

Core Measure: Functional Gait Assessment

Overview	<ul style="list-style-type: none"> The FGA is designed to assess postural stability during gait 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 an ordinal scale from 0 (severe impairment) to 3 (normal ambulation). All items are summed to calculate a total score (max. 30). 0 = severe impairment (Cannot perform without assistance, severe gait deviations or imbalance; deviates from walkway, increased time to perform task) 1 = moderate impairment 2 = mild impairment 3 = normal ambulation (no gait or balance impairment, completion of task in a timely manner)
Equipment	<ul style="list-style-type: none"> Stopwatch Measuring device to mark off area Marked walking area = 20 feet (6m); width 12 inches (30.48cm) Obstacle of 9-inch height (22.86 cm) using at least two stacked shoe boxes Set of steps that are 8 inches high with bilateral rails
Time (new clinician)	<ul style="list-style-type: none"> 20 minutes
Time (experienced clinician)	<ul style="list-style-type: none"> 5-10 minutes
Cost	<ul style="list-style-type: none"> Free No training required
Logistics-Setup	<ul style="list-style-type: none"> Would be beneficial to have a dedicated space or designated pre-measured area to complete the test to eliminate distractions and disruptions during administration. Would be beneficial to complete re-testing in the same place/environment. A marked pathway of 20ft (6m); width 12 inches (30.48cm) 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 20ft marked walking area, except for the following items listed below (Wrisley, 2004): Item 6: Step over Obstacle <ul style="list-style-type: none"> ○ Patient is standing quietly in a comfortable position at the start of the 20ft marked walking area with a shoebox positioned in

	<p>the middle of the walkway</p> <ul style="list-style-type: none"> • 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 12ft (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 20ft marked walking area facing backwards • 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"> • Test may be performed with or without an assistive 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. • Item 1: Gait Level Surfaces (Wrisley, 2004) <ul style="list-style-type: none"> ○ Instructions: <i>Walk at your normal speed from here to the next mark (6 m [20ft])</i> • Item 2: Change in Gait Speed <ul style="list-style-type: none"> ○ Instructions: <i>Begin walking at your normal pace (for 1.5m [5ft]), when I tell you “go,” walk as fast as you can (for 1.5m [5ft]). When I tell you “slow,” walk as slowly as you can (for 1.5m [5ft]).</i> • Item 3: Gait with Horizontal Head Turns <ul style="list-style-type: none"> ○ Instructions: <i>Walk from here to the next mark 6m (20ft) 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 6m (20ft) 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 3.6m [12ft]. 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 (6m [20 ft]) with your eyes closed.</i> • Item 9: Ambulating Backwards <ul style="list-style-type: none"> ○ Instructions: <i>Walk backwards till 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>
<p>Logistics-Scoring</p>	<ul style="list-style-type: none"> • All items are summed to calculate a total score. • Item 1: Gait level Surface (Wrisley, 2004) <ul style="list-style-type: none"> ○ 3 Normal: Walks 20ft; no assistive devices, good speed, no evidence for imbalance, normal gait pattern, deviates no more than 15.24 cm (6 in) outside of the 30.48-cm (12-in) walkway width. ○ 2 Mild Impairment: Walks 20ft in less than 7 seconds but greater than 5.5 seconds, uses assistive device, slower speed, mild gait deviations or deviates 15.24-25.4cm (6-10in) outside 30.48cm (12in) walkway width. ○ 1 Moderate Impairment: Walks 20ft; slow speed, abnormal gait pattern, evidence for imbalance or deviates 25.4-38.1cm (10-15in) outside 30.48cm (12in) walkway width. Requires more than 7 seconds to ambulate 20ft. ○ 0 Severe Impairment: Cannot walk 20ft without assistance, severe gait deviations or imbalance, deviates greater than 15 in outside of the 12 in walkway width or reaches and touches the wall. • Item 2: Change in Gait Speed <ul style="list-style-type: none"> ○ 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 15.24 cm (6 in) outside of the 30.48-cm (12-in) walkway width. ○ 2 Mild Impairment: Is able to change speed but demonstrates mild gait deviations, deviates 15.24-25.4cm (6-10in) outside 30.48cm (12in) 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

	<p>walking speed, or accomplishes a change in speed with significant gait deviations, deviates 25.4-38.1cm (10-15in) outside 30.48cm (12in) walkway width, or changes speed but loses balance but is able to recover and continue walking.</p> <ul style="list-style-type: none"> ○ 0 Severe Impairment: Cannot change speeds, deviates greater than 15 in outside the 12-in walkway width, or loses balance and has to reach for wall or be caught. <ul style="list-style-type: none"> • Item 3: Gait with Horizontal Head Turns <ul style="list-style-type: none"> ○ 3 Normal: Performs head turns smoothly with no change in gait. deviates no more than 15.24 cm (6 in) outside of the 30.48-cm (12-in) walkway width ○ 2 Mild Impairment: Performs head turns smoothly with slight change in gait velocity (eg, minor disruption to smooth gait path), deviates 15.24-25.4cm (6-10in) outside 30.48cm (12in) walkway width, or uses an assistive device ○ 1 Moderate Impairment: Performs head turns with moderate change in gait velocity, slows down, deviates 25.4-38.1cm (10-15in) outside 30.48cm (12in) walkway width, but recovers, can continue to walk. ○ 0 Severe Impairment: Performs task with severe disruption of gait (eg, staggers 15 in outside 12-in walkway width, loses balance, stops or reaches for wall) • Item 4: Gait with Vertical Head Turns <ul style="list-style-type: none"> ○ 3 Normal: Performs head turns smoothly with no change in gait. Deviates no more than 15.24 cm (6 in) outside of the 30.48-cm (12-in) walkway width. ○ 2 Mild Impairment: Performs task with slight change in gait velocity (eg, minor disruption to smooth gait path), deviates 15.24-25.4cm (6-10in) outside 30.48cm (12in) walkway width or uses assistive device. ○ 1 Moderate Impairment: Performs head turns with moderate change in gait velocity, slows down, deviates 25.4-38.1cm (10-15in) outside 30.48cm (12in) walkway width but recovers, can continue to walk. ○ 0 Severe Impairment: Performs task with severe disruption of gait (eg, staggers 15 in outside 12-in walkway width, loses balance, stops, reaches for wall). • Item 5: Gait with Pivot Turn <ul style="list-style-type: none"> ○ 3 Normal: Pivot turns safely within 3 seconds and stops quickly with no loss of balance. ○ 2 Mild Impairment: Pivot turns safely in >3 seconds and stops with no loss of balance, or pivots turns safely within 3 seconds and stops with mild imbalance, requires small steps to catch balance ○ 1 Moderate Impairment: Turns slowly, requires verbal cueing, requires several small steps to catch balance following turn and stop. ○ 0 Severe Impairment: Cannot turn safely, requires assistance to
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turn and stop.

- Item 6: Step over Obstacle
 - 3 Normal: Is able to step over 2 stacked shoe boxes taped together (9 inch total height) without changing gait speed; no evidence for imbalance.
 - 2 Mild Impairment: Is able to step over one shoe box (4.5 in total height), but must slow down and adjust steps to clear box safely.
 - 1 Moderate Impairment: Is able to step over on shoe box (4.5 in 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 6m (20ft), no assistive devices, good speed, no evidence of imbalance, normal gait pattern, deviates no more than 15.24cm (6in) outside the 30.48cm (12in) walkway width. Ambulates 6m (20ft) in less than 7 seconds.
 - 2 Mild Impairment: Walks 6m (20ft), uses assistive device, slower speed, mild gait deviations, deviates 15.24-25.4cm (6-10in) outside 30.48cm (12in) walkway width. Ambulates 6m (20ft) in less than 9 seconds but greater than 7 seconds.
 - 1 Moderate Impairment: Walks 6m (20ft), slow speed, abnormal gait pattern, evidence for imbalance, deviates 25.4-38.1cm (10-15in) outside 30.48cm (12in) walkway width. Requires more than 9 seconds to ambulate 6m (20ft).
 - 0 Severe Impairment: Cannot walk 6m (20ft) without assistance, severe gait deviations or imbalance, deviates greater than 38.1cm (15in) outside 30.48cm (12in) walkway width or will not attempt task.
- Item 9: Ambulating Backwards
 - 3 Normal: Walks 6m (20ft), no assistive device, good speed, no evidence for imbalance, normal gait pattern, deviates no more than 15.24cm (6in) outside 30.48cm (12in) walkway width.
 - 2 Mild Impairment: Walks 6m (20ft), uses assistive device, slower speed, mild gait deviations, deviates 15.24-25.4cm (6-10in) outside 30.48cm (12in) walkway width.
 - 1 Moderate Impairment: Walks 6m (20ft), slow speed, abnormal gait pattern, evidence for imbalance, deviates 25.4-38.1cm (10-15in) outside 30.48cm (12in) walkway width.
 - 0 Severe Impairment: Cannot walk 6m (20ft) without assistance, severe gait deviations or imbalance, deviates greater

	<p>than 38.1cm (15in) outside 30.48cm (12in) walkway width or will not attempt task.</p> <ul style="list-style-type: none"> • 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.

Common Questions and Variations

1. "If I only have 4 steps with bilateral railings is that ok or do I need an entire flight?"
 - a. The test can be accomplished with a set of 4 or more steps. The steps need to have bilateral rails and should be standard step height (approximately 8").
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. "For Item 7: Gait with Narrow Base of Support, is it ok to have them walk on the line that marks the walkway?"
 - a. Yes. Per discussion with developing authors Sue Whitney and Diane Wrisley tape was used on the ground for this item when the test was first developed.
5. "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.
6. "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.

References [1]

1. Wrisley, D.M., et al., *Reliability, internal consistency, and validity of data obtained with the functional gait assessment*. Phys Ther, 2004. **84**(10): p. 906-18.