Community Balance & Mobility Scale

INTRODUCTION

The consequences of postural dyscontrol are pervasive and have a significant impact on activities of daily living, community mobility and social, work and leisure pursuits. The Community Balance and Mobility Scale (CB&M) was designed to evaluate balance and mobility in patients who, although ambulatory, have balance impairments which reduce their full engagement in community living.

The following is a brief summary of the key measurement properties of the CB&M established to date with individuals with traumatic brain injury (TBI). Content validity was obtained by the involvement of patients with TBI (n=7) and clinicians (n=17) during the item generation process. The CB&M demonstrates intraclass correlation coefficients (ICC's) of 0.977 for both intra- and inter-rater reliability, 0.898 and 0.975 for test-retest reliability (5-day and immediate, respectively) and Cronbach's alpha of 0.96 for internal consistency.[1]

Additional studies have shown that in ambulatory patients with TBI, the CB&M is less susceptible to a ceiling effect than the commonly used Berg Balance Scale and better able to capture change in this higher functioning group.[2]

The construct validity of the CB&M was supported by associations with laboratory measures of dynamic postural control and measures of community integration and balance confidence.[2] Statistically significant correlations were demonstrated between the CB&M and spatiotemporal measures of gait including walking velocity, step length, step width and step time (r values ranging from 0.38 to 0.87). Importantly, variability in step length and step time, used as a marker of dynamic stability, also correlated significantly with CB&M scores (r values ranging from 0.46 to 0.70). Significant associations were also achieved with self-report measures of balance confidence and participation in the community using the Activities-specific Balance Confidence (ABC) scale (r=0.60) and the Community Integration Questionnaire (r=0.54), respectively.

The CB&M has been able to capture the decline in balance that occurs with aging in healthy individuals supporting the validity and sensitivity of the scale.[3] Healthy age-referenced data across the decades is available from the authors to assist in interpretation of patient scores. Determining if patients are within the range of healthy values for their age group is helpful in identifying the presence and degree of balance impairment.

Clinical feedback and user reports have indicated that the scale is also appropriate for high-functioning clients with diagnoses other than traumatic brain injury but further studies are warranted.

The positive results support that the CB&M is a reliable and valid clinical outcome measure for detecting dynamic instability and evaluating change in ability in the higher functioning ambulatory patient with TBI.

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1. Howe J, Inness E, Venturini A, Williams JI, Verrier MC. (2006) The Community Balance and Mobility Scale: A balance measure for individuals with traumatic brain injury. *Clinical Rehabilitation*, 20, 885-95.

2. Inness EL, Howe J, Niechwiej-Szwedo E, Jaglal S, McIlroy WE, Verrier MC. (2011) Measuring balance and mobility after traumatic brain injury: Validation of the Community Balance & Mobility Scale (CB&M). *Physiotherapy Canada,* 63 (2), 199-208.

3. Zbarsky, K, Parsley D, Clegg H, Welch T, Fernandes C, Jaglal S, Inness E, Williams J, McIlroy WE, Howe J. (2010) [Abstract] Community Balance & Mobility Scale (CB&M): Age-related reference values. *Physiotherapy Canada,* 62 (Suppl), 46.

Community Balance & Mobility Scale (CB&M) Administration And Scoring

PHYSICAL SETTING
Much of the testing of the CB&M is designed to occur within a clinic setting upon a measured track. (The set-up is outlined below.) The therapist must also have access to a full flight of stairs (minimum 8 steps).
The following materials are required for testing:
• stop watch (digital preferred)
• average size laundry basket or large rigid box of same dimension
• 2 lb. & 7 ½ lb. weights
• visual target used in Item 8
  (a paper circle 20cm in diameter with a 5cm diameter black circle in the middle)
• bean bag

CLOTHING
The patient should wear comfortable clothing and enclosed, flat footwear. Footwear should be consistent on subsequent testing. The patient is allowed to use whatever orthotic is customarily worn at the time of testing.

RATING PROCEDURE
Use of Ambulation Aides: All tasks are to be performed <u>without</u> ambulation aides (with one exception in Item 12 - Descending Stairs).

Timed Tasks: The clock beside the title of an item indicates that the task is timed.

Demonstration of Tasks: To ensure understanding of the task, the therapist should <u>demonstrate</u> all tasks while instructing the patient.

Standardized Starting Position: Unless otherwise indicated, the following starting position should be used: standing feet slightly apart, arms at sides, head in neutral position with eyes forward, toes touching start line.

Scoring Patient Performance: Score on the first trial. In cases where it is clear that the individual did not understand the task, only then is re-instruction and a second trial allowed.

The therapist should judge the patient's performance in comparison to a young adult with a normal neuro-musculoskeletal system.

Scale descriptors are detailed and precise. It is recommended that the grading criteria be reviewed well, including criteria for when the 'test is over' prior to performing the tasks.

Patient Safety: If in the therapist's clinical judgment the patient would be <u>unsafe</u> in performing part or all of a task, the patient should <u>not</u> attempt it. Score according to the guidelines if part of the task is attempted or "0" if it is not attempted.

Rest Periods: Rest periods are acceptable between tasks, as required.

DEFINITION OF TERMS

Equilibrium Reactions: For the purpose of this measure, the term equilibrium reactions is defined as the use of movement strategies of the trunk and limbs to maintain centre of mass within the base of support.

THE TRACK

Set-up: The total area recommended for testing is 10 metres by 2 metres. The track is an 8 metre line with a perpendicular start and finish line. It may be applied to the floor with paint or duct tape, 5cm wide. The 1m, 2m, 4m, and 6m points should be indicated. A 40cm bare spot for items #3 and #4 as the diagram shows below is recommended if tape is used. The visual target for Items 8 and 11 is placed at the 4m mark, at patient's eye level and 1m from the outside edge of the track.

Item #8
Visual Target

Item #3 & #4
40 cm bare spot
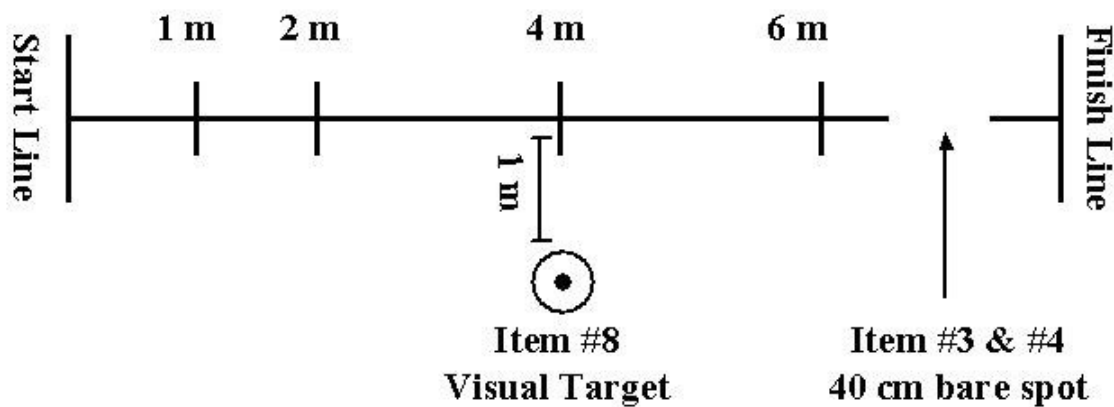
Use of the track for measurement:

The track is used in two ways for measurement of the balance items:

    i) as a direct measurement, when foot placement on the line is part of the scoring criteria e.g. Tandem Walking,

    ii) as a reference to indicate whether the patient maintains a straight course or veers from a straight trajectory during the task e.g. Walking & Looking.

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COMMUNITY BALANCE & MOBILITY SCALE (CB&M) SCORE SHEET

Full CB&M guidelines must be reviewed to ensure accurate administration and scoring. To score 5, actions must appear coordinated and controlled without excessive equilibrium reactions.

CB&M Tasks	Notes	Initial	Mid	D/C
1. UNILATERAL STANCE 0 unable to sustain 1 2.00 to 4.49 sec. 2 4.50 to 9.99 sec. 3 10.00 to 19.99 sec. 4 $\geq$ 20.00 secs. 5 45.00 sec., steady and coordinated	"Look straight ahead" Test is over if stance foot moves from start position or raised foot touches ground.	Left Right		
2. TANDEM WALKING 0 unable 1 1 step 2 2 to 3 consecutive steps 3 > 3 consecutive steps 4 > 3 consecutive steps 5 7 consecutive steps heel-toe distance < 3" *(for levels 2 &3 only)* in good alignment = heel-toe contact and feet straight *(for levels 4 & 5 only)*	"Look ahead down the track, not at your feet."			
3. 180° TANDEM PIVOT 0 unable to sustain tandem stance 1 sustains tandem stance but unable to unweight heels or initiate pivot 2 initiates pivot but unable to complete 180° turn 3 completes 180° turn but discontinuous pivot (e.g. pauses on toes) 4 completes 180° turn in a continuous motion but can't sustain reversed position 5 completes 180° turn in a continuous motion and sustains reversed position	Test is over if touches heels down or steps out of position.			
4. LATERAL FOOT SCOOTING 0 unable 1 1 lateral pivot 2 2 lateral pivots 3 $\geq$ 3 pivots but < 40 cm 4 40 cm in any fashion and/or unable to control final position 5 40 cm continuous, rhythmical motion with controlled stop.	Test is over if patient hops or opposite foot touches down.	Left Right		
5. HOPPING FORWARD 0 unable 1 1 to 2 hops, uncontrolled 2 2 hops, controlled but unable to complete 1 metre 3 1 metre in 2 hops but unable to sustain landing (touches down) 4 1 metre in 2 hops but difficulty controlling landing (hops or pivots) 5 1 metre in 2 hops, coordinated with stable landing	Test is over if opposite foot touches down.	Left Right		
6. CROUCH AND WALK 0 unable to crouch 1 able to descend only 2 descends and rises but hesitates, unable to maintain forward momentum 3 crouches and walks in continuous motion, time $\leq$ 8.00 sec. protective step 4 crouches and walks in continuous motion, time $\leq$ 8.00 sec. excess equilibrium reaction 5 crouches and walks in continuous motion, time $\leq$ 4.00 sec.				

7. LATERAL DODGING 0 unable to perform 1 cross-over in both directions without support 1 1 cross-over in both directions in any fashion 2 1 or more cycles, but does not contact line every step 3 2 cycles, contacts line every step 4 2 cycles, contacts line every step 12.00 to 15.00 sec. 5 2 cycles, contacts line every step < 12.00 sec. coordinated direction change	"Do this as fast as you can yet at a speed that you feel safe."			
8. WALKING & LOOKING 0 unable to walk and look e.g. stops 1 performs but loses visual fixation at or before 4 metre mark 2 performs but loses visual fixation after 4 metre mark 3 performs and maintains visual fixation between 2-6 metre mark but protective step 4 performs and maintains visual fixation between 2-6 metre mark but veers 5 performs, straight path, steady and coordinated ≤ 7.00 sec.	"Walk at your usual pace."	Left Right		
9. RUNNING WITH CONTROLLED STOP 0 unable to run 1 runs, time > 5.00 sec. 2 runs, time > 3.00 but ≤ 5.00 sec., unable to control stop 3 runs, time > 3.00 but ≤ 5.00 sec., with controlled stop, both feet on line 4 runs, time ≤ 3.00 sec., unable to control stop 5 runs, time ≤ 3.00 sec., with controlled stop, both feet on line, coordinated and rhythmical	"Run as fast as you can." Hold position on finish line.			
10. FORWARD TO BACKWARD WALKING 0 unable 1 performs but must stop to regain balance 2 performs with reduced speed, time > 11.00 sec. or requires 4 or more steps to turn 3 performs in ≤ 11.00 sec. and/or veers during backward walking 4 performs in ≤ 9.00 sec. and/or uses protective step during or just after turn 5 performs in ≤ 7.00 sec., maintains straight path	"Walk as quickly as you can yet at a speed that you feel safe."			
11. WALK, LOOK AND CARRY (Score same as #8 Walking and Looking)	"Walk at your usual pace."	Left Right		
12. DESCENDING STAIRS 0 unable to step down 1 step, or requires railing or assistance 1 able to step down 1 step with/without cane 2 able to step down 3 steps with/without cane, any pattern 3 3 steps reciprocal or full flight in step-to pattern 4 full flight reciprocal, awkward — no cane / — no railing 5 full flight reciprocal, rhythmical and coordinated +1 bonus for carrying basket				
13. STEP-UPS X 1 STEP 0 unable to step up, requires assistance or railing 1 steps up, requires assistance or railing to descend 2 steps up and down (1 cycle) 3 completes 5 cycles — unacceptable to look at feet 4 completes 5 cycles in > 6.00 but < 10.00 sec. 5 completes 5 cycles in ≤ 6.00 sec., rhythmical	"Do this as quickly as you can. Try not to look at your feet."	Left Right		
TOTAL SCORE		/96	/96	/96

Signature(s) _____   Date(s) _____

        _____   _____

1. UNILATERAL STANCE

     i) Test to be performed on right leg
     ii) Test to be performed on left leg

Starting position: Standardized starting position.

Instructions to Patient: *Stand on your right/left leg and hold for as long as you can up to 45 seconds. Look straight ahead.*

Instructions to Therapist: Begin timing as soon as the patient's foot leaves the ground. Do not allow the patient to brace the elevated leg against the supporting leg.

Test is over: Stop timing if stance foot moves from starting position or opposite foot touches ground.

GRADING:

0   unable to sustain unilateral stance independently, i.e. able to unweight leg for brief moments only

1   able to sustain unilateral stance for 2.00 - 4.49 sec.

2   able to sustain unilateral stance for 4.50 - 9.99 sec.

3   able to sustain unilateral stance for 10.00 - 19.99 sec.

4   able to sustain unilateral stance for $\geq$ 20.00 sec.

5   able to sustain unilateral stance for 45.00 sec. in a steady & coordinated manner
       NOT Acceptable: excessive use of equilibrium reactions

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2. TANDEM WALKING

Starting position: Standardized starting position <u>with one foot positioned on the 8m line</u>.

Instructions to Patient: *Walk forward on the line, heel touching toes. Keep your feet pointing straight ahead. Look ahead down the track, not at your feet. I will tell you when to stop.*

Instructions to Therapist: If able, allow the patient to take a maximum of 7 steps. For your scoring, count only those consecutive steps for which the heel is on the line and the heel-toe distance is ≤ 8cm (3 inches).

GRADING:

0   unable to complete 1 step on the line independently, i.e. requires assistance, upper extremity support, or takes a protective step

1   able to complete 1 step independently, acceptable to toe out

2   able to complete 2 or 3 steps consecutively on the line, acceptable to toe out

3   able to complete more than 3 steps consecutively, acceptable to toe out

4   able to complete more than 3 steps consecutively, in good alignment (heel-toe contact, feet straight on the line, no toeing out), but demonstrates excessive use of equilibrium reactions

5   able to complete 7 steps consecutively, in good alignment (heel-toe contact, feet straight on the line, no toeing out), and in a steady & coordinated manner.
       NOT Acceptable: excessive use of equilibrium reactions
                             looking at feet

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3. 180° TANDEM PIVOT

Starting position: Tandem Stance on bare spot in track (see set-up diagram) – aligned heel to toe, no toeing out, arms at sides, head in neutral position and eyes forward. Patient allowed to choose either foot in front and may use assistance or upper extremity support to achieve, but not sustain, tandem stance.

Start   Action   Finish
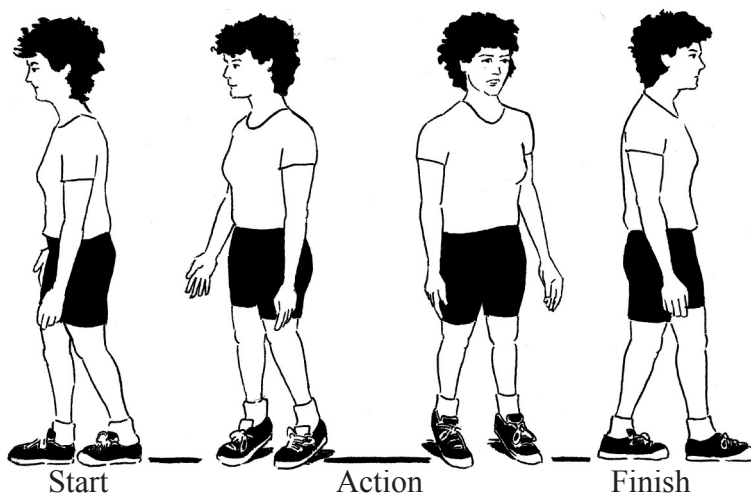
Instructions to Patient: *Lifting your heels just a little, pivot all the way around to face the opposite direction without stopping. Put your heels down and maintain your balance in this position.*

Instructions to Therapist: When right foot is in front in tandem position, patient to turn towards left. When left foot is in front in tandem position, patient to turn towards right. Therapist may assist patient to assume starting position.

Test is over: When patient <u>puts heels down</u> or steps out of position.

	GRADING:
0	unable to sustain tandem stance independently, i.e. requires assistance or upper extremity support
1	able to sustain tandem stance independently, but unable to unweight heels and/or initiate pivot
2	able to initiate pivot, but unable to complete 180° turn
3	able to complete 180° turn but discontinuous, i.e. pauses on toes during pivot
4	able to complete 180° turn in a continuous motion, but unable to sustain reversed position **NOT Acceptable:** heel-toe distance > 8cm (3 inches)
5	able to turn 180° in a continuous and coordinated motion and sustain reversed position (Acceptable to have feet slightly angled out in reversed position) **NOT Acceptable:** heel-toe distance > 8cm (3 inches); excessive use of equilibrium reactions

4. LATERAL FOOT SCOOTING

Lateral foot scooting is defined as alternately pivoting on the heel and toe of one foot while moving sideways.
i) move to the right when performing on right leg
ii) move to the left when performing on left leg

Starting position: Standing on the line beside the bare spot in unilateral stance on right/left foot, arms at sides. Foot is perpendicular to the track.

Instructions to Patient: *Stand on your right/left leg and move sideways by alternately pivoting on your heel and toe. Keep pivoting straight across until you touch the line and maintain your balance in this position.*

Instructions to Therapist: The patient moves laterally along the length of the bare spot (40cm). For the grading, one lateral pivot is defined as either pivoting on heel, moving toes laterally OR pivoting on toes, moving heel laterally.

Test is over: When patient steps, hops, or touches opposite foot to floor.

GRADING

0   unable to sustain unilateral stance independently, i.e. requires assistance or upper extremity support

1   able to perform 1 lateral pivot in any fashion

2   able to perform 2 lateral pivots in any fashion

3   able to perform ≥ 3 lateral foot pivots, but unable to complete 40cm

4   able to complete 40cm in any fashion, acceptable to be unable to control final position

5   able to complete 40cm in a continuous and rhythmical motion, demonstrating a controlled stop briefly maintaining unilateral stance
        NOT Acceptable: pausing while pivoting to regain balance
                             veering from a straight line course
                             excessive use of equilibrium reactions
                             excessive trunk rotation while pivoting

5. HOPPING FORWARD

      i) to be performed on right leg
      ii) to be performed on left leg

Starting position: Unilateral stance on right/left with entire foot on the track. Heel placed on inside edge of starting line.

Instructions to Patient: *Stand on your right/left foot. Hop twice straight along this line to pass the 1m mark with your heel. Maintain your balance on your right/left leg at the finish.*

Instructions to Therapist: It is recommended that the therapist assess safety prior to commencing task by having the patient hop in one spot. Patient is successful in completing 1m when the heel of the foot is touching or beyond the 1m line.

Test is over: If patient touches down with suspended foot between hops.

GRADING

0   unable to sustain unilateral stance independently or hop, i.e. requires assistance or upper extremity support

1   able to perform 1 or 2 hops with poor control, i.e. unable to sustain 1 foot landing for even brief moments, unable to complete 1m

2   able to perform 2 hops sequentially in a controlled manner, unable to complete 1m

3   able to complete 1m in 2 hops, but unable to sustain 1 foot landing, i.e. touches down or steps with opposite limb upon landing. Acceptable to deviate from the line

4   able to complete 1m in 2 hops, but difficulty controlling landing, i.e. hops or pivots on stance foot to maintain landing. Acceptable to deviate from the line
      NOT Acceptable: touching down or stepping with opposite limb to achieve stability on landing

5   able to complete 1m in 2 hops in a coordinated manner and sustain a stable landing
      NOT Acceptable: deviate from line
      excessive use of equilibrium reactions

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6. CROUCH AND WALK

Starting Position: Standardized starting position. Bean bag is placed to right or left side of the 2m mark considering which hand the patient will use to pick it up.

Instructions to Patient: *Walk forward and, without stopping, bend to pick up the bean bag and then continue walking down the line.*

Instructions to Therapist: This task is performed using only half of the track. Start timing when the patient's foot leaves the ground. Stop timing when both feet cross the 4m line.

Patient should use the less affected upper extremity for the task. This will avoid downgrading the score due to limitations of upper extremity function as opposed to balance function.

**GRADING**

0   unable to crouch (descend) to pick up bean bag independently, i.e. requires assistance or upper extremity support

1   able to crouch (descend), but unable to maintain crouch to pick up bean bag or rise to stand independently, i.e. requires assistance or touches hands down to floor

2   able to crouch to pick up bean bag and rise to stand independently but must hesitate at any time during activity, i.e. unable to maintain forward momentum

3   able to crouch and walk in a continuous motion (i.e. maintaining forward momentum) with time $\leq$ 8.00 seconds and demonstrates protective step at any time during the task

4   able to crouch and walk in a continuous motion with time $\leq$ 8.00 seconds and/or uses excessive equilibrium reactions to maintain balance at any time during the task
       NOT Acceptable: veering off course

5   able to crouch and walk in a continuous and rhythmical motion with time $\leq$ 4.00 seconds
       NOT Acceptable: veering off course
                     excessive use of equilibrium reactions

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7. LATERAL DODGING

Starting Position: Standing at the 2m mark with feet perpendicular to the track. The toes of both feet should cover the track

Instructions to Patient: *Move sideways along the line by repeatedly crossing one foot in front of and over the other. Place part of your foot on the line with every step. Reverse direction whenever I call "Change!" Do this as fast as you can, yet at a speed that you feel safe.*
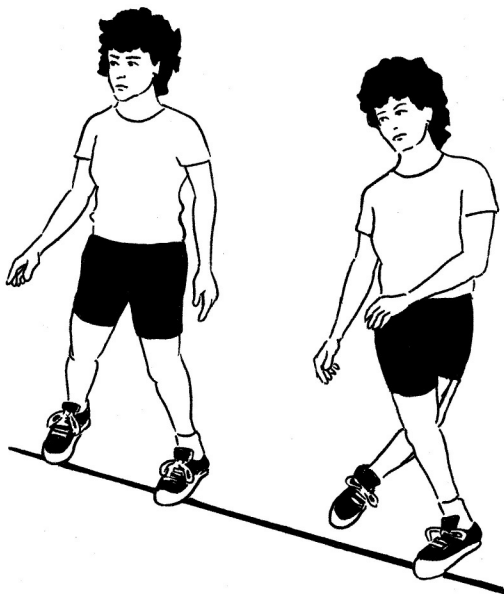
Instructions to Therapist: Patient moves laterally back and forth along the line, between the 2m and 4m marks by repetitively crossing one foot <u>over and in front</u> of the other.

It is acceptable for the patient to look at the line to monitor foot placement.

One cross-over includes crossing one leg over to land beside the other and returning the back leg to an uncrossed position.

One cycle requires the patient to cross-over for a 2m distance and return. The test requires that the patient perform two of these cycles (a total of 8m). Begin timing as soon as the patient's foot leaves the ground. Stop timing when both feet cross over the final mark. To cue the patient to change direction, call out "Change!" when one foot passes the 2 and 4m marks. The patient should believe direction changes are random.

GRADING

0   unable to perform one cross-over in both directions without loss of balance or use of support.

1   able to perform one cross-over in both directions without use of support, but unable to contact the line with part of the foot.

2   able to cross-over for 1 or more cycles to and from the 2m mark, but unable to contact the line with every step.

3   able to perform 2 cycles in any fashion (to the 2m line and back <u>twice</u>) and one part of each foot must contact the line during each step.

4   performs 2 cycles as described in level 3 in 12.00 to 15.00 sec.

5   performs 2 cycles in less than 12.00 sec. in a continuous, rhythmical fashion with coordinated direction changes immediately after verbal cue.
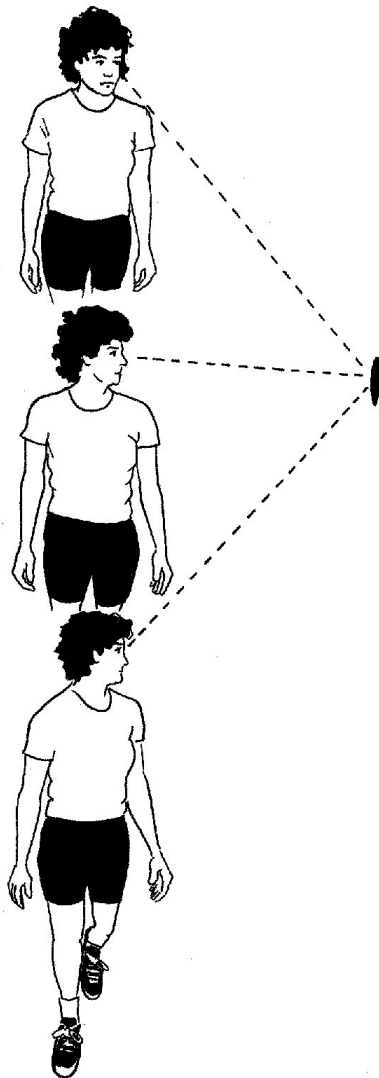
8. WALKING & LOOKING

i) to be performed looking right
ii) to be performed looking left

Starting position: Standardized starting position. (See set-up diagram for placement of visual target.)

Instructions to Patient: *Walk at your usual pace to the end of the line. I will tell you when to look at the circle. Keep looking at it while you walk past it. I will then tell you when to look straight ahead again. Try not to veer off course while you walk.*

Instructions to Therapist: Score client as defined in the guidelines, irrespective of the underlying limiting impairments, e.g. decreased neck or trunk rotation. Start timing when the patient's foot leaves the ground. Stop timing when both feet cross the 8m finish line.

1. At the 2m mark, ask the patient to "Look at the circle."

2. Cue the patient to "Keep looking at the circle" as they look back over their shoulder until they reach the 6m mark.

3. At the 6m mark, ask the patient to "Look straight ahead and continue walking until the end of the line."

Stand in a location where the patient's ability to maintain fixation can be assessed, that is, beside the target. Thus, a second person may be needed to walk with the patient to ensure safety. It is acceptable to continue to remind the patient of where they should be looking at each segment.

To score in the opposite direction, repeat task starting from opposite end of the line.

8. WALKING & LOOKING (CONTINUED)

GRADING

0   unable to walk and look, i.e. has to stop to look, or requires assistance or upper extremity support at any point during the test

1   able to continuously walk and initiate looking, but loses visual fixation on circle at or before 4m mark

2   able to continuously walk and look, but loses visual fixation on circle after 4m mark, i.e. while looking back over the shoulder

3   able to continuously walk and fixate upon the circle between the 2m and 6m mark, but demonstrates a protective step.

4   able to continuously walk and fixate upon the circle between the 2m and 6m mark, but veers off course at any time during task.

5   able to continuously walk and fixate upon circle between the 2m and 6m mark, maintains a straight path, in a steady and coordinated manner, time $\leq$ 7.00 sec.
NOT Acceptable: inconsistent or reduced speed
                         looking down at feet

9. RUNNING WITH CONTROLLED STOP

Starting position: Standardized starting position.

Instructions to Patient: *Run as fast as you can to the end of the track. Stop abruptly with both feet on the finish line and hold this position.*

Instructions to Therapist: Begin timing when initial foot leaves ground. Stop timing when both feet reach the finish line. It does not matter whether the feet land consecutively or simultaneously on the finish line.

GRADING

0   unable to run (with both feet off ground for brief instant), rather demonstrates fast walking or leaping from foot to foot

1   able to run in any fashion, time > 5.00 sec.

2   able to run in any fashion, time > 3.00 sec. but $\leq$ 5.00 sec., but is unable to perform a controlled stop with both feet on the line, i.e. uses protective step or excessive equilibrium reactions

3   able to run in any fashion, time > 3.00 sec. but $\leq$ 5.00 sec., and perform a controlled stop with both feet on the line
        NOT Acceptable: excessive use of equilibrium reactions

4   able to run in any fashion, time $\leq$ 3.00 sec., but is unable to perform a controlled stop with both feet on the line, i.e. uses protective step(s) or excessive equilibrium reactions

5   able to run in a coordinated and rhythmical manner and perform a controlled stop with both feet on the line, time $\leq$ 3.00 sec.
        NOT Acceptable: excessive use of equilibrium reactions

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10. FORWARD TO BACKWARD WALKING

Starting position: Standardized starting position.

Instructions to Patient: *Walk forwards to the halfway mark, turn around and continue to walk backwards until I say "Stop." Try not to veer off course. Walk as quickly as you can, yet at a speed that you feel safe.*

Instructions to Therapist: Start timing when the patient's foot leaves the ground. Stop timing when both feet cross the 8m finish line. The patient is to turn at the 4m mark. It is acceptable for the subject to turn in any direction s/he chooses.
• When counting the steps required to turn 180°:
    i) the first step in the turn is angled away from the forward trajectory,
    ii) the last step in the turn completes the 180° turn and is oriented
          towards the starting line, initiating backwards walking.
• It is also acceptable to pivot on one foot rather than stepping around.
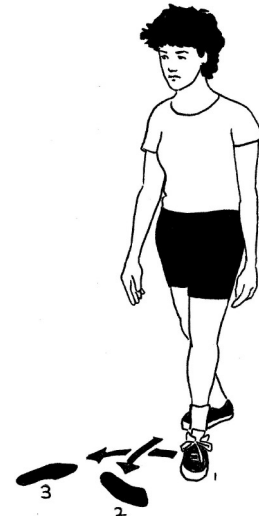
GRADING

0   unable to complete task, i.e. requires assistance or upper extremity support

1   able to complete task independently, but must stop to maintain/regain balance at any time during this task

2   able to complete the task without stopping but must significantly reduce speed, i.e. total time is > 11.00 sec., AND/ OR requires 4 or more steps to complete the turn

3   able to complete task with time ≤ 11.00 sec. and/or veers from straight path during backwards walking

4   able to complete task in a continuous motion, time ≤ 9.00 sec., and/or uses protective step(s) during or just after turn

5   able to complete the task in a continuous motion with brisk speed, time ≤ 7.00 sec. and maintaining a straight path throughout

11. WALK, LOOK & CARRY

     i) to be performed looking right
     ii) to be performed looking left

Starting position: Standardized starting position, but carrying a plastic grocery bag in each hand by the handle, with a 7 ½ lb. = 3.4 kg weight inside each bag. (See set-up diagram for placement of visual target.)

Instructions to Patient: *Walk at your usual pace to the end of the line carrying the grocery bags. I will tell you when to look at the circle. Keep looking at it while you walk past it. I will then tell you when to look straight ahead again. Try not to veer off course while you walk.*

Instructions to Therapist: Same instructions as in Item 8 Walking & Looking. Patient to carry only one grocery bag if unable to perform bilaterally due to motor control problems of the upper extremity. Indicate on the score sheet if patient carried only one bag.

GRADING

0   unable to walk and look, i.e. has to stop to look, or requires assistance or upper extremity support at any point during the test

1   able to continuously walk and initiate looking, but loses visual fixation on circle at or before 4m mark

2   able to continuously walk and look, but loses visual fixation on circle after 4m mark, i.e. while looking back over the shoulder

3   able to continuously walk and fixate upon the circle between the 2m and 6m mark, but demonstrates a protective step. Acceptable for patient to demonstrate inconsistent or reduced speed

4   able to continuously walk and fixate upon the circle between the 2m and 6m mark but veers off course. Acceptable for patient to demonstrate inconsistent or reduced speed

5   able to continuously walk and fixate upon circle between the 2m and 6m mark, maintains a straight path, in a steady & coordinated manner, time $\leq$ 7.00 sec.
      NOT Acceptable: inconsistent or reduced speed
                               looking down at feet

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12. DESCENDING STAIRS

Starting position: Quiet standing at top of staircase (minimum 8 steps). Depending on patient's skill on the stairs, may begin by descending from the first or third step at the bottom of the flight.

Instructions to Patient: *Walk down the stairs. Try not to use the railing.*

Instructions to Therapist: Depending on patient's skill on stairs, may use a cane as in level 1 and 2.

GRADING

0   unable to step down 1 step OR requires the railing or assistance

1   able to step down 1 step with/without use of cane
       NOT Acceptable: use of railing (from this level onwards)

 2   able to step down 3 steps in any pattern with/without the use of cane,
       i.e. step-to pattern with/without cane or reciprocal pattern with cane

3   able to step down 3 steps in a <u>reciprocal</u> pattern, <u>without</u> cane OR able to step
       down a full flight in a step-to pattern, without cane
       NOT Acceptable: use of cane (from this level onwards)

4   able to step down a flight in a reciprocal pattern but awkward, uncoordinated*

5   able to step down a flight in a reciprocal pattern in a rhythmical and coordinated
       manner*

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*BONUS

If the patient achieves a score of 4 or 5, and if deemed safe by the rating therapist, the patient is asked to repeat the task and descend stairs while carrying a weighted basket (laundry basket with 2 lb. weight in it). It is acceptable for the patient to intermittently look at the steps.

Add one bonus point to the score of 4 or 5 if the patient can descend the stairs safely while carrying the basket without the need for continuous monitoring of their foot placement. If the patient is unable to hold the basket with one or both arms, they are not eligible for the bonus point.

Instructions to Patient: Hold this basket, keeping it in front of you at waist level. Walk down the stairs and try not to look at your feet. You may look at the steps once in a while for safety.

13. STEP UPS x 1 STEP

      i) to be performed leading with right leg
      ii) to be performed leading with left leg

Starting position: Standardized starting position in front of step at bottom of stairs.

Instructions to Patient:
i) Step up and down on this step as quickly as you can until I say "Stop." The pattern is Right-Left Up and Right-Left Down. Try not to look at your feet.
ii) Step up and down on this step as quickly as you can until I say "Stop." The pattern is Left-Right Up and Left-Right Down. Try not to look at your feet.

Instructions of Therapist: Start timing when the patient's foot leaves the ground. Stop timing after the completion of 5 cycles. A cycle is one complete step up and down.

GRADING

0   unable to step up independently, requires assistance and/or railing to ascend

1   able to step up independently, but unable to step down independently,
      i.e. requires railing and/or assistance to descend

2   able to step up and down (1 cycle) independently without railing or assistance.
      Acceptable to look at feet

3   able to complete 5 cycles. Acceptable to demonstrate incoordination or
      inconsistent speed/rhythm
      NOT Acceptable: to look at feet

4   able to complete 5 cycles in > 6.00 but < 10.00 sec. Acceptable as in Level 3
      NOT Acceptable: as in level 3

5   able to complete 5 cycles in $\leq$ 6.00 sec. in a rhythmical and coordinated
      manner
      NOT Acceptable: to look at feet

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