The Timed Up and Go Test

Created in January 2005
Duration: approx. 20 minutes
Credits

© 2005 Stein Gerontological Institute. All rights reserved.

Principal medical contributors:
Alan Katz, MD    Francois Phancao, MD
Jorge G. Ruiz, MD FACP    Osvaldo Rodriguez, MD

Instructional designer/developer:
Yat-Soon Lee, MS

Narrator:
Miguel Paniagua, MD
Learning Objectives

After completing this module, you will be able to:

- Describe (verbally or in writing) the elements, indications, validity, and reliability of the Timed Up and Go (TUG) test
- Prepare the patient and the environment before the test
- Administer and score the test
- Identify limitations and special considerations
- Assess the appropriateness of the test for a patient
- Interpret the results of the test
- Estimate the risk of fall for a patient
The Timed “Up & Go” Test was originally developed by Mathias and colleagues in 1985 as a screening tool for balance impairment. A modified version was introduced by Podsiadlo in 1991, which added the element of timing to the test. This reliable and easy office-based test has gained great popularity among clinicians.
The Timed “Up and Go” Test is an easily administered test to measure physical mobility and thus identify individuals at risk for falls. It can also be used as a predictor of recovery of independent functioning after hospitalization.
The patient is asked to perform a task that is timed by an evaluator. The score is the time it takes for the patient to complete the task. The higher the score, the higher the patient’s risk for falls.
Key Points

The Timed Up and Go (TUG) Test is:
- A quick, easy, and reliable test
- A component of geriatric assessment
- Ensure proper guarding techniques
### Description: Reliability

The TUG Test is a reliable and valid instrument:

- **Retest reliability:** 0.89 – 0.99
- **Intra-rater reliability:** 0.98
- **Inter-rater reliability:** 0.99

The Timed “Up and Go” Test is a reliable and valid tool to assess physical mobility. Test-retest reliability ranges from 0.89 to 0.99. Both intra- and inter-rater reliability are also high at 0.98 and 0.99 respectively.
Validity is demonstrated by high correlation with standard measures of physical mobility:
- Berg balance scale: $r = -0.72$
- Gait speed: $r = -0.55$
- Barthel index: $r = -0.51$

The test's validity is demonstrated by its correlation with other measures of physical mobility such as the Berg balance scale, gait speed scores, and the Barthel index of activities of daily living.
Description: Validation on Patients

Validated in patients with:

- Osteoarthritis
- Parkinson’s disease
- Surgical repair of hip fractures
- Knee or hip replacement
- Amputation of one lower limb

The use of this test has been validated for patients with osteoarthritis and Parkinson’s disease and for patients after hip-fracture repair, knee or hip replacement, or amputation of one lower limb.
Description: Sensitivity & Specificity

The TUG Test is sensitive and specific:

- Sensitivity: 87%
- Specificity: 87%

The test is a sensitive and specific tool. One study found the test to have 87% sensitivity and 87% specificity in the identification of elderly patients at risk for falls.
Preparing the Test: Equipment List

Equipment:
- An armchair (seat height 18 inches / 46 cm)
- Stopwatch or wristwatch with a second hand
- Marker (masking tape)

Environment:
- An area > 10 ft / 3 m in length
- Well-lit
- Free of obstacles

Simple equipment is required for this test:
- An armchair with a seat height of about 18 inches
- A stopwatch or a wristwatch with a second hand
- A marker to be placed on the floor

Make sure the test room has a well-lit area that is greater than 10 ft in length and free of obstacles.
Preparing the Test: Assess the Patient

Make sure the patient:

- Wears regular footwear, the same for repeated tests
- Uses any customary walking aids if necessary
- Uses any usual sensory aids (hearing aids, eyeglasses) if necessary

For this test, the patient should wear his regular shoes, which must have a good fit.

Any walking aid or sensory aid that the patient normally uses should be used during the test.
Preparing the Test: Steps

Steps:
- Prepare the test environment
- Place a hard armchair
- Place a marker on the floor 10 ft away from the chair
- Assess the patient’s physical and mental condition
- Check for assistive devices used by the patient
- Introduce yourself and explain the planned maneuvers
- Demonstrate the task

Before administering the test, make sure the environment is suitable and safe for the patient to perform the task. For example, remove any loose rugs from the area. Make sure there is enough space for movement and that the area is not being heavily used by others.

Next, place a hard armchair at one end of the area and a marker on the floor 10 ft away.

Decide if the patient is able to take the test by assessing her physical and mental condition.

Check if the patient uses any assistive devices.

Ask the patient to sit down in the armchair, then introduce yourself and explain the task she is about to undertake.

Demonstrate the task.
Conducting the Test

1. Instruct the patient to sit with his back against the chair and arms on the armrest
2. Ask the patient to get ready
3. Say the word “GO” clearly
4. **Start timing**
5. The patient gets up and walks at a comfortable, safe pace to a marker on the floor 10 ft away
6. He turns around at the marker
7. He walks back to the chair
8. He then sits down with his back against the chair and arms on the armrest
9. **Stop timing**

Here are the steps for conducting the test.
1. Instruct the patient to sit with his back against the chair and arms on the armrest
2. Ask the patient to get ready
3. Say the word “Go” clearly
4. **Start timing**
5. The patient gets up and walks at a comfortable, safe pace to a marker on the floor 10 ft away
6. He turns around at the marker
7. He walks back to the chair
8. He then sits down with his back against the chair and arms on the armrest
9. **Stop timing**
Observe the following demonstration. Use the control buttons to pause or speed up the action.

Note:
- The set-up of the test environment
- The communication between the medical staff and the patient
- The guarding techniques

In this demonstration video, take note of
- The set-up of the test environment
- The communication between the medical staff and the patient
- The guarding techniques
### Special Considerations

Although the TUG Test is easy to conduct, special considerations and interventions are needed to ensure the safety of the patient and the accuracy of results.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Known gait or balance disorder</td>
<td>Assistive device (cane, walker)</td>
</tr>
<tr>
<td>Amputees</td>
<td>Prosthetics</td>
</tr>
<tr>
<td>Foot and arthritic disorder</td>
<td>Orthotics</td>
</tr>
<tr>
<td>Sensory deficit</td>
<td>Eyeglasses, hearing aids, etc.</td>
</tr>
<tr>
<td>Hip fracture</td>
<td>Consider hip protectors</td>
</tr>
</tbody>
</table>

Although the up and go test is easy to conduct, special considerations and interventions are needed to ensure the safety of the patient and the accuracy of results.
Guarding

ALWAYS use guarding techniques:

- Stand close to the patient
- Remain prepared to steady her if necessary
- Gently lower her into the chair if she begins to fall

Guarding techniques must be applied, with constant awareness to any potential danger to the patient. Guarding techniques include standing close to her during the test, preparing to steady her if necessary, and gently lowering her into the armchair if she begins to fall.
Handling Different Conditions

View all of the videos. Pay close attention to the guarding techniques demonstrated for each case.

You can try timing the test with the timer.
Limitations

- The TUG Test may not be simple or easy for patient with physical or cognitive impairment
- Proper assessment before the test
- Do not test if the patient is:
  - Unable to walk on his own
  - Wheelchair bound
  - Bedridden
  - Unable to follow instructions (cognitively impaired)

Although the Timed “Up and Go” Test is simple and easy to perform for many elderly patients, a patient with physical or mental impairments may not be able to perform this test. Take time to assess the patient and determine if her condition rules out this assessment. Remember, the test cannot be successfully administered if the patient is:

- Unable to walk on her own
- Wheelchair bound
- Bedridden, or
- Unable to follow instructions (cognitively impaired).
Interpreting the Results: Scoring

<table>
<thead>
<tr>
<th>Score (sec.)</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>= 10</td>
<td>Low risk of falls and functionally independent</td>
</tr>
<tr>
<td>11 - 29</td>
<td>Independently mobile but at increased risk of falls</td>
</tr>
<tr>
<td>= 30</td>
<td>Poor mobility, needs assistance for ADLs, and is at increased risk of falls</td>
</tr>
</tbody>
</table>

The test score is given in seconds.

- A score equal or less than 10 identifies a functionally independent person at low risk of falling
- A score between 11 and 29 identifies a patient who tends to be independently mobile but has an increased risk of falling.
- A score equal or more than 30 identifies a person with poor mobility who needs assistance for activities of daily living and is at increased risk of falling.
Interpreting the Results

The TUG Test is a good predictor for recovery after hospitalization for patients with good cognition:

- TUGT score = 40 sec: 73% did not recover
- TUGT score < 20 sec: 76% recovered

If the test is administered immediately after a hospital discharge, it is a good predictor of a person’s chances for recovery of independence in activities of daily living. Among patients with good cognition, 73% of those with a test score of 40 seconds or more did not recover. 76% of those who performed the test in 20 seconds or less recovered.
After a person is identified as having an increased risk for falls, the primary care physician determines what actions should be taken, including referrals to a specialist.
You should refer to the patient to a geriatrician for integral assessment of gait and balance disorders and fall risk, and management from medical, physical, and psychological perspectives.
You should refer to the patient to a **physiatrist**, **physical therapist**, or **occupational therapist** physical evaluation and management of gait and balance disturbances including gait training and tai chi for balance, as well as training with assistive devices and exercise prescription.
Summary

- The TUG Test is a simple and quick screening tool for physical mobility and falls risk
- The score is the time needed by the patient to complete the task
- **ALWAYS** apply guarding techniques to assure the patient's safety

In summary, the test is a simple and quick screening tool for physical mobility and falls risk. The score is the time needed by a patient to complete the task. Guarding techniques must **ALWAYS** be applied during this test to assure the patient's safety.
References

- Shumway-Cook A, Bauer S, Woollacott M. Predicting the probability for falls in community-dwelling older adults using the Timed Up & Go Test. Phys Ther. 2000 Sep;80(9):986-993.