Measurement Characteristics and Clinical Utility of the Functional Gait Assessment Among Individuals With Vestibular Impairment

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Vestibular impairment can lead to disequilibrium and postural instability and can place an individual at an increased risk for falls. It is important that health care providers screen at-risk patients for imbalance to mitigate fall risk. The Dynamic Gait Index (DGI) is commonly used to evaluate ambulatory balance; however, this measure lacks reliability in persons with vestibular dysfunction and has known ceiling effects in this population. The Functional Gait Assessment (FGA) was developed from the DGI to increase its sensitivity to dynamic instability, integrating more demanding task conditions and effectively improving reliability in this population. Additionally, the instructions and operational definitions for each item on the FGA were clarified to reduce the likelihood of administration error. The FGA takes less than 10 minutes to administer using items typically available in a rehabilitation setting. No formal training is required to administer this measure. The FGA demonstrates excellent concurrent validity with several other measures or indicators commonly considered in individuals with vestibulopathy, including the Dizziness Handicap Inventory and the number of falls a patient has experienced in the previous 4 weeks. The minimal detectable change value established for this measure is useful in clinical decision-making to assess clinically significant changes in functional balance. This Rehabilitation Measures Database summary provides a review of the psychometric properties of the FGA in the vestibular population, including reliability, validity, minimum detectable change, and interpretation of the results.

A full review of the FGA and reviews of over 300 other instruments can be found at www.rehabmeasures.org. Please address correspondence to rehabmeasures@ric.org.

BIBLIOGRAPHY

Measure Name: Functional Gait Assessment  
Acronym: FGA  
Summary Author: Lambert K, Stookas J, Rice T, Horn I., Daumenbaum L, Scherer M

Population Reviewed: Vestibular Impairment, others reviewed at www.rehabmeasures.org

Admin Time: 10 minutes  
Items: 10  
Score: 0/30 (min/max)

Purpose and Administration Instructions:
- FGA is a modification of the 8-item Dynamic Gait Index developed to improve reliability and decrease ceiling effect.
- The evaluator asks the individual to perform 10 distinct ambulatory tasks: gait on level surface, change in gait speed, gait with horizontal head turns, gait with vertical head turns, gait with 180 degree pivot turn, stepping over obstacles, gait with narrow base of support, gait with eyes closed, ambulating backwards, and stairs.

Required Equipment:
- Stopwatch, marked walking area (20 feet long x 12 inches wide), Two shoe-box sized obstacles, a set of steps

Training:
- No training required

Validity:
- Concurrent Validity:
  - Excellent correlation with:
    - Perception Dizziness Symptoms ($r = -0.70$)
    - Dizziness Handicap Inventory ($r = -0.64$)
    - Activities-specific Balance Confidence Scale ($r = 0.64$)
    - Number of falls in previous 4 weeks ($r = -0.66$)
    - Dynamic Gait Index ($r = 0.80$)
  - Adequate correlation with Timed Up and Go Test ($r = -0.50$)

Reliability:
- Excellent in vestibular populations
  - Intrarater reliability (ICC = 0.83)
  - Interrater reliability (ICC = 0.84)

Scoring Instructions:
- 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

Normative Data:

| Age   | #   | Min score | Max score | Mean | SD   | 95% CI  
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<td>27</td>
<td>24</td>
<td>30</td>
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<td>1.5</td>
<td>28.3-29.5</td>
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<tr>
<td>50-59</td>
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<td>30</td>
<td>26.1</td>
<td>4.0</td>
<td>25.5-26.6</td>
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Considerations:
- The position of the therapist during testing did not affect intrarater reliability
- May be performed with or without an assistive device

Scoring Interpretation:
- Score of 30 indicates no deficit in balance; ≤ 22 is predictive of falls in community dwelling older adults with 100% sensitivity, 76% specificity.

Cut-off Criteria:

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<tr>
<td>Excellent</td>
<td>≥ 0.6</td>
<td>≥ 0.75</td>
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<td>Adequate</td>
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<td>0.40-0.74</td>
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<tr>
<td>Poor</td>
<td>≤ 0.3</td>
<td>&lt; 0.4</td>
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