



# The Aging Brain and Trauma-Related Events:

A review of relevant research findings & ACL/AoA programs for this population

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The Neurocognitive and Psychosocial Impacts of Violence: A workshop

The National Academies of Sciences, Engineering, & Medicine

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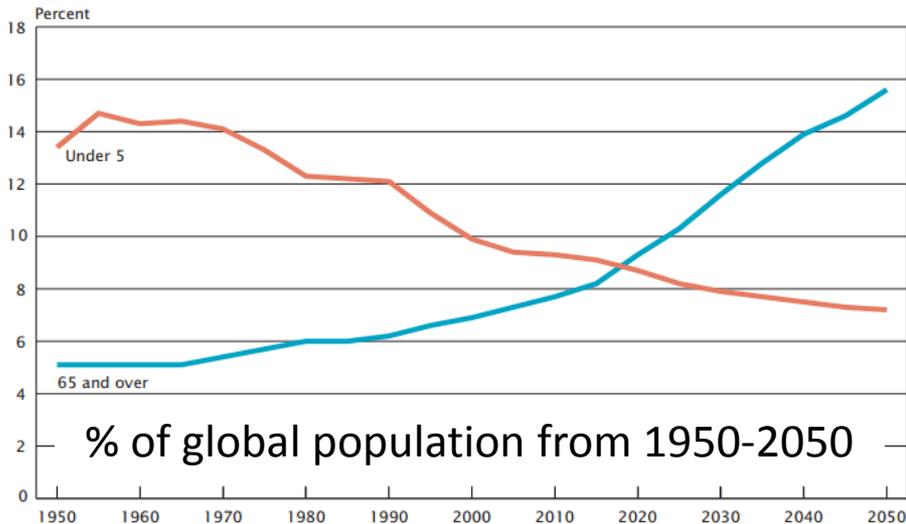
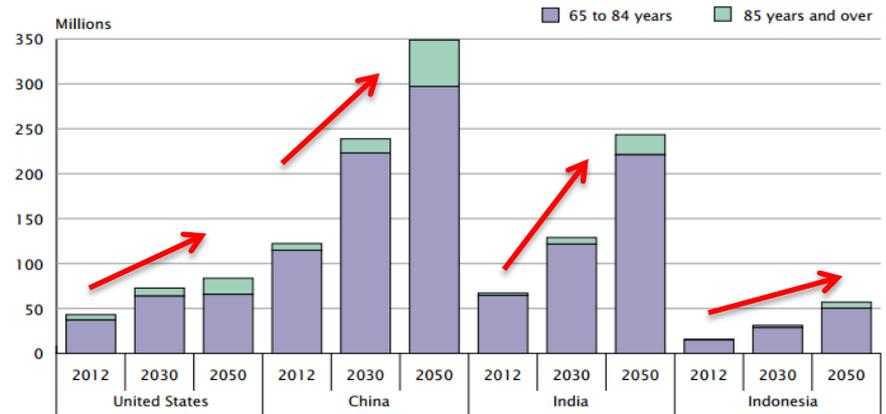
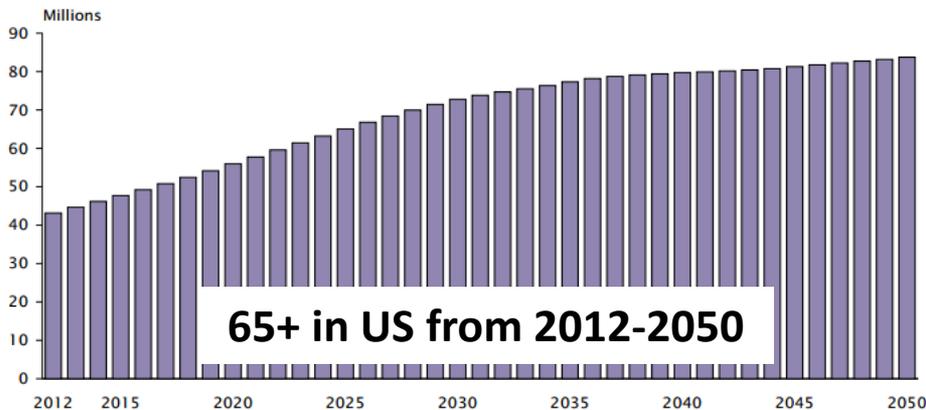
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# The United States (and World) is getting older

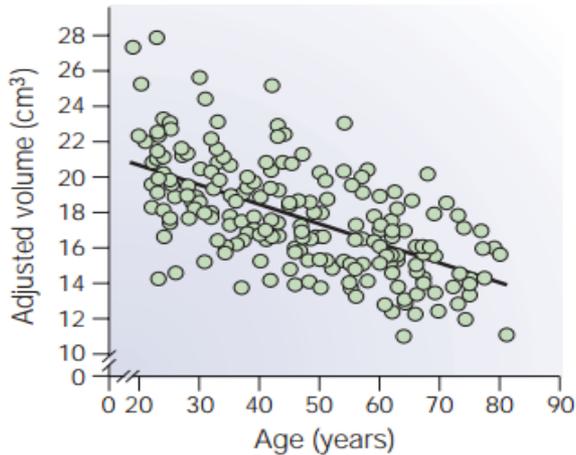


Older adults as a population segment are growing in both the US and across the world

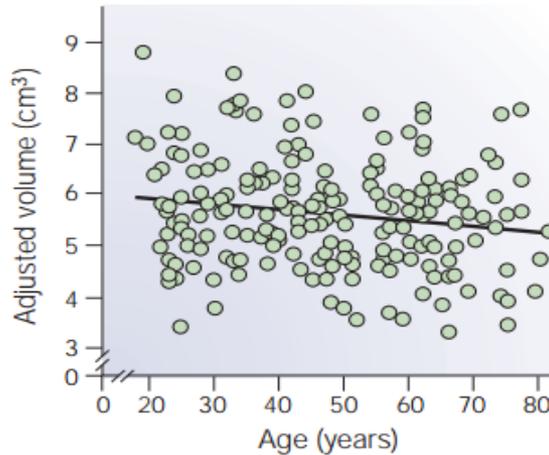
Demographic trends underscore importance for research and policies **to address the needs and changes this growing population experience as they age**

# Age-related changes in brain structure & function

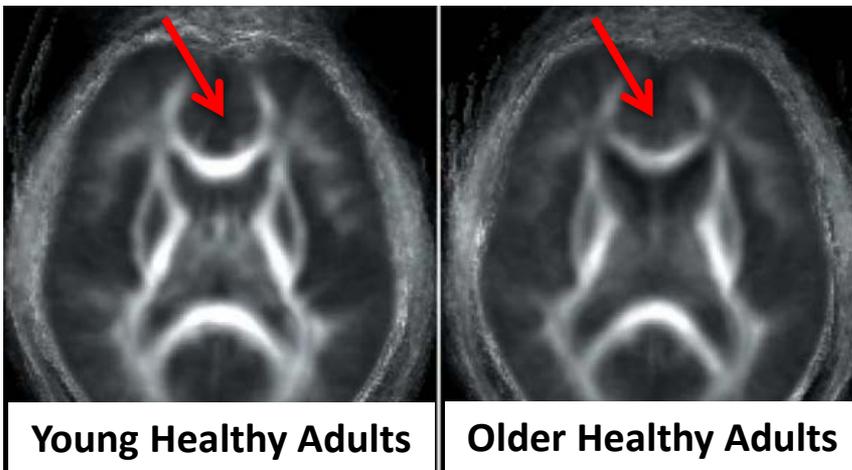
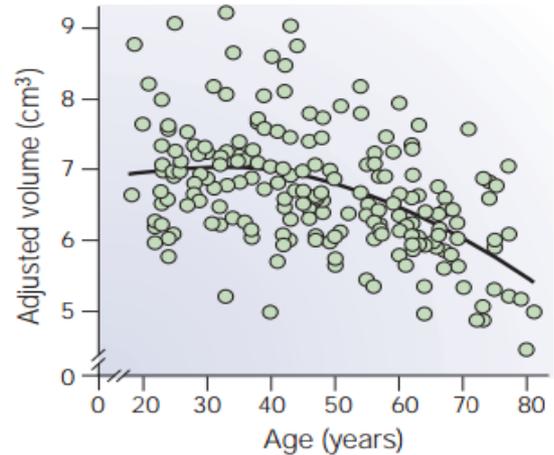
**a** Lateral prefrontal cortex



**b** Primary visual cortex



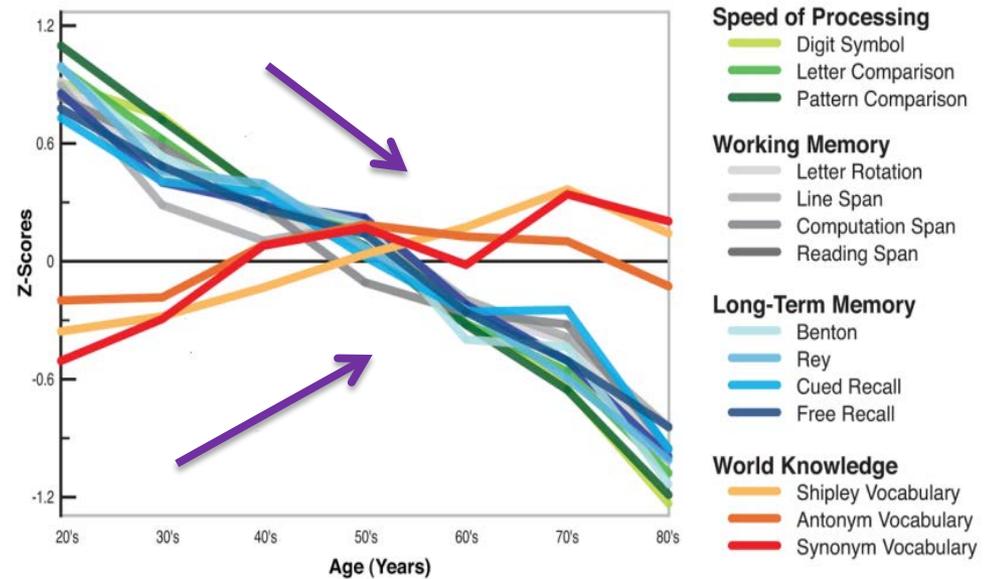
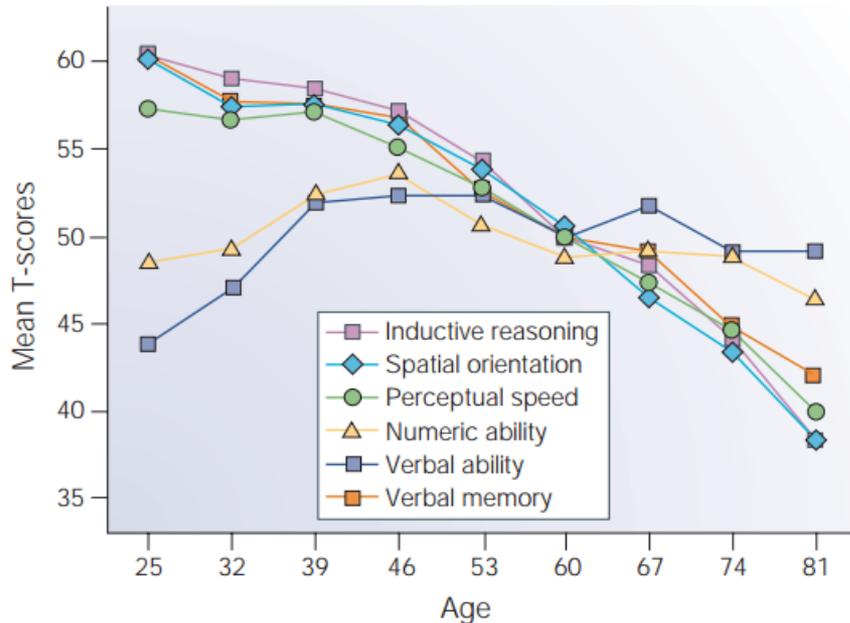
**c** Hippocampus



Healthy aging brings with it changes to the structural integrity of the brain

Both white and grey matter can experience declines in volume and integrity → what about brain function?

# Age-related changes in brain structure & function



There is good convergence in the aging literature there are certain functions that may decline: **attention, episodic memory, and executive functioning**

Some functions are largely preserved: **verbal memory + real-world knowledge**

# Sources of trauma experienced by older adults

## Physically-induced trauma

- 1 in 3 Americans aged 65+ falls every year<sup>1</sup>
- Falls leading cause of both fatal and nonfatal injuries for those 65+<sup>2</sup>
- Falls in this age group resulted in over 2.8M emergency room visits and over 800K hospitalizations<sup>3</sup>
- 81% of traumatic brain injuries in adults aged 65+ are caused by falls<sup>4</sup>

# Sources of trauma experienced by older adults

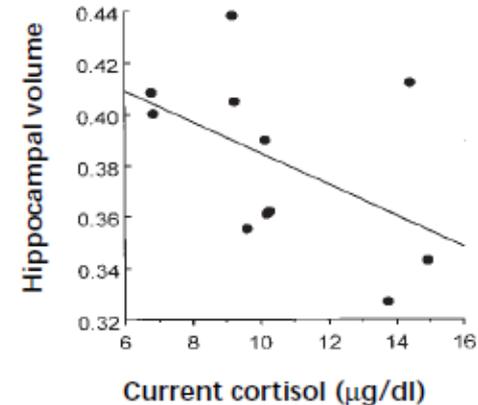
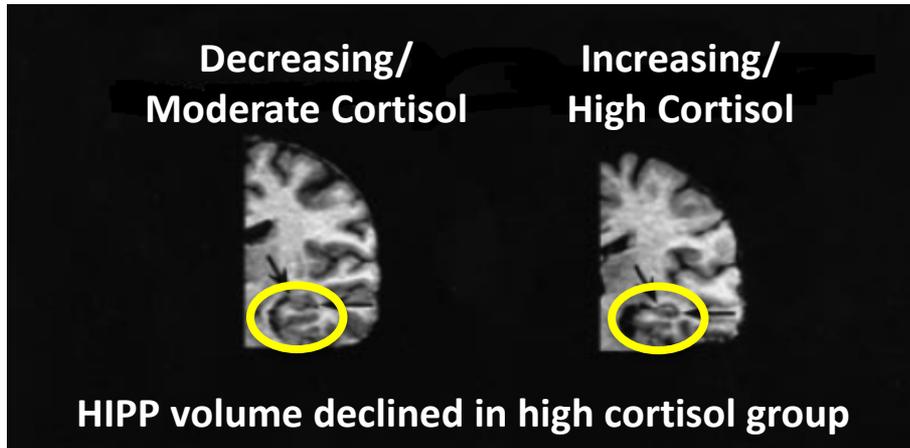
## Historical trauma

- Refers to “multigenerational trauma experienced by a specific cultural, racial, or ethnic group”<sup>1</sup>
- Identified in survivors of the Holocaust and communities of Indigenous Americans<sup>1</sup>

## Interpersonal-induced trauma

- ~1 in 10 Americans 60+ has experienced some form of elder abuse (e.g., neglect, physical/emotional/sexual abuse, abandonment) w/some estimates of 5M elders abused each year<sup>2</sup>
- Only 1 in 14 cases are estimated to be reported<sup>2</sup>

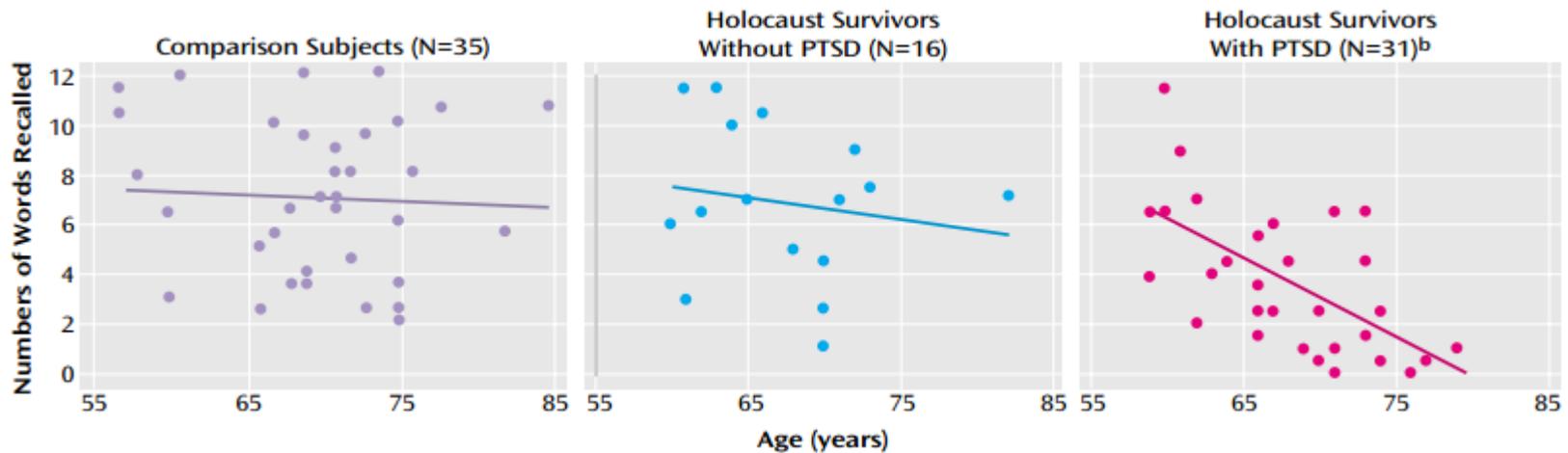
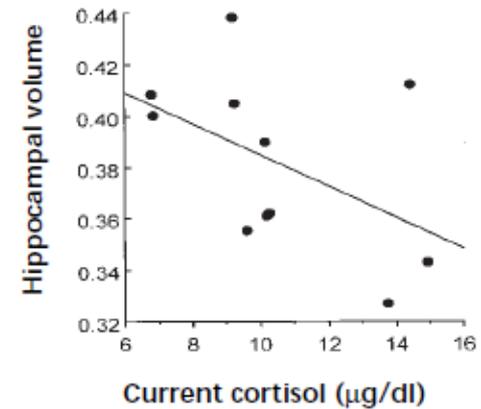
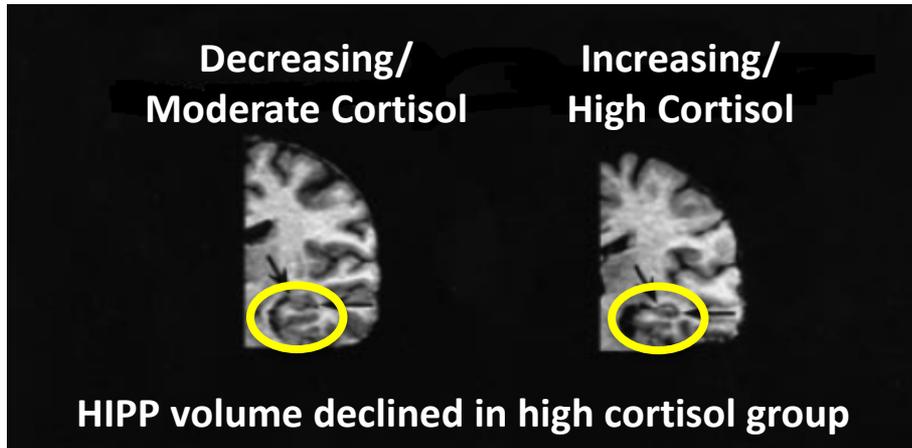
# Traumatic stress on brain structure & function



Healthy aged research participants with high levels of plasma cortisol were found to have declines in hippocampal (HIPP) brain volume<sup>1</sup>

Same study showed that these participants exhibited impairments in tasks measuring memory performance<sup>1</sup>

# Traumatic stress on brain structure & function





**A brief recap...**



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# The Administration for Community Living (ACL)



- **Mission**

- Maximize the independence, well-being, and health of older adults, people with disabilities across the lifespan, and their families

- **ACL's administrator oversees four program offices:**

- Administration on Aging (AoA)
- Administration on Disabilities (AoD)
- National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)
- Center for Integrated Programs (CIP)

# ACL-funding of falls prevention programs

## Goals?

- Increase the number of older adults and older adults with disabilities who participate in evidence-based community falls prevention programs
- Implement innovative funding arrangements to support those programs beyond grant period

## Who is eligible?

- State agencies (aging/public health)
- Nonprofit aging and public health organizations
- Area agencies on aging
- Tribal governments and tribal organizations
- Universities

# Snapshot of evidence-based falls prevention programs from ACL-grantees

↓Fear, ↑Activity Levels, ↑Education

- A Matter of Balance
- Stepping On

Building strength and balance

- FallScape
- Otago

↑Physical Health

- Tai Ji Quan (Moving for Better Balance)
- Tai Chi for Arthritis
- YMCA Tai Chi (Moving for Better Balance)

# Reach and impact of ACL-funded grantees

Between September 2014-March 2017, over 36,814 individuals have enrolled in ACL-grantee supported falls prevention programs

<b>Living Alone</b>	<b>48%</b>
Average Age	76
<b>Reported at least one fall in last three month</b>	<b>30%</b>
At least one chronic condition	89%
Disability	39%
<b>Report fearing falls "somewhat" or "a lot"</b>	<b>50%</b>
<b>Report (at post-test) that the program helped reduce fear of falling</b>	<b>89%</b>

# National Falls Prevention Resource Center

ACL began funding a national resource center for falls prevention in 2014

- ↑ **public awareness and education** for consumers and professional about risk of falls and best practices for falls prevention
- ↓ **Reduce incidence of falls among older adults and adults with disabilities** by supporting evidence-based falls programs

## Evidence-Based Falls Prevention Programs: Saving Lives, Saving Money

### THE CHALLENGE: Older Adult Falls in the U.S.

- 1 in 3 Americans aged 65+ falls each year
- Every 13 seconds, an older adult is treated in the emergency room for a fall
- Every 20 minutes, an older adult dies from a fall



- In 2013, the total cost of fall injuries was \$34 billion (78% paid by Medicare)
- This total cost may reach \$67.7 billion by 2020
- Even falls without injury can cause fear of falling, leading to physical decline, depression, and social isolation

Falls Are Common

Falls Are Costly

Falls in adults aged 65+ are the leading cause of head injuries and broken hips

### THE SOLUTION: Proven Community-Based Programs

<div style="background-color: #55a868; color: white; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">  </div> <p style="color: #0056b3; font-weight: bold; margin: 5px 0;">A Matter of Balance</p> <p style="font-size: 0.8em; margin: 5px 0;">8-session workshop to reduce fear of falling and increase activity among older adults in the community</p> <ul style="list-style-type: none"> <li>■ 97% of participants feel more comfortable talking about their fear of falling</li> <li>■ 99% of participants plan to continue exercising</li> <li>■ \$938 savings in unplanned medical costs per Medicare beneficiary</li> </ul>	<div style="background-color: #e67e22; color: white; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">  </div> <p style="color: #0056b3; font-weight: bold; margin: 5px 0;">Otago Exercise Program</p> <p style="font-size: 0.8em; margin: 5px 0;">Individual program of muscle strengthening and balance exercises prescribed by a physical therapist for frail older adults living at home (aged 80+)</p> <ul style="list-style-type: none"> <li>■ 35% reduction in falls rate</li> <li>■ \$429 net benefit per participant*</li> <li>■ 127% ROI**</li> </ul>	<div style="background-color: #55a868; color: white; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">  </div> <p style="color: #0056b3; font-weight: bold; margin: 5px 0;">Stepping On</p> <p style="font-size: 0.8em; margin: 5px 0;">7-week program that offers older adults living in the community proven strategies to reduce falls and increase self-confidence</p> <ul style="list-style-type: none"> <li>■ 30% reduction in falls rate</li> <li>■ \$134 net benefit per participant</li> <li>■ 64% ROI</li> </ul>	<div style="background-color: #e67e22; color: white; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">  </div> <p style="color: #0056b3; font-weight: bold; margin: 5px 0;">Tai Chi: Moving for Better Balance***</p> <p style="font-size: 0.8em; margin: 5px 0;">Balance and gait training program of controlled movements for older adults and people with balance disorders</p> <ul style="list-style-type: none"> <li>■ 55% reduction in falls rate</li> <li>■ \$530 net benefit per participant</li> <li>■ 509% ROI</li> </ul>
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Falls Free®

National Council on Aging

Learn more about these and other proven programs at [ncoa.org/FallsPrevention](http://ncoa.org/FallsPrevention)

Sources:

Carande-Kulis, V., Stevens, J., Florence, G., Seattle, S.L., Arias, I. (2016). A cost-benefit analysis of three older adult falls prevention interventions. *Journal of Safety Research*, 42, 66-70.

Report to Congress in November 2013: The Centers for Medicare & Medicaid Services' Evaluation of Community-based Wellness and Prevention Programs under Section 4202 (b) of the Affordable Care Act. <http://innovation.cms.gov/Files/reports/CommunityWellnessRTC.pdf>

\* Net benefit = Direct medical costs averted (e.g., emergency department visits, hospitalizations, rehab, homecare) after subtracting intervention costs

\*\* ROI (return on investment) = Net benefit per participant divided by average cost of the program per participant; percentage of return for each dollar invested

\*\*\* Now known as 'Tai Ji Quan: Moving for Better Balance'

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# Traumatic Brain Injury (TBI) (H21) State Implementation Partnership Grant Program

## Goals?

- Address barriers to needed services encountered by children, youth, and adults with TBI
- Increase access to rehabilitation and other services by:
  - **Screen** to identify individuals with TBI
  - **Build a trained TBI workforce** by providing professional training
  - **Provide information** about TBI to families and referrals to appropriate service providers
  - **Facilitate access** to needed services through resource facilitation

# Grantee: Massachusetts Rehab. Commission

## Goals:

- **Improve awareness, screening and identification** of elders who sustain a TBI
- **Improve access to appropriate information, resources, services, and supports** for elders who sustain TBI and their families
- **Utilize “No Wrong Door” approach**: simplifies/streamlines consumer-directed access and coordination of services for this high-risk population

## Sample Activities:

- Educational and outreach to build a trained TBI workforce (goal of training 1,000 professionals by May 2018)
- Deliver a 6 module web-based course about TBI in older adults

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# Advancing person-centered trauma-informed (PCTI) supportive services for Holocaust Survivors

In FY 2015, \$2.5M was appropriated “to help provide supportive services for aging Holocaust survivors living in the United States”

- **Advance innovations in the delivery of supportive services to Holocaust survivors**
  - Infuse principles of trauma-informed care into current practice
  - Build and strengthen partnerships
  - Foster innovation in service delivery

# Unique issues impacting Holocaust Survivors

- ↑ rates of physical and emotional distress
- ↑ rates of anxiety disorders and sleep disturbances, and higher use of psychiatric medications
- “Obsession” with death
- Excessive guilt and nightmares
- Lack of language to use to share experiences

# Sub-grantee: The Jewish Family Services of Columbus, Ohio

- 240+ Survivors in Columbus
- Majority live below or close to poverty
- A large number lack transportation to essential and life enriching destinations
- Majority need more home care services

Age Group	Total Number of Survivors	Former Soviet Union	Medicaid Recipients
90 +	34	27	31
80-89	115	87	85
70-79	92	79	64
<b>Total</b>	<b>241</b>	<b>193 (80%)</b>	<b>180 (75%)</b>

# Sub-grantee: The Jewish Family Services of Columbus, Ohio

Adopting a person-centered trauma informed care (PCTI) framework by:

- Creating a calm supportive atmosphere
- Treating each client with respect, patient, and kindness
- Appreciating each client's talents and strength of character
- Talk less and listen more
- Recognize there may be no "fix" or "rescue"
- Bring him or her back to the present moment

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# National Indigenous Elder Justice Initiative (NIEJI)

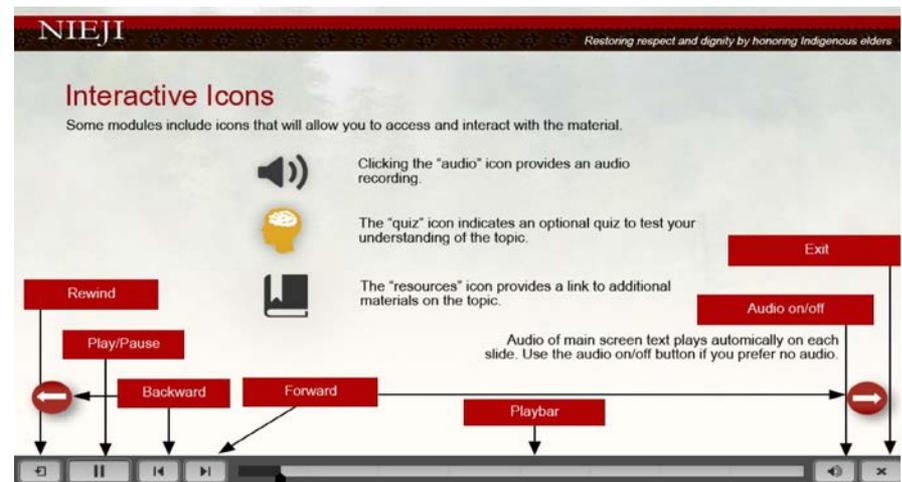
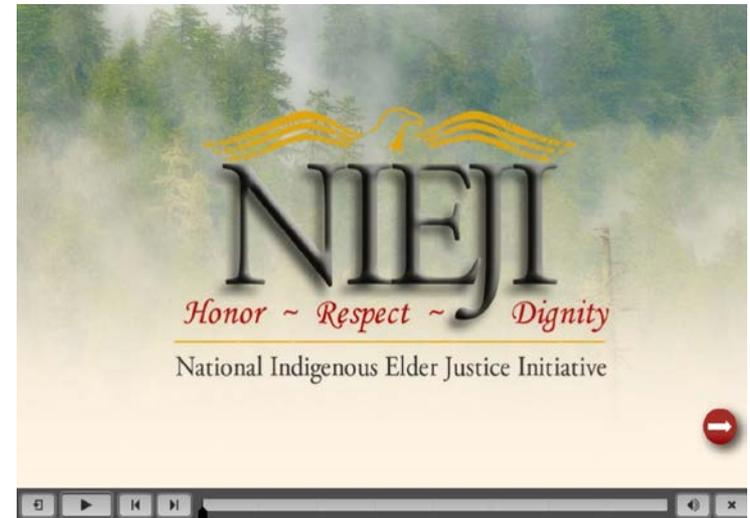
- NIEJI “created to address lack of culturally appropriate information and community education materials on elder abuse, neglect, and exploitation in Indian Country”
  - Create content on how to define and recognize elder abuse in Indian Country
  - Educate everyone on elder abuse and neglect, and learn ways on how to help prevent it
  - Creation of culturally-relevant materials providing viewers with training tools and information about elder abuse and neglect

# Perceptions & attitudes of elder abuse among Indigenous elder populations

- Indigenous elders reported to view certain abusive behaviors as more serious than other ethnic groups (African Americans and Caucasian)<sup>1</sup>
- Survey respondents perceive elder abuse to occur as often as child abuse although data suggest otherwise<sup>1</sup>
- A research study within a community of urban and rural Indigenous elders report belief that the elderly should be treated with high quality of care and needs should be anticipated<sup>2</sup>

# NIEJI Online Interactive Educational Module

- Launched on June 15, 2016
- Designed for professional disciplines working with and caring for Native Elders in a variety of settings:
  - Elder
  - Caregiving
  - Social Services
  - Financial
  - Legal
  - Policy
  - Healthcare



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# Gaps in research/services for older adults experiencing trauma

- Empirical studies on the impact of trauma on the human brain have taken developmental approach → further research needed to examine trauma experienced as an older adult as well as a study of the risk factors in the elderly
- Programmatic services mirror research landscape → majority of governmental programs and services address needs of adolescents and children
- How can the work of ACL-grantees and sub-grantees (e.g. PCTI for holocaust-survivors) be translated into mainstream aging services

# Thank You...Please Reach Out!

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