

CATCH RURAL Falls

***Coordinated Action Toward
Community Health: RedUce
Risk And Limit Falls***

**Feet, Footwear, and Fall Risk:
Assessment and Intervention
Strategies**



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Introductions and Contact Information

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Educational Objectives

- Assess the potential contribution of feet and footwear on a patient's risk of falls
- Identify appropriate interventions when concerns about feet and footwear are identified as fall risk factors



Steps for Fall Risk Management Recommended by the Centers for Disease Control Stopping Elderly Accidents, Deaths, and Injuries (STEADI) Initiative

- The identification of patients at increased risk of falling to determine if additional in-depth assessment of risk factors is needed

**Fall Risk
Screening**



- The identification of specific risk factors to guide intervention
- *In other words, why is your patient at risk for falling?*

**Fall Risk
Assessment**



- Addressing modifiable risk factors through medical management or referral to other health care professionals or resources

**Fall Risk
Intervention**



Centers for Disease Control Algorithm for Fall Risk Screening, Assessment, and Intervention



STEADI Algorithm

STEADI Algorithm for Fall Risk Screening, Assessment, and Intervention among Community-Dwelling Adults 65 years and older

START HERE

1 SCREEN for fall risk yearly, or any time patient presents with an acute fall.

Available Fall Risk Screening Tools:

- **Stay Independent:** a 12-question tool [at risk if score ≥ 4]
 - **Important:** If score < 4 , ask if patient fell in the past year (If **YES** → patient is at risk)

- **Three key questions** for patients [at risk if **YES** to any question]
 - Feels unsteady when standing or walking?
 - Worries about falling?
 - Has fallen in past year?
 - » If **YES** ask, "How many times?" "Were you injured?"

SCREENED NOT AT RISK

PREVENT future risk by recommending effective prevention strategies.

- Educate patient on fall prevention
- Assess vitamin D intake
 - If deficient, recommend daily vitamin D supplement
- Refer to community exercise or fall prevention program
- Reassess yearly, or any time patient presents with an acute fall

SCREENED AT RISK

2 ASSESS patient's modifiable risk factors and fall history.

Common ways to assess fall risk factors are listed below:

Evaluate gait, strength, & balance

Common assessments:

- Timed Up & Go
- 4-Stage Balance Test
- 30-Second Chair Stand

Identify medications that increase fall risk (e.g., Beers Criteria)

Ask about potential home hazards (e.g., throw rugs, slippery tub floor)

Measure orthostatic blood pressure (Lying and standing positions)

Check visual acuity

Common assessment tool:
• Snellen eye test

Assess feet/footwear

Assess vitamin D intake

Identify comorbidities

(e.g., depression, osteoporosis)

3 INTERVENE to reduce identified risk factors using effective strategies.

Reduce identified fall risk

- Discuss patient and provider health goals
 - Develop an individualized patient care plan (see below)
- Below are common interventions used to reduce fall risk:

Poor gait, strength, & balance observed

- Refer for physical therapy
- Refer to evidence-based exercise or fall prevention program (e.g., Tai Chi)

Medication(s) likely to increase fall risk

- Optimize medications by stopping, switching, or reducing dosage of medications that increase fall risk

Home hazards likely

- Refer to occupational therapist to evaluate home safety

Orthostatic hypotension observed

- Stop, switch, or reduce the dose of medications that increase fall risk
- Educate about importance of exercises (e.g., foot pumps)
- Establish appropriate blood pressure goal
- Encourage adequate hydration
- Consider compression stockings

Visual impairment observed

- Refer to ophthalmologist/optometrist
- Stop, switch, or reduce the dose of medication
- Consider benefits of cataract surgery
- Provide education on depth perception

Feet/footwear Issues Identified

- Provide education on shoe fit, traction, insoles, and heel height
- Refer to podiatrist

Vitamin D deficiency documented or likely

- Recommend daily vitamin D supplement

Comorbidities documented

- Optimize treatment of conditions identified
- Be mindful of medications that increase fall risk



Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

FOLLOW UP with patient in 30-90 days.

Discuss ways to improve patient receptiveness to the care plan and address barrier(s)

Assessment of Feet and Footwear: Factors to Consider

Screening Tool for Feet / Footwear Related Influences on Fall Risk

Footwear Type
and Wearing
Habits

Nail or Skin
Changes

Foot and Ankle
Deformities

Foot and Ankle
Strength

Foot Pain

Foot Sensation

[Wingood M, Peterson E, Neville C, Vincenzo JL. Feet/Footwear-Related Fall Risk Screening Tool for Older Adults: Development and Content Validation. *Front Public Health*. 2022;9:807019. doi: 10.3389/fpubh.2021.807019](#)



Assessment of Footwear Types and Wearing Habits

Ask the patient about their footwear types and habits, or observe for any of the following:

- Wearing shoes with heel height > 1 inch
- Walking barefoot or wearing socks without shoes inside or outside the home
- Wearing sandals, flip flops, or slippers
- Wearing shoes that fit too tightly or too loosely
- Wearing shoes with worn soles, heels, or treads
- Wearing or has been advised to wear foot or ankle brace(s) or orthoses



Why is footwear a concern?

- ✓ Higher heels or poorly fitting shoes can increase postural sway and change gait patterns
- ✓ Going barefoot or wearing socks increases risk of slipping
- ✓ Those who wear braces or orthoses often have an underlying diagnosis that leads to increased fall risk. If the brace or orthosis does not fit well, it won't be as effective at improving stability and alignment.



Intervention for Footwear Types and Wearing Habits

Patient Education

- Encourage well-fitting shoes with low heels and firm, slip-resistant soles inside and outside the home
- Advise patients that going barefoot or wearing only socks increases their chances of falling
- High-collared shoes (shoes that rise above the ankle) may improve proprioception and stability

Referral to other Health Care Provider

- If a patient uses a brace or orthosis, especially if challenges with fit or function of the brace or orthosis are evident, consider referral to a podiatrist or orthotist

Assessment of Nail or Skin Changes

Ask the patient, or observe for the presence of any of the following regarding their feet:

- Dry or hardened skin or callus
- Corn
- Red or irritated skin or wound
- Pain from any nail or skin changes



Why are nail or skin changes a concern?

- ✓ Foot pain can develop, leading to instability while standing or changes in one's gait pattern



Intervention for Nail and Skin Changes

Referral to other Health Care Provider

- If nail or skin changes are identified, consider referral to a podiatrist

Assessment of Foot and Ankle Deformities

Observe for the presence of any of the following:

- Bunion/hallux valgus
- Excessively flat foot or high arch
- Contracted digits
- Other foot or ankle deformity



Why are foot and ankle deformities a concern?

- ✓ Deformities can alter one's gait pattern and interfere with the ability to recover from a loss of balance



Intervention for Foot and Ankle Deformities

Referral to other Health Care Provider

- If foot or ankle deformities are identified, consider referral to foot and ankle specialist (e.g. orthopedic surgeon, podiatrist)

Assessment of Foot and Ankle Strength

Observe for any of the following:

- Inability to complete 5 alternative forefoot raises while standing in 10 seconds
- Inability to complete 5 bilateral heel raises while standing in 10 seconds
- Inability to curl toes



Why is foot and ankle weakness a concern?

- ✓ Adequate strength in foot and ankle muscles is needed to recover from a loss of balance



Intervention for Foot and Ankle Weakness

Referral to other Health Care Provider

- If weakness in the foot and/or ankle muscles is identified, consider referral to a physical therapist

Assessment of Foot Pain

Ask the patient about foot pain, specifically if:

- Foot pain limits their ability to walk



Why is foot pain a concern?

- ✓ Foot pain can lead to instability while standing or changes in one's gait pattern



Intervention for Foot Pain

Pain Management

- Consider medication to manage pain (keeping medication side effects in relation to fall risk in mind)

Referral to other Health Care Provider

- Consider referral to a podiatrist or physical therapist

Assessment of Foot Sensation

Ask the patient or test for any of the following:

- Reports of numbness, tingling, or burning in the feet
- Impaired light touch sensation on bottom of feet/toes



Why is impaired foot sensation a concern?

- ✓ Cutaneous sensation and proprioception of the lower extremities are senses that the body relies on for balance.



Intervention for Foot Sensation

Patient Education

- Educate patient on the role of foot sensation in maintaining balance and potential need to compensate with other senses (e.g. vision)

Referral to Other Health Care Provider

- If impairments in sensation are identified, consider referral to a podiatrist or physical therapist

Summary: Review of Objectives

Assess the potential contribution of feet and footwear on a patient's risk of falls

Identify appropriate interventions when concerns about feet and footwear are identified as risk factors



Footwear Type
and Wearing
Habits

Nail or Skin
Changes

Foot and Ankle
Deformities

Foot and Ankle
Strength

Foot Pain

Foot
Sensation

Patient
Education

Referral to
other health
care providers



References and Resources

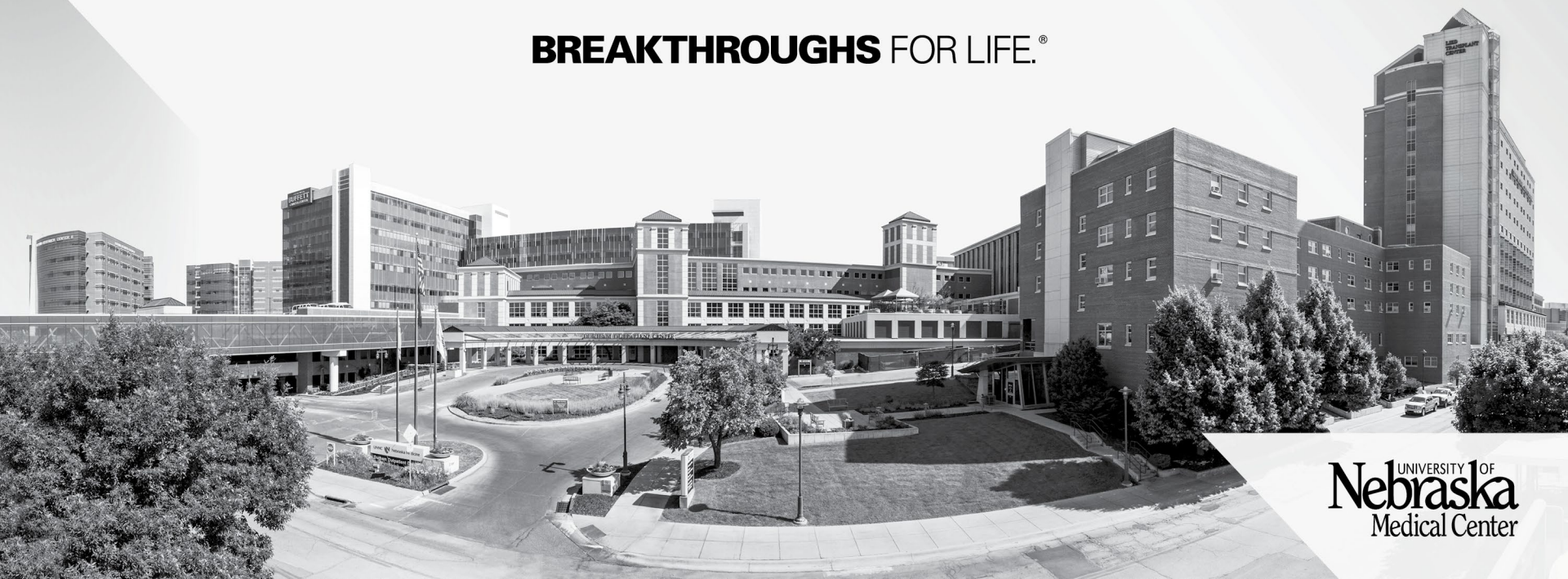
- [Center for Disease Control \(CDC\) Stopping Elderly Accidents, Deaths, and Injuries \(STEADI\) Home Page](#)
- [CDC STEADI Algorithm for Fall Risk Screening, Assessment, and Intervention](#)
- [CDC STEADI Coordinated Care Plan to Prevent Older Adult Falls](#)
- [Neville C, Nguyen H, Ross K, Wingood M, Peterson EW, Dewitt JE, Moore J, King MJ, Atanelov L, White J, Najafi B. Lower-limb factors associated with balance and falls in older adults: A systematic review and clinical synthesis. *J Am Podiatr Med Assoc.* 2020;110\(5\):Article 4. doi: 10.7547/19-143](#)
- [Wingood M, Peterson E, Neville C, Vincenzo JL. Feet/footwear-related fall risk screening tool for older adults: Development and content validation. *Front Public Health.* 2022;9:807019. doi: 10.3389/fpubh.2021.807019](#)





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