Physical Function & Home Safety

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Subject of Lesson

This session focuses on functional physical fitness and home safety for older adults. Students will have an opportunity to practice common assessments for these areas.
Functional Requirements for Community-Dwelling Aging Adults

- Walk 1203 feet (366 m) to complete an errand
- Gait speed of 1.2 m/s
- Carry 6.7 lbs package
- Manage challenges of walking
  - Stairs, curbs, slopes
- Perform postural transitions
What’s Most Important?

- Strength
- Flexibility
- Cardiovascular fitness
- Body composition
  - ↓ fat
  - ↑ muscle
Clinical Pearls

• Screen all pts >65 y/o for falls
• Evaluate the circumstances of the fall
• Systematically evaluate for modifiable predisposing factors and precipitants
  • Motor/balance/gait
  • Environment
  • Medications
  • Vision
• Disease management, including cognition
Algorithm for Fall Risk Assessment & Interventions

Waiting room: Patient completes Stay Independent brochure
Identify main fall risk factors

Clinical visit: Identify patients at risk
- Fell in past year
- Feels unsteady when standing or walking
- Worries about falling
- Scored ≥4 on Stay Independent brochure

Evaluate gait, strength & balance
- Timed Up and Go
- 30-Sec Chair Stand
- 4 Stage Balance Test

Gait, strength or balance problem

≥2 falls or a fall injury
- Determine circumstances of latest fall

1 fall in past year
- Determine circumstances of fall

0 falls in past year

No gait, strength or balance problems

No to all
- Educate patient
- Refer to community exercise, balance, fitness or fall prevention program

≥2 falls or a fall injury
- Conduct multifactorial risk assessment
  - Review Stay Independent brochure
  - Falls history
  - Physical exam
  - Postural dizziness/postural hypotension
  - Cognitive screening
  - Medication review
  - Feet & footwear
  - Use of mobility aids
  - Visual acuity check

Implement key fall interventions
- Educate patient
- Enhance strength & balance
- Improve functional mobility
- Manage & monitor hypotension
- Manage medications
- Address foot problems
- Vitamin D +/- calcium
- Optimize vision
- Optimize home safety

Patient follow-up
- Review patient education
- Assess & encourage adherence with recommendations
- Discuss & address barriers to adherence
The 30-Second Chair Stand Test

**Purpose:** To test leg strength and endurance

**Equipment:**
- A chair with a straight back without arm rests (seat 17” high)
- A stopwatch

**Instructions to the patient:**
1. Sit in the middle of the chair.
2. Place your hands on the opposite shoulder crossed at the wrists.
3. Keep your feet flat on the floor.
4. Keep your back straight and keep your arms against your chest.
5. On "Go," rise to a full standing position and then sit back down again.
6. Repeat this for 30 seconds.

On "Go," begin timing.

If the patient must use his/her arms to stand, stop the test.
Record "0" for the number and score.

Count the number of times the patient comes to a full standing position in 30 seconds.

If the patient is over halfway to a standing position when 30 seconds have elapsed, count it as a stand.

Record the number of times the patient stands in 30 seconds.

**Number:** ________  **Score** _________  See next page.

*Below average score indicates a high risk for falls.*

**Notes:**

For relevant articles, go to: www.cdc.gov/injury/STEADI
# Lower Extremity Strength Test

## Chair Stand—Below Average Scores

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The 4-Stage Balance Test

**Purpose:** To assess static balance

**Equipment:** A stopwatch

**Directions:** There are four progressively more challenging positions. Patients should not use an assistive device (cane or walker) and keep their eyes open.

Describe and demonstrate each position. Stand next to the patient, hold his/her arm and help them assume the correct foot position.

When the patient is steady, let go, but remain ready to catch the patient if he/she should lose their balance.

If the patient can hold a position for 10 seconds without moving his/her feet or needing support, go on to the next position. If not, stop the test.

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**Instructions to the patient:** I’m going to show you four positions.

Try to stand in each position for 10 seconds. You can hold your arms out or move your body to help keep your balance but don’t move your feet. Hold this position until I tell you to stop.

For each stage, say “Ready, begin” and begin timing. After 10 seconds, say “Stop.”
Instructions to the patient:

1. Stand with your feet side by side.  
   Time: __________ seconds

2. Place the instep of one foot so it is touching the big toe of the other foot.  
   Time: __________ seconds

3. Place one foot in front of the other, heel touching toe.  
   Time: __________ seconds

4. Stand on one foot.  
   Time: __________ seconds

An older adult who cannot hold the tandem stance for at least 10 seconds is at increased risk of falling.
Walking Speed: the 6th Vital Sign

Fritz S, Lusardi M, J Gero PT, Vol. 32;2:09
Walking Speed
[meter per second (m/s)]

- 0 mph
- 0.4 mph
- 0.9 mph
- 1.3 mph
- 1.8 mph
- 2.2 mph
- 2.7 mph
- 3.1 mph

10 meter walk time: 50 sec, 25 sec, 16.7 sec, 12.5 sec, 10 sec, 8.3 sec, 7.1 sec
10 foot walk time: 15.2 sec, 7.6 sec, 5 sec, 3.8 sec, 3 sec, 2.5 sec, 2.2 sec

ADL: activities of daily living; IADL: instrumental ADLs; D/C: discharged; WS: walking speed; mph: miles per hour; sec: seconds
The Timed Up and Go (TUG) Test

**Purpose:** To assess mobility

**Equipment:** A stopwatch

**Directions:** Patients wear their regular footwear and can use a walking aid if needed. Begin by having the patient sit back in a standard armchair and identify a line 3 meters or 10 feet away on the floor.

**Instructions to the patient:**
When I say “Go,” I want you to:
1. Stand up from the chair
2. Walk to the line on the floor at your normal pace
3. Turn
4. Walk back to the chair at your normal pace
5. Sit down again

On the word “Go” begin timing.

Stop timing after patient has sat back down and record.

**Time:** ________ seconds

*An older adult who takes ≥12 seconds to complete the TUG is at high risk for falling.*

Observe the patient’s postural stability, gait, stride length, and sway.

**Circle all that apply:** Slow tentative pace ■ Loss of balance ■
Short strides ■ Little or no arm swing ■ Steadying self on walls ■
Shuffling ■ En bloc turning ■ Not using assistive device properly

Notes:
# TUG Norms

## TUG Normative Data for Community-Dwelling Adults:

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<thead>
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<td>11</td>
<td>3</td>
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5XSST
5 Times Sit to Stand

- Equipment: Stopwatch; standard height chair with straight back (16 inches high) against the wall;
- Have the subject sit with their back against the back of the chair. Count each stand aloud.
- Stop the test when the subject achieves the sitting position on the 5th repetition.
- “I want you to stand up and sit down five times in a row, as quickly as you can, when I say ‘Go’. Be sure to stand up fully and try not to let your back touch the chair back between each repetition. Do not use the back of your legs against the chair.”
- Time starts when tester says “Go.”

https://www.sralab.org/rehabilitation-measures/five-times-sit-stand-test
Age-Matched Norms

- Age Bracket   Time (sec)
- 60-69 yo      11.4
- 70-79 yo      12.6
- 80-89 yo      14.8

Fall Risk: Need for further assessment of fall risk: ≥ 12 sec
Falls Self-efficacy Scale Instructions

- Participants should answer items thinking about how they usually do the activity – for example, if they usually walk with an aid they should answer items about walking to show how concerned they would be about falling when using that aid. Some translators may find it helpful to clarify in the instructions (after the sentence on circling an opinion) ‘The opinions you can choose from are: 1 = not at all concerned 2 = somewhat concerned 3 = fairly concerned 4 = very concerned.’
STEADI - Older Adult Fall Prevention

STEADI Stopping Elderly Accidents, Deaths & Injuries

Make STEADI Part of Your Medical Practice

Falls are not an inevitable part of aging. There are specific things that you, as their health care provider, can do to reduce their chances of falling. STEADI's tools and educational materials will help you to:

- Identify patients at low, moderate, and high risk for a fall;
- Identify modifiable risk factors; and
- Offer effective interventions.

Materials for Providers

- Tests, fact sheets, case studies, and additional resources

Videos for Providers

- How to measure patients' functional ability

Materials for Patients

- Educational materials and brochures
Smart Phone Step Tracker

How to use the iPhone to track steps
1. Open your iPhone's Health app.
2. At the bottom of the screen, click "Browse."
3. Under "Health Categories" select "Activity." Activity will be the first category, next to a flame icon. You can also customize the Health Categories on the Summary screen. ...
4. Tap "Steps."
References


HOME SAFETY