

Core Measure: Functional Gait Assessment (FGA)

Overview	<ul style="list-style-type: none"> The FGA is used to assess postural stability during walking and assesses an individual's ability to perform multiple motor tasks while walking. The tool is a modification of the 8-item Dynamic Gait Index, developed to improve reliability and reduce ceiling effect.
Number of Test Items	<ul style="list-style-type: none"> 10 items: gait on level surface, change in gait speed, gait with horizontal and vertical head turns, gait with 180° pivot turn, stepping over obstacles, gait with narrow base of support, gait with eyes closed, backwards gait and stairs.
Scoring	<ul style="list-style-type: none"> Each item is scored on a 4-point ordinal scale ranging from 0-3, with 0 indicating severe impairment and 3 indicating normal ambulation. All items are summed to calculate a total score (max. 30). 3 = normal (no gait or balance impairment, completion of task in a timely manner) 2 = mild impairment 1 = moderate impairment 0 = severe impairment (Cannot perform without assistance, severe gait deviations or imbalance; deviates from walkway, increased time to perform task)
Equipment	<ul style="list-style-type: none"> Stopwatch Measuring device to mark off area Marked walking area = 20 ft (6 m); width 12 in (30.48 cm) Obstacle of 9-in height (22.86 cm) using at least two stacked shoeboxes Set of steps that are 7 ¼ -9 in high with bilateral rails
Time (new clinician)	<ul style="list-style-type: none"> Less than 20 minutes
Time (experienced clinician)	<ul style="list-style-type: none"> 5-10 minutes
Cost	<ul style="list-style-type: none"> Free
Logistics-Setup	<ul style="list-style-type: none"> A dedicated space or designated pre-measured area is recommended to complete the test to eliminate distractions and disruptions during administration. Re-testing should be performed in the same place/environment. A marked pathway of 20 ft (6 m); width 12 in (30.48 cm) in a designated area over solid flooring is required. Quiet conditions Starting Position: Patient is standing quietly in a comfortable position at the start of the 20 ft (6 m) marked walking area, except for the following items listed below¹: Item 6: Step over Obstacle <ul style="list-style-type: none"> Patient is standing quietly in a comfortable position at the start of the 20 ft (6 m) marked walking area with an obstacle (shoeboxes) positioned perpendicular to and halfway down the walkway Item 7: Gait with Narrow Base of Support <ul style="list-style-type: none"> Patient is standing quietly in a comfortable position with arms folded across chest at the start of a hallway allowing for 12 ft (3.6 m) Item 9: Ambulating Backwards <ul style="list-style-type: none"> Patient is standing quietly in a comfortable position at the start of the 20 ft (6 m) marked walking area facing backwards

	<ul style="list-style-type: none"> ● Item 10: Steps <ul style="list-style-type: none"> ○ Patient is standing quietly in a comfortable position at the base of the steps
<p>Logistics-Administration</p>	<ul style="list-style-type: none"> ● Item 1: Gait Level Surfaces¹ <ul style="list-style-type: none"> ○ Instructions: <i>Walk at your normal speed from here to the next mark (20 ft [6 m])</i> ● Item 2: Change in Gait Speed <ul style="list-style-type: none"> ○ Instructions: <i>Begin walking at your normal pace (for 5 ft [1.5 m]). When I tell you “go,” walk as fast as you can (for 5 ft [1.5 m]). When I tell you “slow,” walk as slowly as you can (for 5 ft [1.5 m]).</i> ● Item 3: Gait with Horizontal Head Turns <ul style="list-style-type: none"> ○ Instructions: <i>Walk from here to the next mark 20 ft (6 m) away. Begin walking at your normal pace. Keep walking straight; after 3 steps, turn your head to the right and keep walking straight while looking to the right. After 3 more steps, turn your head to the left and keep walking straight while looking left. Continuing alternating looking right and left every 3 steps until you have completed 2 repetitions in each direction.</i> ● Item 4: Gait with Vertical Head Turns <ul style="list-style-type: none"> ○ Instructions: <i>Walk from here to the next mark 20 ft (6 m) away. Begin walking at your normal pace. Keep walking straight; after 3 steps, tip your head up and keep walking straight while looking up. After 3 more steps, turn your head down and keep walking straight while looking down. Continuing alternating looking up and down every 3 steps until you have completed 2 repetitions in each direction.</i> ● Item 5: Gait and Pivot Turn <ul style="list-style-type: none"> ○ Instructions: <i>Begin with walking at your normal pace. When I tell you, “turn and stop,” turn as quickly as you can to face the opposite direction and stop.</i> ● Item 6: Step over Obstacle <ul style="list-style-type: none"> ○ Instructions: <i>Begin walking at your normal speed. When you come to the shoebox, step over it, not around it, and keep walking.</i> ● Item 7: Gait with Narrow Base of Support <ul style="list-style-type: none"> ○ Instructions: <i>Walk on the floor with arms folded across the chest, feet aligned heel to toe in tandem for a distance of 12 ft [3.6 m]. The number of steps taken in a straight line are counted for a maximum of 10 steps.</i> ● Item 8: Gait with Eyes Closed <ul style="list-style-type: none"> ○ Instructions: <i>Walk at your normal speed from here to the next mark (20 ft [6 m]) with your eyes closed.</i> ● Item 9: Ambulating Backwards <ul style="list-style-type: none"> ○ Instructions: <i>Walk backwards until I tell you to stop.</i> ● Item 10: Steps <ul style="list-style-type: none"> ○ Instructions: <i>Walk up these stairs as you would at home (i.e. using the rail if necessary). At the top turn around and walk down.</i> ● Test may be performed with or without an assistive device as indicated below. Re-test should be completed using the same device. ● Individuals should walk without physical assistance of another person ● Retest in the same designated area/environment ● When administering walking items, do not walk in front of or directly beside the patient, as this “paces” the patient and can influence the speed they walk. Instead, walk at least a half step behind the patient.

Logistics-Scoring

- All items are summed to calculate a total score.
- **Item 1: Gait level Surface¹**
 - **3 Normal:** Walks 20 ft (6 m) in less than 5.5 seconds, no assistive devices, good speed, no evidence for imbalance, normal gait pattern, deviates no more than 6 in (15.24 cm) outside of the 12-in (30.48-cm) walkway width.
 - **2 Mild Impairment:** Walks 20 ft (6 m) in less than 7 seconds but greater than 5.5 seconds, uses assistive device, slower speed, mild gait deviations, or deviates 6-10 in (15.24-25.4 cm) outside of the 12-in (30.48-cm) walkway width.
 - **1 Moderate Impairment:** Walks 20 ft (6 m); slow speed, abnormal gait pattern, evidence for imbalance, or deviates 10-15 in (25.4-38.1 cm) outside of the 12-in (30.48-cm) walkway width. Requires more than 7 seconds to ambulate 20 ft (6 m).
 - **0 Severe Impairment:** Cannot walk 20 ft (6 m) without assistance, severe gait deviations or imbalance, deviates greater than 15 in (38.1 cm) outside of the 12-in (30.48-cm) walkway width or reaches and touches the wall.
- **Item 2: Change in Gait Speed**
 - **3 Normal:** Able to smoothly change walking speed without loss of balance or gait deviation. Shows a significant difference in walking speeds between normal, fast, and slow speeds. Deviates no more than 6 in (15.24 cm) outside of the 12-in (30.48-cm) walkway width.
 - **2 Mild Impairment:** Is able to change speed but demonstrates mild gait deviations, deviates 6-10 in (15.24-25.4 cm) outside of the 12-in (30.48-cm) walkway width, or no gait deviations but unable to achieve a significant change in velocity, or uses an assistive device.
 - **1 Moderate Impairment:** Makes only minor adjustments to walking speed, or accomplishes a change in speed with significant gait deviations, deviates 10-15 in (25.4-38.1 cm) outside of the 12-in (30.48-cm) walkway width, or changes speed but loses balance but is able to recover and continue walking.
 - **0 Severe Impairment:** Cannot change speeds, deviates greater than 15 in (38.1 cm) outside of the 12-in (30.48-cm) walkway width, or loses balance and has to reach for wall or be caught.
- **Item 3: Gait with Horizontal Head Turns**
 - **3 Normal:** Performs head turns smoothly with no change in gait. Deviates no more than 6 in (15.24 cm) outside of the 12-in (30.48-cm) walkway width
 - **2 Mild Impairment:** Performs head turns smoothly with slight change in gait velocity (eg, minor disruption to smooth gait path), deviates 6-10 in (15.24-25.4 cm) outside of the 12-in (30.48-cm) walkway width, or uses an assistive device.
 - **1 Moderate Impairment:** Performs head turns with moderate change in gait velocity, slows down, deviates 10-15 in (25.4-38.1 cm) outside of the 12-in (30.48-cm) walkway width but recovers, can continue to walk.
 - **0 Severe Impairment:** Performs task with severe disruption of gait (eg, staggers 15 in (38.1 cm) outside of the 12-in (30.48-cm) walkway width, loses balance, stops, or reaches for wall)

- **Item 4: Gait with Vertical Head Turns**
 - **3 Normal:** Performs head turns smoothly with no change in gait. Deviates no more than 6 in (15.24 cm) outside of the 12-in (30.48-cm) walkway width.
 - **2 Mild Impairment:** Performs task with slight change in gait velocity (eg, minor disruption to smooth gait path), deviates 6-10 in (15.24-25.4 cm) outside of the 12-in (30.48-cm) walkway width or uses assistive device.
 - **1 Moderate Impairment:** Performs task with moderate change in gait velocity, slows down, deviates 10-15 in (25.4-38.1 cm) outside of the 12-in (30.48-cm) walkway width but recovers, can continue to walk.
 - **0 Severe Impairment:** Performs task with severe disruption of gait (eg, staggers 15 in (38.1 cm) outside of the 12-in (30.48-cm) walkway width, loses balance, stops, reaches for wall).

- **Item 5: Gait with Pivot Turn**
 - **3 Normal:** Pivot turns safely within 3 seconds and stops quickly with no loss of balance.
 - **2 Mild Impairment:** Pivot turns safely in greater than 3 seconds and stops with no loss of balance, or pivot turns safely within 3 seconds and stops with mild imbalance, requires small steps to catch balance
 - **1 Moderate Impairment:** Turns slowly, requires verbal cueing, or requires several small steps to catch balance following turn and stop.
 - **0 Severe Impairment:** Cannot turn safely, requires assistance to turn and stop.

- **Item 6: Step over Obstacle**
 - **3 Normal:** Is able to step over two stacked shoe boxes taped together (9 in [22.86 cm] total height) without changing gait speed; no evidence of imbalance.
 - **2 Mild Impairment:** Is able to step over one shoe box (4.5 in [11.43 cm] total height) without changing gait speed; no evidence of imbalance.
 - **1 Moderate Impairment:** Is able to step over one shoe box (4.5 in [11.43 cm] total height) but must slow down and adjust steps to clear box safely. May require verbal cueing.
 - **0 Severe Impairment:** Cannot perform without assistance.

- **Item 7: Gait with Narrow Base of Support**
 - **3 Normal:** Is able to ambulate for 10 steps heel to toe with no staggering.
 - **2 Mild Impairment:** Ambulates 7-9 steps.
 - **1 Moderate Impairment:** Ambulates 4-7 steps.
 - **0 Severe Impairment:** Ambulates less than 4 steps heel to toe or cannot perform without assistance.

- **Item 8: Gait with Eyes Closed**
 - **3 Normal:** Walks 20 ft (6 m), no assistive devices, good speed, no evidence of imbalance, normal gait pattern, deviates no more than 6 in (15.24 cm) outside of the 12-in (30.48-cm) walkway width. Ambulates 20 ft (6 m) in less than 7 seconds.
 - **2 Mild Impairment:** Walks 20 ft (6 m), uses assistive device, slower speed, mild gait deviations, deviates 6-10 in (15.24-25.4 cm) outside of the 12-in (30.48-cm) walkway width. Ambulates 20 ft (6 m) in less than 9 seconds but greater than 7 seconds.

	<ul style="list-style-type: none"> ○ 1 Moderate Impairment: Walks 20 ft (6 m), slow speed, abnormal gait pattern, evidence for imbalance, deviates 10-15 in (25.4-38.1 cm) outside of the 12-in (30.48-cm) walkway width. Requires more than 9 seconds to ambulate 20 ft (6 m). ○ 0 Severe Impairment: Cannot walk 20 ft (6 m) without assistance, severe gait deviations or imbalance, deviates greater than 15 in (38.1 cm) outside of the 12-in (30.48-cm) walkway width or will not attempt task. <ul style="list-style-type: none"> ● Item 9: Ambulating Backwards <ul style="list-style-type: none"> ○ 3 Normal: Walks 20 ft (6 m), no assistive devices, good speed, no evidence for imbalance, normal gait pattern, deviates no more than 6 in (15.24 cm) outside the 12-in (30.48-cm) walkway width. ○ 2 Mild Impairment: Walks 20 ft (6 m), uses assistive device, slower speed, mild gait deviations, deviates 6-10 in (15.24-25.4 cm) outside of the 12-in (30.48-cm) walkway width. ○ 1 Moderate Impairment: Walks 20 ft (6 m), slow speed, abnormal gait pattern, evidence for imbalance, deviates 10-15 in (25.4-38.1 cm) outside of the 12-in (30.48-cm) walkway width. ○ 0 Severe Impairment: Cannot walk 20 ft (6 m) without assistance, severe gait deviations or imbalance, deviates greater than 15 in (38.1 cm) outside of the 12-in (30.48-cm) walkway width or will not attempt task. ● Item 10: Steps <ul style="list-style-type: none"> ○ 3 Normal: Alternating feet, no rail. ○ 2 Mild Impairment: Alternating feet, must use rail. ○ 1 Moderate Impairment: Two feet to a stair, must use rail. ○ 0 Severe Impairment: Cannot do safely.
Additional Recommendations	<ul style="list-style-type: none"> ● To track change, it is recommended that this measure is administered a minimum of two times (admission and discharge), and when feasible, between these periods, under the same test conditions for the patient. ● Recommend review of this standardized procedure and, on an annual basis, establish consistency within and among raters using the tool.

Common Questions and Variations

1. "If I only have four steps with bilateral railings is that ok or do I need an entire flight?"
 - a. The test can be accomplished with a set of four or more steps. The steps need to have bilateral rails and should be standard step height (approximately 7 ¾ in [20.32 cm]).

2. "What if I don't have a set of stairs at all?"
 - a. If the patient does not attempt all test items, this is a deviation from the standardized procedure, therefore interpretation of the score with use of normative values or cut of scores would not be appropriate.
 - b. Any partial score should not be included in any aggregate data analysis, if this data is used for program evaluation, for example.
 - c. Completion of only some test items may be useful to the individual patient. For example, the patient may benefit from education on the value of gait speed or a safety strategy during performance of

multiple motor tasks. The individual score (partial score) may be used to set an individual goal for a future trial or session.

3. "What if my patient requires assistance?"
 - a. If the patient requires assistance to complete any item, the score is recorded as a 0.
4. "What if my patient uses an assistive device?"
 - a. Most items specify a specific score based on use of an assistive device. If use of an assistive device is not specified for scoring a particular item, and the patient requires use of that assistive device to complete the item, then the item is scored as a zero.
5. "Can I provide verbal cues or demonstration during the trial, to remind patients when to turn or tilt their head, for example?"
 - a. Yes, verbal cues or demonstration are appropriate to the extent that these are needed for the patient to complete the necessary movements. Cues should be kept to a minimum and documented as a condition of the trial(s).
6. "For Item 7: Gait with Narrow Base of Support, is it appropriate to have them walk on the line that marks the walkway?"
 - a. Yes. Per 2017 discussion with developing authors Sue Whitney and Diane Wrisley (original authors), tape was used on the ground for this item when the test was first developed.
7. "What if my patient cannot walk?"
 - a. The FGA should not be administered for patients that do not have the capacity to walk; however, a score of 0 may be documented in these instances.
 - b. If a patient is unable to ambulate, but has the goals and capacity to improve balance, a baseline score of 0 should be documented for the FGA.
8. "What if my patient demonstrates a high score?"
 - a. If a patient demonstrates a high score near 30 out of 30, or is likely to do so, the clinician may need to select a more challenging outcome measure to assess change over time.
 - b. If a patient scores near the top of the FGA scale, it may not be necessary to re-administer the test.
9. We currently use the Dynamic Gait Index (DGI) in our facility. Can I use this test as a substitution since it is so similar?
 - a. The FGA includes three items which are not on the DGI: Gait with Narrow Base of Support, Gait with Eyes Closed, and Ambulating Backwards. The Dynamic Gait Index has one item which is not on the FGA: Step Around Obstacles. Thus, although these tests are similar, they are not interchangeable.
 - b. The FGA was selected instead of the DGI for inclusion in the core set for the following reasons: better reliability across acute, chronic stable and chronic progressive populations; inclusion of clinically relevant balance items of gait with narrow base of support, gait with eyes closed, and ambulating backwards; and improved response categories to facilitate consistency in outcome measure administration.

References

1. Wrisley DM, Marchetti GF, Kuharsky DK, Whitney SL. Reliability, internal consistency, and validity of data obtained with the functional gait assessment. *Phys Ther.* 2004;84(10):906-918.