



HEALTHY AGING

Healthy Aging: How CHWs Can Help

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Presentation Overview

- What is healthy aging?
- Brain health
 - Role of CHWs in promoting brain health
- Injury prevention
- Aging in place
 - Role of CHWs in aging in place

Disclaimer

I have no financial conflicts of interest to disclose.

Healthy Aging

WHAT IS HEALTHY AGING?

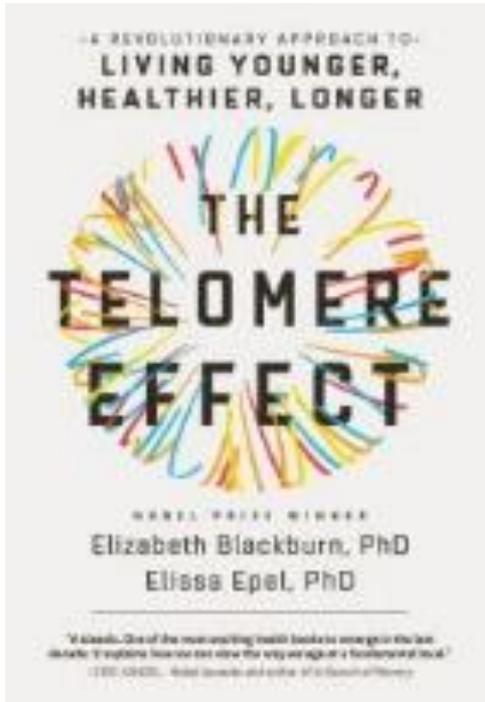
Demographics

- The number of Americans ages 65 and older is **projected to more than double** from 46 million today to more than 98 million by 2060.
- The 65-and-older age group's share of the total population will **rise to nearly 24 percent** from 15 percent.
- “The person who will make it to age 150 years has already been born.”
 - Aubry de Grey, biomedical gerontologist

World Congress of Gerontology and Geriatrics

- Proposed as a new syndrome.
- Chronic diseases like cancer, diabetes, metabolic syndrome, hypertension, arthritis and dementia are all an expression of aging.
- Improvement on chronic diseases such as diabetes and cancer shifts the disease burden to other challenges such as Alzheimer's.
- If we can target the mechanisms of aging we could prevent many chronic diseases: first drug to be studied currently in clinical trial is anti-diabetes medication metformin.
- Goal is to improve quality of life into older age not necessarily quantity of life.

The Telomere Effect



- *The Telomere Effect: A Revolutionary Approach to Living Younger, Healthier, Longer*
- By Dr. Elizabeth Blackburn and Dr. Elissa Epel

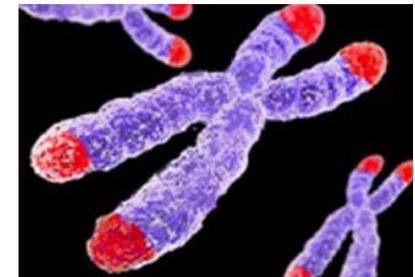
Telomere research

- Protective capping structure at the end of chromosomes.
- Aging is due to progressive damage to DNA/telomeres.
- Telomeres shorten with age.
- Diseases of aging: cardiovascular disease, arthritis, diabetes, cancers...
- The less your telomere length declines, the less likely you are to be diseased and have early death.

Aging is a dynamic process

- Telomeres shorten with each cell division.
- Wearing down process determines how fast cells age and die.
- Telomeres can lengthen.
- Telomerase is the enzyme that repairs telomeres and makes them longer, and its activity can be changed.
- Aging can be slowed and reversed.

Age	Telomere Length Base pairs
Newborn	10.000
35 years old	7500
65 years old	4800



Shorter telomeres, less telomerase = faster aging

- Feeling threatened, hostility, hate
- Processed foods, meats hot dogs, soda
- Unsocial neighborhood
- Children with adverse life events
- Wandering mind
- Negative thinking
- Obesity, smoking, toxin exposure, air pollution
- Depression, anxiety and stress
- Poor sleep quality
- Caregiver burnout
- Low social support

Longer telomeres, more telomerase = slower aging

- QiGong or mindfulness techniques
- Whole foods
- Social friendly neighborhood
- Children moving away from neglect
- Focused mind
- Meditation
- Mindfulness based stress reduction
- Improved sleep
- Stress resilience, yoga
- Exercise

Inflammation and aging

- Aging cells with short or damaged telomeres send out pro inflammatory signals and cause the body's immune system to react against itself.
- Inflammation can cause immune cells to divide and replicate, which shortens telomeres more.
- Glucose absorbed from French fries, refined carbohydrates, sugar candies, sodas, heavy ETOH causes very fast hyperglycemia, which is pro inflammatory.

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Reversal of inflammation



Antioxidants and anti-inflammatories

Telomere dysfunction is reversed and aging cells stopped accumulating.



Healthful foods

Red and purple foods, blueberries, kale, broccoli (flavonoids and carotenoids – lower levels of inflammation/oxidative stress).

Other anti-inflammatory foods: oily fish, nuts, flaxseed, leafy vegetables, - rich in Omega 3 fatty acids reduce inflammation and keep telomeres healthy.

Cells can convert Omega 3 into hormones that regulate inflammation.

Omega 3 helps telomeres

Study of 608 people over five years:

- The more Omega 3 in their blood the less telomere decline was observed.
- Reduced cardiovascular risk.
- Telomere shortening group saw 39% mortality.
- Telomere lengthening only 12% died.

Source: JAMA 1/20/2010 *Association of Marine Omega 3 Fatty Acid levels with Telomeric Aging in Patients with Coronary Heart Disease.*

Oxidative stress causes aging

- Oxidative stress damages telomeres and reduces telomerase activity.
- Free radicals can damage DNA's instructional code, causing new cells to grow incorrectly, leading to aging.
- Causes: fried foods, alcohol, tobacco smoke, pesticides, air pollutants, inflammation.
- Ways to counteract: Vitamin C and E, regular exercise; green tea protects against free radicals.

What's good for your brain is good for telomeres



Telomeres benefit from:

- Exercise
- Healthy diet
- Improved sleep
- Reducing inflammation
- Decreased stress
- Mindfulness



Brain benefit from:

- Exercise
- Healthy diet
- Improved sleep
- Reducing inflammation
- Decreased stress
- Mindfulness

Risk factors and preventing Alzheimer's



Risk factors

- Obesity in middle age
- Lack of exercise (1 out of 5 Alzheimer's cases linked to lack of exercise)
- Depression (much higher incidence of cognitive decline)
- Hypertension at midlife
- Low education
- Smoking



Prevention

- Improve diet - Mediterranean
- Maintain healthy weight
- Reduce diabetes risk and cardiovascular disease
- Exercise: key to prevent neurodegeneration
- Treat depression
- Reduce stress

Exercise benefits

- Improves heart health
- Tones muscles
- Reduces inflammation
- Induces brain neuroplasticity
- Improves cognitive performance
- Protects against age-related decline

Exercise benefits

- Increases volume of brain's memory center
- Increases volume of prefrontal cortex (spatial memory & decision making)
- Boosts neural signaling across critical brain networks
- Increases brain fertilizer (BDNF), strengthens synaptic connections and helps create new ones
- Improves mood
- Lengthens telomeres

Vitamin D3 important to healthy aging

Higher blood vitamin D levels predict lower mortality rates

- Longer telomere length
- Increase telomerase activity
- Improved bone health, 23–33% lower risk of bone fractures
- Vitamin D may protect against type 2 diabetes by reducing insulin resistance, increasing insulin sensitivity and enhancing the function of the cells responsible for producing insulin.
- People with low blood vitamin D levels may have up to a 55% higher risk of developing type 2 diabetes.

Phobic anxiety and shortened telomeres

- A July 2012 study from Brigham and Women's Hospital (BWH) found chronic phobic anxiety shortened telomere length in middle-aged and older women.
- The BWH researchers obtained blood samples from 5,243 women, age 42 to 69 years, who were participants in the Nurses' Health Study.
- Having a high level of phobic anxiety was associated with significantly shorter telomere lengths.
- The difference in telomere lengths for women of the same age who were highly phobic vs. not phobic was equivalent to six years of premature aging.

Untreated depression and shortened telomeres

- Untreated depression creates biological changes that accelerate aging and increase the risk of life-threatening diseases.
- Over time, untreated depression can shorten telomeres and make people prone to diseases typically associated with advanced age such as heart disease, diabetes, osteoporosis, and stroke.

Source: Annual meeting of the *American Psychiatric Association*, May 2013.

Loneliness: May be greater health risk than smoking or obesity

- The subjective feeling of loneliness increases risk of death by 26%, according to a study in the journal *Perspectives on Psychological Science*.
- Social isolation — or lacking social connection — and living alone were found to be even more devastating to a person's health than feeling lonely, respectively increasing mortality risk by 29% and 32%.
- Loneliness has been associated with personality disorders and psychoses, suicide, impaired cognitive performance and cognitive decline over time, increased risk of Alzheimer's disease, diminished executive control, and increase in depressive symptoms.

REVERSAL OF THE AGING PROCESS THROUGH COMPREHENSIVE LIFESTYLE CHANGES



Research examples

Lifestyle changes

- Work within 3 weeks to 4 months:
- Turn on health-promoting genes and turn off disease-promoting genes.
- A study published in [Proceedings of the National Academy of Sciences](#) found:
 - More than 500 genes were affected by lifestyle changes.
 - Certain disease preventing genes were up-regulated, or turned on, and certain disease promoting genes, including oncogenes involved in cancer, were down-regulated, or turned off.
 - The results suggest that comprehensive lifestyle changes may cause changes in gene expression.

Diet may help prevent Alzheimer's

- MIND diet is a hybrid of the Mediterranean and DASH (Dietary Approaches to Stop Hypertension) diets. Both diets have been found to reduce the risk of cardiovascular conditions, like hypertension, heart attack and stroke.
- MIND diet is rich in vegetables, berries, whole grains, and nuts.
- *Resource: Alzheimer's & Dementia: The Journal of the Alzheimer's Association.*

WHAT DOES HEALTHY AGING LOOK LIKE FOR THE BRAIN?



Brain health with aging

- Normal cognitive changes with aging is relative...
- What is not normal:
 - Difficulty performing more than one task at a time;
 - Difficulty having complex problems or making decisions;
 - Forgetting recent events or conversations;
 - Taking longer to perform difficult mental activities, such as using a computer.

Brain changes with Alzheimer's

- Scientists have identified several hallmark Alzheimer's brain abnormalities, including:
 - **Plaques**, microscopic clumps of a protein fragment called beta-amyloid;
 - **Tangles**, twisted microscopic strands of the protein tau (rhymes with "wow");
 - **Loss of connections among brain cells** responsible for memory, learning and communication. These connections, or synapses, transmit information from cell to cell;
 - **Inflammation**, triggered by the body's immune system;
 - **Eventual death of brain cells** and severe tissue shrinkage.

10 warning signs of Alzheimer's

- Memory loss that disrupts daily life
- Challenges in planning or solving problems
- Difficulty completing tasks at home, at work or at leisure
- Confusion with time or place
- Trouble understanding visual images and spatial relationships
- New problems with words and speaking or in writing
- Misplacing things and losing the ability to retrace steps
- Decreased or poor judgment
- Withdrawal from work or social activities
- Changes in mood or personality

Four dementia stages

- Mild cognitive impairment characterized by general forgetfulness. This affects many people as they age but it only progresses to dementia for some.
- Mild dementia: people with mild dementia will experience cognitive impairments that occasionally impact their daily life. Symptoms include memory loss, confusion, personality changes, getting lost, and difficulty in planning and carrying out tasks.
- Moderate dementia: daily life becomes more challenging and the individual may need more help. Symptoms are similar to mild dementia but increased. Individuals may need help getting dressed and combing hair. They may also show significant changes in personality; for instance, becoming suspicious or agitated for no reason. Sleep disturbances are likely.
- Severe dementia: symptoms have worsened considerably. There may be a loss of ability to communicate, and the individual might need full-time care. Simple tasks, such as sitting and holding one's head up become impossible. Bladder control may be lost.

Dementia types

- **Alzheimer's disease** is characterized by "plaques" between the dying cells in the brain and "tangles" within the cells (both are due to protein abnormalities). The brain tissue in a person with Alzheimer's has progressively fewer nerve cells and connections, and the [total brain size shrinks](#).
- **Dementia with Lewy bodies** is a neurodegenerative condition linked to abnormal structures in the brain. The brain changes involve a protein called [alpha-synuclein](#).
- **Mixed dementia** refers to a diagnosis of two or three types occurring together. For instance, a person may show both Alzheimer's disease and vascular dementia at the same time.
- **Parkinson's disease** is also marked by the presence of Lewy bodies. Although Parkinson's is often considered a disorder of movement, it can also lead to dementia symptoms.
- **Huntington's disease** is characterized by specific types of uncontrolled movements but also includes dementia.

Risk factors for cognition problems in older adults

- Vitamin D deficiency
- B12 deficiency
- Thyroid problems
- Syphilis
- History of strokes
- Diabetes
- Physical inactivity
- Parkinson's

Alzheimer's and diabetes

- In a nine-year study, borderline diabetes was associated with a nearly 70 percent greater risk of developing dementia and Alzheimer's in individuals over the age of 75.
- The risk was even more pronounced in those with severely elevated systolic blood pressure (180 mmHg or above).

Source: Alzheimer Association International Conference

Keeping brains healthy

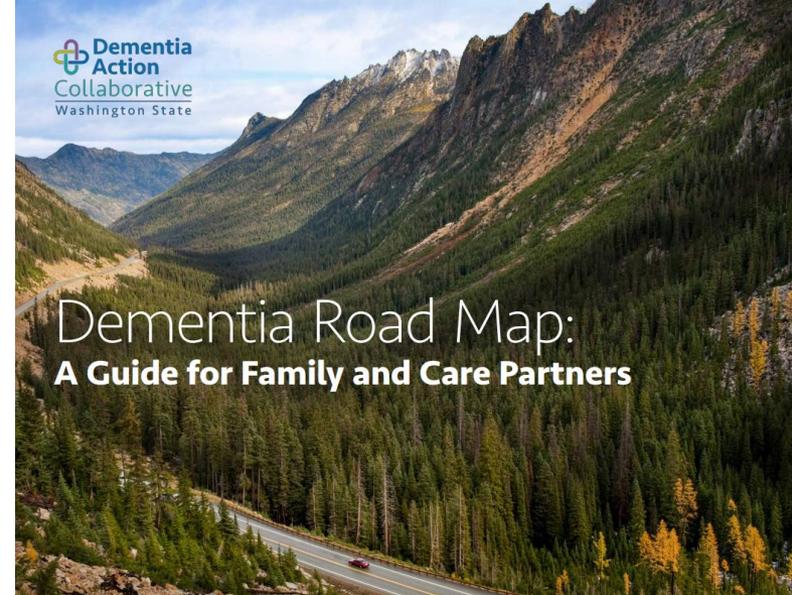
- Nutritional optimization – Mediterranean diet, blueberries
- Address Vitamin D3 deficiency
- Keep walking (delays onset of dementia and severity)
- Engage in neuroplasticity; learning new things that require focus and repetition grows new neuron connections).

What can CHWs do?

- Watch for signs of problems with cognition
 - Alzheimer signs
 - [Dementia Road Map](#)

- Educate clients about healthy choices for healthy aging
 - MIND diet
 - Exercise
 - Vitamin D
 - Reducing Stress

- Teach clients brain health (exercises, considerations)



Healthy Aging



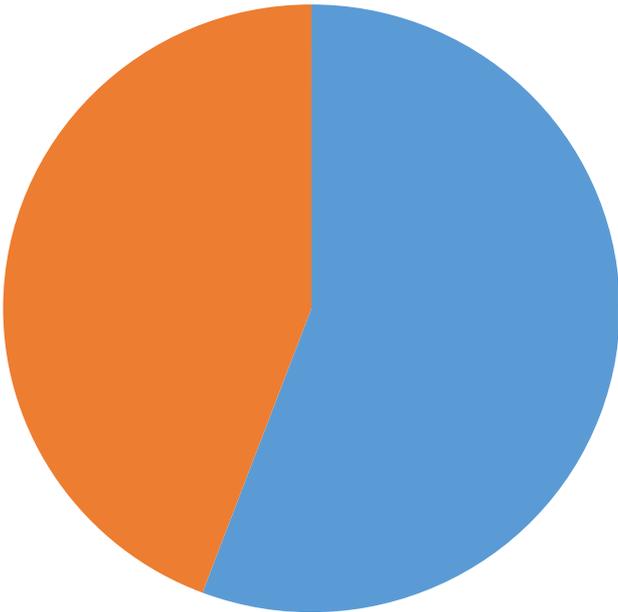
INJURY PREVENTION

Injury Types

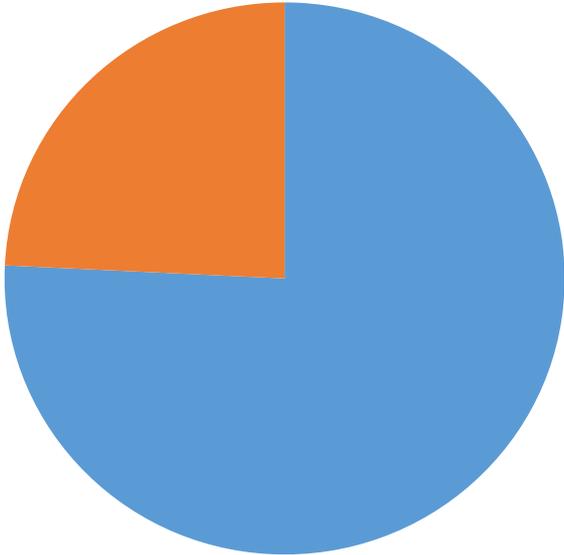
- **Falls – more than half of all injury-related deaths**
- Poisoning – drug interactions and overdose
- Fire – older adults are 2 to 4 times more likely to be killed or injured by fire
- Motor vehicle collisions – 14 percent of all injury-related deaths
- Abuse, neglect and financial exploitation

Falls as percent of injury deaths in the state

Age 65+



Age 85+



- Falls
- All Other Injuries



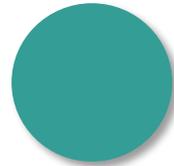
Falls are preventable



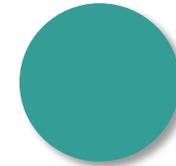
Home Safety



CDC 2017



Screening

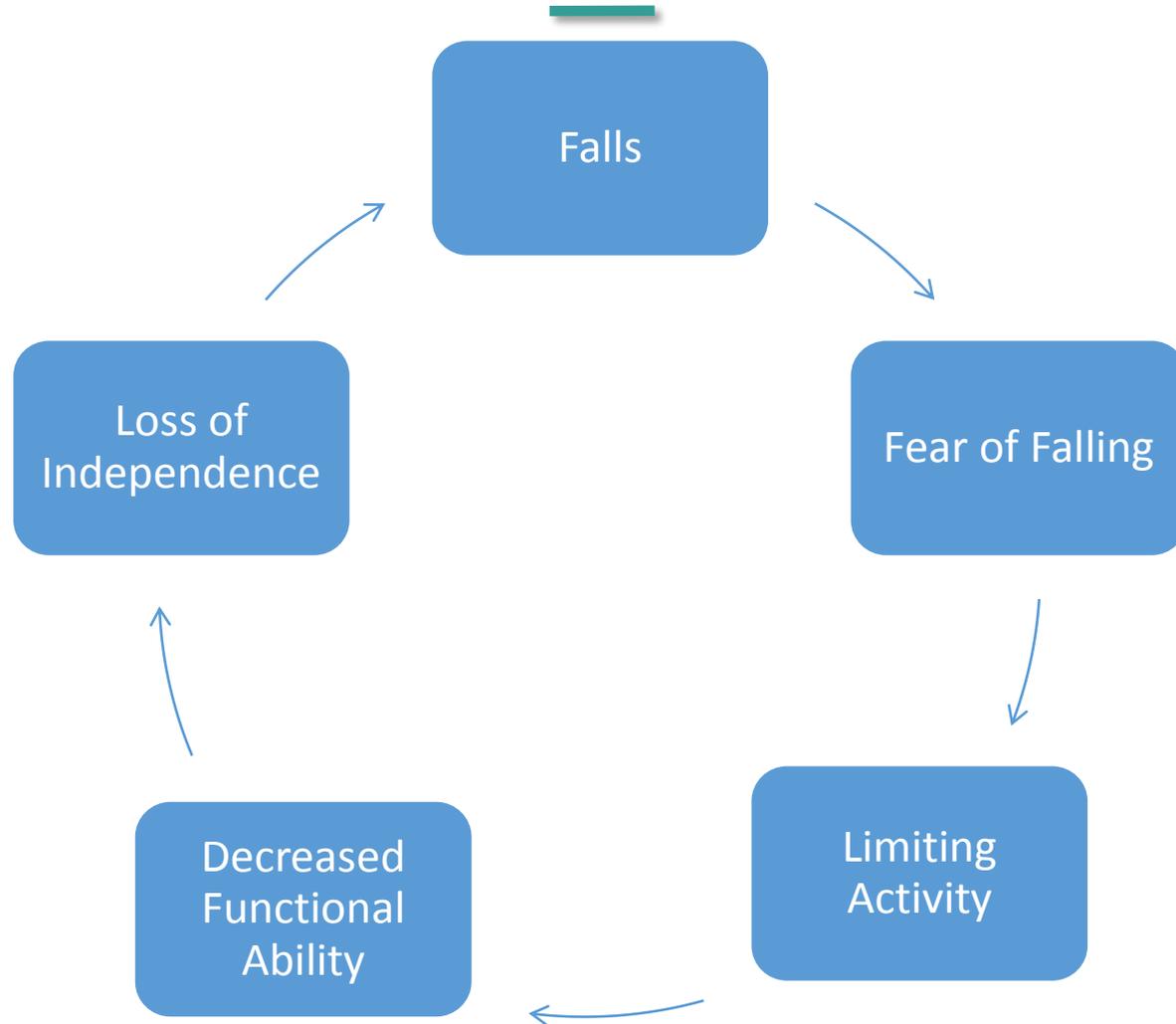


Exercise



NCOA 2017

Negative cycle of falling



Check Your Risk for Falling

Circle "Yes" or "No" for each statement below			Why it matters
Yes (2)	No (0)	I have fallen in the past year.	People who have fallen once are likely to fall again.
Yes (2)	No (0)	I use or have been advised to use a cane or walker to get around safely.	People who have been advised to use a cane or walker may already be more likely to fall.
Yes (1)	No (0)	Sometimes I feel unsteady when I am walking.	Unsteadiness or needing support while walking are signs of poor balance.
Yes (1)	No (0)	I steady myself by holding onto furniture when walking at home.	This is also a sign of poor balance.
Yes (1)	No (0)	I am worried about falling.	People who are worried about falling are more likely to fall.
Yes (1)	No (0)	I need to push with my hands to stand up from a chair.	This is a sign of weak leg muscles, a major reason for falling.
Yes (1)	No (0)	I have some trouble stepping up onto a curb.	This is also a sign of weak leg muscles.
Yes (1)	No (0)	I often have to rush to the toilet.	Rushing to the bathroom, especially at night, increases your chance of falling.
Yes (1)	No (0)	I have lost some feeling in my feet.	Numbness in your feet can cause stumbles and lead to falls.
Yes (1)	No (0)	I take medicine that sometimes makes me feel light-headed or more tired than usual.	Side effects from medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I take medicine to help me sleep or improve my mood.	These medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I often feel sad or depressed.	Symptoms of depression, such as not feeling well or feeling slowed down, are linked to falls.
Total _____		Add up the number of points for each "yes" answer. If you scored 4 points or more, you may be at risk for falling. Discuss this brochure with your doctor.	

This checklist was developed by the Greater Los Angeles VA Geriatric Research Education Clinical Center and affiliates and is a validated fall risk self-assessment tool (Rubenstein et al. J Safety Res; 2011; 42(6)493-499). Adapted with permission of the authors.

Evidence-based community falls prevention programs

- Available in the community at low or no cost
- Educational programs and exercise classes
- Listed on Washington Tracking Network:
 - <https://fortress.wa.gov/doh/wtn/WTNPortal/#!q0=464>



a strength, balance, and fitness class for adults 65+

[Link](#)



[Link](#)



[Link](#)



[Link](#)



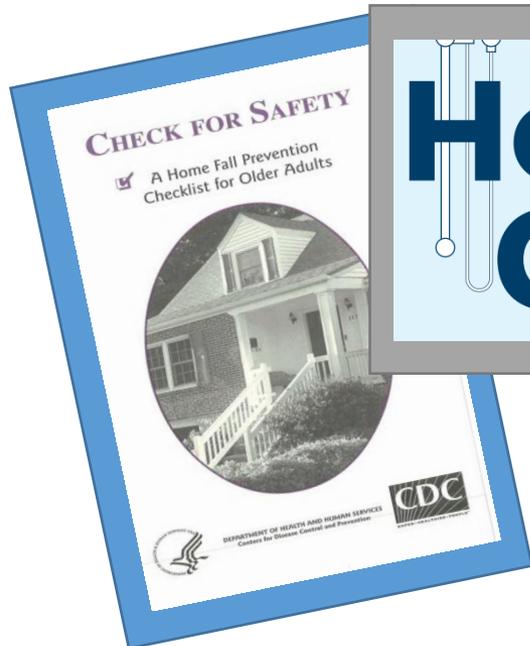
MANAGING CONCERNS ABOUT FALLS

[Link](#)

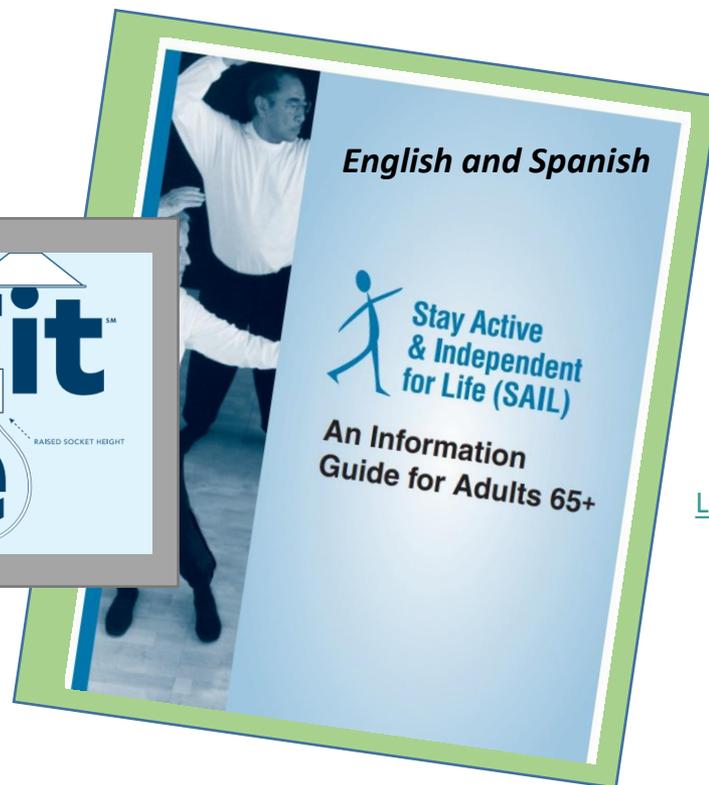
Reduce falls due to unsafe home environment

- Printed Resources from DOH and AARP
- DSHS Tailored Supports for Older Adults
- Local Resources
 - Rebuilding Together
 - EMS Programs

[Link](#)



[Link](#)



[Link](#)

Falls - Malnutrition

- Malnutrition does not “look” like one specific thing.
- The link between malnutrition and falls is significant.
- Malnutrition has many causes
 - Limited income
 - Trouble swallowing, chewing, or poor dental health
 - Poor appetite
 - Living alone or feelings of loneliness
- A registered dietician or nutritionist can help older adults identify causes and solutions of malnutrition
- Meals on Wheels is a proven intervention



Falls - Medications and other factors

- Podiatrist can help with foot problems
- Recommend yearly eye exams
- Medications with increased risk of falls:
 - Benzodiazepines (anxiety medications)
 - Tranquilizers
 - Anti-depressants
 - Opioid pain medication
 - Sleep medications



Poisoning

- Medication interactions - especially with alcohol
 - ◆ Increased falls risk as well
- Carbon monoxide poisoning
- Unintentional and intentional overdose
 - ◆ Opioids, benzodiazepines
 - Substance misuse can develop at any age
 - Treatment is available, recovery is possible

Fire prevention

- If you smoke, smoke outside
- Give space heaters space – at least 3 feet
- Stay in the kitchen when frying food
- If your clothes catch fire: stop, drop, and roll
- Smoke alarms save lives
- Plan and practice your escape from fire and smoke
- Know your local emergency number
- Plan your escape around your abilities



NATIONAL FIRE PROTECTION ASSOCIATION

The leading information and knowledge resource on fire, electrical and related hazards

From [“Remembering When”](#) National Fire Protection Association

Motor vehicle safety

● **Facts:**

- There was a 29% increase in people age 65 and older driving from 2006 to 2015.

● **Steps to Stay Safe on the Road**

- Exercising regularly to increase strength and flexibility.
- Driving during daylight and in good weather.
- Avoiding distractions in your car, such as listening to a loud radio, talking on your cell phone, texting, and eating.

● **Washington State Department of Licensing** has a list of safe driving courses for seniors (age 55 or over):

<http://www.dol.wa.gov/driverslicense/seniors.html>.

- After attending an eight-hour collision prevention course, participants will receive a certificate that they can send to their insurance company to get an insurance rate reduction.

Abuse, neglect and financial exploitation

- Older adults are at increased risk of this type of violence, often from family or household members
- Abuse can be physical, verbal, emotional and/or sexual
- Neglect can include not providing needed care
- Financial exploitation can include taking money, forcing an older adult to work, threats and coercion
- Adult Protective Services can help
- Abuse impacts older adult's wellbeing long-term

Healthy Aging



AGING IN PLACE

What Is Aging In Place?

The CDC defines Aging in Place as:

“The ability to live in one’s own home and community safely, independently, and comfortably, regardless of age, income, or ability level.”

Aging in Place

- 75% of older adults intend to live in their current home for the rest of their lives.
 - ◆ AARP State of Aging Survey 2015
- 32% of older adults report having physical or cognitive impairment that prevents them from doing activities of daily living.
- Planning ahead is key to successful aging in place.



Barriers To Aging in Place

- Increased need for care due to physical or cognitive impairment
- Lack of sufficient income to maintain home
- Inability to make needed safety changes
- Lack of access to community resources
- Difficulty accessing transportation

Planning ahead for Aging In Place

- Everyone should develop legal documents to indicate who would have financial and medical power of attorney if they were unable to make their own decisions
- Budget for home safety modifications
- Connect with community services that can help
 - Area Agencies on Aging/Aging and Disability Resource Centers
 - ◆ Caregiving resources
 - ◆ Meals On Wheels
 - ◆ Respite care
 - ◆ Tailored Supports for Older Adults program (DSHS)

Aging in Place – How CHWs Can Help

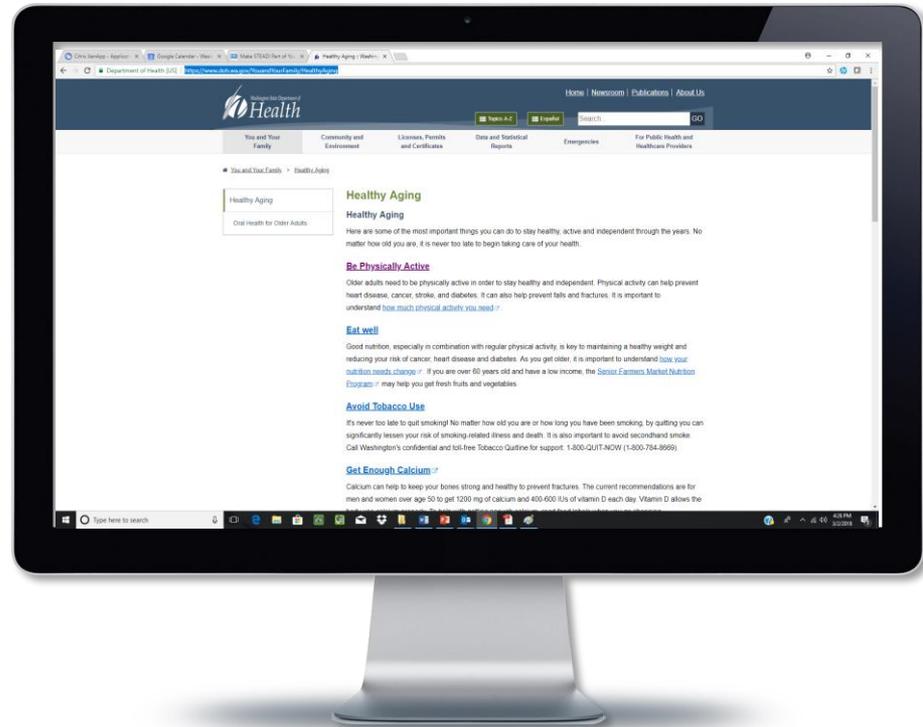
- **Educate** on risks for injuries and how to avoid them
 - Falls prevention
 - Screening and resources
 - Poisoning awareness
 - Fire safety
 - Motor vehicle safety
- **Watch** for signs of abuse, neglect and financial exploitation
 - Advocate and offer assistance
- **Encourage** planning ahead to age in place
- **Connect** with community resources
 - Area Agencies on Aging (DSHS)
 - Community organizations

Healthy Aging
is for
EVERYONE

<https://www.doh.wa.gov/YouandYourFamily/HealthyAging>

Website

- Resources
- Links
- Newsletter



Questions?

Thank You!



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