosis Group</th>
<th>Percent of Falls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerebral Palsy</td>
<td>40.8</td>
</tr>
<tr>
<td>Down Syndrome</td>
<td>19.0</td>
</tr>
<tr>
<td>Autism</td>
<td>15.5</td>
</tr>
<tr>
<td>ID only</td>
<td>26.5</td>
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</tbody>
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Multivariate Logistic Regression: Final Model

Outcome = occurrence of falls in the past 12 months

Independent variables: **Demographic Factors** (age, sex, level of ID, cerebral palsy, Down syndrome), **Medical Factors** (chronic health conditions, functional limitations), & **Physical Activity Factors** (Special Olympics participation)

Significant risk factors:

<table>
<thead>
<tr>
<th>Full Sample (N = 1,515)</th>
<th>Sample without seizure (N = 1,225)</th>
</tr>
</thead>
<tbody>
<tr>
<td>✅ Female (OR = 1.44)</td>
<td>✅ Female (OR = 1.44)</td>
</tr>
<tr>
<td>✅ Arthritis (OR = 1.75)</td>
<td>✅ Level of ID (OR = 1.30)</td>
</tr>
<tr>
<td>✅ Seizure disorder (OR = 1.94)</td>
<td>✅ Arthritis (OR = 1.83)</td>
</tr>
<tr>
<td>✅ Use of walking aids (OR = 2.89)</td>
<td>✅ Heart condition (OR = 1.97)</td>
</tr>
<tr>
<td>✅ Difficulty lifting/carrying &gt; 10 lb (OR = 1.94)</td>
<td>✅ Back pain (OR = 2.01)</td>
</tr>
<tr>
<td>✅ Polypharmacy (OR = 1.78)</td>
<td>✅ Urinary incontinence (OR = 2.06)</td>
</tr>
<tr>
<td></td>
<td>✅ Use of walking aids (OR = 3.0)</td>
</tr>
<tr>
<td></td>
<td>✅ Difficulty walking 3 blocks (OR = 2.12)</td>
</tr>
</tbody>
</table>
Risk Factors of Falls Among Adults with ID Living in the Community

- **Demographic**
  - Age
  - Female
  - Cerebral palsy

- **Psychological**
  - Fear of falling
  - Severity of ID
  - Maladaptive behavior

- **Cognitive Function**
  - Use of walking aids
  - Impaired movement
  - Abnormal gait/balance

- **Physical Function**
  - Low muscle strength
  - Attention problem

- **Extrinsic Factors**
  - Weather
    - Environmental: bad lighting, flooring
  - Unsafe footwear

- **Medication**
  - Polypharmacy
  - Anticonvulsant

- **Health Conditions**
  - Seizures/epilepsy
  - Arthritis
  - Back pain
  - Urinary incontinence
  - Foot pain/discomfort

- **Medication**
  - Poor vision

- **Extrinsic Factors**
  - Impaired movement

- **Maladaptive Behavior**
  - Hyperactivity-impulsiveness
Practical Applications

James Rimmer, Ph.D., and William Neumeier, PhD
University of Alabama at Birmingham
Fig. 2. Conceptual model of balance and gait capacities during the lifespan of persons with ID and controls. Independent walking is an example of a motor milestone which is reached at higher age in ID than in controls.

Strength Assessment

- 30-second chair stand test
Balance Assessments

- Timed up and go test

- Four scale balance test
Core Elements of Evidence-Based Falls Prevention Interventions

Stepping On (Seven weekly 2-hour program sessions, a group workshop and individualized follow up)
- Improving lower limb balance and strength, improving environmental and behavioral safety in both the home and community, and encouraging vision and medical screenings to check for poor vision and possible medication problems.

Tai Chi: Moving for Better Balance (one-hour, 2-3 times/week for 12 weeks)
- Using the classical Yang style (24 forms): multidirectional weight shifting, body alignment, and coordinated movement of arms, legs, and trunk
- The Y is able to scale the program through a YMCA instructor delivery network in Moving For Better Balance: This program uses 8 modified forms of Tai Chi instead of the 24 used in the study intervention.

The Otago Exercise Program (30 minutes exercise x 3/week + walk x 2 for one year)
- A PT delivers a home exercise program + monthly telephone calls
- An individually tailored program of muscle-strengthening and balance-retraining exercises of increasing difficulty, combined with a walking program.

Music-Based Multitask Exercise program (a one-hour class/week for 6 months)
- Experienced instructors lead a one-hour class of modified Jaques-Dalcroze eurhythmics.
Selected Evidence-Based Falls Prevention Programs

- Stepping On
  [https://wihealthyaging.org/stepping-on](https://wihealthyaging.org/stepping-on)

- Tai Chi: Moving for Better Balance
  [http://tjqmbb.org/](http://tjqmbb.org/) or contact local YMCA

- The Otago Exercise Program

- Music-Based Multitask Exercise program
  [http://www.dalcrozeusa.org/](http://www.dalcrozeusa.org/) & Andrea.Trombetti@hcuge.ch


National Expert Panel on Physical Activity

- For older adults at risk of falling, strong evidence exists that regular physical activity is safe and reduces falls by about 30%.

- Most evidence supports a program of exercise with the following characteristics: 3 times per week of balance training and moderate intensity muscle-strengthening activities for 30 minutes per session and with additional encouragement to participate in moderate intensity walking activities 2 or more times per week for 30 minutes per session.

- Some evidence, albeit less consistent, suggests that tai chi exercises also reduces falls.

Source: [Https://health.gov/paguidelines/pdf/paguide.pdf](Https://health.gov/paguidelines/pdf/paguide.pdf)
Martial Arts To Reduce Falls Risk
Martial Arts to Reduce Falls: A Case Story

Participated in a martial arts club at a local university for 2+ years

Video from a regional test

Play Video 1

https://youtu.be/ONYn0Z30Z_k
Potential benefits of martial arts

- Physical fitness
  - Power, speed, strength, reaction speed
- Learning to fall
  - Rolling and dropping
- Mentality
  - Confidence, self-efficacy, awareness
- Setting
  - Individualized attention adapted to individual’s level of ability and performance
Exercises that can be implemented *today*

- **Posture assessment**
- **Seated exercises**
  - Sitting upright, shifting weight, muscle contractions, leg extensions, etc.
- **Supported exercises**
  - Using a chair, or railing to perform lower body and core exercises (e.g., squats)
- **General fitness promotion (assess risk before beginning)**

Links to information and exercises to prevent falls:

[http://www.nchpad.org/388/2139/Don~t~Get~Tripped~Up~~The~Role~of~Fitness~in~Fall~Prevention](http://www.nchpad.org/388/2139/Don~t~Get~Tripped~Up~~The~Role~of~Fitness~in~Fall~Prevention)

[http://www.nchpad.org/1078/5494/Senior~Corner~~ABC~s~of~Balance](http://www.nchpad.org/1078/5494/Senior~Corner~~ABC~s~of~Balance)
What’s the Problem?

- Many interventions found to be effective, including falls prevention programs, fail to translate into meaningful practice outcomes across multiple contexts.

- What’s discovered to be effective in one setting may not generalize to new settings – the ‘devil is in the context.’

- Successful adapted falls prevents programs may never be identified from one community to another.

- Nothing is archived, synthesized (systematically) and used in future iterations.
Do you get enough?

New Funding Cycle
2016-2021
NCHPAD’s Overarching Goal

Bridging the Gap

Community Health Inclusion

Disability Community

World of Public Health
NCHPAD Knowledge Adaptation, Translation and Scale up (N-KATS) Framework
Practice & Policy Recommendations

JESSICA A. MINOR, MPP, AUCD AND CHRISTINE M. GROSSO, MS, AUCD
Strategies

Helping to set the stage for proper policy implementation

- Partnerships with state-based falls prevention coalitions and the ID community
- Education to caregivers
- Reduce environmental factors
- Provide interventions that improve balance and strength
- Identify more specific research
- Create culturally and linguistically competent care
Policy Recommendations

1. Addition of language:
   - Medicare Part D
   - Older Americans Act

2. Falls prevention programming needs to be addressed within HCBS and MLTSS programs.

3. Request additional funding from the Prevention and Public Health Trust fund.
Additional Needs for Falls Prevention

- Falls risk assessment
- NIDILRR should invest more in research to adapt, test, and translate existing evidence-based falls prevention programs for people with ID
  - Medicaid Incentives for Prevention of Chronic Diseases program
Acknowledgements

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Visit our websites:
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http://rrtcadd.org/

Building Healthy Inclusive Communities
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http://www.nchpad.org/