Embedding Older Adult Fall Prevention: Working with Community Partners to Leverage Resources

Sallie Thoreson, MS
Injury, Suicide and Violence Prevention Program

Lee Gelatt Photography
Falls are NOT “just a part of aging”
Falls are an important public health issue

In Colorado:

- 1 of 3 people 65+ fall every year.
- 1 of 5 older adults went to emergency room for a fall injury.
- 1 in 70 older adults were hospitalized for a fall-related injury.
- The average hospital stay is over $30,000.
Falls Pyramid, 2014
Colorado Residents, 65+ Years Old

- 670 deaths
- 9,200 hospitalizations
- 20,500 Emergency Dept. visits

Higher severity of injury

Larger numbers

Rounded numbers
Fall Death Rates by Sex, Colorado Residents Aged 65+, 2000-2014

Rate per 100,000

Year

CoHID, 2000-2014
Fall Hospitalization Rates by Sex, Colorado Residents Aged 65+, 2000-2014

CoHID, 2000-2014
CDPHE Workplan:
develop and implement evidence-based programs for fall prevention

Colorado older adults and/or adults with disabilities participate in evidence-based community programs to prevent falls

- Recruit hospitals to embed the programs
- Recruit organizations (Parks & Rec, etc.)
- Hold regional trainings of evidence-based programs
- Ensure program reach around the state

Sustainability

- Embed programs within organizations/agencies
- Secure innovate and sustainable funding arrangements to support these programs
Fall Prevention takes a village

- Public Health
- Medical providers
- Community partners

Fall Prevention
Why use Evidence-based Programs?

- Funders require it
- Agencies want proven results
- Implementers like “packaged” programs
- Older adults want programs that work
- Health insurers require proof
What is Evidence-Based?

- Programs that are known to work:
  - Through research
  - With evaluation
  - Measured outcomes
  - Have been replicated
  - Key elements identified
“Up to 42% of falls can be prevented by well-designed exercise programs”
Tai Chi Moving for Better Balance

Group exercise program
Focused on increasing functional ability (balance and physical function)
One hour classes delivered by an instructor
Standard program: 24 hrs over 12 weeks + homework
Ideal class size 15
For older adults aged 60 and older, who can walk easily with or without assistive devices
Evidence: 55% reduction of fall risk
Similar program is Tai Chi for Arthritis
Stepping On

Group class addressing all aspects of falls prevention

Exercise and progression of exercise is key

Seven weekly 2-hour program sessions

Led by healthcare professional or professionals within aging services

Includes guest experts

Evidence: 30% reduction in falls

Similar program is Matter of Balance
Stepping On, Colorado experience

State Health Dept and hospital system coordination

- Long standing relationship in injury prevention between CDPHE and Trauma Nurse Coordinators
- The TNCs from the Centura and HealthONE and UHealth key hospitals were excited about implementing a packaged evidence-based fall prevention program
- The TNCs get buy-in from their administration to make SO a program that ALL trauma centers in their systems will support.
Guidelines

- Partners set program price, marketing, recruitment
- Partners hold Stepping On license
- Partners embed programs within their agencies

- Provide training, start-up costs
- Provide technical assistance
- Coordinate the data collection
- Provide data feedback
Stepping On, Colorado experience

SO implementation

- Staff at each system became Master Trainers for SO
- Staff are running SO leader trainings and coordinating workshops at 26 hospitals with over 90 classes
- All hospitals participate with CDPHE in data collection
- SO has sustainability due to hospital lead and shared vision of the value of SO
Stepping On locations
Stepping On challenges, Colorado experience

Trauma center staff (emergency department nurses) are extremely busy and can not commit to offer large number of classes

Small hospitals, not affiliated with Centura or HealthONE, has difficulty getting buy-in from administration to put staffing and financial resources into Stepping On
Tai Chi: Moving for Better Balance, Colorado experience

- Initial emphasis has been on embedding TCMBB in local Parks and Rec department and Senior Centers
- Other locations are wellness centers at hospitals and one AAA
- One hospital running Stepping On is adding a TCMBB class, through wellness center, to capitalize on SO “graduates” who want to do more
- So far, half of the 20 P&R districts/agencies in the Denver Metro area are offering TCMBB and eight locations in other parts of the state.
Tai Chi: Moving for Better Balance (TCMBB) challenges, Colorado experience

- Most Parks and Rec need to charge for 12 week session, so not always affordable
- Partners may be reluctant to run a 12 week classes. We can show them participants will come, and that fidelity is important to get the fall prevention benefit
- Success in each agency helps sell the program to others
- Difficult to find locations to take on TCMBB in smaller communities with small, or non existent, recreation facilities
- Starting to branch out to independent living facilities and figuring out how to share costs
Informal Agreements

- Approval for official MOUs difficult to get
- Letter of commitment may be used
- Buy-in available at “lower level”
- Allows for creativity
- BUT may not be sustainable if personnel/focus changes
Tai Chi: Moving for Better Balance
Classes work in Colorado
Between Sept 2013 and August 2014

41 classes 580 older adults 15 different sites

Who took the classes?*

76% were female
Ave age is 72
44% were 65-74
28% were 75-84
14% were 85+
95% were White
3% were Hispanic
2% were Asian
61% attended 17-24 sessions

Benefits of the classes*

1) Confidence/Focus
2) Balance/Stability
3) More Activity

Top 3 benefits reported by older adults: 58%
who started out at-risk for falls,
moved out of that category, based
on the Timed Up and Go mobility
test

90% would recommend to friend/family
99% reported class will help prevent future falls
41% talked to doctor about program

* Data based on participant surveys and assessments collected at the classes
for more information, contact sallie.tobleson@state.co.us
970-248-7161

COLORADO
Department of Public Health & Environment
Stepping On fall prevention programs are making a difference in Colorado

Over 280 older adults participated in Stepping On workshops in Colorado in 2013-2014. Stepping On includes exercising and group problem-solving discussions about how to prevent falls.

99% said the class will help them prevent future falls. 93% left the class feeling confident they can keep from falling.

Typical responses were:

- I’m getting an eye exam
- We’re going to the Rec Center
- I’m making changes in my home!

Who is participating:

- 50% are over age 75
- 8% are Hispanic/Latino
- 73% are female
- 5% are Black

Results

- 39% moved out of the falls at-risk category using the Timed Up and Go mobility test

* Data based on participant surveys collected at the classes

Group icon made by Freepik from www.flaticon.com

This project was supported, in part, by Colorado Department of Public Health and Environment grant from the Centers for Disease Control and Prevention
Next steps: Formal Agreements

- Health systems/payors need to see Return on Investment
- High level buy-in needed for financing and long-term sustainability
- Can start to set standards for reach
- Coordination between departments/focus within each system
Fall prevention programs for older adults work!
Older adult fall prevention

BACKGROUND AND SOLUTIONS FOR HOUSING PROFESSIONALS IN COLORADO

Sallie Thoreson
Falls are an important public health issue

- 1 of 3 people 65+ fall every year.
- 1 of 5 falls causes a serious injury.
- The average hospital stay is over $30,000.
Age-adjusted Rate of Unintentional Fall Injury Deaths by Sex, Colorado Residents Age 65+, 2007-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Male</th>
<th>Female</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>98.0</td>
<td>66.4</td>
<td>98.0</td>
</tr>
<tr>
<td>2015</td>
<td>126.5</td>
<td>98.0</td>
<td>126.5</td>
</tr>
</tbody>
</table>
Age-specific Rate of Unintentional Fall Injury Deaths by Age Group, Colorado Residents Age 65+, 2007-2015
Age-adjusted Rate of Unintentional Nonfatal Fall Hospitalizations by Sex, Colorado Residents Age 65+, 2007-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Male Rate</th>
<th>Female Rate</th>
<th>Total Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>1,466.9</td>
<td>947.9</td>
<td>1,914.8</td>
</tr>
<tr>
<td>2008</td>
<td>1,400.1</td>
<td>880.2</td>
<td>2,280.3</td>
</tr>
<tr>
<td>2009</td>
<td>1,343.4</td>
<td>820.5</td>
<td>2,163.9</td>
</tr>
<tr>
<td>2010</td>
<td>1,286.7</td>
<td>761.8</td>
<td>2,048.5</td>
</tr>
<tr>
<td>2011</td>
<td>1,230.0</td>
<td>703.1</td>
<td>1,933.1</td>
</tr>
<tr>
<td>2012</td>
<td>1,173.3</td>
<td>644.4</td>
<td>1,817.7</td>
</tr>
<tr>
<td>2013</td>
<td>1,116.6</td>
<td>585.7</td>
<td>1,662.3</td>
</tr>
<tr>
<td>2014</td>
<td>1,060.0</td>
<td>527.0</td>
<td>1,587.0</td>
</tr>
<tr>
<td>2015</td>
<td>1,003.3</td>
<td>468.3</td>
<td>1,471.6</td>
</tr>
</tbody>
</table>
Percent of Unintentional Nonfatal Fall Hospitalizations by Discharge Disposition, Colorado Residents Age 65+, 2015

- Discharged to skilled nursing facility
- Discharged home with home health care services
- Routine discharge to home
- Other discharge type

All Hospitalized Falls
Self-Reported Falls in the Past 12 Months by Selected Chronic Health Conditions, Colorado Residents Age 65+, 2014

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis</td>
<td>31.7%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>33.9%</td>
</tr>
<tr>
<td>Asthma</td>
<td>35.4%</td>
</tr>
<tr>
<td>Stroke</td>
<td>42.2%</td>
</tr>
</tbody>
</table>
Falls Pyramid, 2015
Colorado Residents, 65+ Years Old

728 deaths

8,200 hospitalizations

20,460 Emergency Dept. visits

Rounded numbers
Falls are an important community issue

- Fall prevention solutions are in the community
- Locations for programs are in the community
- Fear of falling and other barriers keep older adults from being active
- Active older adults benefit the community
Fear of falling

- 29-77% of community dwellers
- Can lead to spiraling effects
  - Functional decline
  - Decreased motivation
  - Decreased perception of capabilities
  - Self-imposed activity restrictions
America is getting older. Fast.

By 2030, 10 states will have more Medicare-eligible seniors than they have school-age children. AARP

In 2030, 1 in every 5 American will be 65 or older. Is your community ready?

38%. The number of non-retirees who say they’ll have enough money to live comfortable when they retire, a new low. Gallup (April 2012)
Year 2000

12%

65+
Year 2050

20%
65+
Fall prevention takes many partners.
How do you engage older adults in fall prevention?
Quiz!

Which group has higher rate of fatal falls — men or women?

Answer: Men 126.5/100,000
  ◦ Women 98/100,000
Fall Prevention Works!

EVIDENCE-BASED PROGRAMS WORK!
What is Evidence-Based?

Programs that are known to work:

- Through research
- With evaluation
- Measured outcomes
- Have been replicated
- Key elements identified
Why use Evidence-based Programs?

- Funders require it
- Agencies want proven results
- Implementers like “packaged” programs
- Older adults want programs that work
Cochrane Review conclusion:

There is clear evidence that falls in older people can be prevented with appropriately designed intervention programs.
Interventions for preventing falls in older people living the community

- Strength and balance exercise programs
- Home safety interventions - for high risk
- Education/exercise interventions
- Individual assessment and treatment
- Medical solutions
  - Vitamin D –for those who are deficient
  - Withdrawal of psychotropic medication
  - Cataract survey and/or pacemaker

Review of Best Practices for Fall Prevention: Exercise

- Exercise as a single intervention is an effective approach

- Include muscle strengthening and balance retraining

- Programs should include:
  - Challenge to balance
  - 50+ hours
  - On-going
Why emphasize exercise?

“the effects of exercise as a single falls prevention intervention are comparable to those from multifaceted interventions. Therefore, widespread implementation of exercise as a single intervention seems to be the best approach to falls prevention at the population level.” (Sherrington, 2008, 2011)
Exercise programs work

- Activities that strengthen your legs and help your balance (like Tai Chi) can help you prevent falls.
- Exercise programs take a commitment, but they are worth it!
“Up to 42% of falls can be prevented by well-designed exercise programs”
What does that mean?

SOME WORK.....
With particular high-risk audiences
With specific intervention elements
With adequate dose

SOME DON’T......
Seated exercises or walking programs
Depends on the audience
Not using a trained provider
Provision of educational materials alone
Evidence-Based Falls Prevention Programs

Tai Chi

- *Tai Chi: Moving for Better Balance*
- *Tai Chi for Arthritis*
- Other Tai Chi programs that
  - Last 12 wks+
  - Work for older adults
  - Progressive and challenging
Benefits of Tai Chi

• leg strength

• sense of awareness (mindfulness)

• better reach

• functional mobility

• mental ability
Evidence-Based Falls Prevention Programs

**Exercise/education**

- *Stepping On*
- *Matter of Balance*
- Addresses fear of falling
- Include exercises
- Covers many fall risks
- Behavioral group intervention
- Problem solving and motivational
Fall prevention classes are the gateway to more active older adults

- At the end of Tai Chi classes, the older adults want to know:
  - Can I take this class again?
  - What other classes can I take now?

- At the end of other fall prevention classes, older adults want to know:
  - What exercise classes can I take now?
  - Where can I go to exercise?
## Results in participation

### Tai Chi: Moving for Better Balance

<table>
<thead>
<tr>
<th>Outcome measures</th>
<th>Our results</th>
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<td>● Older adults will come to the class.</td>
<td>● 70 classes over 32 months.</td>
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<td>● Older adults will stick with a 12 week-class.</td>
<td>● Over 940 participants.</td>
</tr>
<tr>
<td>● Older adults will bring their friends.</td>
<td>● 57% attended at least 70% of the 24 classes.</td>
</tr>
<tr>
<td></td>
<td>● 98% said they would recommend the class.</td>
</tr>
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</table>
Review of Best Practices for Fall Prevention: **Medication management**

- High risk with 4+ medications
- Pharmacists can work with providers on prescribing
- Withdrawal of psychotropic medications is effective
Talk openly with your doctor about fall risks and prevention

Tell your doctor right away if you have fallen, or if you’re afraid you might fall, or if you feel unsteady.

Work together and review all of your medications and discuss any side effects like feeling dizzy or sleepy.

- See if D supplements for improved bone, muscle, and nerve health is right for you.
Review of Best Practices for and Fall Prevention: **Vision**

- Check vision annually
- Home safety programs may be effective for visually impaired
- Cataract survey can prevent falls
- Wear the right glasses for the activity

http://www.aao.org/eyecare-america/read-more
Review of Best Practices for Home Safety and Fall Prevention

- Home safety assessment and modification can be effective, especially
  - for high risk
  - when given by OT

- Make the environment fit your daily life

- Involving the client and family in decision-making is important

http://homemods.org/
Most falls happen at home

Keep your floors clutter free.
Remove small rugs or tape down or secure them.
Add grab bars in the bathroom.
Have handrails and lights installed on all staircases.
Make sure your home has lots of light.

What YOU Can Do
To Prevent Falls

Check for Safety
A Home Fall Prevention Checklist for Older Adults

Stay Independent
Falls are the main reason why older people lose their independence.
Are you at risk?

www.cdc.gov/steadi/patient.html
Take Control of Your Health: 6 Steps to Prevent a Fall

Every 11 seconds, an older adult is seen in an emergency department for a fall-related injury.

Many falls are preventable.
Stay safe with these tips!

1. Find a good balance and exercise program
   Look to build balance, strength, and flexibility. Contact your local Area Agency on Aging for referrals. Find a program you like and take a friend.

2. Talk to your health care provider
   Ask for an assessment of your risk of falling. Share your history of recent falls.

3. Regularly review your medications with your doctor or pharmacist
   Make sure side effects aren’t increasing your risk of falling. Take medications only as prescribed.

4. Get your vision and hearing checked annually and update your eyeglasses
   Your eyes and ears are key to keeping you on your feet.

5. Keep your home safe
   Remove tripping hazards, increase lighting, make stairs safe, and install grab bars in key areas.

6. Talk to your family members
   Enlist their support in taking simple steps to stay safe. Falls are not just a seniors issue.

To learn more, visit ncoa.org/FallsPrevention.

www.ncoa.org/healthy-aging/falls-prevention/
Quiz!

What are 3 messages you can give to older adults on how they can effectively reduce their risk of falls?

Answer: Exercise, medication management, vision check, home safety
Review of Best Practices for Fall Prevention: Education

- No evidence that education-alone is effective
- The message and venues are important
- Use adult learning techniques
- Consider patient perceptions and preferences in decision-making
Location, Location, Location

How to bring programs to residential housing sites

◦ Interest?
◦ Space?
◦ Work with area hospitals and recreation centers
◦ Funding instructors
◦ Getting commitment from older adults
Stepping On and Tai Chi: Moving for Better Balance programs in Colorado

More information on classes available at www.olderadultfallscoalitionco.com
Programs for special audiences

- Matter of Balance for low vision
- Matter of Balance for Spanish speaking
- Stepping On for sensory impairments (hard of hearing and low vision)
- Falls risk assessment screening events
Other Evidence-Based Prevention Programs

**Medication Management**
- HomeMeds
- Pharmacist reviews

**Chronic Disease Self-Management**
- CDSMP
- Tomando Control de su Salud
- Diabetes self management programs

**Mental Health**
- PEARLS
- Healthy IDEAS

www.ncoa.org/center-for-healthy-aging/basics-of-evidence-based-programs/about-evidence-based-programs/
Sallie Thoreson
Injury Prevention Coordinator
Colorado Department of Public Health and Environment
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970-248-7161
Falls Prevention as the Gateway to Active Seniors

Sallie Thoreson
Colorado Department of Public Health and Environment

Maureen Hart
Denver Metro YMCA
Introduction and Needs Identification
Falls are an important public health issue

- 1 of 3 people 65+ fall every year.
- 1 of 5 falls causes a serious injury.
- The average hospital stay is over $30,000.
Fall Death Rates by Sex, US Residents Aged 65+, 2000-2014

#Crude death rates, not age-adjusted.

Falls Pyramid, 2014
Colorado Residents, 65+ Years Old

670 deaths
9,200 hospitalizations
20,500 Emergency Dept. visits

Rounded numbers
Falls are an important COMMUNITY issue

- Fall prevention solutions are in the community
- Locations for programs are in the community
- Fear of falling and other barriers keep older adults from being active
- Active older adults benefit the community
Fear of falling

- 29-77% of community dwellers
- Can lead to spiraling effects
  - Functional decline
  - Decreased motivation
  - Decreased perception of capabilities
  - Self-imposed activity restrictions
America is getting older. Fast.

By 2030, 10 states will have more Medicare-eligible seniors than they have school-age children. AARP

In 2030, 1 in every 5 American will be 65 or older. Is your community ready?

38%. The number of non-retirees who say they’ll have enough money to live comfortable when they retire, a new low.

Gallup (April 2012)
The Silver Tsunami is here!

- Numbers of Older Adults are growing
- Percentage of population over 65 is increasing
- Demand for services and quality of life for older adults is increasing
- Older adults look to local resources that are comfortable and affordable
Projection of Population in 2030, percentage of age 65+, by state
Evidence-based fall prevention programs

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Education + Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Specific to balance and gait</td>
<td>• Address all risk factors for falls</td>
</tr>
<tr>
<td>• Specific sequence and progressive challenge</td>
<td>• Group problem solving</td>
</tr>
<tr>
<td>• Need to run at least 8-12 weeks</td>
<td>• Guided exercises</td>
</tr>
<tr>
<td>• Research shows reduction in falls</td>
<td>• Motivation and support</td>
</tr>
<tr>
<td>• Tai Chi</td>
<td>• Stepping On and Matter of Balance</td>
</tr>
<tr>
<td>• A few others</td>
<td></td>
</tr>
</tbody>
</table>
(NP-P2) Projected Resident Population of the United States as of July 1, 2000, Middle Series.

Year 2000

12% 65+

Source: National Projection Program, Population Division, U.S. Census Bureau, Washington, D.C. 20233
Year 2050

20% 65+
What does this mean for Parks and Recreation?

- More older adults
- More clients due to price point and locations
- Falls prevention is a critical part of older adult programming
Most older adults say they exercise on a frequent basis

- Two-thirds say they exercise at least once a week, including one-third saying they exercise daily; less say they never exercise than did in 2014

**Regular Exercise Frequency**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>60+ 2015</th>
<th>60+ 2014</th>
<th>60+ 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every day</td>
<td>32%</td>
<td>37%</td>
<td>26%</td>
</tr>
<tr>
<td>More than twice a week</td>
<td>34%</td>
<td>21%</td>
<td>28%</td>
</tr>
<tr>
<td>But not everyday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once/twice a week</td>
<td>16%</td>
<td>17%</td>
<td>18%</td>
</tr>
<tr>
<td>Less than once a week</td>
<td></td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>Never</td>
<td>7%</td>
<td>8%</td>
<td>18%</td>
</tr>
</tbody>
</table>

United States of Aging survey [www.ncoa.org/unitedstatesofaging](http://www.ncoa.org/unitedstatesofaging)

*Not showing “don’t know”*

Q40 (For 60+ 2015). How often do you typically exercise or participate in physical activity (e.g., walking, yoga, biking, etc.) for 30 minutes or more?

Q47 (For 60+ 2014). How often do you typically exercise for 30 minutes or more?

Q33 (For 60+ 2013). How often do you typically exercise for 30 minutes or more?
Demonstration of specific exercises that lead to falls prevention
Building blocks of fall prevention

- Knee Flexion
- Knee Extension
- Hip Abduction
- Toe Raises - Dorsiflexion
- Heel Raises - Plantarflexion
Tai Chi exercise progression

Sinking the Chi ➔ Open the Door ➔

Clock Sways ➔ Parting the Horse's Mane ➔

Single Whip ➔ Wave Hands Like Clouds
Know your **BOS** and **COG**

**BOS**: Base Of Support
Where are you in space?

**COG**: Center Of Gravity
Where are you moving to in space?
Kinesiology of balance and gait changes as part of the aging process
Stability- Mobility continuum

- Stability allows for movement in three planes
  - Sagittal, Frontal and Transverse
- Stability allows for changes in speed and direction
  - Agility, Balance and Coordination
- Degradation of stability leads to loss of mobility and movement compensations
- Traditional senior exercise focuses on mobility
- Fall prevention exercise focuses on stability
  - Improvements in mobility, improvements in muscle balance and improvements in joint function
How do we address STABILITY?
Gait and balance exercises that work
Tai Chi Movement's

8 Forms derived from YANGStyle

- Movement symmetry
- Active head movement and trunk rotation
- Bilateral weight shifting
- Control of COG within full limits of stability
- Variable walking/stepping in all three movement planes
- Awareness of changing BOS
- Asymmetrical arm and leg movements promoting arm swing and waist rotation
Cognitive Impact of Tai Chi

- Significant focus/attention
- Spatial-temporal orientation
- Memory
- Executive functioning in addition to deliberate multi-segmental bodily movements and postural demands
Research outcomes of Tai Chi

- Improved Single Leg Stands
- Improved Chair Rise
- Improved Timed Up and Go (TUG) scores
“Up to 42% of falls can be prevented by well-designed exercise programs”
Benefits of Tai Chi

• leg strength

• sense of awareness (mindfulness)

• better reach

• functional mobility

• mental ability

and balance
Strategies for success in falls prevention within parks and recreation
Fall prevention classes are the gateway to more active older adults

- At the end of Tai Chi classes, the older adults want to know:
  - Can I take this class again?
  - What other classes can I take now?

- At the end of other fall prevention classes, older adults want to know:
  - What exercise classes can I take now?
  - Where can I go to exercise?

Local park and rec departments can help!
Fall prevention takes many partners

- Fall Prevention
- Public Health
- Recreation facilities
- Community
How do you engage older adults in fall prevention classes?
# Results in participation

<table>
<thead>
<tr>
<th>Outcome measures</th>
<th>Our results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Older adults will come to the class.</td>
<td>70 classes over 32 months most at parks and recs and Y’s.</td>
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<td>Older adults will stick with a 12 week-class.</td>
<td>Over 940 participants.</td>
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<td>Older adults will bring their friends.</td>
<td>57% attended at least 70% of the 24 classes.</td>
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<td>98% said they would recommend the class.</td>
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### Results of TUG tests

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Our results</th>
</tr>
</thead>
<tbody>
<tr>
<td>● To show that TCMBB classes are effective.</td>
<td>● Of those with high risk, 45% had a final TUG less than 12 seconds.</td>
</tr>
<tr>
<td>● For instructors to use to talk to individual patients. (look how well you did!)</td>
<td>● 46% improved TUG at least 0.5 seconds.</td>
</tr>
<tr>
<td>● For participants to discuss with health care provider.</td>
<td></td>
</tr>
</tbody>
</table>
Results of participant behavior change

**Outcome measures**
- Increase in confidence.
- They will continue taking Tai Chi.
- They will take other classes.
- Instructors report many success stories.

**Results from our survey**
- 91% reported “sure I can increase my physical strength.”
- 90% reported “I can become more steady on my feet.”
- 91% said they reduced their fear of falling.
Bennett Parks and Recreation

BENNETT PARK and RECREATION DI

### 2014 Activity Schedule

**Hours of Operation:** M-Th 6am-8pm, Fri 6am-7pm, Saturday 7am-4pm, Sundays CLOSED

**Kiddy Korral:** M/T/W 8pm—8pm and TH 5pm-7pm

**Kiddy Pool** IS OPEN All Day Everyday!

Continuous pool is available, call to make a reservation.

**LAP SWIM** OPEN M-F 6am – 11am

<table>
<thead>
<tr>
<th>Activity</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Out Town</strong> - Walk 4 Wellness</td>
<td>CARDIO</td>
<td>7:30am</td>
<td>8:30am</td>
<td>7:30am</td>
<td>8:30am</td>
<td></td>
</tr>
<tr>
<td>+ Twist &amp; Shout (Leslie) (G)</td>
<td>WUGEND/BALL</td>
<td>7:30am</td>
<td>8:30am</td>
<td>7:30am</td>
<td>8:30am</td>
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</tr>
<tr>
<td>+ Wake Up and Move it (Leslie)</td>
<td>CARDIO</td>
<td>7:30am</td>
<td>8:30am</td>
<td>7:30am</td>
<td>8:30am</td>
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</tr>
<tr>
<td>+ SilverSneakers Yoga (Leslie) (G)</td>
<td>9:30am</td>
<td>10:30am</td>
<td>9:30am</td>
<td>10:30am</td>
<td>9:30am</td>
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<tr>
<td>+ SilverSweat Mix (Leslie) (G)</td>
<td></td>
<td>9:30am</td>
<td>10:30am</td>
<td>9:30am</td>
<td>10:30am</td>
<td>9:30am</td>
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<tr>
<td><strong>VANCED Tai Chi</strong> (Leslie) (G)</td>
<td>11:00am</td>
<td>11:40am</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>YogaFlow</strong> - Aug 8th – Sept 30th</td>
<td>8:00am</td>
<td>9:00am</td>
<td>8:00am</td>
<td>9:00am</td>
<td>8:00am</td>
<td>9:00am</td>
</tr>
<tr>
<td><strong>Yoga Delight</strong> - Aug 8th – Sept 30th</td>
<td>11:00am</td>
<td>12:00pm</td>
<td>11:00am</td>
<td>12:00pm</td>
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</tbody>
</table>

**NEW Water Aerobics Classes To Start August 8th - September 30th**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Monday</th>
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<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yoga Flow</strong> - Aug 8th – Sept 30th</td>
<td>8:00am</td>
<td>9:00am</td>
<td>8:00am</td>
<td>9:00am</td>
<td>8:00am</td>
<td>9:00am</td>
</tr>
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<td><strong>Yoga Delight</strong> - Aug 8th – Sept 30th</td>
<td>11:00am</td>
<td>12:00pm</td>
<td>11:00am</td>
<td>12:00pm</td>
<td></td>
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</tr>
</tbody>
</table>

**Full Gym Closures AM**

- 7:30-12:00pm
- 7:30-12:00pm
- 7:30-12:00pm
- 7:30-12:00pm
- 7:30-12:00pm
- 7:30-12:00pm

**Full Gym Closures PM**

- 5:30 – Close

**Rec & Card**

- Pay Instructor Directly
- Pay Instructor Directly
- Pay Instructor Directly
- Pay Instructor Directly

**Endless Pool** (Reservation Required)

- 6:00am-7:30pm
- 6:00am-7:30pm
- 6:00am-7:30pm
- 6:00am-7:30pm

**Lap Swim**

- 6:00am-11:00am
- 6:00am-11:00am
- 6:00am-11:00am
- 6:00am-11:00am
- 4:00am-11:00am

**WEBSITE:** WWW.BENNETTREC.ORG

Like us on Facebook!

FREE Personal Training consult is offered with every new or renewed adult membership.

Location: 455 S. First Street, Bennett, Colorado 80102

Phone: 303-644-6040
APEX Parks and Recreation
# Tai Chi programming in Parks and Rec

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can find ways to price the class</td>
<td>Train and maintain instructors</td>
</tr>
<tr>
<td>Can find time/ space to run the class for 12 weeks</td>
<td>Find the right price point</td>
</tr>
<tr>
<td>May bring in new clients</td>
<td>Compete with other older adult programs/ activities</td>
</tr>
<tr>
<td>Keep current clients happy</td>
<td>Stress the commitment to 12 week classes</td>
</tr>
<tr>
<td>Address strategic priorities</td>
<td>Provide marketing effort</td>
</tr>
<tr>
<td>Stand out in the community</td>
<td></td>
</tr>
</tbody>
</table>
Resources for training

- **Tai J Quan**
  - [http://tjqmbb.org/](http://tjqmbb.org/)

- **Tai Chi for Arthritis and Fall Prevention**
  - [http://taichiforhealthinstitute.org/](http://taichiforhealthinstitute.org/)

- **YMCA’s and Moving for Better Balance**
  - [lcdc.yexchange.org](http://lcdc.yexchange.org)
Resources for program development

- **NCOA Resource Center for state contacts**
  - [www.ncoa.org/map/ncoa-map/](http://www.ncoa.org/map/ncoa-map/)

- **Admin. For Community Living grantees**

- **General resources**
  - [http://dataexplorer.aarp.org/](http://dataexplorer.aarp.org/)
  - [www.cdc.gov/HomeandRecreationalSafety/Falls/adultfalls.html](http://www.cdc.gov/HomeandRecreationalSafety/Falls/adultfalls.html)
balance

strength

awareness

moving confidence prevent
walking how-the-body-works afraid understanding
coordination security keep limberness
health independence leg
reboot Learn More react gain
control knowledge calm Reduce
Increase aware able
walk-better limber muscles sure falls
back stretch memory regain fun
good help mobility safe
core body exercise stability
feel keep-from-falling recovery
fitness posture movement movements
focus stretching gait
safety Less-fear-of-falling
flexibility

Better Improve not-afraid
Falls are an important public health issue

- 1 of 3 people 65+ fall every year.
- 1 of 5 falls causes a serious injury.
- The average hospital stay is over $30,000.
Falls Pyramid, 2015
Colorado Residents, 65+ Years Old

- 728 deaths
- 8,200 hospitalizations
- 20,460 Emergency Dept. visits

Rounded numbers
Age-adjusted Rate of Unintentional Fall Injury Deaths by Sex, Colorado Residents Age 65+, 2007-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Male Rate</th>
<th>Female Rate</th>
<th>Total Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>66.4</td>
<td>66.4</td>
<td>66.4</td>
</tr>
<tr>
<td>2008</td>
<td>89.1</td>
<td>89.1</td>
<td>89.1</td>
</tr>
<tr>
<td>2009</td>
<td>98.0</td>
<td>98.0</td>
<td>98.0</td>
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<tr>
<td>2010</td>
<td>100</td>
<td>100</td>
<td>100</td>
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<tr>
<td>2011</td>
<td>110</td>
<td>110</td>
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<tr>
<td>2012</td>
<td>120</td>
<td>120</td>
<td>120</td>
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<tr>
<td>2013</td>
<td>126.5</td>
<td>126.5</td>
<td>126.5</td>
</tr>
<tr>
<td>2014</td>
<td>126.5</td>
<td>126.5</td>
<td>126.5</td>
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<tr>
<td>2015</td>
<td>126.5</td>
<td>126.5</td>
<td>126.5</td>
</tr>
</tbody>
</table>
Age-specific Rate of Unintentional Fall Injury Deaths by Age Group, Colorado Residents Age 65+, 2007-2015
Age-adjusted Rate of Unintentional Nonfatal Fall Hospitalizations by Sex, Colorado Residents Age 65+, 2007-2015
Percent of Unintentional Nonfatal Fall Hospitalizations by Discharge Disposition, Colorado Residents Age 65+, 2015

Only 15% had routine discharge to home!
Self-Reported Falls in the Past 12 Months by Selected Chronic Health Conditions, Colorado Residents Age 65+, 2014
Relationship between falls and chronic diseases and disabilities

• Older adults with **visual impairment** are 1.7 times more likely to fall.

• Older adults with severe hearing **deficit** had increased risk of falls.

• People with **knee osteoarthritis** are at twice the risk of falling compared to older people without knee OA.

• Approx 30.6 % of individuals with **diabetes** experience recurrent falls.

• During a **complicated mental task**, those with history of falls had reduced neural activation.

• **Depressive symptoms** and antidepressant use are associated with great fall risk in older people.

• Taking **anxiety medication, incontinence, back pain, feet swelling** and **age > 74** were associated with great risk of falls.
Emerging research shows malnutrition increases risk of falls among older people.
Falls are an important COMMUNITY issue

- Fall prevention solutions are in the community
- Locations for programs are in the community
- Fear of falling and other barriers keep older adults from being active
- Active older adults benefit the community
Fear of falling

- 29-77% of community dwellers
- Can lead to spiraling effects
  - Functional decline
  - Decreased motivation
  - Decreased perception of capabilities
  - Self-imposed activity restrictions
America is getting older. Fast.

By 2030, 10 states will have more Medicare-eligible seniors than they have school-age children. AARP

In 2030, 1 in every 5 American will be 65 or older. Is your community ready?

38%. The number of non-retirees who say they’ll have enough money to live comfortable when they retire, a new low. Gallup (April 2012)
The chart represents the projected resident population of the United States as of July 1, 2000, from the Middle Series.

- Year 2000 population projection shows that 12% of the population is 65+ years old.

Source: National Projections Program, Population Division, U.S. Census Bureau, Washington, D.C. 20233
(NP-P4) Projected Resident Population of the United States as of July 1, 2050, Middle Series.

Year 2050

20%
65+

Source: National Projections Program, Population Division, U.S. Census Bureau, Washington, D.C. 20233
Fall prevention takes many partners
How do you engage older adults in fall prevention?
Fall Prevention Works!

EVIDENCE-BASED PROGRAMS WORK!
What is Evidence-Based?

Programs that are known to work:

- Through research
- With evaluation
- Measured outcomes
- Have been replicated
- Key elements identified
Why use Evidence-based Programs?

- Funders require it
- Agencies want proven results
- Implementers like “packaged” programs
- Older adults want programs that work
Cochrane Review conclusion:

There is clear evidence that falls in older people can be prevented with appropriately designed intervention programs.
Source for evidence–based programs

CDC - https://www.cdc.gov/homeandrecreationalalsafety/falls/compendium.html

ACL /NCOA - https://www.ncoa.org/resources/ebpchart/
  ◦ Fall prevention https://www.ncoa.org/healthy-aging/falls-prevention/falls-prevention-programs-for-older-adults/

Title IIID eligible evidence-based programs
  ◦ ACL endorsement
  ◦ Other HHS programs (CDC, SAMSHA, Cancer)
  ◦ N’Balance for fall prevention included in Colorado
Interventions for preventing falls in older people living the community

- Strength and balance exercise programs
- Home safety interventions - for high risk
- Multifaceted interventions
- Individual assessment and treatment
- Medical solutions
  - Vitamin D – for those who are deficient
  - Withdrawal of psychotropic medication
  - Cataract survey and/or pacemaker

Review of Best Practices for Fall Prevention: Exercise

- Exercise as a single intervention is an effective approach
- Include muscle strengthening and balance retraining
- Programs should include:
  - Challenge to balance
  - 50+ hours
  - On-going
What does that mean?

SOME WORK.....

• With particular high-risk audiences
• With specific intervention elements
• With adequate dose
• With on-going commitment of participants

SOME DON’T......

• Seated exercises or walking programs not enough
• Depends on the audience
• Trained provider is essential
• Provision of educational materials alone is not enough
Evidence-Based Falls Prevention Programs

Tai Chi

- *Tai Chi: Moving for Better Balance*
- *Tai Chi for Arthritis*
- Other Tai Chi programs that
  - Last 12 wks+
  - Work for older adults
  - Progressive and challenging
Benefits of Tai Chi

- leg strength
- sense of awareness (mindfulness)
- better reach
- functional mobility
- mental ability

and balance
Exercise programs work

- Activities that strengthen your legs and help your balance (like Tai Chi) can help you prevent falls.
- Exercise programs take a commitment, but they are worth it!
Evidence-Based Falls Prevention Programs

**Multifaceted**

- *Stepping On*
- *Matter of Balance*
- Addresses fear of falling
- Include exercises
- Covers many fall risks
- Behavioral group intervention
- Problem solving and motivational
Fall prevention classes are the gateway to more active older adults

- At the end of Tai Chi classes, the older adults want to know:
  - Can I take this class again?
  - What other classes can I take now?

- At the end of other fall prevention classes, older adults want to know:
  - What exercise classes can I take now?
  - Where can I go to exercise?
Fall Prevention – Aging Network

A Matter of Balance Results SFY ‘16

• 81 classes held
• 887 enrolled / 724 completed*
  • 82% completion rate
• 9% of participants reported Hispanic/Latino ethnicity
• Average CO MOB participant is 77 y/o, female, and living alone

*Completed MOB means to have attended 5 out of 8 sessions
Fall Prevention – Aging Network

A Matter of Balance Results SFY ‘16

• 96% reported that as a result of the course, they felt more comfortable talking with others about their fear of falling
• 91% reported that as a result of the course, they have made changes to their environment

Answered ‘strongly agree’ or ‘agree’ to evaluation questions
A Matter of Balance Results SFY ‘16

• 96% reported that as a result of the course they felt more comfortable increasing their activity
• 98% reported that as a result of the course they plan to continue exercising

Answered ‘strongly agree’ or ‘agree’ to evaluation questions
Fall Prevention – Aging Network

A Matter of Balance comments from participants after completing MOB and the changes they’ve made since taking the program
“To exercise more often”

“To have more confidence in myself and not have the fear of falling”

“To remove my throw rugs”
Fall Prevention – Aging Network

“Installed grab bar in exchange for towel bar”

“I have improved my balance”

“To ask for help when I need it”
Stepping On fall prevention programs are making a difference in Colorado

Over 1000 older adults participated in Stepping On workshops in Colorado from Jan 2014 - July 2016.

Stepping On includes exercising and group problem-solving discussions about how to prevent falls.

95% would recommend the class to a friend.

89% are sure they can increase their strength.

85% are sure they can be more steady.

Who is participating:

- 64% are over age 74
- 76% are female
- 56% had initial fear of falling

Results:

- 87% said the class reduced their fear of falling
- 41% moved out of the falls at-risk category using the Timed Up and Go mobility test

Typical action responses were:

- I got an eye exam.
- We did the exercises at home.
- I made changes in my home!
Tai chi: Moving for Better Balance classes work in Colorado
Between Jan 2014 and July 2016

70 classes  946 older adults  24 different sites

Who took the classes?*
77% were female
AVERAGE AGE IS 74
50% were 65-74
37% were 75-84
13% were 85+

57% attended 17 (of 24 sessions)
97% were White
1% were Asian
5% were Hispanic (any race)

Benefits of the classes*
1) CONFIDENCE/FOCUS
2) BALANCE/STABILITY
3) MORE ACTIVITY

Top 3 benefits reported by older adults
45% who started out at-risk for falls, moved out of that category, based on the Timed Up and Go mobility test

91% reported reduced fear of falling and 91% said strength increased
98% would recommend to friend/family
42% talked to doctor about program

* Data based on participant surveys and assessments collected at the classes

for more information, contact safillie.thoreson@state.co.us
970-248-7161

COLORADO Department of Public Health & Environment
Results in participation
Tai Chi: Moving for Better Balance

**Results**
- 70 classes over 32 months.
- Over 940 participants.
- 57% attended at least 70% of the 24 classes.
- 98% said they would recommend the class.

**Outcomes**
- Older adults will come to the class.
- Older adults will stick with a 12 week-class.
- Older adults made changes to reduce falls.
Review of Best Practices for Fall Prevention: *Medication management*

- High risk with 4+ medications
- Pharmacists can work with providers on prescribing
- Withdrawal of psychototropic medications is effective
Talk openly with your doctor about fall risks and prevention

Tell your doctor right away if you have fallen, or if you’re afraid you might fall, or if you feel unsteady.

Work together and review all of your medications and discuss any side effects like feeling dizzy or sleepy.

- Ask if D supplements for improved bone, muscle, and nerve health is right for you.
Review of Best Practices for and Fall Prevention: **Vision**

- Check vision annually
- Home safety programs may be effective for visually impaired
- Cataract survey can prevent falls
- Wear the right glasses for the activity

http://www.aao.org/eyecare-america/read-more
Review of Best Practices for Home Safety and Fall Prevention

- Home safety assessment and modification can be effective, especially
  - for high risk
  - when given by OT

- Make the environment fit your daily life

- Involving the client and family in decision-making is important

http://homemods.org/
Most falls happen at home

Keep your floors clutter free.
Remove small rugs or tape down or secure them.
Add grab bars in the bathroom.
Have handrails and lights installed on all staircases.
Make sure your home has lots of light.

www.cdc.gov/steadi/patient.html
Take Control of Your Health: 6 Steps to Prevent a Fall

Every 11 seconds, an older adult is seen in an emergency department for a fall-related injury.

Many falls are preventable. Stay safe with these tips!

1. Find a good balance and exercise program
   Look to build balance, strength, and flexibility. Contact your local Area Agency on Aging for referrals. Find a program you like and take a friend.

2. Talk to your health care provider
   Ask for an assessment of your risk of falling. Share your history of recent falls.

3. Regularly review your medications with your doctor or pharmacist
   Make sure side effects aren’t increasing your risk of falling. Take medications only as prescribed.

4. Get your vision and hearing checked annually and update your eyeglasses
   Your eyes and ears are key to keeping you on your feet.

5. Keep your home safe
   Remove tripping hazards, increase lighting, make stairs safe, and install grab bars in key areas.

6. Talk to your family members
   Enlist their support in taking simple steps to stay safe. Falls are not just a seniors issue.

To learn more, visit ncoa.org/FallsPrevention.
Review of Best Practices for Fall Prevention: Education

- No evidence that education-alone is effective
- The message and venues are important
- Use adult learning techniques
- Consider patient perceptions and preferences in decision-making
Fall Prevention Programming
Fall Prevention Programming
Fall Prevention – Aging Network

• Hospitals – Stepping On
• Tai Chi: Moving for Better Balance
• N’Balance
• A Matter of Balance
• Low-Vision
• Spanish
A Matter of Balance and Fall Prevention Initiatives SFY ’16 – SFY ’17

Locations where A Matter of Balance classes have been occurring.

- Previous A Matter of Balance programming but no fall prevention programs currently.
- AAA partnership with hospitals to implement fall prevention programming, (Stepping On or Tai Chi: Moving for Better Balance)
- No fall prevention programming.
Stepping On and Tai Chi: Moving for Better Balance programs in Colorado

More information on classes available at www.olderadultfallscoalitionco.com
Where to find evidence-based fall prevention programs?

- [FallsPreventionColorado.org](http://FallsPreventionColorado.org) website (should be ready by 2/22/17)
- Stepping On at 36+ hospitals through the trauma centers (EDs)
- Tai Chi: Moving for Better Balance through many Parks and Recreation departments and some other locations
- Resources and materials are also available at: [http://www.olderadultfallscoalitionco.com/p/meeting-info.html](http://www.olderadultfallscoalitionco.com/p/meeting-info.html)
- Matter of Balance through Aging Network programs
# Falls Prevention Colorado

## The Problem

In this country, there are **2.8 million** falls annually.

800,000 of those falls require hospitalization.

1 in 3 people over the age of 65 report a fall annually.

## The Solution

Falls are **not a normal part of aging**.

Many falls are **preventable** through training.

Learning to avoid falls has been shown in scientific studies to prevent them.

## Our Classes

We offer classes throughout Colorado which can help prevent falls.

![Map of Colorado showing locations of classes](Google Maps)

[Search For Classes][View Larger Map]

## Our Goal

The Statewide Collaborative offers a variety of different classes which help prevent falls. We are dedicated to cut down on this preventable source of injury.

---

This site sponsored by the [Consortium for Older Adult Wellness](http://www.consortiumforolderadultwellness.org)
Other Evidence-Based Prevention Programs

Medication Management
- HomeMeds
- Pharmacist reviews

Mental Health
- SeniorREACH
- PEARLS
- Healthy IDEAS

www.ncoa.org/center-for-healthy-aging/basics-of-evidence-based-programs/about-evidence-based-programs/
Sallie Thoreson
Violence and Injury
Prevention Coordinator
Colorado Department of
Public Health and
Environment

sallie.thoreson@state.co.us
970-248-7161