



Preventing Falls

An overview of the top six intervention strategies to help reduce falls risk in older adults



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Fatal falls among our seniors are on the rise¹

Falls and fall injuries are among the most common causes of decline in the ability to care for oneself and to participate in social and physical activities. People age 75 and older who fall are four to five times more likely than those age 65 to 74 to be admitted to a long-term care facility for a year or longer.²

Although preventing falls is the best solution, not all falls can be prevented. And about half of older adults who fall cannot get back up without help. Delayed intervention or prolonged lie times after a fall can result in dehydration, pressure ulcers, and rhabdomyolysis – serious medical complications that very likely require hospitalization and which may be avoided with quick access to help.³

Throughout this guide, you'll learn more about the top six falls intervention strategies that address common fall risk factors, which include balance, mobility, home hazards, and medications.

Spend some time going through these strategies with older adults in your care to help them continue to live independently and confidently at home.

1. Bergen G., et al., "Falls and Fall Injuries Among Adults Aged >65 Years — United States, 2014," *MMWR Morb Mortal Wkly Rep* 2016;65:993–998. DOI: <http://dx.doi.org/10.15585/mmwr.mm6537a2>.

2. Stevens J., et al., "Gender differences in seeking care for falls in the aged Medicare population," *Am J Prev Med* 2012;43:59–62.

3. Rubenstein, Laurence Z., MD, MPH, "Falls in the Elderly," *Merck Manual of Geriatrics*, Sec.2, Ch.20. Last full review/revision November, 2013.

4. El-Khoury F., et al., "The effect of fall prevention exercise programmes on fall induced injuries in community dwelling older adults: systematic review and meta-analysis of randomised controlled trials," *BMJ* 2013;347:f6234.



Exercise is the most widely studied, single falls prevention intervention; it's one of the most important actions seniors can take for their health. Exercise programs for older people not only reduce the rates of falls but also prevent injuries resulting from falls: the estimated reduction is 37% for all injurious falls, 43% for severe injurious falls, and 61% for falls resulting in fractures.⁴ Older adults at risk of falling should have exercise routines that are specifically designed to maintain or improve balance, strength, and endurance.

How much activity do older adults need?

It's recommended that seniors exercise at least three days a week for best results. To stay healthy or to improve health, older adults need to do two types of physical activity each week: aerobic activity and muscle-strengthening exercises. These should work all major muscle groups, including legs, hips, back, abdomen, chest, shoulders, and arms.

Strong evidence shows that regular physical activity is safe and provides great benefits

- Better health
- Prolonged independence
- Increased mobility
- Reduced falls risk
- Quicker recoveries (even if an older adult becomes sick or gets injured)

Aerobic options

- 2 hours and 30 minutes of moderate-intensity aerobic activity
- 1 hour and 15 minutes of vigorous-intensity aerobic activity
- An equivalent mix of moderate- and vigorous-intensity aerobic activity

Tips

Many community centers and health clubs offer senior swims and low-impact exercise options, such as walking groups, water aerobics, and Aqua Zumba.

Always advise older adults to consult with their healthcare provider or geriatrician before they start an exercise program.

Recommended Exercises for Older Adults



A. Exercises From a Seated Position

Do not overdo it. Start slowly and gradually build the number of repetitions. Use a firm chair.

Neck stretches

Side bends: Tilt head sideways as if to touch ear to shoulder.

Right: Hold 10 seconds, 10 repetitions

Left: Hold 10 seconds, 10 reps

Chin to chest:

Hold 10 seconds, 10 reps



Rowing

Make sure to sit as straight as possible. Place arm straight out in front and then pull arm back with elbow next to your side.

Right arm: 10 reps

Left arm: 10 reps

Both arms: 10 reps



Arm raises

Raise arm up, pause at the top for 2 seconds, then bring down.

Right arm: 10 reps

Left arm: 10 reps

Both arms: 10 reps



Back stretching and strengthening

With legs apart, place hands on each side of right knee. Slide hands from knee to ankle and return to upright sitting position.

Right knee: 10 reps

Left knee: 10 reps



Seated marching

Alternate lifting knees to chest as if marching

Right leg: 10–15 reps

Left leg: 10–15 reps



Ankle range of motion

Point toes up as far as possible and then down as far as possible. Rotate both feet.

Clockwise: 20 reps

Counterclockwise: 20 reps



Knee extension

Straighten knee, pause, then lower foot back to floor.

Right leg: 10 reps

Left leg: 10 reps



Small kicks

Straighten and bend knee as in a kicking motion

Right leg: 10–15 reps

Left leg: 10–15 reps



Recommended Exercises for Older Adults



B. Exercises from a standing position

To maintain balance, use a kitchen counter or the back of a sturdy chair that doesn't have wheels.

Calf stretch

Hold the back of a chair. Step back with right foot, keeping foot straight. Lean forward, keeping right heel on floor.



Right leg: Hold 30 seconds, 3 reps

Left leg: Hold 30 seconds, 3 reps

Lateral leg swing

Hold the back of a chair. Move leg straight out to side without bending knee or waist. Keep toes pointed forward.



Right leg: 10 reps

Left leg: 10 reps

Heel and toe raise

Stand straight. With feet shoulder-width apart, rise up on toes, pause, then lower back down.

Then lift toes, keeping heels flat, and lower back down.

Both feet together: 10 reps



Mini-squats

Hold the back of a chair. Bend knees as far as is comfortable. Keep back and head up straight and behind toes, as in diagram. Then return to standing position.

10 reps



Hip flexion and extension

Hold the back of a chair and bring your right knee up as close to your chest as possible, trying not to bend at the waist.

Slowly lower your leg and swing it straight behind you without bending your knee. Then lower it back to the starting position.

Right leg: 10 reps

Left leg: 10 reps



Note: Be sure to consult with your physician before beginning an exercise program. The exercises suggested here do not substitute for a program provided by your health practitioner.

Why is Yoga Important for Seniors?



Yoga is one of the best forms of exercise for older adults to build strength while helping to improve both their flexibility and balance. It can help boost their mood by reducing anxiety, lowering their heart rate and blood pressure, and improving their sleep.

Mind-body exercises are beneficial for improving global cognition, cognitive flexibility, working memory, verbal fluency, and learning in cognitively intact or impaired older adults.⁵ Seniors with limited mobility can practice chair yoga, either from a seated position or by standing behind a chair for support. Chair yoga has also been shown in one study to reduce seniors' fear of falling, as well as to reduce their reliance on assistive devices for mobility.⁶



5. Wu C., et al., "Effects of Mind-Body Exercises on Cognitive Function in Older Adults: A Meta-Analysis." *J Am Geriatr Soc.* 2019 Apr;67(4):749-758. doi: 10.1111/jgs.15714. Epub 2018 Dec 18. PMID: 30565212.

6. Galantino M., et al., "Safety and feasibility of modified chair-yoga on functional outcome among elderly at risk for falls." *Int J Yoga.* 2012 Jul;5(2):146-50. doi: 10.4103/0973-6131.98242. PMID: 22870000; PMCID: PMC3410195.

12 Chair Yoga Poses for Older Adults



1. Ujjayi breathing

A great starter pose: sit up tall at the edge of your seat and place your hands on your waist. Take a deep breath in through your nose, expanding through your sides and abdomen, then exhale slowly.

Repeat for 10 breaths.



3. Circles

To release and relax the hip muscles, circle your hips clockwise 5 times while seated without moving your upper body, then do the same counterclockwise 5 times.



5. Sun salutations with twists

Repeat the previous exercise, adding a twist as you exhale.

Repeat 5 times on each side, holding the last twist for 5 seconds.



2. Cat/Cow

This pose helps to relieve back and neck tension. Inhale and arch your back to look up at the ceiling. Exhale, pulling your abdominals in and rounding your back as you bend forward.

Repeat this 5 times.



4. Sun salutation arms

This lengthens the spine, releases tension in the shoulders and neck. Sitting tall, breathe in and lift your arms up, pressing your palms overhead. On an exhale, float your arms back down to your sides.

Repeat 5 times.



6. High altar side leans

Stretches spine and shoulders. Lift your arms and interlace your fingers in front of you. Turn your palms to the ceiling as you straighten your arms above your head.

Lean to the right for 3 breaths, then to the left for 3 more breaths.



***NOTE:** Always consult with your healthcare professional before using the poses in this brochure. These exercises are not a substitute for an exercise program provided by your healthcare practitioner. Stop doing yoga if you experience any pain or discomfort while performing these poses.

12 Chair Yoga Poses for Older Adults



7. Eagle arms

Helps reduce shoulder aches. Stretch your arms out to each side, bring one arm under the other at shoulder height and bend your arms at the elbows with palms together.

Hold for 5 breaths, unwind and repeat with opposite arms.



9. Ankle to knee

The hip area is also a stress spot. To loosen things up, sit up straight, bend your right knee and place your right ankle over your left knee. For a deeper stretch, lean forward.

Hold for 5 breaths, then repeat on the opposite side.



8. Assisted neck stretches

The neck is a major stress area. Drape your right arm over your head until your palm reaches your left ear. Let your head fall to your right shoulder, then hold for 5 breaths.

Repeat on the opposite side.



10. Goddess with a Twist

Another great hip stretch: Open your legs wide and point your toes out. Place your right arm inside your right leg, reaching for the floor. Lift your left arm toward the ceiling and look up to your palm.

Hold for 5 breaths, then repeat on the opposite side.



11. Warrior 2

This gives you a full-body stretch. Sit tall at the edge of your seat. Bend your right knee to the side and stretch your left leg out behind you as you press your outer heel down.

Hold for 5 breaths, then repeat on the opposite side.



12. Forward Fold

To finish, let blood flow to your brain. Sit tall and straight, then fold down over your legs, letting your head, neck, and body hang limp.

Hold for as long as you want before rolling back up to a sitting position.





Why is tai chi important for seniors?

Tai chi is a low-impact exercise that puts minimal stress on muscles and joints, making it generally safe for seniors – including those who otherwise might not exercise. It requires no special equipment and can be performed anywhere, indoors or out. And seniors can practice tai chi alone or in a group class.



Tai Chi Classes



1: Starting

Repeat for 10 breaths.



2: Parting the wild horse's mane. 3 times

Repeat for 10 breaths.



3: White crane spreads its wings

Repeat for 10 breaths.



4: Brush knee, push. 3 times

Repeat for 10 breaths.



5: Playing the guitar, lute, pipa

Repeat for 10 breaths.



6: Repulse monkey. 4 times

Repeat for 10 breaths.



7: Hold the ball, ward off

Repeat for 10 breaths.



8: Grasp the bird's tail

Repeat for 10 breaths.



9: Press, sit back

Repeat for 10 breaths.



10: Open up and push. Repeat the last 4 moves, going right

Repeat for 10 breaths.



11: Single whip

Repeat for 10 breaths.



12: Cloud hands going left

Repeat for 10 breaths.



13: Single whip again, high pat on horse

Repeat for 10 breaths.



14: Right heel kick

Repeat for 10 breaths.



15: Carry the tiger over the mountain

Repeat for 10 breaths.



16: Turn

Repeat for 10 breaths.



Tai Chi Classes



17: Left heel kick

Repeat for 10 breaths.



18: Snake creeps through the grass

Repeat for 10 breaths.



19: Stand on one leg – repeat on right side

Repeat for 10 breaths.



20: Shuttle back and forth

Repeat for 10 breaths.



21: Needle at bottom of the sea

Repeat for 10 breaths.



22: Fan through the back

Repeat for 10 breaths.



23: Turn

Repeat for 10 breaths.



24: Right back fist

Repeat for 10 breaths.



25: Parry and punch

Repeat for 10 breaths.



26: Apparent closing

Repeat for 10 breaths.



27: Cross hands

Repeat for 10 breaths.



28: Close

Repeat for 10 breaths.



***NOTE:** Always consult with your healthcare professional before using the poses in this brochure. These exercises are not a substitute for an exercise program provided by your healthcare practitioner. Stop practicing tai chi if you experience any pain or discomfort while performing these poses.

Supplementation in People with Lower Vitamin D Levels



Vitamin D has beneficial effects on muscle and improves strength and balance. Older adults who are vitamin D-deficient often suffer from muscle weakness and pain, which can increase falls risk and limit mobility. In several trials of older adults at risk for vitamin D deficiency, supplementation improved strength, function, and balance. Not only do these benefits improve overall health, but studies show that vitamin D supplementation determines gait performance, while also preventing the occurrence of falls and their complications among older adults.⁷

How do you devise an optimal vitamin D supplementation plan?

Older adults should work with their healthcare provider to understand their vitamin D intake from all sources (diet, supplements, sunlight) and devise a plan to achieve a total vitamin D input that will help prevent falls and fractures.

Vitamin D calculator

Healthcare providers should review the various sources of vitamin D intake for those in their care, then discuss strategies with them to achieve a total vitamin D input that will help reduce falls and fractures. For older adults, the recommended average daily vitamin D input from all sources is 4,000 IU.

A. Intake from all sources

1. Food input

Food intake generally decreases as we age. For most older adults, the average input from food is 150–225 IU.

- Subtract estimated input of vitamin D from food intake.

2. Daily multivitamins and vitamin tablets

- Subtract total daily vitamin D units from vitamin intake.

Studies recommend starting with a supplement of 3,000 IU, taking into account intake from all sources and physiological considerations.

Supplementation in People with Lower Vitamin D Levels



B. Physiological considerations

1. Unprotected sun exposure

Unprotected sun exposure can include wearing shorts or a short-sleeved shirt without sunscreen for 15 minutes or more, several days per week.

- During summer months only, subtract 500–1,000 IU/d with regular unprotected sun exposure.

2. Body mass index (BMI)

Older adults with a higher BMI tend to have lower vitamin D levels and a 20% lower response to vitamin D supplementation (>90 kg).

- Add 500–800 IU/d for higher BMI.

3. Skin color

Evolutionally, different skin tones protected us from our environment. A similar situation exists with vitamin D. Older adults with darker skin tones traditionally have lower vitamin D levels than white, non-Hispanic older adults.

- Add 300–600 IU/d for darker skin tones.

Result

Physiology, activities, and behaviors should be routinely assessed, as they can increase or decrease recommended supplement levels. In this case, sun exposure, diet, ethnicity, and body mass index all play a role in determining a senior's recommended vitamin D supplementation level.

In special cases, a higher vitamin D supplement is indicated, particularly for those older adults who might take medications that chemically interact with supplements or for those with malabsorption syndromes. This example is meant to demonstrate how differing physiological behavior and day-to-day activities can vary levels of vitamin D supplementation. Older adults with increased falls risk should consult with their professional care providers to understand how they can take actions in consideration of their background.

Sources: <http://onlinelibrary.wiley.com/doi/10.1111/jgs.12631/full> and <http://www.bmj.com/content/339/bmj.b3692>.

7. Annweiler C., et al., "Fall prevention and vitamin D in the elderly: an overview of the key role of the non-bone effects." *J Neuroeng Rehabil.* 2010 Oct 11;7:50. doi: 10.1186/1743-0003-7-50. PMID: 20937091; PMCID: PMC2959005

A graphic of a clipboard with a black ring at the top. The clipboard has a light blue header and a white body with a dark blue border. The text on the clipboard is as follows:

Name: **Rose** Age: **78** Ethnicity: **Hispanic**
Starting Supplement: **3,000 IU**

A. Intake from all sources

1. Food input **-225 IU**
Rose maintains a healthy diet and appetite.

2. Daily multivitamins and vitamin tablets **-400 IU**
Rose takes a multivitamin 5–6 days per week and drinks a vitamin-rich supplement for breakfast.

B. Physiological considerations

1. Unprotected sun exposure **+500 IU**
Rose prepares for the sun and rarely leaves the house without applying sunscreen or wearing protective clothing.

2. Body mass index (BMI) **+500 IU**
Rose is pleased with her appearance but is overweight.

3. Skin color **+300 IU**
Since Rose has a browner skin tone, she may require a higher vitamin D supplement.

Ending supplement: **3,675 IU**

Home Safety Assessment and Modifications



As we get older, items in our home that used to be virtually harmless start to pose a greater risk. Carpets, stairs, floors, and even pets can be dangerous. The good news is that many falls can be prevented. Home safety evaluations and modifications can be self-conducted or performed by professional caregivers. It's been shown that home interventions can be effective in reducing the number of people who fall and the frequency of falls in those age 65 and older.⁸

How can you make an older adult's home safer?

Physical and/or occupational therapy can identify the need for adaptive devices, remove tripping hazards in and around the home, and ensure that older adults know how to access help in the event of a fall.



Overall safety issues

All areas of my home are well lit

- Improve lighting with light-sensitive nightlights and/or motion-detection lights that turn on automatically.

My floor coverings are in good repair

- Repair torn/worn carpeting and linoleum.
- Secure throw rugs with double-sided tape or no-slip rug pads, or remove the throw rugs entirely.
- Replace shag carpet with low-pile.

The main walking areas are free of obstacles

- Rearrange furniture to allow a clear path.
- Keep plants and tables along walls or in corners.
- Clean up clutter.

All of my phone and electric cords are out of the way

- Remove all cords from walkways.

Overall safety issues

Falls in the home commonly occur in bathrooms and bedrooms, as well as on stairs. Making a few modifications in the home can prevent dangerous situations, such as slippery floors, poor lighting, loose rugs, raised thresholds, and clutter. Visit each room in the home. Then look at the space objectively and ask: Is this safe? Are there objects or items that present falls risk? If so, there are many ways to create a safer home.





Bedroom

The room is set up to help avoid stumbles

- Create a safe path around the room by rearranging furniture.
- Clean up shoes, clothing, and other clutter.
- Keep bedding tucked in.

My light can be turned on and off without getting out of bed

- Place a lamp or nightlight within reach of the bed.
- Install a nightlight.



Kitchen

The floor is designed to reduce the risk of tripping

- Place a rubber mat in front of the sink.
- Repair rough flooring.

The items I use most often are easy to reach

- Move the items you use most often to lower cabinets and drawers.
- Use a step stool to reach items in high cabinets.

The floors of my bathroom and my tub/shower have non-slip surfaces

- Place non-slip mats or strips in the tub or on the shower floor.
- Add two-sided carpet tape to keep a bathroom rug in place.



Bathroom

My tub, shower, and toilet have sturdy grab bars

- Install grab bars next to your tub, shower, and toilet. (Towel racks don't count – they can pull out of the wall.)

My shower is designed to reduce risk of falls

- Add a sturdy shower seat.
- Add a handheld shower head with hose.

My toilet is at a comfortable height

- Consider installing an elevated toilet seat.

I have nightlights in the bathroom to help me see

- Get a light-sensitive nightlight that turns on automatically.



Indoor stairways

All of my stairways have handrails on both sides

- Install handrails for both hands – even on short sets of steps.

The steps are slip-resistant and in good repair

- Attach carpet securely and repair any holes.
- If steps are bare wood, add slip-resistant pads.

Visibility is good on all of my stairways and landings

- Install motion-detection lighting.
- Install light switches at both the top and bottom of stairs.
- Add contrasting paint or glow-in-the-dark tape to edges of stairs to make them easier to see.

The stairway is kept clear

- Patrol your stairs regularly to make sure all objects are removed at all times.

Multifactorial Interventions



The Cochrane Collaboration is a not-for-profit organization that works to produce credible and accessible healthcare information. It has determined that exercise is the key to falls prevention, which is in accordance with U.S. Preventive Services Task Force findings. In this regard, the American Geriatrics Society guideline recommends a multifactorial approach.

A multifactorial falls prevention strategy requires care coordination. Successful interventions include multiple risk factor assessment, physical therapy or exercise, withdrawal or minimization of psychoactive and other medications, and home safety modifications.

What constitutes a multifactorial falls prevention intervention?

The multifactorial nature of falls prevention means that care must be coordinated among physicians, nurses, physical therapists, and occupational therapists. Regardless of location or disciplines involved, effective falls prevention requires assessing potential risk factors, managing the risk factors identified, and ensuring that the interventions are completed.

Screening for falls risk

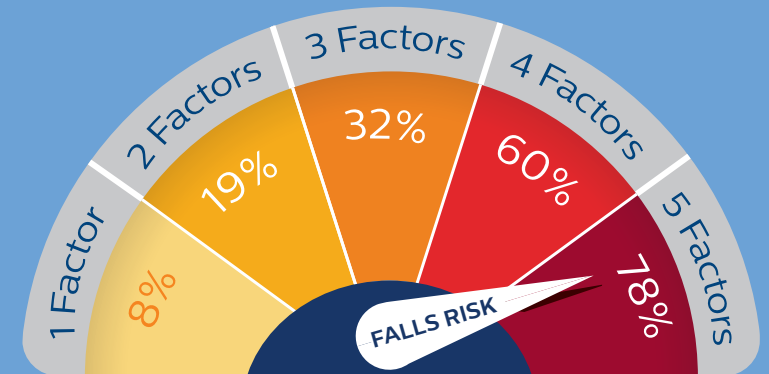
Screening is aimed at preventing or reducing falls. All older persons who are under the care of a health professional (or their caregivers) should be asked at least once a year about falls, frequency of falling, and possible difficulties with gait and balance.

Falls risk

Any positive answer given during this screening process puts that senior at a higher falls risk, requiring a plan for reducing potential harm that results from falls. Essential to that plan is how to call for help.

But we also understand that sometimes older adults struggle with acceptance and don't recognize their level of falls risk. Here is a way to help begin this conversation.

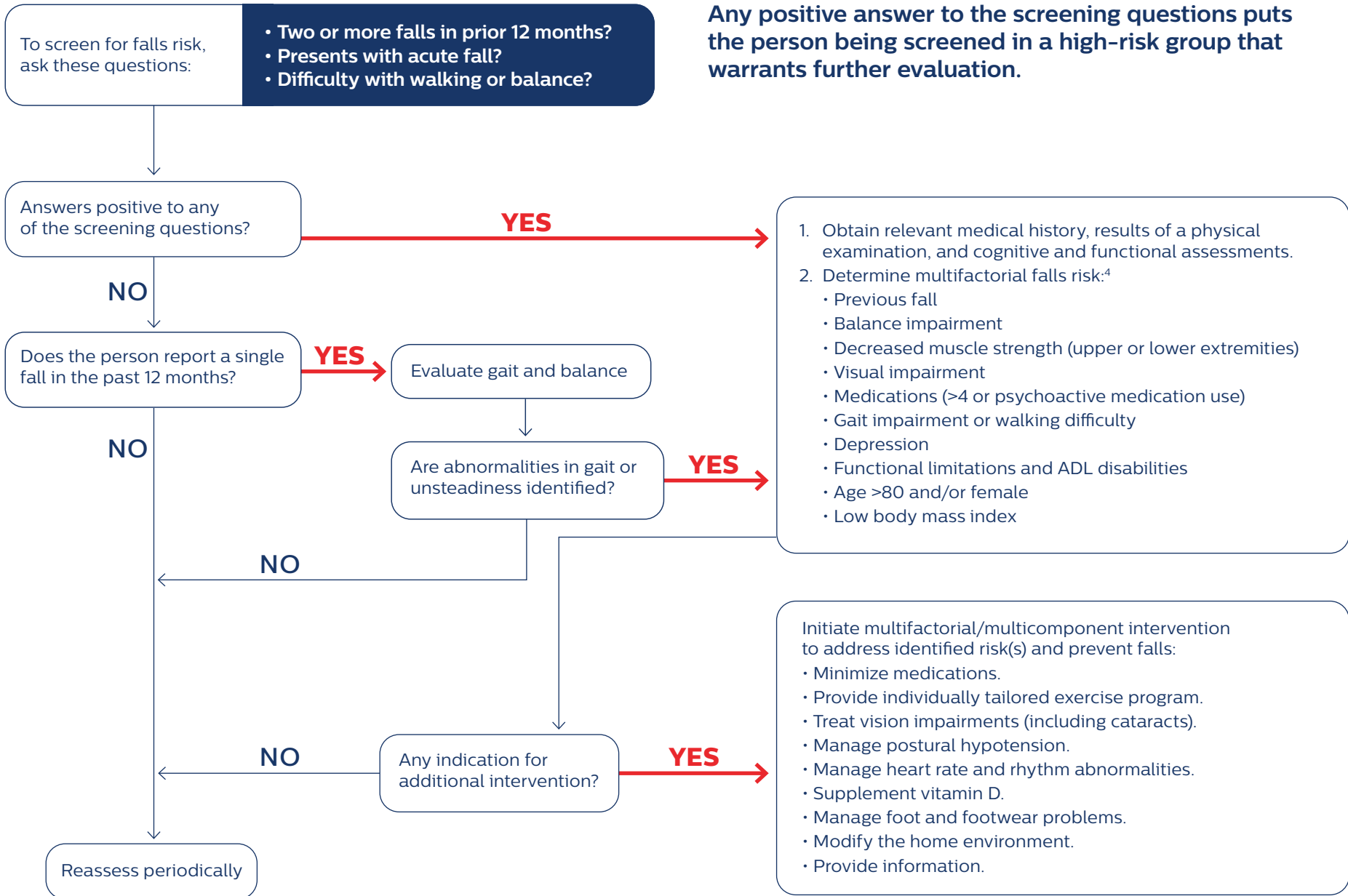
The risk of falling increases with the number of risk factors.



Impairments + Conditions That Predispose Falls

Women are more likely to experience fractures. Men and African Americans are more likely to experience traumatic brain injuries.

Multifactorial Interventions





Fear of falling can start and accelerate a cycle of decline

Exercise, diet, safety modifications, and multifactorial interventions are important steps in helping to prevent falls. But you might find that many of your seniors have a fear of falling – an exaggerated concern that frequently leads to a physical, emotional, and functional decline. Having such a fear is a common and potentially disabling problem among seniors.

Approximately 25% to 55% of older adults report having a fear of falling. Among this group, between 20% and 55% report restricting their activity. This can lead to reduced social interaction and physical deconditioning.⁹

No one wants to fall. But if a fall or any other medical emergency occurs and a senior is unable or reluctant to press their help button, Lifeline with fall detection¹⁰ can automatically place a call for help.

Give your seniors the confidence they need to stay active, knowing that having Lifeline with automatic fall detection means they always have quick and reliable access to help whenever they need it – anytime, anywhere.¹¹



Refer Your Seniors to Lifeline



The Lifeline difference

There's a reason why over 250,000 healthcare professionals and over 7 million seniors and their families have relied on Lifeline, making us the leading provider of medical alert services in the US today.¹² Lifeline helps empower older adults to feel safer, confident, and independent both at home or on the go.

Easy to use

Subscribers can press their water resistant¹³ help button at any time to request the assistance they need – anytime, anywhere.¹¹



Technologically advanced

Our fall detection technology can automatically place a call for help if it detects a fall – even if subscribers are unable or reluctant to press their help button.¹⁰

Responsive

The Lifeline Medical Alert Service quickly connects a subscriber to one of our North American-based response centers to request the help they need in any situation – anytime, 24/7, 365 days a year.

Accommodating

Each subscriber decides how they would like to be helped – by a neighbor, family member, or emergency services.¹⁴

Referring Lifeline has never been easier!



1-855-655-4400, ext. 55000

Call us today to refer your at-risk seniors to the Lifeline Medical Alert Service. A trained intake specialist will answer your call, contact your senior on your behalf, and even follow up to let you know they have enrolled in the Lifeline Medical Alert Service.



www.lifeline.com/refer

When you activate your Lifeline Referrals account, you can make referrals online.

9. Murphy S., et al., "The development of fear of falling among community-living older women: predisposing factors and subsequent fall events." *The Journals of Gerontology, Series A, Biological sciences and medical sciences* vol. 58,10 (2003): M943-7. doi:10.1093/gerona/58.10.m943. 10. Automatic fall detection technology does not detect 100% of falls. If able, a subscriber should always press their alert button when they need help. Button signal range could vary due to environmental factors. 11. Coverage inside and outside the home provided where wireless network coverage is available. Recharging of the mobile pendant is done by the subscriber as needed by connecting it to its charger. 12. Claim based on the number of subscribers. 13. Refer to IFU for more details. 14. Lifeline response center may proceed directly to calling emergency services in urgent circumstances.

