

FALL ASSESSMENT AND PREVENTION

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CONFLICTS OF INTEREST

Amgen Speaker
Alexion Speaker
NOF

Objectives

- 1. Identify patients at risk for falling.
- 2. Identify appropriate testing to assess your patient's fall risk.
- 3. Learn interventions to improve balance

PROGRAM OVERVIEW

- 1. Falls and Fractures
- 2. How to Assess Your Patients Fall Risk
- 3. Effective Interventions
- 4. Community Programs and Resources









THE GRAY TSUNAMI IS HERE!





WHAT IS A FALL?

CDC definition:

A person descends abruptly due to the force of gravity and strikes a surface at the same or lower level.

This includes slips and trips!

Cause of Falls

- Decreased physical activity
- 2. Physical Weakness
- 3. Visual Changes
- 4. Certain Medications
- 5. Polypharmacy
- 6. Peripheral Neuropathy
- 7. Unsafe home environment
- 8. Cognitive Changes
- 9. Low Vitamin D Levels
- 10. Dogs and Cats in home

- 11. Inappropriate Footwear
- 12. Incontinence/Urgency
- 13. Tethers 02 & IV tubing
- 14. Bending over to pick up item
- 15. Previous Falls
- 16. Height of Toilet Seat
- 17. Agitation, confusion
- 18. Slippery Floor Surface
- 19. Stairs
- 20. Improper assistive devices

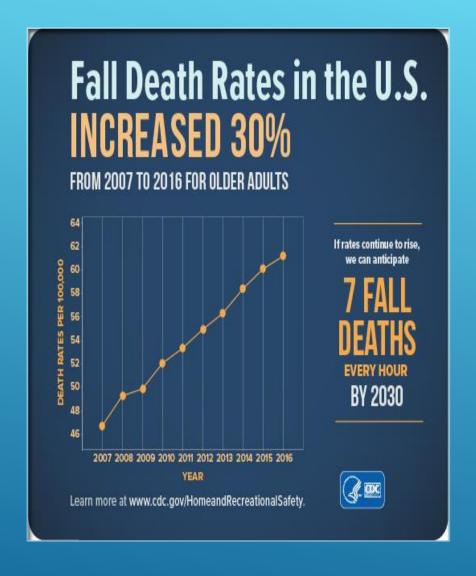
Why do we Care?

Falls are the leading cause of fatal and nonfatal injuries among adults 65 and older.

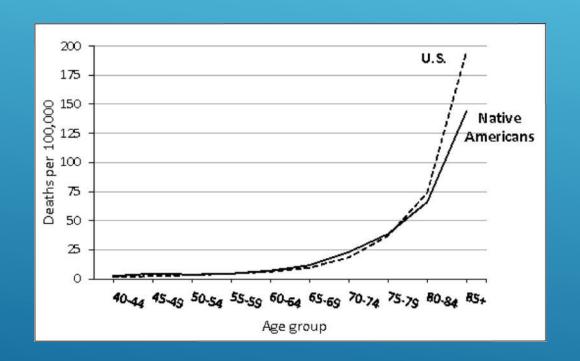
10,000 people in the United States turn 65 every day!

1 out of 4 people 65 and older fall each year, and over 3million are treated in ER's annually for fall injuries. (in U.S.)

8.9million Osteoporotic fractures every year worldwide



Fall Death Rates Among U.S. and Native American Adults 2007-2010



FRAGILITY FRACTURE

National Osteoporosis Foundation:

"any fall from ground level or less resulting in a fracture"



FRAGILITY FRACTURE

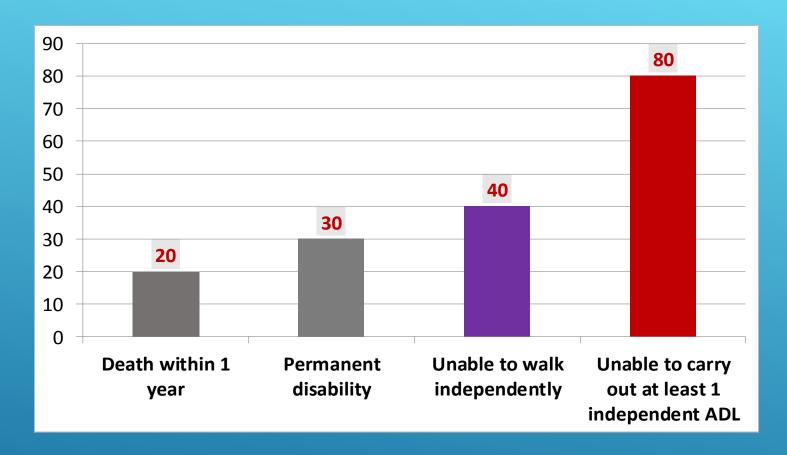


- ► Fall from a standing height
- ► Ground Level Fall
- ► Low Energy Trauma

FRAGILITY FRACTURE OF HIP







COOPER. AM J MED. 1997;103(2A)

Spine

Hip

Femur

Humerus

Forearm

Wrist

MOST COMMON FRAGILITY FRACTURES

? Fragility Fractures

Ankle

Feet -Toes

Hands - Fingers

Elbows







BALANCE

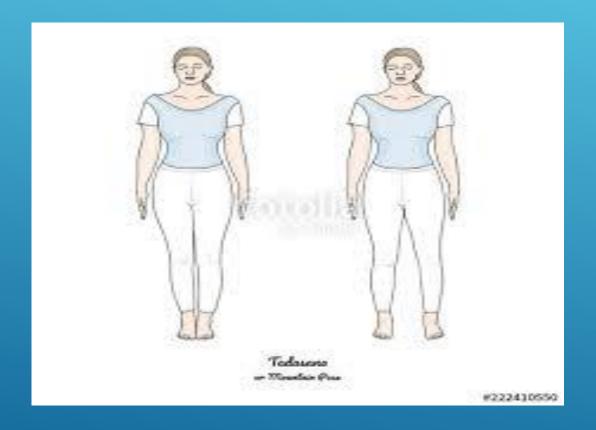
Stability produced by even distribution of weight on each side of the vertical axis

Merriam - Webster Dictionary





Stability/Balance



ASSESSMENT

- 1. Interview you patient
- 2. Interview their family member if available
- 3. Observe them walk into exam room
- 4. Review Medications (Beers List)
- 5. Review their Medical History
- 6. Fall Questionnaire
- 7. Administer Testing Tools for Fall Assessment



FALL RISK ASSESSMENT WHO?

- ► All Geriatric Patients
- ► Anyone over the age of 65
- ▶ Visual Changes
- ▶ Frail
- ► Neurologic Conditions
- ► Musculoskeletal Conditions

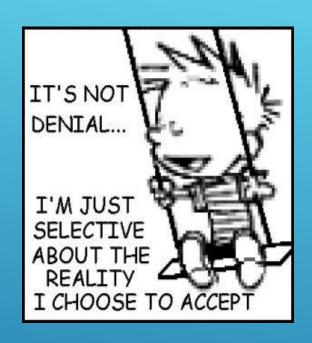
DENIAL BY PATIENTS & PROVIDERS

"I fell hard"

"I tripped over the rug"

"It was icy"

Provider's ignore or overlook the cause.





OLDER ADULTS ARE EMBARRASSED TO ADMIT THEY'VE FALLEN

THEY ARE AFRAID TO LOSE THEIR INDEPENDENCE

WORRIED THEY MAY HAVE TO USE A WALKING AID

LOSS OF CONTROL

AT RISK MEDICATIONS

- Antihistamines
- Anticonvulsants
- Antihypertensives
- Diuretics
- Cardiac Meds
- Analgesics
- Sedatives
- Muscle Relaxers
- Ototoxic and Vestibular Suppressants
- Psychotropics

MEDICAL CONDITIONS

- Neurologic Conditions
- Cardiac
- Arthritis
- Chronic Pain
- Foot Problems
- Pulmonary Conditions
- People undergoing Chemotherapy
- Physical Disabilities

INTERVIEW YOUR PATIENTS:

- 1. Have you fallen in the past year?
- 2. Did you tell your primary care provider?
- 3. Do you feel unsteady when standing or walking?
- 4. Are you afraid of falling?
- 5. Do you ever get dizzy?



Check Your Risk for Falling

	Circle "Ye	s" or "No" for each statement below	Why It matters					
es (2)	No (0)	I have fallen in the past year.	People who have fallen once are likely to fall again.					
es (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. Discuss this brochure with your doctor.	If you scored 4 points or more, you may be at risk for falling.					

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.

RISK FACTORS FOR FALL AMONG ELDERLY PERSONS LIVING IN THE COMMUNITY

▶ 1yr Prospective Study using 336 persons at least 75yrs old living in the community.

- ▶ All subjects went through extensive testing of mental status, strength, reflexes, balance and gait.
- ► Homes were inspected for environmental hazards.
- Results:
- ▶ 32% (108) fell at least once
- ▶ 24% of those had serious injuries 6% had fractures
- ► The risk of falling increased linearly with the number of risk factors, from 8% w/ none to 78% with 4 or more risk factors . (P<0.0001)
- ▶ 10% of falls during acute illness, 5% during hazardous activity and 44% w/ presence of environmental hazards.

Tinetti, Mary E., M.D. Speechley, Mark PhD., Ginter, Sandra F., R.N. N. N. Engl J Med. 1988 Dec 29;319(26):1701-7

SIMPLE TESTS TO PERFORM IN CLINIC

- 1. TUG Timed Up and Go
- 2. 30 Second Chair Stand
- 3. 4 Stage Balance Test
- 4. Berg Balance Scale

ASSESSMENT

Timed Up & Go (TUG)

Purpose: To assess mobility

Equipment: A stopwatch

Directions: Patients wear their regular footwear and can use a walking aid, if needed. Begin by having the patient sit back in a standard arm chair and identify a line 3 meters, or 10 feet away, on the floor.

1) Instruct the patient:

Always stay by the patient for safety.

When I say "Go," I want you to:

- 1. Stand up from the chair.
- 2. Walk to the line on the floor at your normal pace.
- 3. Turi
- 4. Walk back to the chair at your normal pace.
- 5. Sit down again.
- ② On the word "Go," begin timing.
- ③ Stop timing after patient sits back down.
- (4) Record time.

Time in Seconds:

An older adult who takes ≥12 seconds to complete the TUG is at risk for falling.

CDC's STEADI tools and resources can help you screen, assess, and intervene to reduce your patient's fall risk. For more information, visit www.cdc.gov/steadi

atient

Date

ne □AM □PM

OBSERVATIONS

Observe the patient's postural stability, gait, stride length, and sway.

Check all that apply:

- □ Slow tentative pace
- ☐ Loss of balance
- Short strides
- ☐ Little or no arm swing☐ Steadying self on walls
- ☐ Shuffling
- ☐ En bloc turning
- Not using assistive device properly

These changes may signify neurological problems that require further evaluation.





MEASURES STRENGTH AND BALANCE

12 SECONDS OR MORE INDICATES ELEVATED FALL RISK

>30 SECONDS INDICATES ADL DIFFICULTY

30-Second Sit-To-Stand Test

This test helps predict your risk of falls, is a direct test of leg strength and endurance, and an indirect test of core strength. To do this test, you'll need a sturdy chair with a straight back and no arms, a stopwatch or clock with a second hand, and a helper to count how many times you come to a full

standing position.

TO DO THE TEST:

- Sit in the middle of the chair with your feet flat on the floor, shoulder width apart.
- Cross your arms across your chest and keep your back straight.
- Start timing as you rise to a full standing position and then sit back down again. (If you have to use your arms to stand, stop the test and give yourself a score of zero for the test.)
- Repeat this as many times as you can in 30 seconds. If you're at least halfway to a standing position when the time is up, count it as a stand.
 - 5. Record how many times you stand in this box:

If your result in #5 is below the average listed in the chart below for your age group and sex, you're at high risk for falls.

AGE	BELOW AVERAGE							
GROUP	WOMEN	MEN						
60-64	< 12	< 14						
65-69	< 11	< 12						
70-74	< 10	< 12						
75-79	< 10	< 11						
80-84	< 9	< 10						
85-89	< 8	< 8						
90-94	< 4	< 7						
Source: Cent	ters for Disease Co	ntrol and						

30 SECOND CHAIR STAND

ASSESSMENT CONTINUED

The 4-Stage **Balance Test**

Patient	
Date	
Time	□ AM □ PM

Instructions to the patient:

- I'm going to show you four positions.
- Try to stand in each position for 10 seconds.
- > You can hold your arms out, or move your body to help keep your balance, but don't move your feet.
- For each position I will say, "Ready, begin." Then, I will start timing. After 10 seconds, I will say, "Stop."

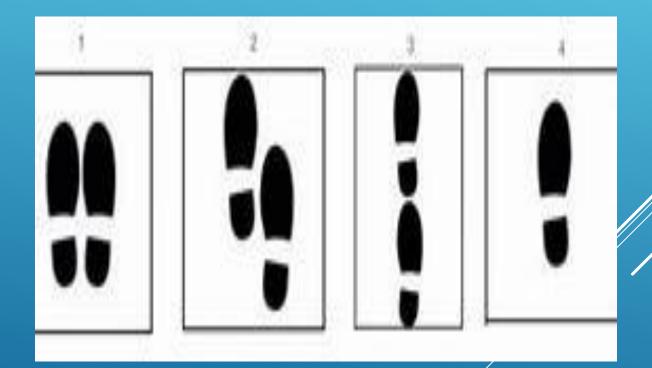
	① Stand with your feet side-by-side.	Time:seconds
	② Place the instep of one foot so it is touching the big toe of the other foot.	Time:seconds
	③ Tandem stand: Place one foot in front of the other, heel touching toe.	Time:seconds
!	④ Stand on one foot.	Time:seconds

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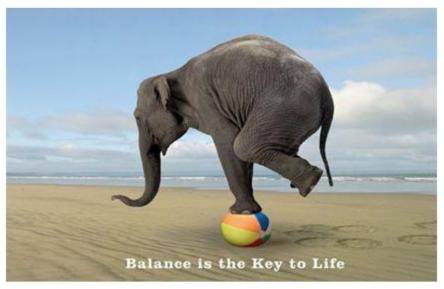
Notes:





Berg Balance Scale

- 14 item scale
 - 5 point scale, ranging from 0-4
- Completion time: 15–20 minutes
- Equipment needed:
 - Ruler
 - Two standard chairs
 - Footstool or step
 - Stopwatch or wristwatch
- Scoring
 - 41-56: Low fall risk
 - 21-40: Medium fall risk
 - 0-20: High fall risk



Berg Balance Test 1. With a South Link Accepted 1. With the So

Sit to stand	4 Ind (independent)		opendent) 3 uses hands		2	several tries 1		1 minimal aid		0	mod-max assist			
Standing Unsupported	4	4 2 minutes 4 2 minutes, safe		- aupervision		2	2 30 sec unsupported		1 many tries for 30 secs		0	can not stand 30 secs can not sit 10 secs		
Sitting Unsupported	4					2					0			
Standing to sitting	4	4 safe, no hands		3	uses hands	2	2 uses back of legs		1	1 uncontrolled descent		0	needs assist	
Pivot Iransfer	4	4 safe, min use of hands		3	safe, use of hands	2 vert		al g/SBA	1 assist x 1		st x 1	0	assist x 2	
Standing eyes closed	4	10 se safe	conds,	3	10 seconds, SBA	2	2 3 seconds		1	1 eyes not closed, steady		0	unable, LOB	
Stand feet together	4 Indic feet, 1 3 Indic feet, 2 Indic feet, 1 min, SBA 2 30 sec, SB				0	help c feet, <15 sec								
Reaching	4	>10 inches		3	>5 inches	2	>2 in	2 inches		needs supervision		0	unable, LOB	
Picking up object	4	4 able and safe		3 able, SBA needed		2	2 unable, keeps balance		1 unable, needs SBA		0	unable, LOB		
Look over shoulders	4	4 able, equal		3	able, unequal	2	part safe	ial turn,	1	part	ial turn, ds SBA	0	unable, LOB	
Turn 360 R&L	4 able, <4		3 one way only,		2	2 one way only, >4secs		1 close SBA o			0	unable, LOB		
Alternate loot to stool	4	8 steps < 20 3		3 8 steps > 20 secs		2	2 4 steps with SBA 2 smell step, 30secs		1 2-4 steps with min A x 1		0			
Tandem stance	4 tandem, 30secs				staggered, 30secs	2			1	1 needs help. 15 secs		0	unable, LOB	
Single leg stance	4	Ind, >	10secs	3	Ind, 5-10sec	₃ 2	ind,	3-5secs	1	<3s star	ecs, stays iding	0	unable, LOB	
Goal status =	G8	979	Curre	nt S	tatus = GB	978	Di	scharge	Stat	us :	G8980			
Total Score		0	1-	11 12-22	23	-33	34-44	45-	55	56	4			
Degree of impairment 100%		80	9% 60%	4	40% 20%		10%		0%		1886	TOTAL		
Modifier Code CN		CN	C	M CL	C	CK.	CJ	C	1	СН				

► Have the Discussion

Don't shame them.

"You're going to fall and break your hip and end up in a Nursing Home"!

Try not to use the term "exercise".

Older adults respond better to physical activity and moving safely

Stress Independence "I'm trying to keep you independent"

INTERVENTIONS

- 1. Refer to Physical Therapy/Occupational Therapy
- 2. Recommend a Cane or Walker
- 3. Recommend joining a community exercise Program
- 4. Offer Hand outs with diagrams of Exercises and Balance Activities
- 5. Refer to appropriate Specialty such as Neurology, Orthopaedics, Pain Mgt





Which Cane?

90% of time - Standard Cane

Rolling Walker

"Furniture Walker" or can't stand independently without holding on to something -

PHYSICAL THERAPY/ OCCUPATIONAL THERAPY

- Review Medications and Medical Condition
- Home Visit to assess Living Environment
- Assess ADL's
- Perform a Simple Vision Test
- Monitor heart rate and B/P at rest and after exertion or changing positions
- Assess footwear
- Assess Strength, Balance, Ambulation
- Develop Appropriate Exercise Program
- Teach how to properly use a walking aid

► Physical Therapy Prescription

Dx: Muscle Weakness – this covers everything Osteoporosis
H/O Compression Fracture or other FX
Fall Risk

"Evaluate and treat"

- Get to know Physical Therapists in Area
- Interview to identify ones who specialize in Osteoporosis and Geriatrics
- Get feedback from your patients after PT about their experience



RESOURCES FOR PROVIDERS AND PATIENTS

CDC STEAD! TOOLKIT

- Fall risk screening program for community dwellers
- Developed by the CDC to assist Health Professionals to assess and identify fall risk factors for their patients
- Identifies interventions
- Free online information

https://www.cdc.gov/steadi/materials.html
OR
Google "CDC Steadi"

STEADI Toolkit: Provider Tools and Resources

STEADI

CDC's Stopping Elderly Accidents Deaths and Injuries (STEADI) initiative is an evidence-based older adult fall prevention strategy. STEADI consists of three core elements: **screen** patients for fall risk, **assess** a patient's risk factors, and **intervene** to reduce risk by giving older adults tailored interventions.

To help healthcare providers screen, assess, and intervene, CDC has recently refreshed the provider tools and resources. Many of these tools can be integrated into your electronic health record (EHR) system. Check with your EHR provider to see what may already be available to you.

Provider Resources



Algorithm Flow chart for fall risk screening, assessment, and intervention



Pocket Guide A provider's guide for preventing falls in older patients



Screening and Assessments Directions on how to screen and how to conduct standardized functional assessments



Fall Facts Information about falls and fall risk factors

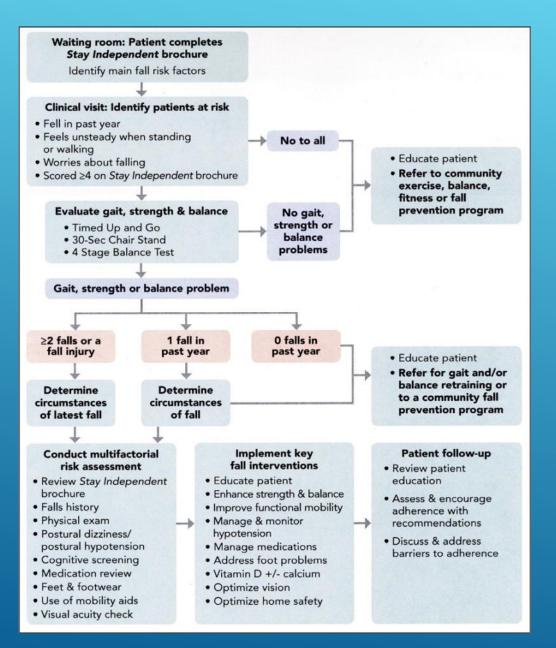


Medication Management Information on medication risk factors and management



Wall Chart Integrating Fall Prevention into Practice

STEADI ALGORITHM



COMMUNITY PROGRAMS

- Silver Sneakers SilverSneakers® is a health and fitness program designed for adults 65+ that's included with many Medicare Plans.
- LifeSpan check your local listing
- **Local Community Centers** 3.
- **Local Senior Centers**
- **Assisted Living Facilities** 5.



NCOA Falls Prevention Programs



Strength Training At least 2 days/week

- Exercises for legs, arms, chest, shoulders, back
- ▶ Use body weight against gravity, bands, or weights*
- ▶ 8 12 repetitions per exercise







Try these to get started:

□ Classes at YMCA/community centre
□ Consult a physical therapist/kinesiologist
□ Contact Osteoporosis Canada



Balance Exercises Every day

- ► Tai Chi, dancing, walking on your toes or heels
- Have a sturdy chair, counter, or wall nearby, and try (from easier to harder): shift weight from heels to toes while standing; stand heel to toe; stand on one foot; walk on a pretend line



Posture Awareness Every day

- ► Gently tuck your chin in and draw your chest up slightly
- Imagine your collarbones are wings spread your wings slightly without pulling your shoulders back



Aerobic Physical Activity At least 150 mins/week

- ▶ Bouts of 10 mins or more, moderate to vigorous intensity*
- You should feel like your heart is beating faster and you are breathing harder
- ▶ You might be able to talk while doing it, but not sing

Examples:

Brisk walking

Dancing
Jogging
Aerobics class

*If you have a spine fracture, consult a physical therapist/kinesiologist before using weights, and choose moderate, not vigorous aerobic physical activity

Questions? Want a free physical activity booklet? Contact Osteoporosis Canada: English 1 800 463 6842 / French 1 800 977 1778 or www.osteoporosis.ca

Locate a Bone Fit[™] trained instructor: English 1 800 463 6842 / French 1 800 977 1778 or www.bonefit.ca

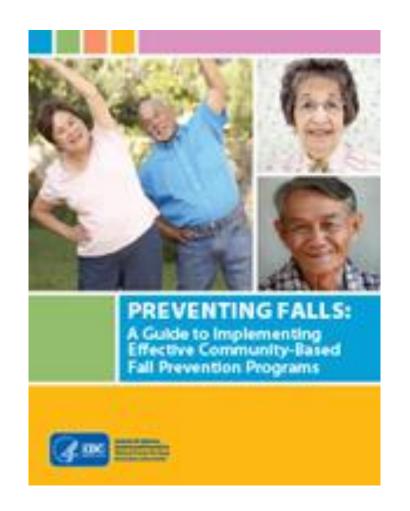


OSTEOPOROSIS





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Preventing Falls: A
Guide to Implementing
Effective CommunityBased Fall Prevention
Programs

www.CDC.gov



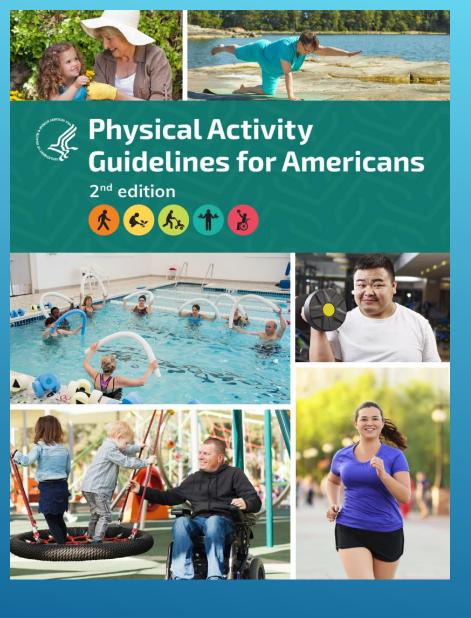






CDC BROCHURES AVAILABLE FOR YOUR PATIENTS

- 1. How to Prevent Falls
- 2. Stay Independent
- 3. Family Caregivers
- 4. Check for Safety



https://www.cdc.gov/physicalactivity/basics

The Bone-Healthy AND PREVENT FRACTURES! The Bone-Healthy Way of Life and Exercise



Everyday Activities Keep your back straight. Avoid rounding your spine and shoulders.

General Lifting



Stand with feet a little wider than hips, knees in line with middle toes. Squat to lift. Hinge at hips, chest lifted, shoulders back and down. Bring object as close to you as possible.

Brushing Teeth



Keep spine long and straight, chest lifted and knees bent. Hinge at the hips instead of rounding the back to bend towards the sink.

Driving



When backing up, reach right hand behind passenger headrest to brace yourself and keep chest lifted as you rotate.

Exercising Considerations for exercise. Avoid rounding and twisting your spine.

Core Strengthening





Avoid all forms of crunches. Do core control by pulling in abdominals as you bring one leg to 90° while pressing lower back down. Alternate touching toes to the floor.

Spinal Twisting



Avoid extreme seated or supine spinal twists. Gently rotate the pelvis and legs keeping shoulder blades on the floor.

Spinal Stretching



Avoid yoga Forward Fold and Pilates Spine Stretch. Do seated chest stretch supported by arms.

For more tips and exercises, order the complete prevention booklet by visiting americanbonehealth.org!



https://americanbonehealth.org

Also available as a Poster

Hip Protectors Improve Falls Self- Efficacy

Objective: To investigate the effect of external hip protectors on subjects fear of falling and falls self- efficacy (belief in their own ability to avoid falling)

Randomized, controlled trial, 131 women age 75yrs or older who had two or more falls or one fall requiring hospital admission in the previous yr and were living at home.

61 women in the intervention group & 70 in control group

Assessment testing for fear of falling and falls efficacy given at 1 & 4mos.

Fear of falling similar in both groups at 1mo.

At F/U - Fear of falling present in 43% w/ hip protectors & 57% of control group

Hip protector users had greater falls self efficacy at follow up.

Hip protector users felt more confident completing daily tasks safely & required less assistance w/ ADL's





- Many studies demonstrate reduction in hip fractures if worn although
- Poor Adherence
- Poor Acceptance
- Uncomfortable
- Better design needed!

HIP PROTECTORS

Resources for Fall Prevention

- ► CDC Steadi Toolkit
- ► Centers for Medicare and Medicaid Services
- ► National Council on Aging
- ► National Institute on Aging
- ► American Geriatrics Society
- ▶ National Institute of Health
- ▶ National Osteoporosis Foundation

RESOURCES FOR PATIENTS AND CAREGIVERS

- CDC Steadi:Talking about Falls with your Patient
- National Osteoporosis Foundation https://cme.nof.org/Resources.aspx
- https://www.cdc.gov/steadi/pdf/Talking_about_Fall_Prevention_with_Your_Patient s-print.pdf
- https://www.ncoa.org/resources/falls-prevention-conversation-guide-caregivers/
- https://go4life.nia.nih.gov/free-resources/
- https://www.nia.nih.gov/health/prevent-falls-and-fractures
- https://americanbonehealth.org/downloadable-materials/
- https://osteoporosis.ca





