Final Recommendation Statement

Falls Prevention in Community-Dwelling Older Adults: Interventions

June 04, 2024

Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

Recommendation Summary

Population	Recommendation	Grade
Community-dwelling adults 65 years or older	The USPSTF recommends exercise interventions to prevent falls in community-dwelling adults 65 years or older who are at increased risk for falls.	**B**
Community-dwelling adults 65 years or older	The USPSTF recommends that clinicians individualize the decision to offer multifactorial interventions to prevent falls to community-dwelling adults 65 years or older who are at increased risk for falls. Existing evidence indicates that the overall net benefit of routinely offering multifactorial interventions to prevent falls is small. When determining whether this service is appropriate for an individual, patients and clinicians should consider the balance of benefits and harms based on the circumstances of prior falls, presence of comorbid medical conditions, and the patient's values and preferences. See the Practice Considerations section for information on risk assessment for falls.	**C**

Pathway to Benefit

To achieve the benefit of fall prevention interventions, it is important that recommended interventions are available, accessible, and provided in an equitable way.

Clinician Summary

What does the USPSTF recommend?	**Community-dwelling adults 65 years or older:** The USPSTF recommends exercise interventions to prevent falls in community-dwelling adults 65 years or older who are at increased risk for falls. **Grade: B**
	The USPSTF recommends that clinicians individualize the decision to offer multifactorial interventions to prevent falls to community-dwelling adults 65 years or older who are at increased risk for falls. **Grade: C**
To whom does these recommendations apply?	These recommendations apply to community-dwelling adults 65 years or older who are at increased risk of falls.

What's new?	• In 2018, the USPSTF recommendation statement on falls prevention included a recommendation against vitamin D supplementation to prevent falls in community-dwelling adults 65 years or older. The current recommendation does not address the use of vitamin D to prevent falls; this evidence will be reviewed in a separate USPSTF recommendation. • This recommendation is otherwise consistent with the 2018 USPSTF recommendation.
How to implement this recommendation?	Determine who is at increased risk for falls: • Increasing age is strongly related to risk for falls. • Intervention studies most commonly used a history of falls to identify increased risk. • A pragmatic approach to identifying persons at increased risk for falls would be to assess for a history of falls or for problems in physical functioning and limited mobility. Refer older adults at increased risk for falls to exercise interventions. Individualize the decision to refer older adults at increased risk for falls to multifactorial interventions. • When determining whether this service is appropriate for an individual, patients and clinicians should consider the balance of benefits and harms based on the circumstances of prior falls, presence of comorbid medical conditions, and the patient's values and preferences.
What additional information should clinicians know about this recommendation?	• The most common components of exercise interventions were gait, balance, and functional training, followed by strength and resistance training, flexibility, and endurance training. • Multifactorial interventions include an initial assessment of modifiable risk factors for falls (eg, balance, gait, vision, postural blood pressure, medication, environment, cognition, and psychological health) and subsequent customized interventions for each patient based on issues identified in the initial assessment.
Why is this recommendation and topic important?	Falls are the leading cause of injury-related morbidity and mortality among older adults in the US. In 2018, 27.5% of community-dwelling adults 65 years or older reported at least 1 fall in the past year and 10.2% reported a fall-related injury. In 2021, 38,742 deaths resulted from fall-related injuries.
What are other relevant USPSTF recommendations?	The USPSTF has issued recommendations on screening for osteoporosis and on the use of calcium and vitamin D to prevent fractures. This latter recommendation will now include the use of vitamin D to prevent falls.
What are additional tools and resources?	• The Centers for Disease Control and Prevention (CDC) has guides on fall prevention interventions (https://www.cdc.gov/falls/interventions/?CDC_AAref_Val=https://www.cdc.gov/falls/programs/index.html). • The CDC's STEADI (Stopping Elderly Accidents, Death, and Injuries) initiative helps reduce fall risk among older patients (https://www.cdc.gov/steadi/index.html). • The National Institutes of Health provides information on falls and fall prevention (https://www.nia.nih.gov/health/topics/falls-and-falls-prevention).
Where to read the full recommendation statement?	Visit the USPSTF website (https://www.uspreventiveservicestaskforce.org/) or the *JAMA* website (https://jamanetwork.com/collections/44068/united-states-preventive-services-task-force) to read the full recommendation statement. This includes more details on the rationale of the recommendation, including benefits and harms; supporting evidence; and recommendations of others.

The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision-making to the specific patient or situation.

Additional Information

Final Evidence Review (June 04, 2024)

Evidence Summary (June 04, 2024)

Evidence Gaps Research Taxonomy Table (June 04, 2024)

Final Research Plan (July 21, 2022)

Recommendation Information

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Full Recommendation:

Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

Preamble

The US Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of specific preventive care services for patients without obvious related signs or symptoms to improve the health of people nationwide.

It bases its recommendations on the evidence of both the benefits and harms of the service and an assessment of the balance. The USPSTF does not consider the costs of providing a service in this assessment.

The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision-making to the specific patient or situation. Similarly, the USPSTF notes that policy and coverage decisions involve considerations in addition to the evidence of clinical benefits and harms.

The USPSTF is committed to mitigating the health inequities that prevent many people from fully benefiting from preventive services. Systemic or structural racism results in policies and practices, including health care delivery, that can lead to inequities in health. The USPSTF recognizes that race, ethnicity, and gender are all social rather than biological constructs. However, they are

also often important predictors of health risk. The USPSTF is committed to helping reverse the negative impacts of systemic and structural racism, gender-based discrimination, bias, and other sources of health inequities, and their effects on health, throughout its work.

Importance

Falls are the leading cause of injury-related morbidity and mortality among older adults in the US. In 2018, 27.5% of community-dwelling adults 65 years or older reported at least 1 fall in the past year (714 falls per 1000 older adults) and 10.2% reported a fall-related injury (170 fall-related injuries per 1000 older adults). Native American/Alaska Native older adults reported more falls (32.2%) and fall-related injuries (15.2%) compared with other racial and ethnic groups. Stratified by age, 25.9% of adults aged 65 to 74 years reported falling and 9.3% reported fall-related injuries; 28.5% of adults aged 75 to 84 years reported falling and 10.6% reported fall-related injuries; and 33.8% of adults 85 years or older reported falling and 13.9% reported fall-related injuries.[1] In 2021, an estimated 38 742 deaths resulted from fall-related injuries.[2] Most fall-related deaths occur in adults 85 years or older; this group also has the fastest-growing rate of death from falls.[1,2]

USPSTF Assessment of Magnitude of Net Benefit

The US Preventive Services Task Force (USPSTF) concludes with moderate certainty that exercise interventions provide a **moderate net benefit** in preventing falls and fall-related morbidity in older adults at increased risk for falls.

The USPSTF concludes with moderate certainty that multifactorial interventions provide a **small net benefit** in preventing falls and fall-related morbidity in older adults at increased risk for falls.

See Table 1 for more information on the USPSTF recommendation rationale and. For more details on the methods the USPSTF uses to determine the net benefit, see the USPSTF Procedure Manual.[3]

Practice Considerations

Patient Population Under Consideration

This recommendation applies to community-dwelling adults 65 years or older who are at increased risk of falls.

Risk Assessment

When determining who is at increased risk of falls, primary care clinicians can consider a number of risk factors. Increasing age is strongly related to risk for falls. Other risk factors include cognitive and sensory deficits, presence of acute or chronic medical conditions, use of specific medications that can increase fall risk, environmental or occupational hazards, home or neighborhood features, and alcohol or drug use.[4] Intervention studies have most commonly used a history of falls to identify increased risk for future falls; studies also considered a history of falls together with other key risk factors, particularly impairments in mobility, gait, and balance.[4] A pragmatic approach to identifying persons at increased risk for falls would be to assess for a history of falls or for problems in physical functioning and limited mobility.

Treatment or Intervention

Effective exercise interventions include supervised individual physical therapy and group exercise classes, although most studies reviewed by the USPSTF included group exercise. It is difficult to identify specific components of exercise that are particularly effective. The most commonly studied exercise components were gait, balance, and functional training, followed by strength and resistance training, flexibility, and endurance training. A smaller number of trials included a 3-dimensional exercise (ie, exercise

that involves movement through all 3 spatial planes or dimensions: forward and back, side to side, and up and down), such as group dance or tai chi classes. The most common frequency and duration for exercise interventions was 2 to 3 sessions per week for 12 months, although duration of exercise interventions ranged from 2 to 30 months.[4]

It is important to note that physical activity is associated with multiple health benefits in addition to fall prevention. For example, regular physical activity has been associated with a lower risk of cardiovascular disease events, cardiovascular disease mortality, and all-cause mortality, as well as lower blood pressure, lower risk of type 2 diabetes, and lower risk of dyslipidemia.[5-7] The US Department of Health and Human Services recommends that adults do at least 150 to 300 minutes per week of moderate-intensity, or 75 to 150 minutes per week of vigorous-intensity aerobic physical activity, as well as muscle-strengthening activities of moderate or greater intensity and that involve all major muscle groups twice a week or more.[5]

Multifactorial interventions include an initial assessment of modifiable risk factors for falls and subsequent customized interventions for each patient based on issues identified in the initial assessment. The initial assessment could include a multidisciplinary comprehensive geriatric assessment or an assessment using a combination of various components, such as balance, gait, vision, postural blood pressure, medication, environment, cognition, and psychological health. This comprehensive assessment should be distinguished from the evaluation and treatment of a patient who presents with a specific symptom or concern (eg, reduced vision or lower extremity pain or numbness). In studies, assessments were conducted by nursing professionals, physicians, or physical or occupational therapists, and a variety of different professionals performed subsequent interventions, including nurses, clinicians, physical therapists, exercise instructors, occupational therapists, dietitians, or nutritionists. Intervention components vary based on the initial assessment and could include group or individual exercise, psychological interventions (eg, cognitive behavioral therapy), nutrition therapy, education, medication management, urinary incontinence management, environmental modification, physical or occupational therapy, social or community services, and referral to specialists (eg, ophthalmologist, neurologist, or cardiologist).[4]

The following interventions were reviewed by the USPSTF but lack sufficient evidence to assess their benefits and harms in preventing falls in community-dwelling older adults when offered alone and not in the context of a multifactorial intervention: environmental modification, medication management, psychological interventions, education interventions, and combination interventions (exercise plus environment interventions or exercise plus education interventions).[4]

Additional Tools and Resources

The Centers for Disease Control and Prevention (CDC) has guides on fall prevention interventions (https://www.cdc.gov/falls/interventions/?CDC_AAref_Val=https://www.cdc.gov/falls/programs/index.html).

The CDC STEADI (Stopping Elderly Accidents, Death, and Injuries) initiative helps reduce fall risk among older patients (https://www.cdc.gov/steadi/index.html).

The National Institutes of Health provides information on falls and fall prevention (https://www.nia.nih.gov/health/falls-and-falls-prevention).

Other Related USPSTF Recommendations

The USPSTF recommends screening for osteoporosis with bone measurement testing to prevent osteoporotic fractures in women 65 years or older and in postmenopausal women younger than 65 years who are at increased risk of osteoporosis.[8] The USPSTF also recommends against daily supplementation with 400 IU or less of vitamin D and 1000 mg or less of calcium for the primary prevention of fractures in postmenopausal women. The USPSTF has concluded that the evidence is insufficient to assess the balance of the benefits and harms of daily supplementation with doses greater than 400 IU of vitamin D and greater than 1000 mg of calcium for the primary prevention of fractures in postmenopausal women and that the evidence is insufficient to assess the balance of the benefits and harms of vitamin D and calcium supplementation, alone or in combination, for the primary prevention of fractures in men and premenopausal women.[9]

Update of Previous USPSTF Recommendation

This recommendation replaces the 2018 USPSTF recommendation on interventions to prevent falls in community-dwelling older adults. In 2018, the USPSTF recommended exercise interventions to prevent falls in community-dwelling adults 65 years or older who are at increased risk for falls and that clinicians selectively offer multifactorial interventions to prevent falls to community-dwelling adults 65 years or older who are at increased risk for falls. The USPSTF also recommended against vitamin D supplementation to prevent falls in community-dwelling adults 65 years or older.[10] The current recommendation does not address the use of vitamin D to prevent falls; this evidence will be reviewed in a separate USPSTF recommendation (in progress). This recommendation is otherwise consistent with the 2018 USPSTF recommendation.

Supporting Evidence

Scope of Review

The USPSTF commissioned a systematic evidence review on the effectiveness and harms of primary care–relevant interventions to prevent falls and fall-related morbidity and mortality in community-dwelling adults 65 years or older.[4,11] Studies conducted solely in populations with specific medical diagnoses for which interventions could be considered disease management (eg, moderate to severe neurocognitive disorders or Parkinson disease) were excluded. This review updates the 2018 review and varies from the previous review in that studies of vitamin D supplementation to prevent falls were not included; this intervention will be included in a separate review and recommendation (in progress).

Benefits of Interventions

The USPSTF reviewed 37 trials (n = 16,117) of exercise interventions to prevent falls in community-dwelling older adults. The trials generally included multiple exercise components, and the exercise interventions were primarily conducted in a supervised group setting. The mean age of participants ranged from 68 years[12] to 88 years.[13] Twenty trials solely recruited participants at increased risk, while 15 trials included populations with anywhere from 6% to 59% of participants at increased risk for falls; 2 trials did not report the percentage of participants at increased risk. Most trials (22/37) included a history of falls as either the sole criterion or as 1 of several risk factors defining increased risk. Across the 35 trials that reported it, 58% of participants were at increased risk for falls.[4,11]

Most trials studying exercise interventions used multiple exercise components, including gait, balance, and functional training; strength and resistance; flexibility; tai chi/3-dimensional training; general physical activity; and endurance. Nearly all exercise interventions included gait, balance, and functional training (30/37 trials), and about two-thirds of the trials (25/37) included a strength and resistance training component.[4,11]

A pooled analysis of 29 trials (n = 14,475) demonstrated that exercise interventions were associated with a significant reduction in the rate of incident falls at the longest follow-up (6-24 months) (incidence rate ratio [IRR], 0.85 [95% CI, 0.75-0.96]). Pooled analyses also showed that exercise interventions reduced the number of persons experiencing 1 or more falls at the longest follow-up (6-24 months) (25 trials; n = 13,384; relative risk, 0.92 [95% CI, 0.87-0.98]) and risk of injurious falls at 6 to 60 months of follow-up (12 trials; n = 3984; IRR, 0.84 [95% CI, 0.74-0.95]). Pooled analyses found no significant reductions in fall-related fractures or all-cause mortality.[4,11]

The USPSTF reviewed 28 trials (n = 27,784) of multifactorial interventions to prevent falls in community-dwelling older adults. These trials included a heterogeneous group of complex assessment and intervention components. Mean age ranged from 72 years14 to 85 years.[15] Twenty-one trials solely recruited patients at increased risk for falls according to various definitions. Nearly half of the trials (13/28) defined increased risk as having a history of falling as the sole criterion. Among the 7 remaining trials that recruited patients unselected for risk, 5 reported that 19% to 44% of those recruited were at increased risk for falls, and 2 did not report the percent of participants at increased risk. Across the 26 trials that reported it, 65% of participants were at increased risk.[4,11]

All trials administered an initial assessment of modifiable fall risk factors to customize the intervention for each participant. All trials assessed fall risk factors; the most commonly assessed components were functional assessments (eg, timed Up and Go test[16]), environmental assessments, medication review, and vision assessments. All trials delivered individualized fall prevention advice and recommendations based on the multifactorial risk assessment. The most commonly recommended intervention

components were individual or group exercise interventions, medication review, referral to vision and/or hearing specialists, and recommendations or referrals for environmental modifications. However, not all recommendations were consistently implemented; most commonly, adherence to recommendations was in the 60% to 70% range for any individual recommendation or referral. Additionally, several trials provided intervention components to all participants regardless of the results of the risk assessment. For example, 9 of 28 trials gave 100% of the intervention group participants an exercise intervention, while 17 trials referred patients as needed to an exercise intervention.[4,11]

A pooled analysis of 20 trials (n = 22,115) demonstrated that multifactorial interventions were associated with a significant reduction in the rate of incident falls at the longest follow-up (6-28 months) (IRR, 0.84 [95% CI, 0.74-0.95]). However, pooled analyses found no significant reductions in the number of persons experiencing a fall, injurious falls, fall-related fractures, or all-cause mortality.[4,11]

The USPSTF found evidence on other interventions, including environment assessment (6 trials), exercise in combination with education intervention (4 trials), medication review (4 trials), exercise in combination with environmental assessment (3 trials), psychological intervention (3 trials), and a group education intervention (1 trial).[4,11] Studies of these other interventions were too few, too small, and had other limitations (eg, recommendations from an assessment were not always implemented) to allow the USPSTF to draw any definitive conclusions.

Harms of Interventions

The USPSTF also reviewed the evidence on the harms of interventions to prevent falls. Half of the exercise trials reported harms, with generally minor musculoskeletal adverse effects being most common; serious harms were generally rare. Adverse events directly related to the exercise intervention were largely musculoskeletal discomfort and pain symptoms.[3] One trial reported a fall-related wrist fracture,[17] and another reported a hip fracture attributed to an exercise session.[18]

For trials studying multifactorial interventions, harms were sparsely reported. When reported, they were rare, minor, and associated with the exercise components of the multifactorial interventions. In total, 5 trials (n = 4199) reported harms associated with multifactorial interventions, such as falls without injuries, back pain, and musculoskeletal pain.[4,11]

Trials of other interventions reported harms sparsely or not at all, or in the intervention group but not in the control group.[4,11]

Response to Public Comment

A draft version of this recommendation statement was posted for public comment on the USPSTF website from December 5, 2023, to January 8, 2024. Some comments noted the need for risk assessment tools that have greater accuracy to identify persons at risk for falls. The USPSTF agrees and calls for research to develop and validate primary care–feasible risk assessment tools that accurately predict risk for falls in older adults in the Research Needs and Gaps table of this recommendation (Table 2). Some comments requested greater specificity about the types of exercise interventions that are recommended. In response, the USPSTF notes that the studies of exercise interventions it reviewed varied in several ways, such as providing individual vs group sessions and in the exercise components of the interventions. As noted in the recommendation statement, while it is difficult to identify specific components of exercise that are particularly effective, nearly all exercise interventions included gait, balance, and functional training, and most included a strength and resistance training component. Last, in response to public comment, the USPSTF clarified that its research gap on the effectiveness and harms of interventions in different functional groups includes groups at high risk of falls, such as persons 85 years or older.

Research Needs and Gaps

See Table 2 for research needs and gaps related to interventions for fall prevention in community-dwelling older adults.

Recommendations of Others

The CDC recommends STEADI, a coordinated approach for fall prevention in adults 65 years or older that consists of 3 core elements: screen to identify fall risk, assess modifiable risk factors, and intervene using effective clinical and community strategies to reduce the identified risk.[19] The US Department of Health and Human Services recommends that older adults engage in

multicomponent physical activity that includes balance training, as well as aerobic and muscle-strengthening activities, as part of the 150 to 300 minutes per week of moderate-intensity, or 75 to 150 minutes per week of vigorous-intensity aerobic physical activity recommended for all adults.[5] The American Academy of Family Physicians supports the USPSTF 2018 recommendation on fall prevention in community-dwelling older adults.[20]

Authors of the Recommendation Statement

The authors of this recommendation statement include Task Force members serving at the time of publication and former members who made significant contributions to the recommendation. Any member with a level 3 conflict of interest (COI) recusal is not included as an author (see below for relevant COI disclosures for this topic).

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Disclaimer: Recommendations made by the USPSTF are independent of the US government. They should not be construed as an official position of AHRQ or the US Department of Health and Human Services.

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Table 1. Summary of USPSTF Rationale

Rationale	**Assessment**
Benefits of intervention	• Adequate evidence that exercise interventions have a moderate benefit in preventing falls and fall-related morbidity in older adults at increased risk for falls. • Adequate evidence that multifactorial interventions have a small benefit in preventing falls and fall-related morbidity in older adults at increased risk for falls.
Harms of intervention	Based on the noninvasive nature of most of the interventions, the low likelihood of serious harms, and the available information from studies reporting few serious harms, the evidence is adequate to bound the harms of exercise and multifactorial interventions as no greater than small.
USPSTF assessment	• The USPSTF concludes with moderate certainty that exercise interventions provide a moderate net benefit in preventing falls and fall-related morbidity in older adults at increased risk for falls. • The USPSTF concludes with moderate certainty that multifactorial interventions provide a small net benefit in preventing falls and fall-related morbidity in older adults at increased risk for falls.

Abbreviation: USPSTF, US Preventive Services Task Force.

Table 2. Research Needs and Gaps for Interventions to Prevent Falls in Community-Dwelling Older Adults

To fulfill its mission to improve health by making evidence-based recommendations for preventive services, the USPSTF routinely highlights the most critical evidence gaps for creating actionable preventive services recommendations. The USPSTF often needs additional evidence to create the strongest recommendations for everyone and especially for persons with the greatest burden of disease. In some cases, clinical preventive services have been well studied, but there are important evidence gaps that prevent the USPSTF from making recommendations for specific interventions and for specific populations. In this table, the USPSTF summarizes the gaps in the evidence for interventions to prevent falls in community-dwelling older adults.
Interventions to prevent falls in community-dwelling older adults
Research is needed to develop and validate primary care–feasible risk assessment tools that accurately predict risk for falls in community-dwelling adults 65 years or older.
Studies are needed that compare the benefits and harms of exercise plus multifactorial interventions with exercise interventions alone.
Studies are needed on methods to improve the availability and accessibility of effective fall prevention interventions (eg, remote provision of intervention).
Studies are needed on the effectiveness and harms of interventions in different functional and risk groups (eg, persons with frailty, persons 85 years or older).
More studies are needed on the benefits and harms of educational and psychological interventions.

Abbreviation: USPSTF, US Preventive Services Task Force.