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Fall Risk Among Older Adult High-Risk Populations: a Review of Current Screening and Assessment Tools

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Abstract Falls are a leading cause of injury and accidental death among older adults. This is especially true for high-risk populations such as those who experience intellectual and developmental disabilities, multiple sclerosis, Parkinson's disease, cerebrovascular accidents, Alzheimer's disease, and related dementias. We outline general concerns related to falls for those who belong to these populations. This is followed with a description of general fall risk screening instruments and an introduction to fall risk tests and measures. We provide a brief overview of their applicability to high-risk populations. We conclude with guidance on how practitioners can use existing tools to conduct appropriate fall risk prevention screening and assessment activities that lead to the appropriate selection of evidence-based fall prevention programs for older adult high-fall-risk populations.

Keywords Aging · Chronic · Falls · Prevention · Risk · Screening · Assessment · Disability · Intellectual disability · Developmental disability · Multiple sclerosis · Parkinson's disease · Alzheimer's disease · High risk

Introduction

Every 20 min in the USA, an older adult (age 65+) dies as a direct result of a fall [1••]. One in five older adults who survive a fall sustains serious injuries including hip fracture, traumatic brain injury (TBI), and other related injuries resulting in hospital stays for over 700,000 people each year with costs exceeding $34 billion in Medicare alone [2].

A fall is any unintended non-medical event resulting in a person finding themselves on a lower supporting surface. As a result of previous falls, older adults may develop a fear of falling, decreased physical activity, and/or social isolation. Risks, consequences, and prevalence of falls are significantly elevated for individuals who live with developmental and chronic conditions and diseases. For example, Sibley, Voth, Munce, Straus, and Jaglal [3] found that fall risk increases with the number of chronic conditions or co-morbidities, which included arthritis, cancer, chronic obstructive pulmonary disease (COPD), diabetes, depression, heart disease, or myocardial infarction, hypertension, and stroke. In addition, chronic diseases such as diabetes, hypertension, cardiac disease, and others also increase fall risk due to polypharmacy, limited activity, and changes in sensation and strength [3]. Neurologic disorders such as intellectual and developmental disabilities (IDD), formerly referred to as "mental retardation," multiple sclerosis (MS), Parkinson's disease (PD),

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cerebrovascular accident (CVA) or chronic stroke, and Alzheimer's disease and related dementias (ADRD) are among the conditions known to increase fall risk [4–8]. For ease of description, we use the term "special populations" to refer to individuals who experience these conditions. We regard the condition as simply an individual attribute.

Fall risk is multifactorial and individualized to each older adult [9••]. A variety of modifiable and unmodifiable risk factors have been identified [10] and are easily categorized as being either "internal" to the individual or "external" from the environment. Table 1 outlines these factors which, in combination, provide a basis for practitioners to create individualized and evidence-based fall prevention plans. Multifactorial risk requires targeted and multifactorial assessment, prevention, and/or intervention to effectively minimize heightened fall risk. Regardless of co-morbidities and multiple risk factors, falls and their harmful effects are usually preventable!

In this review, we outline general concerns related to falls for individuals who belong to special populations. We describe screening and assessment tools and their applicability to special populations. We conclude with guidance on how practitioners can use existing tools to conduct appropriate fall risk prevention screening and assessment activities that lead to the appropriate selection of evidence-based fall prevention programs for these high fall risk populations.

High Risk/Special Populations

Adults who are aging and who have been diagnosed with *intellectual/developmental disabilities* (*IDD*) are growing in number as life expectancy improves [11]. High fall rates for both young and old adults with IDD in all settings have been reported [4]. Low bone mass density is found to be common among individuals with IDD. Therefore, fractures are more prevalent among people with IDD than in the general population [12]. Unfortunately, fall risk screening and evidence-based intervention programs are not readily available, though falls are a significant health concern for adults with IDD.

Falls are a significant issue for people with *multiple sclerosis* (*MS*), with research demonstrating fall rates of more than 50 % [13]. Surprisingly, Shumway-Cook et al. and Matsuda, Shumway-Cook, Ciol, Bombardier, and Kartin [14, 15] found that despite the high incidence of falls, fewer than 50 % of people with MS received information about fall prevention from their primary care provider (PCP) [16]. Research by Gunn, Newell, Haas, Marsden, and Freeman [13] indicated that an increase in fall risk was associated with impairments of balance and cognition, progressive MS, and use of a mobility aid. Additionally, Matsuda et al. [15] found that concerns about falling and activity restrictions related to these concerns were common in people with MS and were reported by people who experienced falls and those who did not.

As with other neurologic impairments, adults who are aging with *Parkinson's disease* (*PD*) experience a higher fall rate (60 % report one fall/year, 39 % report recurrent falls) than their age-norm counterparts [17]. However, the underlying fall etiology differs from those with MS and/or those who experience chronic stroke [18]. Gazibara et al. [19] found that adults aging with PD who had a fall experience more sedentary time and less time standing than non-fallers living with PD. They found that lower self-confidence in one's ability to get up from the floor contributed significantly to time spent in sedentary behavior and decreased ambulatory activity in participants with fall history. Adding that fall history was associated with

Table 1 Fall risk factors

	Modifiable	Unmodifiable
Internal to the person	▪ Physical inactivity ▪ Lower extremity weakness ▪ Poor balance ▪ Improper assistive device use ▪ Medication issues/errors ▪ Orthostatic hypotension ▪ Low vitamin D ▪ Poor vision care/correction ▪ Fear of falling/poor self-efficacy/depression ▪ Social isolation	▪ Age >65 ▪ History of falls ▪ Gender: female > male ▪ Polypharmacy ▪ Low vision ▪ Poor sensation in feet/legs ▪ Ethnicity: White/Asian > African American/Hispanic ▪ Chronic disease diagnosis ▪ Low cognition/distractibility
External in the Environment	▪ Stairs, uneven or wet surfaces ▪ Trip hazards ▪ Lack of grab bars in bathrooms ▪ Low chairs/toilets/sofas ▪ Poor lighting ▪ Cabinets and storage inaccessible to user ▪ Narrow doorways and/or paths limit use of needed assistive devices.	▪ Financial limitations for acquisition of needed abatements

a more sedentary lifestyle, but not less ambulatory activity. Emphasis on improving one's capacity to safely complete activities of daily living and activities designed to increase confidence in getting up from floor may reduce sedentary behavior in people with PD [20].

Cerebrovascular accident (*CVA*, *stroke*) is considered one of the most common risk factors for falls among older people. The risk of falling at least once was more than twice as high for the patients with stroke when controlled for potential confounders [21]. For those with CVA, most reported falls occur while walking [22, 23]. Mansfield et al. found that impaired reactive balance control in standing and walking predicted increased risk of falls following stroke rehabilitation [23]. Paradoxically, many fall risk assessments validated for this population include ambulation (e.g., Timed Up and Go, 2-min walk, Berg Balance Scale), making them somewhat dangerous to administer and requiring a skilled evaluator.

Every 67 s, someone in the USA develops *Alzheimer's disease*. Recent studies indicate that older persons with cognitive impairment and ADRD are more than twice as likely to fall as their cognitively intact counterparts [24–26]. As an example, gait deficits are prevalent in people with ADRD, which increases their fall risk and potential for more serious disability [27]. Mignardot [28] and others [29] found that mild cognitive impairment and mild-to-moderate ADRD resulted in a decline in postural control as evidenced by higher bounding limits of center of pressure. These results provide insights for fall prevention treatment plans for adults with cognitive decline.

Fall Prevention Guidance

Accepted practice among geriatric primary care providers (PCPs) dictates that fall prevention be routinely considered for all older adults. For many PCPs, even their training and clinical guidance may not fully equip them to deal with the myriad needs of special populations. Further, evidence-based fall risk screening and assessment tools have not been routinely validated for special populations. Absent specific tools and until population specific resources are available, PCPs exercise professional judgment to use existing tools and guidelines to accomplish their task. For example, The American Physical Therapy Association (APTA) developed an electronic resource on balance and falls that outlines patient care information as well as consumer education [30]. APTA's Neurology Section [31] and the Academy of Geriatric Physical Therapy (AGPT) [32] both have special interest groups related to balance and falls that provide resources, key contacts, research articles, and links to measurement tool databases. These associations have also developed and adopted professional guidelines for fall prevention and management. The AGPT [33] clinical guidance, similar to American Geriatrics Society [34••], recommends asking about falls and performing a multifactorial fall risk assessment [35] including medication review and medical history followed by assessment of strength, balance, mobility/gait, cognition, neurological and cardiac function, vision, and environment.

In this review, we outline several screening tools that are generally applicable to all older adult populations (please consult Table 2 for this specific information). Then, we summarize three test and measure categories: functional, gait, and mental state. Tests in these categories address strength, balance, gait, and mental attitude, all of which have demonstrated relationship to the risk of falling [36, 37, 38••, 39]. Several have been normed to populations at increased risk for falls, including the populations described in this review.

General Screening Tools

When older adults are screened for fall risk via a primary care practitioner (PCP), public health, and/or community event, we utilize screening tools [40] that can either be self-administered and/or utilized by a minimally trained staff. These screening tools are validated in a broad population and simply identify low or high fall risk. They are useful to identify at-risk people and refer them for further evaluation. These screening tools do not identify the risk etiology or help to determine care except for indicating the kind of health care practitioner needed. PCP offices should offer these screens routinely to all older adults to identify the risk. Once the risk is found, then further evidence-based objective assessment measures are utilized to diagnose the issues and plan treatments accordingly either by the PCP or by referral to other practitioners. We will refer to screens as these general tools and to assessments as the more specific measures. Unfortunately, these basic screens have not yet been normed and/or adapted for special populations but can be used over time to compare a person to their own earlier scores.

Stopping Elderly Accidents, Deaths & Injuries

The most widely disseminated fall risk screening tool is the "Stopping Elderly Accidents, Deaths & Injuries" (STEADI) developed and disseminated by the Centers for Disease Control and Prevention (CDC) [41]. This tool was developed and validated for community-dwelling older adults who are ambulatory (with or without assistive device) and able to respond to the questions on the self-administered *Stay Independent* questionnaire. Although the STEADI does include a few items dealing with psychosocial issues, these are limited. As depression, fear of falling, and social isolation are significant fall risk factors, the practitioner should consider additional tools to look at these factors. These tools are included in the Fall Risk Assessment Screening Tool (FRAST) described below.

Table 2 Tests and measures related to fall risk assessments

Test	Populations	Scoring considerations	Advantages	Disadvantages
Mini Balance Evaluation Systems Test (BEST)	PD, CVA, MS	Items 14 Total score 28 or 32 if right and left scored separately. Fall risk: increased with scores <20	10–15 min to administer; good overall clinical utility; excellent test-retest reliability; excellent inter/intrarater reliability.	Inconsistencies in scoring based on whether right and left constituted one versus two items (28 versus 32 points)
Berg Balance Scale	PD, MS, CVA, community elderly	Items 14 Total score 56 Fall risk: generally increased with scores <45	Concurrent and predictive validity established for many patient groups; excellent test-retest reliability; excellent inter/intrarater reliability.	Takes longer to administer than other tests. Demonstrates ceiling effects when used in PD, especially in the middle stages of progression.
Tinetti Performance Oriented Mobility Assessment	PD, CVA, IDD, community elderly	Items 16 Total score 28 Fall risk: generally increased with scores <20	Excellent test-retest reliability; excellent inter/intrarater reliability; one of few tests modified for persons with IDD.	In some studies, lacked responsiveness sensitivity to varied conditions.
Timed Up and Go Test (TUG)	ADRD, CVA, PD	Items: single serial timed task. Total score: time measurement in seconds. Fall risk: depending on population, scores >13 are associated with an increased risk of falls.	Less than 3 min to administer; included in the STEADI Fall Risk Assessment; adequate to excellent test-retest reliability; excellent inter/intrarater reliability.	May be less reliability with persons who have cognitive impairment; “comfortable” walking speed is open to subjective interpretation.
10-m Walk Test	ADRD, CVA, MS, PD, community elderly	Items: single timed task. Total score: time measurement in seconds. Fall risk: population specific; not established for most groups.	Less than 1 min to administer; excellent test-retest reliability; excellent inter/intrarater reliability; gait speed is well correlated with independence in mobility and self-care.	Many studies use different methods of conducting the test making comparisons difficult; normative data is not well established for many population groups.
Dynamic Gait Index	MS, PD, CVA, community elderly	Items 8 Total score 24 Fall risk: variable but scores <19 predict falls in community elderly.	Less than 10 min to administer; good concurrent validity with variety of balance tests; excellent test-retest reliability; excellent inter/intrarater reliability.	Generally not recommended for use in more advanced stages of disease progression.

In addition to the *Stay Independent* questionnaire, there are three simple physical measures looking at lower extremity strength, gait, and balance. Free online training and materials are readily available. According to the American Geriatrics Society (AGS) fall prevention guidelines, every older adult should be asked about falls at least annually. Use of the CDC's STEADI fall risk toolkit fulfills this guideline and also qualifies for use in the PQRS system for improved Medicare reimbursement.

Fall Risk Assessment Screening Tool

Another evidence-based fall risk screen is the Fall Risk Assessment Screening Tool (FRAST) [42]. Like the STEADI, the FRAST includes a self-administered yes/no questionnaire. However, the questionnaire incorporates the modified Falls Efficacy Scale (mFES) [43] to consider fear of falling and the Mood Scale or short Geriatric Depression Scale (GDS) [44] to screen for depression, both well-known fall risk factors. There is only one objective physical measure, the Timed Up and Go (TUG) also used in the STEADI. Although the FRAST is more inclusive of psychosocial factors, it takes longer to administer, which may be a drawback for use.

Both of these screening tools are clinically sound, feasible, and interpretable measures to define those who are at low risk or are at high risk. Those who are at risk of falls or have fallen can then be progressed to the next level of assessment, which involves more specific tests and measures of balance, gait, and function to assess the factors that underlay the fall condition, develop a baseline of function, and develop and assess the effectiveness of an intervention.

Tests and Measures

Based on the results of screening, further testing may be required to diagnose and quantify the functional and movement limitations contributing to a potential fall risk. Several assessment tools or instruments are available, validated, and normed for the special populations that we described. These tools are most frequently administered by qualified health professionals such as physical therapists, and the results, in conjunction with other evaluative findings, may be used to inform intervention plans. Table 2 summarizes the tests and measures, scoring, and relative advantages of several tests related to balance, gait, and mental state.

Balance Assessments

There are several specific tests to assess balance and fall risk. Matching the best test to assess an individual depends on several factors. Published normative data about the test, the setting in which the test will be conducted, and the individual's level of impairment may all influence the test selection. The Balance Evaluation Systems Test (BEST) [45] was developed to assess the systems involved in all aspects of balance. It demonstrates excellent reliability [46–48] and has been normed in multiple populations [49]. The Berg Balance Scale is a reliable and valid measure of balance in a variety of populations [50–57]. The scale requires the assessment of the performance of a number of functional tasks and movement transitions. The Tinetti Performance Oriented Mobility Assessment measures both balance abilities and gait in a broad range of special populations [58–64]. It is one of the few tests that are modified for use with persons with IDD [63], and it is generally a very reliable test [65, 66] but not as responsive as some of the alternatives [59]. The Timed Up and Go (TUG) test is part of the STEADI Fall Risk Assessment but can be used independently as a quick, replicable test of balance and mobility [67, 68]. The TUG has also been used in a broad range of special populations [14, 52, 69••, 70••, 71–73] and generally demonstrates good reliability [56, 74–76]. The dual-task TUG adds an additional cognitive or manual task and has higher criterion validity for predicting risk of falls than the TUG without the additional task [77, 78]. Table 2 describes the populations validated for each measure and summarizes the some of the benefits and limitations of each of the tests.

Gait Assessments

Walking speed is rapidly becoming an easy and validated measure of frailty, function, and falls in many special populations [79–82]. The easiest and most frequently utilized test for gait speed is the 10-m Walk Test [83]. This assessment has been tested on a wide variety of populations [53, 84–87] and is easy and reliable to administer [88, 89]. Research indicates some non-linear variability between gait speed and falls, so performance of this test at two speeds, if possible, may provide more valid results [90]. The Dynamic Gait Index (DGI) [91] is a more complex gait assessment. The index has been tested in numerous patient populations [88, 92–95] and demonstrates excellent reliability [76, 88, 92, 96, 97] and concurrent validity with other balance tests [98, 99]. The Functional Gait Assessment (FGA) is a modification of the DGI to improve reliability and reduce the ceiling effect. FGA eliminates walking around obstacles and adds gait with narrow base, ambulation backwards, and gait with eyes closed [100]

Mental State Assessments

It has long been recognized that people who are at risk for falls or have fallen develop a fear of falling. This fear can impact their function and self-efficacy [101]. Both physiological and perceived fall risk can contribute to a person's future fall risk [102]. Hence, assessment of fear of falling needs to be a component of the total fall risk assessment pre and post intervention. The Activities-Specific Balance Confidence (ABS) Scale [103] may be used with MS, PD, and CVA. A short version with only six questions (ABC-6) has been validated and demonstrates stronger relationships to falls than the ABC-16 [104]. The Falls Efficacy Scale (FES) [105] is the most utilized scale to assess fear of falling [106]. It too has been tested on a number of populations [107–111]. A modified FES includes more challenging activities of daily living and specifies that the FES can distinguish varying degrees of mobility or health impairment [43]. More recently, the Prevention of Falls Network Europe has developed an international version (Falls Efficacy Scale - International (FES-I)) [112] to augment the original ten-item FES with the addition of a social dimension. This version has been shown to have construct validity and reliability and is now used more extensively. However, in order to increase practical and clinical utilization, a Short FES-I has been developed and tested. Research indicates that the Short FES-I is a good and feasible measure to simply assess fear of falling in general, but the full FES-I has better power to discriminate between groups differentiated by age, gender, falls history, and fear of falling [113, 114].

Electronic Technology-Based Assessments

Electronic technology provides clinicians with the ability to be objective and quantitative in the measurement of balance. These testing systems continue to evolve and become more available and reimbursable for the patient. These systems provide objective scoring, greater sensitivity to small change, and greater test-retest reliability.

Posturography is a quantitative assessment of postural sway. Static posturography attempts to quantify sway, while the subject stands as still as possible. Dynamic posturography utilizes external perturbations or changing surface or visual conditions to assess postural responses and adaptations, postural control mechanisms, and motor learning. One system, the Sensory Organization Test, makes this testing clinically available but is time consumptive and costly. Although dynamic systems can define the type of balance disorder, functional compensations, and challenging environments, these systems do not define balance during functional daily activities where most falls occur [115].

The development of lightweight, wearable inertial sensors provides an inexpensive, practical method for sway quantification in the clinical environment. Sensors are either linear accelerometers or angular velocity sensors that usually calculate parameters of gait. However, new algorithms have been developed and tested to automatically and quantitatively assess balance and mobility, including iSWAY [116], iSTEP, and iTUG [117]. Spurred on by the interest in concussion, the next generation of balance testing will be initiated in apps for phones and tablets. One such app, Sway Balance [118], is an FDA-approved mobile balance system to monitor signs of balance-related dysfunction.

Pulling It All Together

Knowing about the tools and resources to identify fall risk is only a beginning. Understanding how those tools apply to specific and special populations will lead to the most appropriate fall prevention program. In this section, we introduce this process. Specific recommendations are beyond the scope of this review

The initial fall prevention step for any practitioner is to seek information through observation and questioning. When working with people who have an IDD or ADRD, for example, it is appropriate to address questions to the individual. Addressing adults directly about issues that impact their lives shows respect. If he/she is able to respond, then these responses should be accepted. Though, there may be a need to validate responses with a care provider. This should be the exception rather than the rule. Start with simple questions such as the following: (1) Have you fallen in the past year? If yes, were you hurt? (2) Do you feel unsteady when standing or walking? (3) Do you worry about falling?

If the responses to all questions are negative, proceed with typical care management. If any responses are positive, a fall risk screening such as the STEADI or the FRAST could be administered to determine level of risk and to define potential factors that relate to risk.

Fall risk is evaluated based on the number of positive responses to questions plus scores on the physical performance test(s). Pass and failure to pass on the performance tests [119] (see Table 2) indicate an increased risk for falls and define possible underlying factors that should be addressed. Healthcare providers can and should address identified risk factors within their scope of practice and refer to the appropriate program or practitioner for further identification and management of other identified issues. While the referral process for prevention or intervention programs is beyond the scope of this review, we reiterate that screening and assessment protocols lay an important foundation for the management of fall risk. Results of screening and functional assessment tools direct practitioners toward the best or most appropriate program for the client. Several programs that have demonstrated good evidence for reduction of fall risk for older adults, including special populations, are briefly described below [120].

Matter of Balance is an 8-week, evidence-based fall prevention (EBFP) program focused on problem solving and skill building in relation to falls and fall risk [121]. Participants meet weekly for 2-h sessions to learn how to set realistic goals, change the environment, and begin physical activity. *Tai Ji*

Table 3 Evidence-based programs to reduce falls and risk for falling

Matter of Balance http://www.mainehealth.org/mob	Community-dwelling elders (targeted age 60 years and older).	Eight 2-hour sessions A master trains the coach Pre and post survey Online data management Goal to reduce fear of fall, stop falling, and increase activity	Learn to see falls as controllable Participants set realistic goals Evaluate environmental risk Learn strength-balance exercises Problem solving, skill building Small classes Personal focused solutions Low participant costs	Cost of program initiation Cost of materials Training of master and class coaches Exercises not tailored to individual
Tai Ji Quan: Moving for Better Balance http://tjqmbb.org/	Community elders, PD, patients with cancer, patients with cognitive impairment	One hour weekly class for 24 weeks Structured movement Pre and post tests Falls surveillance Goal to reduce falls and improve balance and mobility	Improvement of balance and mobility Small classes Low participant cost	Cost of program initiation Cost of materials Training of instructors Long duration of class Higher physical demand
Stepping On https://wihealthyaging.org/stepping-on	Community elders	Two hour weekly classes for 7 weeks Learn effects of vision and meds on balance Environmental safety Safe footwear Exercises for balance and strength Goal to reduce falls, improve confidence, and increase activity	Moderate class size 10–14 Handouts Games Invited experts to present Structured exercises Link exercise to falling Homework and reviews Pre and post surveys	Cost of program initiation Cost of leader training Cost of materials and equipment
Stay Active and Independent for Life (SAIL) http://www.doh.wa.gov/YouandYourFamily/InjuryandViolencePrevention/OlderAdultFalls/StayActiveandIndependentforLifeSAIL	Community elders aged 65 years and older	Meets three times a week for 1 hour Pre and post testing Larger class—20 Goal to increase strength and balance	No licensing fees or renewals Two guides, one for fall prevention and one for exercises Ongoing classes for longer times Professionals as instructors Exercises more tailored to person	Instructor training required but can train online Minimal leader support More frequency Cost for equipment and materials
FallsTalk/FallsScape http://fallscape.org/index.html	Community elders	Online software Creates individualized multimedia training and evaluation sessions.	Online and convenient At home solutions Approved by several professional associations	Need to be computer literate to use program Need self-motivation
Otago Exercise Program http://www.med.unc.edu/aging/cgec/exercise-program	Community elders and frail elders who have experienced falls	Structured exercises for strength, balance, and aerobic fitness Meets hourly each week for weeks in home Program continues for 6–12 months Transfer to another program at termination	Designed for frail elders Directed by professional healthcare provider Individually modified In home management Covered by Medicare Referral to another program as indicated when completed Inexpensive training Supported database for testing	PT needs to be certified Limited coverage One-on-one care Dependent on patient compliance

Quan: Moving for Better Balance (TJQMBB) is an EBFP program that translates martial arts movements into a therapeutic regime; it is presented in two 1-h sessions per week for a minimum of 24 weeks [122]. *Stepping On* is a multifaceted EBFP program that includes seven 2-h weekly sessions that include exercise classes for balance and strength, presentations on all aspects of fall risk, and self-assessments of individual lifestyles to identify and reduce risk [123]. *Stay Active & Independent for Life* (SAIL) is a strength, balance, and fitness program that meets three times weekly for 1 h and is ongoing [124]. *FallsTalk* and *FallsScape* are online software solutions that individualize fall prevention programming and provide video intervention programs for clients. The *Otago Exercise Program* is a home-based intervention for the frail older adult with more severe balance problems [125]. This program consists of 17 strength and balance exercises delivered and progressed by a physical therapist over the course of 6–12 months. Once an older adult has successfully completed the Otago, his or her physical therapist may refer them to the most appropriate community-based fall prevention program. These programs have been thoroughly validated with community-dwelling older adults and are in the validation process for use with older adults represented in special populations. Table 3 summarizes the above programs, the currently validated populations, and specific considerations that may influence the program selection.

Conclusion

Falls are a significant problem for aging adults and especially those who are represented in special populations. As we continue to live longer, falls will represent a growing risk that has associated injury liability and medical cost to each of us individually and as a society. Professional and public awareness that lead to regular screening, early assessment, and intervention may reduce the risk of falls and greatly reduce the financial burdens associated with falls and injuries [126, 127]. It is logical to assume that a proactive approach to screening, assessment, and implementing individualized and targeted intervention programs will lead to more productive and active lives for all older adults, regardless of their functional abilities.

Compliance with Ethical Standards

Conflict of Interest Mindy Renfro, Joyce Maring, Donna Bainbridge, and Martin Blair declare that they have no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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