19 Instability and Falls

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Instability and falls can be markers of generally poor health or declining function.[1] Falls may have serious physical and psychological consequences, including injury, hospitalization, impaired mobility, restricted activity, functional decline, nursing home placement, and fear of falling again. A person who is unsteady but does not actually fall may still restrict his or her activity, resulting in reduced mobility, less independent function, and social isolation. Thus, instability without actual falls is still a serious problem. The ultimate goals of care for these patients are to improve function and prevent injury through a systematic evaluation of the causes of instability. Because many cases of instability and falls in older people are due to multiple interacting problems, management approaches should be multifactorial. Three key strategies are to identify reversible causes, treat modifiable impairments, and adapt to fixed disabilities.

BACKGROUND

Epidemiology

One third of community-dwelling elders and half of nursing home residents fall each year. Falls are the leading cause of accidental death in older persons. One percent of those who fall fracture a hip, 5% sustain another fracture, 5% incur a serious soft tissue injury,[2] and 2% are hospitalized.[3] Hip fracture is a leading cause of morbidity and mortality; 200,000 hip fractures occur each year. A fifth of the victims die within 6 months, and another fifth are admitted to nursing homes. Hip fracture results in a 10% to 15% decrease in life expectancy, and costs are higher than $1 billion per year.[4, 5]

The risk of an injury with falling depends on both susceptibility and exposure. Exposure to high-intensity forces at impact is potentially higher in more active persons. A less active person's risk of injury depends more on susceptibility, that is, the presence of fragile bones or ineffective protective responses.[4] Falls and injuries in frail elders tend to occur within the home during routine activities. Vigorous elders may be more likely to fall and injure themselves while away from home, during dynamic activities, or while negotiating stairs or other environmental hazards.[6] Although the consequences of falls and injuries have been described extensively, the impact of instability and fear of falling in older persons who have not fallen is unknown.[7]

Postural Control Theory

Balance is the ability to remain upright in motion. From a biomechanical perspective, balance is achieved by continuously controlling the displacement of the body's center of mass over a moving base of support. The mass is usually a tall narrow column in the upright human, and the base of support, represented as the two-dimensional contact area between the body and the support surface, is often the area between the two feet. This biomechanical task adapts to constantly changing conditions. For example, the base of support changes in size from a rectangle enclosing both feet while standing to the area under one foot while walking. The center of mass can project directly over the base of support to produce a stable body, called "static equilibrium." To move from one place to another, the mass projection must move outside the base of support, and the body must quickly relocate the base under the moving mass. Such conditions are not stable on a second-to-second basis; thus walking is sometimes called "controlled falling," and movement really represents a dynamic equilibrium.[8]

The postural control system organizes this biomechanical task. The system uses multiple sensory inputs to continuously determine the body's position and trajectory in space, a central nervous system to integrate the sensory information and organize rapid responses, and effector systems such as muscles and joints to carry out the instructions of the central nervous system. The three sensory systems are vision, somatosensation, and vestibular function. The central nervous system uses automatic postural responses to provide rapid reactions. Automatic responses are

sometimes called long loop reflexes because they have characteristics that are intermediate between monosynaptic stretch reflexes and typical voluntary responses. Stretch reflexes are extremely stereotyped (the same thing happens every time) and very rapid; they occur in about 50 msec. Voluntary responses are infinitely modifiable and occur in a minimum of 150 to 200 msec. Postural responses lie between the two; they have stereotypical elements and occur in about 100 msec. Classically, stereotypical features include responses about the ankle to small perturbations, responses about the hip to moderate displacements, and stepping responses to more demanding movements of the body mass.

Innumerable changes due to aging and disease can influence the elements of the postural control system, resulting in difficulty in managing the biomechanical task. The postural control system, like many complex physiologic systems, has redundancies and back-up adaptive mechanisms. Thus, the blind person can get about successfully. Failures of postural control can occur when the demands of the biomechanical task overwhelm the system, when a critical element of the system fails, or when the adaptive back-up systems are gradually depleted through multiple accumulating deficits. The clinician can build on a foundation of knowledge about postural control theory, biomechanical mechanisms, and aging effects to construct an organized approach to problems of instability. Excellent reviews of the key issues have recently been published.[8, 9]

A Structured Approach to Fall Risk Factors

Reported risk factors associated with falls vary from study to study and incorporate a broad range of unique perspectives such as demographic, medical, and functional issues. For example, age, female gender, medications, weakness, impaired cognition, low vision, foot problems, acute illness, chronic neuromuscular conditions, environmental factors, trouble rising from a chair, risky behaviors, housebound status, and a history of previous falls or stumbles have all been identified as risk factors for falls.[4, 6, 10–12] The clinician can organize this information into meaningful constructs to foster recall and support clinical evaluation.

Whatever the construct, it is clear that fall risk is cumulative; risk increases as the number of factors increases.[12] An approach that encompasses the range of risk factors and can be used to develop a clinical plan includes (1) functional abilities, (2) environmental context, (3) acute toxic and metabolic stressors, and (4) threats to postural control. These four groups produce the mnemonic FEAT (Table 19–1).

TABLE 19–1 **FALLS AND INSTABILITY: EVALUATION AND MANAGEMENT**

Screening	Falls Instability Fear of falling
Assessment (FEAT)	**F**unctional assessment Vigorous, transitional, frail **E**nvironmental context Person-setting interaction Environments avoided **A**cute toxic or metabolic factors Only if falling is of new onset or a recent change **T**hreats to postural control Sensory, central, effector
Management	Reverse: Toxic or metabolic factors Rare single treatable diagnosis Adapt: "Friendly" environment, human help, assistive devices Modify: Vision: optometric factors Vestibular function: medication, rehabilitation Central nervous system: medication, rehabilitation Effector: rehabilitation, exercise

Functional abilities are the individual's capacity for specific movements or tasks. Mobility tasks have a natural order; it is easier to sit than to stand and easier to walk than to climb stairs or toe a line. This natural order allows clinicians to assign individuals to general levels of capacity. Tinetti has called these levels vigorous, transitional, and frail.[6] To be useful in a clinical setting, these terms must be defined. Although there are many possible definitions, one brief, efficient, and tested system is presented here.[13] Frail persons meet the criteria for disordered walking; they either use an assistive device or take steps that are shorter than twice the length of the foot. Vigorous persons can walk heel to toe or descend steps step over step. Transitional people function midway between the other two. Frail people have the highest risk for falls and are more likely to have falls indoors. Vigorous people are least likely to fall, and if they do, the circumstances are likely to be more demanding, and the impact force of the fall is likely to be higher. Frail people with limited functional abilities are at risk for the consequences of instability even if they do not fall; they may be characterized by fear of falling, social isolation, and increased dependence.

Environmental context assesses the interaction between an organism and the environment. Environmental factors are sometimes called extrinsic factors, whereas factors that are within an individual are called intrinsic factors. Some falls may be attributable to a purely intrinsic trait such as syncope and others may result from purely extrinsic, environmental factors such as being knocked over by a truck. Most falls in older persons are the result of interactions between the person's current balance capacity and the environmental conditions of the moment. Environmental risk can be based on the degree of threat required to produce a fall. One individual falls only when the environment is quite challenging, for example, on an icy sidewalk at night. Another falls under a minimal challenge, as when getting out of bed. Considering the environmental context as a spectrum, the clinician can identify the degree of environmental challenge that produces falls in a particular patient. This perspective can help to clarify the potential capacity of the individual and the approach to environmental modification and can help in detecting change over time as the ability of the individual to tolerate environmental challenge increases or decreases. In addition, any mismatch between the person's apparent functional capacities and the environmental context of a fall should be explored. A vigorous person who is falling under low stress conditions may have a greater likelihood of transient events like arrhythmias, transient ischemic attacks, or alcohol intoxication.

Acute toxic and metabolic stressors are generally not found in people who have a long-standing problem with falls. However, in general practice and in emergency rooms, the individual who becomes "weak and dizzy" and then falls may be more likely to have an acute illness, such as infection, dehydration, blood loss, electrolyte imbalance, or hypoxemia. Evaluation of a patient for these common problems makes the most sense when a falling syndrome is new or when there has been a recent change in functional abilities or environmental context.

Identifying threats to postural control is a particularly useful clinical approach to identifying risk factors. This approach is well suited to geriatric concepts of accumulating deficits and multiple contributing factors. The sensory, central processing, and effector components of postural control encompass many known risk factors. Deficits in vision (acuity, depth perception, visual fields, dark adaptation), proprioception, and vestibular function are possible. Vestibular deficits can occur in the semicircular canals, where they affect sensations of acceleration, or in the utricle and saccule, where they affect the gravitational sensation that determines the vertical upright position. Peripheral sensory deficits lead to difficulty in determining the position of the foot and ankle, thereby limiting detection of irregularities in the terrain and reducing the ability to detect sway.[14] Multiple sensory deficits are especially likely to produce a disequilibrium syndrome. Central processing, which coordinates movements smoothly and efficiently, may be impaired. Neurologic conditions such as Parkinson's disease, cerebrovascular disease, cerebellar syndromes, normal pressure hydrocephalus, and spinal cord lesions can impair the organization and speed of postural responses.[9] Dementias may impair judgment and attention, may lead to deconditioning, and are sometimes associated with degeneration of movement-planning areas of the brain.[15] Medications can affect the central nervous system by causing sedation, delayed response time, orthostasis, or extrapyramidal side effects. Decreased cerebral perfusion due to arrhythmias or valvular lesions is very rarely implicated as a cause of chronic falls. Effectors such as muscle strength, joint flexibility, and endurance may be impaired by aging, disease, and disuse and can be additional contributors to a poorly functioning postural control system. Often overlooked are foot problems, such as bunions, hammertoes, elongated nails, and improper footwear.

CLINICAL APPROACH TO INSTABILITY AND FALLS

The older adult with instability or falls may not actively bring these problems to the physician's attention. All health care providers should consider screening their older patients briefly and periodically for both falls and instability. One systematic approach to the evaluation and management of these problems is presented in Table 19–1. Start by inquiring about falls. Find out if the falling syndrome is new, has changed recently (within weeks to months), or is of long standing. In the absence of falls, ask about fear of falling or restrictions of activity due to lack of confidence.[7] Again, inquire whether this is a relatively new problem or a long-standing one. Acquire a general feeling for the functional level of the individual. This can often be done while watching the older adult enter the examination room or move from a chair to the examination table (Table 19–2). Is the individual able to walk without an assistive device, take footsteps of reasonable size (about twice the length of the foot), and rise from a chair without using the arms? If not, the individual is somewhat frail. Can the older adult tandem walk at least four heel-to-toe steps in a row? This is one sign of excellent vigorous balance. In your

TABLE 19–2 **ASSESSMENT OF PHYSICAL FUNCTION**

Basic level
1. Step length at least twice foot length
2. Walks without assistive device
3. Rises from chair without using arms

High level
1. Tandem walks at least four to five steps
2. Descends stairs step-over-step

Categories
1. Frail: Fails basic level
2. Transitional: Passes basic level, fails high level
3. Vigorous: Passes high level

mind, assign the person to one of the three categories: vigorous, transitional, or frail.

Inquire about the environmental context. For patients who have fallen, identify the setting and activity at the time of the fall. In the absence of falls, inquire about the kinds of environments the individual avoids or enters only with support from another person or device.[7] Match the functional capacity with the environmental context. Falls in a person with vigorous function and minimal environmental challenge indicate the presence of transient medical events or perhaps psychologic issues. Similarly, a vigorous individual who restricts activity and avoids environments unnecessarily may benefit from reassurance.

If falls and instability are of recent onset, a physical examination for more acute findings of dehydration or cardiopulmonary or neuromuscular abnormalities should be carried out. Brief screening tests for toxic and metabolic stressors such as electrolyte imbalance or hypoxia should be considered (see later section on diagnostic testing).

The history and physical examination are used to explore threats to postural control. The sensory, central processing, and effector elements are reviewed systematically, and the three sensory systems—vision, somatosensation, and vestibular function—are examined. For vision, one should inquire about the use of eye wear and problems with dark adaptation. Is the patient monocular due to a dense cataract or unilateral blindness? People who have only one functioning eye have reduced stereopsis and more problems with depth perception. The visual fields, including the inferior as well as the lateral fields, should be examined. Peripheral vision loss occurs in patients with glaucoma and stroke as well as in apparently healthy older adults.[16]

Acute vestibular disorders present classically with vertigo, which is defined as a hallucination of motion, often perceived as spinning of the person or the room. The two most common causes are benign positional vertigo and Meniere's disease. People with chronic, especially bilateral vestibular disorders often lack sensations of vertigo. These individuals are more likely to have movement intolerance, especially when there are strong visual cues of motion. For example, people with chronic vestibular disorders may feel dizzy when they push a grocery cart down an aisle because their vision tells them they are moving but their chronic vestibular deficit does not provide the brain with sensations of acceleration.

Physical examination for vestibular disease is difficult. Traditional tests for nystagmus are frequently negative in people with definite vestibular disease. A Hallpike maneuver, in which the patient is brought from a supine position, with the head rotated sideways and down, to a sitting position can stimulate otolith activity and help in the diagnosis of benign positional vertigo. Chronic vestibular disorders are very difficult to diagnose in the clinic. Tests for body position and acceleration with the eyes closed are sometimes helpful. For example, the patient can be asked to march in place with the eyes closed. A normal person remains in one place, whereas someone with vestibular hypofunction rotates or moves off base.[17] Many high-tech approaches to the diagnosis of vestibular diseases have been developed during the last decade. It is unclear whether they are helpful in older adults with multiple deficits. Some of these approaches were developed for younger persons with very specific isolated vestibular conditions, and they may be confounded in older adults who have multiple interacting disorders.

Older adults who have problems with somatosensation may not necessarily complain of numb feet. They may note a disquieting sense of being unsure of themselves when they are standing and walking, a form of dizziness that is clearly not felt in the head. This sensation, sometimes called disequilibrium syndrome, has been described as a feeling that resembles trying to walk in a rowboat. It occurs when losses of somatosensation are present, often in combination with other sensory deficits. Thus, disequilibrium is often a multiple sensory disorder syndrome. Peripheral sensory deficits may be present on traditional testing for toe position and sharp-dull discrimination but are often normal in people who have a clear-cut disequilibrium syndrome. More frequently, these individuals have several physical findings. A positive result on Romberg's test (increased sway when the eyes are closed) is a sign that stability is dependent on vision. It is not specific for peripheral sensory disorders but can be very sen-

sitive, especially if the patient is asked to put his or her feet as close together as possible (providing the smallest base of support). Another test that is strongly associated with disequilibrium is extensive loss of the vibratory sense. Although many healthy elders cannot feel vibration at the most distal bony prominences, such as the base of the great toe, those with disequilibrium cannot feel vibration at the ankle and often not even at the knee.

Central postural responses can be tested directly in the clinical setting by performing a righting test. The examiner stands behind the patient and tugs at the pelvis. The normal response is to promptly bring one foot backward under the body and sometimes to bring both arms forward. Abnormal reactions include a complete lack of response, sometimes called the "timber reaction," and multiple small ineffective steps. Lack of a righting response suggests a central nervous system condition that affects the basic postural organization. It is often a poor prognostic sign for recovery of balance function. Conversely, an intact righting response implies an excellent basis for recovery of function if other contributors to the problem are identified and treated.

Further neurologic examination is needed to detect specific conditions associated with poor postural responses. Parkinson's disease is much more common in older adults than previously thought.[18] It is frequently associated with a primary loss of righting reactions and can present differently in older people than in younger adults. Older adults are less likely to have tremor and are more likely to have balance problems, gait problems, and cognitive problems. Cogwheeling rigidity is often the best clue to the diagnosis. This sign is sometimes subtle but can be made more prominent by having the patient actively move the contralateral extremity during testing. For example, the patient can tap one hand against the knee while the examiner moves the other elbow through the range of motion, feeling for the characteristic cogwheeling sign.

Righting responses may also be lost at some point in the course of many dementias, including Alzheimer's disease, white matter disease, multiinfarct syndromes, and normal pressure hydrocephalus.[8]

Spinal cord syndromes such as cervical and lumbar stenosis can cause sensory and motor deficits that affect the components of balance. These problems are not necessarily associated with pain and can be diagnosed by detecting sensory deficits, localizing weakness and reflex changes. It is important not to make the diagnosis by radiologic scans alone because many structural abnormalities occur without accompanying neurologic deficits.

Drugs can affect central responses in four major ways—causing delayed reaction time, sedation, decreased cerebral perfusion, or extrapyramidal effects.[19] It can be difficult to remember a laundry list of medications that could possibly affect balance but is easier to remember and review the four mechanisms. Consider all prescription and over-the-counter formulations of drugs that are known to affect the central responses directly as well as those that have such consequences indirectly as unintentional side effects. For example, benzodiazepines, especially those with long half-lives, clearly increase the risk of falls, even if the individual does not knowingly feel sedated. Antihistamines can also cause sedation and may be present in over-the-counter formulations available for colds and sinus disorders. Decreased cerebral perfusion may be the result of orthostasis and may be due to antihypertensive agents. Other drugs can affect blood pressure as an unintentional side effect. For example, antianginal agents such as nitrates and levodopa for Parkinson's disease can cause orthostasis. Drugs can also cause extrapyramidal consequences, most commonly recognized as a side effect of major tranquilizers, but such effects can also occur with other drugs such as metoclopramide.

Cardiovascular causes of falls are largely mediated by decreased cerebral perfusion. It is always worth checking for orthostasis, although mild degrees of this condition, such as systolic changes of 20 mmHg, are common and are often clinically unimportant. Of greater interest is either a large drop of 30 mmHg or more or a drop to a systolic blood pressure of under 100 mmHg. The detection of arrhythmias or valvular lesions has generally not proved to be helpful in the management of falls. These abnormalities are often simply common comorbidities that are not contributing to the problem and require treatment that has a substantial morbidity of its own. The threshold for pursuing evidence of decreased cerebral perfusion may be lowered if frank syncope is present, if there is a clear mismatch between functional capacity and environmental threat, and perhaps if the syndrome is of recent onset.

Diagnostic Testing

Because falls have a heterogeneous origin, both diagnostic tests and management plans must be individually tailored based on the clinical information obtained; a nonspecific cookbook approach should be avoided. One study found, during a complete post-fall assessment, that most

diagnoses (95%) are determined from the history and physical examination alone.[20] A chemistry profile, complete blood count, oxygen saturation, drug levels, electrocardiogram, and chest radiograph are most likely to be helpful when falls have begun recently or when there has been a recent change. A Holter monitor is rarely useful. If focal neurologic findings are noted, an imaging study or electromyogram (EMG) may be needed. Specialized vestibular or visual testing may be productive in selective cases, but costly, low-yield tests should not be obtained indiscriminately. The goal is to confirm the diagnostic impressions and quantify the degree of functional impairment. At times, a home evaluation to assess the environmental hazards and directly observe the patient's performance of activities of daily living and instrumental activities of daily living can be revealing (Table 19–3).

MANAGEMENT APPROACH

Individualized Multidisciplinary Modifications

Given the multifactorial causes of falls, management strategies must be multifaceted and comprehensive yet individualized. The goal is to maximize function and independence while minimizing injury. A multidisciplinary approach engages various personnel to address the disability and help to lower the cumulative burden of deficits as well as the risk of falling. This may involve treating reversible disease, modifying impairments, and adapting to fixed disabilities. For example, an optometrist, physical therapist, social worker, and physician may all make significant contributions to reducing the risk of falls in a visually impaired, frail individual with limited mobility who is taking multiple medications.

If reversible conditions such as metabolic disturbances are found, they can be treated. Rarely, treatment of some patients with normal pressure hydrocephalus, subdural hematoma, or arrhythmia results in a complete cure. More likely, the clinician will find himself working on multiple modifiable impairments. Among the sensory deficits, those of vision and vestibular function are most likely to respond to treatment. Visual field deficits may be helped by corrective lenses that include prisms.[16] Vestibular disorders may respond to medications such as meclizine and are often improved by training or desensitization programs provided by therapists.[17] Central disorders are often not curable but may be somewhat responsive to treatment. Medication for Parkinson's disease may result in improved ease of movement but unfortunately does not change the postural control deficit itself. Sometimes an individual who is starting treatment for Parkinson's disease may actually fall more often. Although he or she can walk faster, the sense of balance is still defective, a situation that can lead to more opportunities for mishaps and injuries.

Many medications are potential contributors to instability. Because impairments may accumulate over time, it is even possible for a drug to begin to cause problems only after many years as other adaptive mechanisms become compromised. A systematic approach to reducing medications can identify which agents are required for cure, for symptomatic relief, or for prevention of long-term complications. In each area, the agent can be deemed essential, useful, or less likely to be necessary. If a drug is thought to contribute to instability, it may be eliminated if deemed unnecessary or replaced with an alternative agent if considered important. Real controversies sometimes occur about the best decision if treatment for a dangerous condition such as heart disease results in dysfunctional consequences such as dizziness and instability.

Primary direct intervention on balance function may reduce falls and improve balance.[21, 22] Exercise can be adapted to the functional abilities of the person. Some techniques have been

TABLE 19–3 **ENVIRONMENTAL MODIFICATIONS AND HOME SAFETY CHECKLIST**

Flooring
Secure rugs (nonskid backing) and carpets (tack down, no tears)
Remove clutter and obstacles from stairs, hallways
Keep cords out of traffic areas
Use nonskid wax
Access
Store frequently used items within reach
Repair unstable railings and other handholds
Provide handrails the full length of the stairway
Lighting
Ensure adequate lighting, especially on stairways
Check for lights or light switches near doorways, bed
Provide night lights for bathroom, stairway, etc.
Bathroom
Install grab bars for tub, toilet
Place rubber mat or decals in tub or shower
Outdoors
Be sure sidewalks and driveway are free of cracks and breaks
Examine lawn and garden for holes, rocks, loose boards, etc.
Keep walkways free of leaves, snow, etc.

developed that are based on high-tech computer programs or body consciousness approaches such as tai chi. Water exercise may be helpful[23] in that elderly people can practice balance maneuvers without the fear of falling; the water will cushion them if they lose their balance.

The effector system is clearly responsive to treatment. Strength, flexibility, and endurance remain highly modifiable, even in many frail elders.[24] There is no clear consensus about the best way to exercise. Some programs use formal weight-training equipment, and some use low-tech strategies such as Theraband and body weight for resistance.

Some degree of instability may persist after efforts to reverse disease and modify impairments have been pursued. Many approaches can be used to help the patient adapt to fixed disabilities. Mobility and self-care assistive devices can extend the person's functional abilities. An emergency call system may also be beneficial and can improve safety while allowing independence. The patient's home or living environment can be made more "friendly" by improving lighting, visual contrast, and available handholds.[25] New flooring materials may help to reduce the impact of a fall.[26] In places where very frail older adults congregate, like nursing homes, staffing patterns can be adapted to increase supervision of those known to be likely to fall. Here the answer, in part, may be to offer periodic supervised physical activity and to anticipate needs such as toileting. Restriction of activity should be a last resort.

The Frailty and Injuries: Cooperative Studies of Intervention Techniques (FICSIT) trials included eight multisite clinical trials that investigated interactions among biomedical, behavioral, and environmental factors contributing to functional loss and disability in the elderly.[26] Exercise was emphasized, and a range of interventions and populations was tested. The overall results of the FICSIT trials revealed a modest but significant decrease in the incidence of falls, particularly for those interventions that specifically addressed balance. Because of low statistical power to detect a treatment effect in reducing injurious falls, which occurred rarely, no significant change was noted in incidence of injurious falls.[3] Tinetti and colleagues reported a reduction in the falls incidence ratio to 0.69 using a multidimensional intervention that addressed and modified medications, behavior, education, and exercise.[27]

Falls in Nursing Homes

Residents who fall in nursing homes present some unique challenges and issues. Persons in nursing homes are more likely to take many medications, have more disability, and suffer from poor cognition and impaired judgment. Some residents are unable to clearly express their needs. Use of passive injury protection is one attractive approach. Hip protectors used in a nursing home population reduced risk, but patient compliance was a notable problem.[28] A trial of thorough post-fall assessment found no change in the incidence of falls but a significant decrease in hospitalization due to falls. The falls may have triggered an earlier and more thorough evaluation of the patients' overall medical condition.[20] Physical restraints have never been shown to decrease the incidence of falls. Currently, the challenge in nursing homes is to reduce all forms of restraint while maintaining patient safety. Key elements include attempts to (1) screen for and treat reversible contributors to instability, (2) use supervised exercise to reduce physical restlessness, and (3) anticipate the needs that precipitate unsupervised activity, such as a desire for toileting, food, drink, symptom relief, or diversion.

SUMMARY

Instability, fear of falling, and falls themselves are common contributors to restricted activity and reduced health in older adults. It is important to screen for instability and fear of falling in addition to actual fall events. Assessment includes functional evaluation, an environmental history, screening for acute toxic or metabolic conditions when the situation is new or changing, and a systematic review of threats to postural control. Management includes identification of reversible causes, modification of impairments, and adaptation to fixed disabilities. Multiple contributing factors are often present that require an individualized, multidimensional approach to evaluation and management. The ultimate goals are to improve function, maximize independence, and reduce risk of injury.

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