BalanceBelt

*Feeling free with every step you take*


# Recommended Specialist Protocol for the BalanceBelt

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# 1. Introduction

The BalanceBelt is an innovative, non-invasive medical device designed to support individuals with severe balance disorders, such as bilateral vestibular loss (BVL), unilateral vestibular loss (UVL), and persistent postural-perceptual dizziness (PPPD). The belt is worn around the waist and contains a sensor that detects the orientation and movement of the trunk. Based on this input, it delivers gentle vibrations through small tactors located around the waist. These vibrations provide real-time somatosensory feedback, helping the brain to better interpret body position and movement in space. This feedback serves as a form of sensory substitution, compensating for the missing or reduced input normally provided by the inner ear.

Clinical studies have shown that the BalanceBelt can significantly improve balance, mobility, and confidence in patients with BVL, particularly those with a Balance and Mobility Score (BMS) below 6, indicating considerable balance limitations [1, 2]. A detailed explanation of the BMS is provided in section 3.3. In the study by Kingma et al., the average BMS increased from 4.2 to 7.9 within two hours of use. Research has also shown that most patients who notice a benefit within the first two hours tend to continue using the belt long-term. After two years, 73% of users were still wearing the BalanceBelt daily, demonstrating strong long-term adherence.

The BalanceBelt does not restore vestibular function, but it can significantly improve functional mobility and quality of life for these patients.

This protocol serves as a guideline for specialists prescribing the BalanceBelt. It is intended as a recommendation, not a mandatory requirement. Should you wish to conduct additional tests to evaluate the effectiveness of the BalanceBelt, you are welcome to do so. We kindly ask that you use a standardised testing procedure, applying the same tests consistently to ensure reliable and comparable results.
If you have any questions, feel free to contact us at info@balancebelt.net.


*Figure 1: BalanceBelt*

*References:*

*1. Kingma, H., Felipe, L., Gerards, MC. et al. "Vibrotactile feedback improves balance and mobility in patients with severe bilateral vestibular loss". Journal of Neurology 266, 19–26 (2019).*

*2. Kingma, Herman & Hougaard, Dan & Berg, Raymond, "Subconscious vibrotactile stimulation improves mobility and balance in patients with bilateral vestibulopathy: adherence over 2 years." Frontiers in Neurology, (2024).*

# 2. Surveys

As a vestibular specialist, you see many patients with vestibular disorders. Your clinical insight is essential to ensure this tool truly meets the needs of patients with severe balance disorders.

To support this process, we have developed three short surveys. These are designed to gain a deeper understanding of both your experience as a specialist and the patient's journey during and after the initial use of the BalanceBelt.

Overview of the surveys:

1. Specialist Onboarding Survey
   Helps us understand how the BalanceBelt fits into your clinical workflow.
2. Initial Patient Consult Survey
   To be completed after the patient's first session with the BalanceBelt.
3. Follow-up Patient Consult Survey
   To be completed after the patient has used the belt for approximately two weeks.

Each survey takes just a few minutes and provides valuable input to help us continuously refine the BalanceBelt's application in clinical care.

Access the surveys by clicking the link here:

1. Specialist onboarding
2. Initial Patient consult
3. Follow-up patient consult

We kindly ask that you to complete surveys 2 and 3 for each patient you feel may benefit from the BalanceBelt. To simplify the process, we recommend saving the links to your desktop or browser bookmarks. After completing the third follow-up survey, we will provide an anonymized PDF summary of each patient's results, which can be added to their record, for example.

Your feedback plays a crucial role in improving patient care, thank you for your contribution.

# 3. Protocol for Treating BVL, UVL and PPPD patients with BalanceBelt

## 3.1 Purpose of the Protocol

This protocol aims to assess the BalanceBelt and evaluate its effectiveness in patients with unilateral or bilateral vestibular loss (UVL/BVL), hypofunction (UVH/BVH), or persistent postural-perceptual dizziness (PPPD).

The protocol consists of two consultations:

- First consultation: Intake and BalanceBelt fitting (+/- 60 min).
- Second consultation: After 2 to 4 weeks of home use (+/-30 min).

## 3.2 Target Population

The BalanceBelt has been developed for individuals with significant vestibular system disorders. Promising results have been observed in the following groups:

- Patients with UVL, BVL, UVH or BVH.
- Patients with PPPD.

It is essential that a clear diagnosis is made by a medical specialist (ENT consultant, audiologist, or neurologist). Furthermore, the patient must demonstrate substantial balance loss. This can be assessed using the Balance and Mobility Score, which ranges from 0 to 10, with a score of 5 or below indicating significant impairment. See next section (3.3) for more details.

Our recommendation is that patients first complete Vestibular Rehabilitation. When a plateau or end point is reached and their BMS score remain low (≤ 5), the BalanceBelt can potentially have a positive effect on balance and mobility.

## 3.3 Balance and Mobility Score (BMS)

The Balance and Mobility Score (BMS) is a 0–10 scale used to assess a person's ability to move independently and maintain balance in daily life. It helps determine whether a patient is likely to benefit from the BalanceBelt.

Ask the patient to rate their current mobility and balance compared to their condition before the onset of balance problems:

- Score 10: Good balance; no difference compared to their condition before the balance issues began
- Score 0: Extremely poor balance; unable to carry out daily activities due to balance difficulties

The BalanceBelt is typically most effective in patients with an BMS of 5 or lower, indicating a clear impairment. In these cases, the belt's tactile feedback can lead to noticeable improvements in stability and confidence. For patients scoring above 5, mobility and balance tend to be relatively preserved, and the additional input from the belt may offer limited or no added benefit.

### 3.3.1 Contraindications

Although validation is ongoing, the BalanceBelt is often, but not always, less effective in individuals with neurological conditions (such as Parkinson's, MS, or stroke) or those who experience walking difficulties or immobility for other reasons.

## 3.4 What is the BalanceBelt?

The BalanceBelt is a wearable medical device designed to support balance by providing somatosensory feedback, stimulating the body's sense of posture and orientation. It delivers gentle vibrations to help (partially) restore spatial awareness in people with vestibular disorders.

Watch the explanatory video about the BalanceBelt: Click here

## 3.5 How does the BalanceBelt work?

The BalanceBelt continuously detects the direction of trunk tilt and trunk movement and activates small vibration motors (tactors) embedded in the belt around the waist. These vibrations help the brain to interpret body orientation, offering sensory substitution for the impaired vestibular input.

Patients should avoid focusing on the belt vibrations, as it should work subconsciously; the brain automatically incorporates this input. If attention is drawn too much to the sensation, it may become distracting or unpleasant. It is therefore important to clearly explain this to the patient.

### 3.5.1 Auto Calibration

When the BalanceBelt is switched on, it automatically calibrates within a few seconds to the user's current neutral position (e.g. standing). Any deviation from this position triggers vibration feedback.

If the patient adopts a new stable position (e.g. sitting), the belt will detect it within a few seconds and stop vibrating. When transitioning between positions (e.g. sitting to standing), the patient should wait until the belt recalibrates and vibrations stop before continuing movement. This ensures accurate feedback based on the new posture.

### 3.5.2 Button Instructions

Power on/off: Press and hold for approx. 3 seconds
Battery check: Press once while the belt is on

- 4x green = 100%, 3x = 75%, 2x = 50%, 1x = 25%.
- Orange = 10%, Red = 5%

A warning vibration indicates the transition to orange, red, and eventually shutdown.

Vibration intensity settings:

- Belt always starts in standard mode (green light) when turned on, medium intensity
- Lower intensity: Press 5x quickly — yellow light
- Higher intensity: Press 3x quickly — purple light
- Press same number again to return to standard (green light)

## 3.6 Equipment

1. A correctly sized BalanceBelt (see section 3.7.2).
   - Belt should fit tightly

2. Test materials and space
   - Foam mat
   - Stopwatch
   - Ample walking space

## 3.7 Preparation

### 3.7.1 Workspace

Ensure that the testing area is safe and suitable: with adequate space, good lighting, and a firm, even floor

### 3.7.2 Correct Size of the BalanceBelt

The correct belt size should be available at your location. To determine this, the patient has to measure the waist circumference in advance. Ask the patient to take this measurement slightly above or around the waist and to share it before the first consultation.

For patients with more soft tissue around the abdomen, the optimal placement may be higher than the waist to prevent slipping downwards and maximise comfort. The belt must fit firmly to ensure that vibrations are clearly felt. Wearing a t-shirt underneath improve comfort. Avoid wearing the belt over another belt or thick clothing. Ideally, the buckle should sit 5–10 cm to the right of the navel so that
a tactor is centred at the front.

Ensure the belt is not worn upside down. The belt is correctly positioned when the Balance-Belt logo is upright and legible, so that the LED is clearly visible for the patient.

See instruction video for measuring waist size: instruction video

If you don't have the right size, you can send an email to info@balancebelt.net. We will send the right size to you!

*Table 1: BalanceBelt sizes*

| Size | Relaxed (centimetres) | Stretched (centimetres) | Relaxed (inches) | Stretched (inches) |
|---|---|---|---|---|
| XS | 59 | 70 | 23.2 | 27.6 |
| S | 71 | 78 | 27.7 | 30.7 |
| M | 79 | 88 | 30.8 | 34.7 |
| L | 89 | 99 | 34.8 | 38.9 |
| XL | 100 | 111 | 39.0 | 43.7 |
| XXL | 112 | 117 | 43.8 | 46.1 |

# 4. Consultations

## 4.1 First Consultation

### 4.1.1 Intake & Information

Intake: Begin with a medical and functional history:

- Age and gender
- Confirm diagnosis (BVL/BVH, UVL/UVH, PPPD)
- Assess Balance and Mobility Score (BMS)
- Note use of walking aids
- Record number of recent falls or near-falls over the past sic months
- Identify risk factors, comorbidities and contraindication (e.g. visual impairment, neurological disorders)

Inform: Explain the structure and purpose of the trial: two appointments, including a home test period of 2–4 weeks. Introduce the BalanceBelt and explain its function and method (see sections 3.4 and 3.5).

### 4.1.2 Outcome Measures Assessment: without the BalanceBelt

Perform the baseline assessments of balance and mobility and ask for BMS score.
Note: A detailed explanation of each test and a score form can be found in the appendix at the end of this document.

**mCTSIB**

This test measures how long balance can be maintained when sensory input (vision and/or proprioception) is disabled or impaired. The different test situations are:

Situation 1: flat surface with eyes open
Situation 2: flat surface with eyes closed
Situation 3: soft surface (foam mat) with eyes open
Situation 4: soft surface (foam mat) with eyes closed

Execution: Test each of the four situations. If the patient holds the position for 30 seconds, move to the next situation. If not, repeat up to two times, take the average score of the three attempts (max 30sec) and sum the total duration for the 4 situations (max 120 sec).

**Extra: Sharpened Romberg**

This test adds difficulty to the mCTSIB by using a semi or full tandem stance (one foot in front of the other). If the patient performs the mCTSIB well, this can be added with or without a foam mat.

Execution: Ask the patient to stand in tandem with eyes open for 10 seconds to stabilise, then with eyes closed for 30 seconds. If the patient cannot maintain the position for 30 seconds, repeat the test up to two more times and calculate the average duration of all attempts.

**Functional Gait Assessment (FGA)**
Due to time constraints, we recommend performing 2 or 3 FGA exercises. Start with normal walking (exercise 1) and walking with horizontal head turns (exercise 3), preferably without a walking aid (stand close to the patient). If balance permits, add toe-to-heel (tandem) walking (exercise 7) to or walking with eyes closed (exercise 8).

Execution: Have the patient walk according to the protocol, score their performance (score 0-3) and sum all exercises. Also visually assess balance, sway, stride width and length, and walking speed.

### 4.1.3 Familiarisation with the BalanceBelt

Fit the appropriate belt size (see section 3.7.2). Instruct the patient on correct belt positioning and explain that they should not focus on the vibrations. Make sure the patient understands that the belt works subconsciously. Encourage them to simply wear it and allow the BalanceBelt to help correct their posture. Allow the patient to walk around while wearing the belt to get used to the sensations. Adjust vibration intensity if needed and explain button functions (see section 3.5.2).

### 4.1.4 Outcome Measures Assessment: with the BalanceBelt

Conduct the same tests as before and ask for the BMS score, now with the BalanceBelt (see section 4.1.2).

Evaluate the difference in balance:
mCTSIB/Sharpened Rhomberg:
- Improved balance duration?
- Fewer wobbles or corrective movements?
- More stability in challenging conditions (e.g. eyes closed, foam mat)?

FGA:
- More confidence and stable walking?
- Improved performance in more difficult tasks (e.g. head shaking)?

General Observations:
- Less dizziness? More confident?

### 4.1.5 Discuss on Home Trial Period

Discuss patient experience and observed improvement. Some patients may not immediately realize that their walking has improved. If you observe better balance while using the BalanceBelt, be sure to point it out to them. Encourage a 2–4 week home trial only if there is a clear increase in the BMS score when using the BalanceBelt compared to without it and be sure to schedule a follow-up appointment.

Instruct patient to wear the belt during all walking and standing activities and to try it during more challenging situations (e.g. darkness, crowded environments, uneven ground). The body needs time to interpret the substitutional vestibular information. How fast and how much support a candidate will get from BalanceBelt varies from person to person, depending on their physical capabilities. Use the belt as much as possible and increase wear time daily. Let it work subconsciously and aim to gradually raise activity levels for the best outcome.

## 4.2 Second Consultation

### 4.2.1 Review Patient Experiences

Discuss how the patient experienced using the BalanceBelt during the trial period at home. Address any questions or concerns regarding its use, such as:

- Better balance (BMS)?
- Was the belt comfortable?
- Daily usage or specific activities?
- Increased independence or confidence?
- Fewer falls? Less fatigue?
- Better performance in daily activities or at busy or crowded places?
- Less dizziness?

### 4.2.2 Outcome Measures Assessment: with and without the BalanceBelt

Repeat tests from the first consultation to assess any changes from the initial assessments (see section 4.1.2). Many patients perform better during the second visit due to familiarisation.

# 5. Appendix: Tests

## 5.1 mCTSIB

### 5.1.1 Purpose

This test evaluates how effectively a person uses sensory input when one or more systems are impaired.

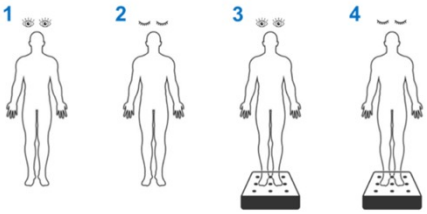


*Figure 2: Four situations of the mCTSIB*

1. Situation 1: All sensory systems (vision, somatosensory, and vestibular) are intact and contribute to balance.
2. Situation 2: Vision is removed, requiring reliance on somatosensory and vestibular input.
3. Situation 3: Somatosensory input is impaired, so the patient must rely on vision and vestibular cues.
4. Situation 4: Both vision and somatosensory input are compromised, leaving the vestibular system as the primary source for balance.

This test helps determine whether the available sensory systems are effectively used for balance.

- Failure in situation 2 suggests visual dependence, indicating an inability to rely on somatosensory input alone.
- Difficulty maintaining balance in situations 3 and 4 indicates that the visual and/or vestibular systems are not being effectively used for balance.

In patients with vestibular disorders, balance is often impaired when vision and/or somatosensory input is reduced (situations 2–4). In healthy subjects, vestibular input compensates in these conditions for the lack of vision or somatosensory input. As the BalanceBelt provides additional sensory cues, this test can help evaluate its effect and whether the brain can use vibration as a new input to support balance.

### 5.1.2 Procedure

The patient stands with feet together (in suitable footwear) and arms at their sides. Each of the four situations is tested as described above.

Start each trial with a stopwatch. The trial ends if the patient:

- Opens their eyes (in an eyes-closed situation),
- Raises their arms,
- Loses balance and requires assistance,
- Or successfully maintains balance for 30 seconds.

If the patient completes the 30-second trial on the first attempt, record only that attempt. If they fail, allow up to two more attempts (maximum three total). Calculate the average time of all attempts. If the patient succeeds on the second attempt, record 30 seconds and discontinue further attempt.

### 5.1.3 Scoring form

Situation 1: Eyes open, Solid surface

Trial 1 Total Time: _____ / 30 sec

Trial 2 Total Time: _____ / 30 sec

Trial 3 Total Time: _____ / 30 sec

Average Time: _____ / 30 sec

Situation 2: Eyes Closed, Solid surface

Trial 1 Total Time: _____ / 30 sec

Trial 2 Total Time: _____ / 30 sec

Trial 3 Total Time: _____ / 30 sec

Average Time: _____ / 30 sec

Situation 3: Eyes open, foam surface

Trial 1 Total Time: _____ / 30 sec

Trial 2 Total Time: _____ / 30 sec

Trial 3 Total Time: _____ / 30 sec

Average Time: _____ / 30 sec

Situation 4: eyes closed, foam surface

Trial 1 Total Time: _____ / 30 sec

Trial 2 Total Time: _____ / 30 sec

Trial 3 Total Time: _____ / 30 sec

Average Time: _____ / 30 sec

TOTAL: _____ / 120

## 5.2 Sharpened Romberg

### 5.2.1 Purpose

This test assesses postural stability and balance, particularly under conditions of reduced visual and somatosensory (proprioceptive) input. It measures the ability to maintain balance with eyes closed while standing in a semi- or full tandem stance, potentially on a soft surface. This more challenging setup is useful when the mCTSIB test is too easy for the patient.

The tandem stance narrows the base of support, increasing balance difficulty. The test evaluates whether impairing visual and/or somatosensory input (e.g. using a foam mat) results in decreased stability, which may indicate a vestibular deficit. Since the BalanceBelt provides additional sensory feedback through vibration, this test can help assess its effectiveness and whether the brain can use this feedback to enhance postural control.

### 5.2.2 Procedure

Each patient will stand upright on a flat surface, wearing flat shoes, with their feet in a semi-tandem or full tandem (heel-toe) position, and arms crossed over the chest with open palms resting on the opposite shoulder. After about 10 seconds, once the patient is stable, they will close their eyes and try to hold the position for 30 seconds.

The trial ends if the patient:

- Moves the arms or feet,
- Opens the eyes,
- Requires support or touches an object.

If the patient completes the 30 seconds on the first attempt, record that result.
If balance is lost within 30 seconds, allow up to two further 30-second attempts. Record the total time of all attempts. If the patient succeeds on the second attempt, record 30 seconds for that attempt and stop testing.

*Figure 2: Shapened Rhomberg*

### 5.2.3 Scoring form

Situation 1: Semi-tandem, eyes closed

Trial 1 Total Time: _____ / 30 sec

Trial 2 Total Time: _____ / 30 sec

Trial 3 Total Time: _____ / 30 sec

Average Time: _____ / 30 sec

Situation 2: Full-Tandem, eyes closed

Trial 1 Total Time: _____ / 30 sec

Trial 2 Total Time: _____ / 30 sec

Trial 3 Total Time: _____ / 30 sec

Average Time: _____ / 30 sec

## 5.3 Functional Gait Assessment (FGA)

### 5.3.1 Purpose

The FGA is designed to evaluate postural stability during walking and a person's ability to carry out multiple motor tasks while walking. It is a modified version of the 8-item Dynamic Gait Index, developed to improve reliability and reduce the ceiling effect often seen in higher-functioning patients.

The BalanceBelt may enhance walking stability by providing additional somatosensory input through gentle vibrations. This supports the body's balance control, particularly when performing more complex tasks that challenge sensory integration, such as turning the head while walking, heel-to-toe walking, or walking with eyes closed.

### 5.3.2 Procedure

#### 1. Walk on a Flat Surface

Instructions:

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

Rating:

Note the highest category that applies.

(3) Normal — Walks 6 m (20 ft) in less than 5.5 seconds, without aids, good speed, no signs of imbalance, normal gait, deviates no more than 15.24 cm (6 inch) outside the 30.48 cm (12 inch) wide gait.

(2) Slight impairment — Walks 6 m (20 ft) in less than 7 seconds, but more than 5.5 seconds,uses assistive device, slower speed, slight deviations in gait, or deviates 15.24 – 25.4 cm (6 – 10 inch) outside the 30.48 cm (12 inch) wide gait.

(1) Moderate impairment — Runs 6 m (20 ft), slow speed, abnormal gait, signs of imbalance, or deviates 25.4 – 38.1 cm (10 – 15 inch) outside the 30.48 cm (12 inch) wide gait. It takes more than 7 seconds to walk 6 m (20 ft).

(0) Severe impairment — Unable to walk 6 m (20 ft) unassisted, severe gait deviations or imbalance, deviates more than 38.1 cm (15 inch) outside the 30.48 cm (12 inch) wide pathway or touches the wall.

#### 2. Change In Walk Pace

Instructions:

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

Rating:

Note the highest category that applies.

(3) Normal — Walks 6 m (20 ft) in less than 5.5 seconds, without aids, good speed, no signs of imbalance, normal gait, deviates no more than 15.24 cm (6 inch) outside the 30.48 cm (12 inch) wide gait.

(2) Slight impairment — Runs 6 m (20 ft) in less than 7 seconds, but more than 5.5 seconds, uses assistive device, slower speed, slight deviations in gait, or deviates 15.24 – 25.4 cm (6 – 10 inch) outside of the 30.48 cm (12 inch) wide gait.

(1) Moderate impairment — Runs 6 m (20 ft), slow speed, abnormal gait, signs of imbalance, or deviates 25.4 – 38.1 cm (10 – 15 inch) outside the 30.48 cm (12 inch) wide gait. It takes more than 7 seconds to walk 6 m (20 ft).

(0) Severe impairment — Unable to walk 6 m (20 ft) unassisted, severe gait deviations or imbalance, deviates more than 38.1 cm (15 inch) outside the 30.48 cm (12 inch) wide pathway or touches the wall.

### 3. Walk with horizontal head turns

Instructions:

Walk from here to the next mark, 6 m [20 ft] away. Start walking at your normal pace. Walk straight ahead; After 3 steps, turn your head to the right and continue to walk straight while looking to the right. After 3 additional steps, turn your head to the left and continue walking straight ahead while looking to the left. Continue to alternate between right and left gaze every 3 steps until you have completed 2 reps in each direction.

Rating:

Note the highest category that applies.

(3) Normal — Performs the head movements smoothly with no change in gait. Deviates no more than 15.24 cm [6 inch] outside the 30.48 cm [12 inch] wide raceway.

(2) Slight impairment — Performs the head movements smoothly with a slight change inwalking speed (e.g., a slight disturbance in the smooth gait), deviates 15.24 – 25.4 cm [6 – 10 inches] outside the 30.48 cm [12 inch] wide gait, or uses an assistive device.

(1) Moderate impairment — Performs the head movements with a moderate change in walking speed, slows down, deviates 25.4 – 38.1 cm [10 – 15 inches] outside of the 30.48 cm [12 inch] wide pathway, but recovers and can continue walking.

(0) Severe impairment — Performs the task with severe gait disruption (e.g., wobbles 38.1 cm [15 inch.] outside the 30.48 cm [12 inch] wide gait, loses balance, stops, or reaches toward the wall).

### 4. Walk with vertical head turns

Instructions:

Walk from here to the next mark, 6 m [20 ft]. Start walking at your normal pace. Walk straight ahead; After 3 steps, tilt your head upwards and continue to walk straight ahead while looking up. After 3 additional steps, tilt your head down and continue walking straight ahead while looking down. Continue to alternate between looking up and down every 3 steps until you have completed 2 reps in each direction.

Rating:

Note the highest category that applies.

(3) Normal — Performs the head movements without any change in gait. Deviates no more than 15.24 cm [6 inch] outside the 30.48 cm [12 inch] wide raceway.

(2) Slight impairment — Performs the task with a slight change in gait speed (e.g., a slight disruption in the fluid gait), deviates 15.24 – 25.4 cm [6 – 10 inches] outside the 30.48 cm [12 inch] wide gait, or uses an assistive device.

(1) Moderate impairment — Performs the task with a moderate change in walking speed, slows down, deviates 25.4 – 38.1 cm [10 – 15 inches] outside of the 30.48 cm [12 inch] wide gait, but recovers and can continue walking.
(0) Severe impairment — Performs the task with severe gait disruption (e.g., wobbles 38.1 cm [15 inch.] outside the 30.48 cm [12 inch] wide gait, loses balance, stops, or reaches toward the wall).

### 5. Walk and Turn

Instructions:
Start walking at your normal pace. When I say, "turn and stop," turn as fast as you can to take the opposite direction and stop.

Rating:
Note the highest category that applies.
(3) Normal — Pivot rotates safely within 3 seconds and stops quickly without losing balance.
(2) Slight impairment — Pivot rotates safely in less than 3 seconds and stops without loss of balance, or pivot rotates safely within 3 seconds and stops with slight imbalance, requires small steps to restore balance.
(1) Moderate Impairment — Turns slowly, requires verbal cues, or requires multiple small steps to restore balance after the turn and stop.
(0) Severe impairment — Cannot turn safely, needs help to turn and stop.

### 6. Step Over an Obstacle

Instructions:
Start walking at your normal pace. When you come across the shoebox, step over it, not around it, and keep walking.

Rating:
Note the highest category that applies.
(3) Normal — Can step over 2 stacked shoe boxes (22.86 cm [9 inch] total height) without changing walking speed; no signs of imbalance.
(2) Slight impairment — Can step over one shoebox (11.43 cm [4.5 inch] total height) without changing walking speed; no signs of imbalance.
(1) Moderate impairment — Can step over one shoebox (11.43 cm [4.5 in] total height) but must walk more slowly and adjust the steps to pass the box safely. Verbal cues may be needed.
(0) Severe impairment — Unable to perform this without assistance.

### 7. Walk with narrow support surface

Instructions:
Walk on the floor with arms folded, feet in a tandem position (heel to toe) for a distance of 3.6 m [12 ft]. The number of steps in a straight line is counted for up to 10 steps.

Rating:
Note the highest category that applies.

(3) Normal — Can walk 10 steps heel-toe without waddling.
(2) Slight impairment — Walks 7 – 9 steps.
(1) Moderate impairment — Walks 4 – 7 steps.
(0) Severe impairment — Walks less than 4 steps heel-toe or cannot perform it without assistance.

### 8. Walk with eyes closed

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

Rating:
Note the highest category that applies.

(3) Normal — Walks 6 m [20 ft], no aids, good speed, no signs of imbalance, normal gait, deviates no more than 15.24 cm [6 inch] outside of the 30.48 cm [12 inch] wide gait. Runs 6 m [20 ft] in less than 7 seconds.
(2) Slight impairment — Walks 6 m [20 ft], tool used, slower speed, slight deviations in gait, deviates 15.24 – 25.4 cm [6 – 10 inches] outside of the 30.48 cm [12 inch] wide gait. Runs 6 m [20 ft] in less than 9 seconds but more than 7 seconds.
(1) Moderate impairment — Walks 6 m [20 ft], slow speed, abnormal gait, signs of imbalance, deviates 25.4 – 38.1 cm [10 – 15 inches] outside the 30.48 cm [12 inch] wide gait. It takes more than 9 seconds to walk 6 m [20 ft].
(0) Severe impairment — Unable to walk 6 m [20 ft] unassisted, severe gait deviations or imbalance, deviates more than 38.1 cm [15 inch] outside the 30.48 cm [12 inch] wide pathway or will not attempt the task.

### 9. Walk Backwards

Instructions:
Walk backwards until I tell you to stop.

Rating:
Note the highest category that applies.

(3) Normal — Walks 6 m [20 ft], no aids, good speed, no signs of imbalance, normal gait, deviates no more than 15.24 cm [6 inch] outside of the 30.48 cm [12 inch] wide gait.
(2) Slight impairment — Walks 6 m [20 ft], tool used, slower speed, slight deviations in gait, deviates 15.24 – 25.4 cm [6 – 10 inches] outside of the 30.48 cm [12 inch] wide gait.
(1) Moderate impairment — Walks 6 m [20 ft], slow speed, abnormal gait, signs of imbalance, deviates 25.4 – 38.1 cm [10 – 15 inches] outside the 30.48 cm [12 inch] wide gait.
(0) Severe impairment — Unable to walk 6 m [20 ft] unassisted, severe gait devia tions or imbalance, deviates more than 38.1 cm [15 inch] outside the 30.48 cm [12 inch] wide pathway or will not attempt the task.

## 10. Climbing Stairs

Instructions:

Walk up these stairs as you would at home (i.e. with the handrail if necessary). At the top, turn around and walk down.

Rating:

Note the highest category that applies.

(3) Normal — Alternate foot use, without handrail.
(2) Slight impairment — Alternating foot use, must use the handrail.
(1) Moderate impairment — Two feet per step, must use the handrail.
(0) Severe Impairment — Unable to do so safely.

### 5.3.3 Scoring Form

Circle the score per exercise, as indicated above, of the exercise you performed on the patient.

*Table 2: Scoring form FGA.*

| Exercises | Score | | | |
|---|---|---|---|---|
| 1. Walking normally | 0 | 1 | 2 | 3 |
| 2. Change Walking Pace | 0 | 1 | 2 | 3 |
| 3. Horizontal Head Movement | 0 | 1 | 2 | 3 |
| 4. Vertical Head Movement | 0 | 1 | 2 | 3 |
| 5. Walk and Twist | 0 | 1 | 2 | 3 |
| 6. Over Obstacle | 0 | 1 | 2 | 3 |
| 7. Narrow support surface | 0 | 1 | 2 | 3 |
| 8. Eyes closed | 0 | 1 | 2 | 3 |
| 9. Walking backwards | 0 | 1 | 2 | 3 |
| 10. Climbing stairs | 0 | 1 | 2 | 3 |

## CONTACT DETAILS

**If you have any question, feel free to contact us:**



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