

Appendix.

Functional Gait Assessment^a

Requirements: A marked 6-m (20-ft) walkway that is marked with a 30.48-cm (12-in) width.

1. GAIT LEVEL SURFACE

Instructions: *Walk at your normal speed from here to the next mark (6 m [20 ft]).*

Grading: Mark the highest category that applies.

- (3) Normal—Walks 6 m (20 ft) in less than 5.5 seconds, 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 6 m (20 ft) in less than 7 seconds but greater than 5.5 seconds, uses assistive device, slower speed, mild gait deviations, or deviates 15.24–25.4 cm (6–10 in) outside of the 30.48-cm (12-in) walkway width.
- (1) Moderate impairment—Walks 6 m (20 ft), slow speed, abnormal gait pattern, evidence for imbalance, or deviates 25.4–38.1 cm (10–15 in) outside of the 30.48-cm (12-in) walkway width. Requires more than 7 seconds to ambulate 6 m (20 ft).
- (0) Severe impairment—Cannot walk 6 m (20 ft) without assistance, severe gait deviations or imbalance, deviates greater than 38.1 cm (15 in) outside of the 30.48-cm (12-in) walkway width or reaches and touches the wall.

2. CHANGE IN GAIT SPEED

Instructions: *Begin walking at your normal pace (for 1.5 m [5 ft]). When I tell you “go,” walk as fast as you can (for 1.5 m [5 ft]). When I tell you “slow,” walk as slowly as you can (for 1.5 m [5 ft]).*

Grading: Mark the highest category that applies.

- (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 15.24–25.4 cm (6–10 in) outside of the 30.48-cm (12-in) 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 25.4–38.1 cm (10–15 in) outside the 30.48-cm (12-in) 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 38.1 cm (15 in) outside 30.48-cm (12-in) walkway width, or loses balance and has to reach for wall or be caught.

3. GAIT WITH HORIZONTAL HEAD TURNS

Instructions: *Walk from here to the next mark 6 m (20 ft) 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. Continue alternating looking right and left every 3 steps until you have completed 2 repetitions in each direction.*

Grading: Mark the highest category that applies.

- (3) Normal—Performs head turns smoothly with no change in gait. Deviates no more than 15.24 cm (6 in) outside 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 15.24–25.4 cm (6–10 in) outside 30.48-cm (12-in) walkway width, or uses an assistive device.

- (1) Moderate impairment—Performs head turns with moderate change in gait velocity, slows down, deviates 25.4–38.1 cm (10–15 in) outside 30.48-cm (12-in) walkway width but recovers, can continue to walk.
- (0) Severe impairment—Performs task with severe disruption of gait (eg, staggers 38.1 cm [15 in] outside 30.48-cm [12-in] walkway width, loses balance, stops, or reaches for wall).

4. GAIT WITH VERTICAL HEAD TURNS

Instructions: *Walk from here to the next mark (6 m [20 ft]). 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, tip your head down, keep walking straight while looking down. Continue alternating looking up and down every 3 steps until you have completed 2 repetitions in each direction.*

Grading: Mark the highest category that applies.

- (3) Normal—Performs head turns with no change in gait. Deviates no more than 15.24 cm (6 in) outside 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 15.24–25.4 cm (6–10 in) outside 30.48-cm (12-in) walkway width or uses assistive device.
- (1) Moderate impairment—Performs task with moderate change in gait velocity, slows down, deviates 25.4–38.1 cm (10–15 in) outside 30.48-cm (12-in) walkway width but recovers, can continue to walk.
- (0) Severe impairment—Performs task with severe disruption of gait (eg, staggers 38.1 cm [15 in] outside 30.48-cm [12-in] walkway width, loses balance, stops, reaches for wall).

5. GAIT AND PIVOT TURN

Instructions: *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.*

Grading: Mark the highest category that applies.

- (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 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.

6. STEP OVER OBSTACLE

Instructions: *Begin walking at your normal speed. When you come to the shoe box, step over it, not around it, and keep walking.*

Grading: Mark the highest category that applies.

- (3) Normal—Is able to step over 2 stacked shoe boxes taped together (22.86 cm [9 in] total height) without changing gait speed; no evidence of imbalance.
- (2) Mild impairment—Is able to step over one shoe box (11.43 cm [4.5 in] total height) without changing gait speed; no evidence of imbalance.
- (1) Moderate impairment—Is able to step over one shoe box (11.43 cm [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.

(Continued)

7. GAIT WITH NARROW BASE OF SUPPORT

Instructions: *Walk on the floor with arms folded across the chest, feet aligned heel to toe in tandem for a distance of 3.6 m [12 ft]. The number of steps taken in a straight line are counted for a maximum of 10 steps.*
Grading: Mark the highest category that applies.

- (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.

8. GAIT WITH EYES CLOSED

Instructions: *Walk at your normal speed from here to the next mark (6 m [20 ft]) with your eyes closed.*

Grading: Mark the highest category that applies.

- (3) Normal—Walks 6 m (20 ft), no assistive devices, good speed, no evidence of imbalance, normal gait pattern, deviates no more than 15.24 cm (6 in) outside 30.48-cm (12-in) walkway width. Ambulates 6 m (20 ft) in less than 7 seconds.
- (2) Mild impairment—Walks 6 m (20 ft), uses assistive device, slower speed, mild gait deviations, deviates 15.24–25.4 cm (6–10 in) outside 30.48-cm (12-in) walkway width. Ambulates 6 m (20 ft) in less than 9 seconds but greater than 7 seconds.
- (1) Moderate impairment—Walks 6 m (20 ft), slow speed, abnormal gait pattern, evidence for imbalance, deviates 25.4–38.1 cm (10–15 in) outside 30.48-cm (12-in) walkway width. Requires more than 9 seconds to ambulate 6 m (20 ft).
- (0) Severe impairment—Cannot walk 6 m (20 ft) without assistance, severe gait deviations or imbalance, deviates greater than 38.1 cm (15 in) outside 30.48-cm (12-in) walkway width or will not attempt task.

9. AMBULATING BACKWARDS

Instructions: *Walk backwards until I tell you to stop.*

Grading: Mark the highest category that applies.

- (3) Normal—Walks 6 m (20 ft), no assistive devices, good speed, no evidence for imbalance, normal gait pattern, deviates no more than 15.24 cm (6 in) outside 30.48-cm (12-in) walkway width.
- (2) Mild impairment—Walks 6 m (20 ft), uses assistive device, slower speed, mild gait deviations, deviates 15.24–25.4 cm (6–10 in) outside 30.48-cm (12-in) walkway width.
- (1) Moderate impairment—Walks 6 m (20 ft), slow speed, abnormal gait pattern, evidence for imbalance, deviates 25.4–38.1 cm (10–15 in) outside 30.48-cm (12-in) walkway width.
- (0) Severe impairment—Cannot walk 6 m (20 ft) without assistance, severe gait deviations or imbalance, deviates greater than 38.1 cm (15 in) outside 30.48-cm (12-in) walkway width or will not attempt task.

10. STEPS

Instructions: *Walk up these stairs as you would at home (ie, using the rail if necessary). At the top turn around and walk down.*

Grading: Mark the highest category that applies.

- (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.

TOTAL SCORE: _____ MAXIMUM SCORE 30

^a Adapted from Dynamic Gait Index.¹ Modified and reprinted with permission of authors and Lippincott Williams & Wilkins (<http://lww.com>).

Walker, M.L. (2007). Reference Group Data for the Functional Gait Assessment. *Physical Therapy* (87)11, 1468-1477.

Table 1.
Functional Gait Assessment Total Scores by Decade

| Age (y) | N | Minimum Score | Maximum Score | Mean | SD | 95% Confidence Interval |
|---------|-----|---------------|---------------|------|-----|-------------------------|
| 40-49 | 27 | 24 | 30 | 28.9 | 1.5 | 28.3-29.5 |
| 50-59 | 33 | 25 | 30 | 28.4 | 1.6 | 27.9-29.0 |
| 60-69 | 63 | 20 | 30 | 27.1 | 2.3 | 26.5-27.7 |
| 70-79 | 44 | 16 | 30 | 24.9 | 3.6 | 23.9-26.0 |
| 80-89 | 33 | 10 | 28 | 20.8 | 4.7 | 19.2-22.6 |
| Total | 200 | 10 | 30 | 26.1 | 4.0 | 25.5-26.6 |

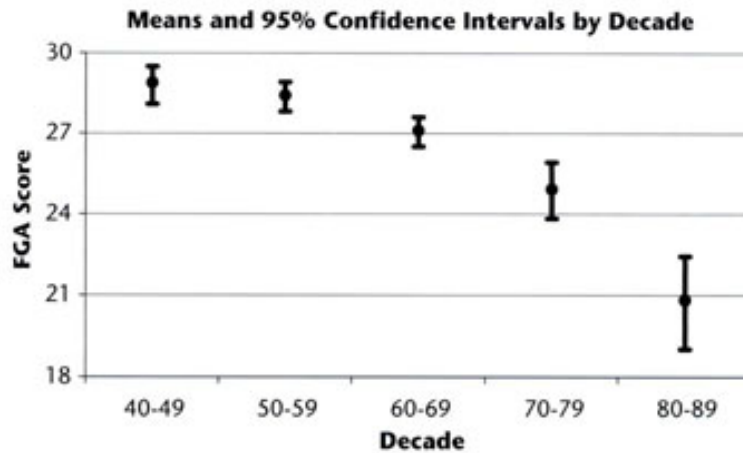


Figure 2.
Comparison of the mean Functional Gait Assessment (FGA) total scores and 95% confidence intervals by decade. A perfect score is 30.

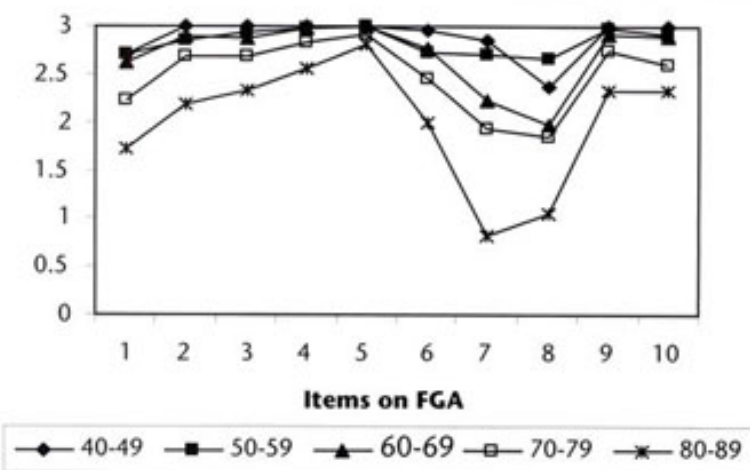


Figure 3.
Mean score of each Functional Gait Assessment (FGA) item by decade. On the Y axis, scores for each item can range from 0 (severe impairment) to 3 (normal). On the X axis are the 10 items of the FGA: 1=gait on level surface, 2=change in gait speed, 3=gait with horizontal head turns, 4=gait with vertical head turns, 5=gait with pivot turn, 6=step over obstacle, 7=gait with narrow base of support, 8=gait with eyes closed, 9=ambulating backward, 10=steps.