

[Toolkit For]

SCI Standing and Walking Assessment



Rick Hansen Institute
Institut Rick Hansen

A clinical guideline for standing and walking assessment for individuals with spinal cord injury.

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TOOLKIT FOR SCI STANDING AND WALKING ASSESSMENT

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Numerous other experts in the field of ambulation involving individuals with SCI were consulted in the development of these assessment tools. This initiative would not have been possible without the diligence and tenacity of those involved.

For questions or comments on this toolkit, please contact clinical@rickhanseninstitute.org.

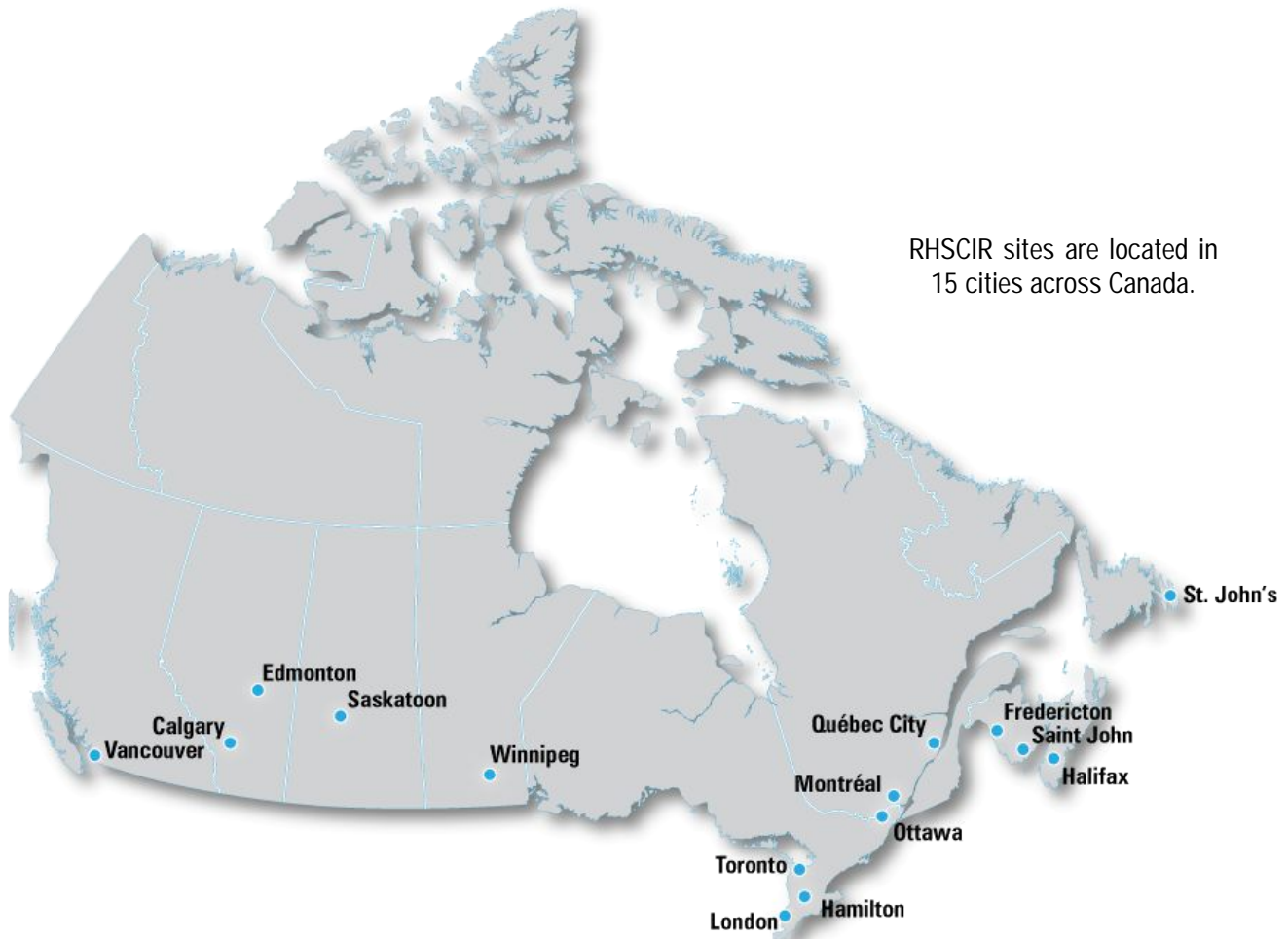
01 BACKGROUND

About RHSCIR

The **RICK HANSEN SPINAL CORD INJURY REGISTRY** (RHSCIR) is a pan-Canadian prospective observational registry located at 31 major Canadian acute care and rehabilitation facilities. Of these 31 facilities, 13 offer rehabilitation services, 16 offer acute services and two offer combined services. Across Canada, RHSCIR is collecting comprehensive SCI data for the purpose of improving SCI care and clinical outcomes. Using standardized research protocols and data collection forms, RHSCIR tracks the experiences and outcomes of people with traumatic SCI during their journey from injury, through acute care, rehabilitation to community reintegration and beyond. Details about participants' spinal cord injuries including extent of injury and level of paralysis, recovery, and success of various treatments are among the data recorded.

The data collected in RHSCIR contains powerful information that will help track the effectiveness of specific treatments, practices or programs for improving functional outcomes and quality of life after SCI. RHSCIR promotes, encourages and supports the pursuit of excellence in all areas of SCI health care management.

To learn more about RHSCIR, please visit www.rickhanseninstitute.org.



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WHY IS THIS INFORMATION IMPORTANT?

The ability to stand and walk is a very important goal for many individuals with spinal cord injury. This toolkit focuses on various levels or thresholds of functional abilities and then links appropriate outcome measures to use when patients reach these thresholds. These outcome measures allow clinicians to test the patient's readiness for walking, as well as to assist in identifying areas of deficit that need to be addressed clinically.

The information collected in these modules will be added to RHSCIR. Our team of clinical and data experts will provide you and your program with data entry, analysis services and nationally-benchmarked reports available free of charge. This information will assist in providing validated and supported evidence-based practice with the potential to improve efficiencies in the health care system and ultimately improve outcomes for individuals living with spinal cord injury.

Benefits to Patients and Clinicians

Collection and reporting of this data can benefit patients, physical therapists and clinicians by:

- Setting realistic, timely goals with the patient.
- Monitoring a patient's progress.
- Directing therapeutic interventions and priorities.
- Determining whether the patient is ready for progression in standing and walking skills.
- Determining whether patients are able to stand or ambulate independently and safely.
- Improving patient's knowledge and confidence of what they are currently safe to do in standing or walking.
- Evaluating when it might be advisable to use a wheelchair or some other form of mobility aid for safety or energy conservation reasons.
- Understanding the meaningfulness of walking ability for the home, workplace and community.
- Identifying patients have the most potential for walking recovery. This ensures proper outpatient follow-up to develop the skills which lead to community ambulation.
- Resourcing walking rehabilitation programs over the life course for fitness purposes.
- Implementing physical therapy interventions customized to specific patient's goals in the context of their potential capabilities.

* Benefits to Program

Collection and reporting of this data can benefit the Program by:

- Implementing standardized assessment tools for functional walking to ensure safe and effective mobility and mobility treatments at your facility.
- Ensuring the utilization of walking programs for health benefits as part of clinical practice.
- Determining required equipment and supplies to optimize clinical practice and safety (e.g. walking aids, transfer aids, body weight support treadmills, orthoses, robot aided gait training devices etc.).
- Guiding falls prevention programs and meeting Accreditation Canada's Required Organizational Practice regarding falls.
- Continuity between health care providers with regard to standing and walking mobility.
- Offering comparators to national data to ensure your facility is providing a high standard of care.
- Reporting metrics to facility administrators which may assist with determining staffing allocation and budget priorities.
- Assisting in development of standardized standing and walking therapy protocols.

4 Benefits to Research

Collection and reporting of this data can benefit research by:

- Providing a larger sample size of data from the SCI population across Canada which will allow for more accurate and meaningful interpretation and analysis.
- Developing and participating in clinical trials designed to evaluate the efficacy of interventions to optimize walking capacity.
- Evaluating the effectiveness of various treatment approaches.
- Assisting with the creation of best practice guidelines in walking assessment with the SCI population.
- Assisting in identifying research priorities and work with clinicians to develop research questions and proposals.

📖 What Happens Once I Collect the Data?

Providing invaluable data to RHSCIR: Once you collect the data, your facility's Rick Hansen Spinal Cord Injury Registry (RHSCIR) coordinator will collect this information and input the data into the registry database along with additional relevant clinical information. The national RHSCIR team has developed a number of practices to ensure patient confidentiality is maintained and strict privacy policies and procedures are adhered to.

Providing a baseline for walking management across Canada: The de-identified data from your site will be aggregated and reported back on a biannual basis and will provide information on your hospital's RHSCIR patients who stand and walk.

To access your site's data reports, log into the Supporting Clinical Initiatives in SCI (SCI²) resource site at <http://sci2.rickhanseninstitute.org>. Please see your local RHSCIR Coordinator, or designated representative, to receive log in information that's required for data access. You can also email us at clinical@rickhanseninstitute.org.

You can also access SCI² by visiting www.rickhanseninstitute.org.

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RESOURCE REQUIREMENTS

In order to implement this Standing and Walking Initiative there are environmental, personnel and knowledge requirements that are outlined below. Along with the material and resources in this toolkit, each RHSCIR site will have an assigned clinical lead that will be a resource to the clinical staff regarding the details of completing and collecting the data in the module. Any additional questions can be sent to us by email at clinical@rickhanseninstitute.org.

Equipment/Time/Personnel

Each outcome measure will have detailed instructions as well as equipment requirements and time requirements. The Outcome Measures selected for this module are:

- Berg Balance Scale (BBS)
- Modified Timed Up and Go (mTUG)
- Activities Specific Balance Confidence Scale (ABC - discharge only)
- Modified Spinal Cord Injury Functional Ambulation Profile (mSCI - FAP - advanced only)
- Modified MiniBESTest (mMiniBESTest - research only)
- Modified 6 Minute Walk Test (m6MWT)
- 10 metre walk test (10MWT)

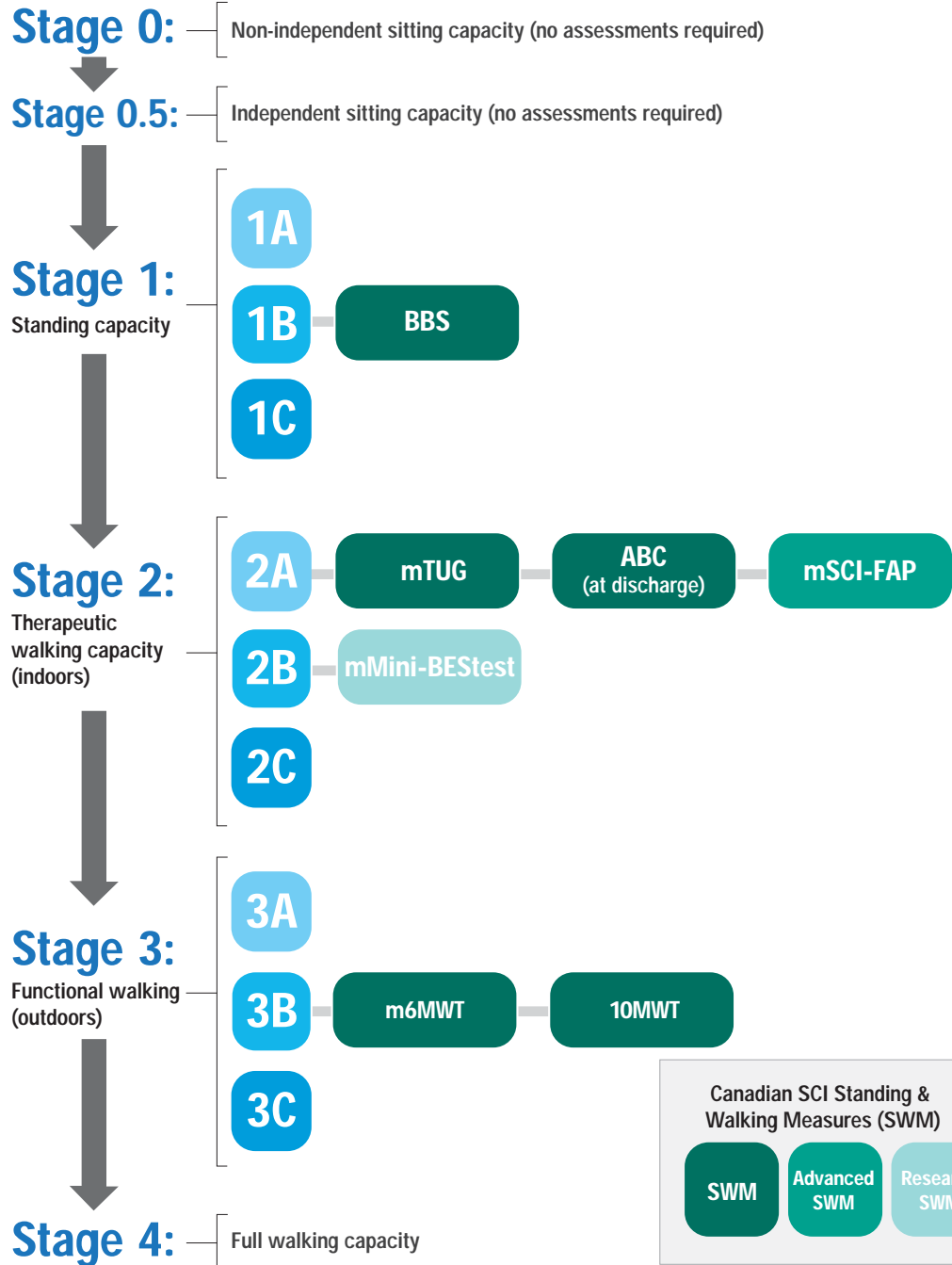
Any of these forms can be used by your facility to collect data on non-RHSCIR participants and promote ongoing best practice.

How Do I Decide Which Outcome Measures to Use and When to Use It?

A flow sheet has been developed to direct when to administer the various outcome measures with your patients.

See next page.

[ASSESSMENT GUIDELINE]
Canadian SCI Standing and Walking Assessment Tool



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04 FORMS

📄 Clinical Data Collection Form

There are data collection forms for each specific outcome measure as well as a Standing and Walking Tracking Form. This tracking form is used to collect data regarding what stage each patient is at during their rehabilitation stay. This information is to be collected at least at admission and upon discharge. The definitions of the various stages identified on the tracking form are outlined in detail in the following pages.

The Canadian Standing and Walking Measures (SWM) are being collected by eight RHSCIR rehabilitation facilities.

There are three levels of collection:

➤ The SWM. This includes:

- Berg Balance Scale (BBS)
- modified Timed Up and Go (mTUG)
- Activities Specific Balance Confidence Scale (ABC)
- 10 metre walk test (10MWT)
- modified 6 minute walk test (m6MWT)

➤ The Advanced SWM. This includes:

- all of the SWM above; AND
- modified Spinal Cord Injury Functional Ambulation Profile (mSCI-FAP)

➤ The Research SWM. This includes:

- all of the SWM AND Advanced SWM; AND
- modified Mini-BESTest

On admission the patient is assessed and it is determined what stage he or she is at. The first

Standing and Walking Outcome Measure is not required until the patient reaches Stage 1B (patient has voluntary but non-functional lower extremity movement).

These forms meet the minimum requirements for data collection; please add any additional facility specific information to the forms. If you would like assistance with incorporating your facility information on any of the forms, please contact us at clinical@rickhanseninstitute.org.

CANADIAN SCI STANDING AND WALKING ASSESSMENT TOOL

STAGE DEFINITIONS

0.0 No Independent Sitting Capacity

Patient is unable to sit independently on a firm surface with hips and knees at 90 degrees and feet on the floor for 60 seconds without using arms to stabilize.

0.5 Independent Sitting Capacity

Patient is able to sit independently on a firm surface with no back support with hips and knees at 90 degrees and feet on the floor for 60 seconds without using arms to stabilize.

1.0 No Walking Capacity

Patient cannot ambulate but may be able to stand with total assistance

1A. Trace L/E Movement - Unable to stand without total assistance of gait aid and/or orthoses and/or therapist(s). No voluntary LE functional movement (L/E MMTs Gr 1 or less in: Tib. Ant and soleus, Quads, and Gluteus.) In order to be staged as a 1A, the patient must have attempted a stand.

Examples of Total Assistance in Standing:

- ❖ Patient stands at parallel bars with full weight bearing through U/Es and minimal weight through the feet.
- ❖ Patient stands in parallel bars/walker/forearm crutches with bilateral Knee-Ankle-Foot Orthoses (KAFOs).
- ❖ Patient stands with therapist(s) providing total assistance at hips and knees.

1B. Voluntary Non-Functional L/E Movement - unable to stand independently/needs partial assistance of gait aid and/or orthoses (except bilateral KAFOs) and/or therapist(s) to stand. The use of Bilateral KAFOs is not allowed. Voluntary L/E Movement (L/E MMTs of Gr 1 +/2- to Gr3- in anti-gravity muscle groups*).

Example of Standing with Assistance:

- ❖ Patient stands in parallel bars/walker/bedside without total assistance of another person or walking aid and therapist assistance to maintain upright posture. Patient may have only partial weight bearing through the U/Es with weight bearing through the feet. Patient may have L/E orthoses on except for Bilateral KAFOs.

1C. Voluntary Functional L/E Movement - able to stand independently with minimal assistance of gait aid for limited amount of time (less than 30 secs). Orthoses are allowed except for Bilateral KAFOs. Voluntary L/E Movement. (L/E MMTs of Gr 3 or higher in most anti-gravity muscles* except Gr 1 Tib. Ant with an orthoses would fit this group.)

Examples of Independent Standing:

- ❖ Patient stands in parallel bars/walker/bedside with occasional U/E contact. Patient may have L/E orthoses on except for Bilateral KAFOs.

2. Therapeutic Walking Capacity (Indoors)

Patient is starting to ambulate with Therapist Assistance and Gait Aids/Orthoses and progresses toward Minimal Assistance.

2A) Max Assist - ability to stand and initiate reciprocal steps through voluntary L/E movement but requires maximal physical assistance (>50% of total effort) of at least one person and may include use of assistive devices/parallel bars /suspension harness and/or orthoses with the exception of bilateral KAFOs.

Examples of 'Maximal Physical Assistance':

- Physical assistance provided to prevent a fall during most attempts at walking.
- Physical assistance of 2 people required to complete gait cycle.
- Physical assistance required for 1 leg PLUS continuous physical assistance at trunk/safety belt to steady.

2B) Mod Assist - ability to stand and initiate reciprocal steps through voluntary L/E movement but requires moderate physical assistance (25-50% of total effort) of one person and may include use of assistive walking aids and/or orthoses with the exception of the bilateral KAFOs

Examples of 'Moderate Physical Assistance':

- Physical assistance required for 1 leg only
- Continuous physical assistance required at trunk/safety belt to steady
- Intermittent physical assistance at trunk/safety belt to steady PLUS assistance with placement of assistive device (e.g., guiding walker).

2C) Min Assist - ability to stand and initiate reciprocal steps through voluntary L/E movement but requires minimal physical assistance (<25% of total effort) of one person and may include use of assistive devices and/or orthoses with the exception of the bilateral KAFOs. (Cannot use parallel bars or suspension harness.)

Examples of 'Minimal Physical Assistance':

- Assistance with placement of assistive device (e.g., guiding walker).
- Intermittent physical assistance required at trunk/safety belt to steady.

CANADIAN SCI STANDING AND WALKING ASSESSMENT TOOL

STAGE DEFINITIONS

3. Functional Walking Capacity (Outdoors)

Patient is starting to ambulate without Therapist Assistance but still requires Gait Aids/Orthoses. Patient progresses to ambulating in the Community.

3A) Supervised Household Ambulator - ability to ambulate daily using reciprocal steps over ground for short distances (10-100m) with supervision. Person may use assistive devices and /or orthoses with the exception of bilateral KAFOs).

Examples of 'Supervision':

- Verbal cueing
- Standing close-by in case of a loss of balance, but no physical contact

3B) Independent Household Ambulator - ability to ambulate daily using reciprocal steps over ground for short distances (10-100m) independently. Person may use assistive devices and/or orthoses with the exception of the bilateral KAFOs.

3C) Community Ambulator - ability to ambulate daily using reciprocal steps over ground for long distances (>100m) independently. Person may use assistive devices and/or orthoses with the exception of the bilateral KAFOs.

4. Full Walking Capacity

Patient ambulates independently without Therapist Assistance or Gait Aids/Orthoses.

Independent Ambulator - ability to ambulate full time daily at home and in the community without assistive devices, orthoses, or physical assistance.

Notes: 'Ability to stand' refers to a patient's ability to maintain static standing, NOT go from sitting to standing. The ability to go from sit to stand is evaluated in a number of the measures.

If a person meets all the criteria of a higher stage without meeting all the requirements of the lower stage, move them up and test them at the higher stage.

(This can typically happen when someone cannot achieve static standing but can walk short distance with maximal assistance.)

If a person does not meet ALL the criteria for one phase (e.g. 3B) drop them down to the phase below.

Do not score them for a phase if they only meet some of the requirements.

**ANTI-GRAVITY MUSCLE EXAMPLES: Tib Ant, Soleus, Quads, Glutei.*

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STAGE DEFINITIONS

When determining the stage of a patient, please remember:

1. The Staging system is simply indicative of functional capacity, it points the clinician to which measures should be done/considered at that time but the Stage a patient achieves does not direct the clinician as to how or where to do the measures.
2. The measures have standards and conventions that should be adhered to as closely as possible in every case (this is the how/where).

A patient may achieve a threshold stage (as per the definitions) but may not be able to complete the measure associated with that stage as per the standardized method. 80% of the time the measures associated with a stage will be able to be completed for 80% of the cases but there will always be exceptions. In these cases, a patient's record should reflect that they have achieved stage 'x' but that they were unable to complete the associated measure for reason 'y'.

For example: A patient requires physical assistance of 1 person and the use of parallel bars to prevent a fall during most attempts at walking.

- the patient is staged as a 2A because their functional level matches the definition of 2A.
- The SCI-FAP or mTUG (whichever your site is collecting) conventions don't allow for the use of parallel bars so the scoring form would be completed with an assistance rating of 6 and the maximum time recorded. Once the patient is able to attempt walking outside of the parallel bars, the TUG/SCI-FAP should be attempted and the scoring form completed again.

The same scenario can happen at any threshold stage – where patient meets the definition for the stage, but can't complete the measure in a way that is compliant with the standards for that measure.



FACILITY NAME	<i>Sample size version only. To print out the full size version, visit http://sci2.rickhanseninstitute.org.</i>
Standing and Walking Mobility Tracking Form	ADDRESSOGRAPH

Pre-walking stages			
Stage	Stage at Admission	Stage(s) achieved between Admission and Discharge Assessments	Stage at Discharge
0.0 No Independent Sitting Capacity			
0.0) Unable to sit independently hands free on firm surface for 60 sec.	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD
0.5 Independent Sitting Capacity			
0.5) Able to sit independently on firm surface hands free for 60 sec.	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD
1. Standing Capacity			
1A) Trace L/E Movement	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD
1B) Voluntary Non-Functional L/E Movement	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD
1C) Voluntary Functional L/E Movement	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD
Walking stages			
2. Therapeutic Walking Capacity (Indoors)			
2A) Max Assist	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD
2B) Mod Assist	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD
2C) Min Assist	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD
3. Therapeutic Walking Capacity (Indoors)			
3A) Supervised Household Ambulator	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD
3B) Independent Household Ambulator	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD
3C) Community Ambulator	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD
4. Therapeutic Walking Capacity (Indoors)			
4) Independent Ambulator	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD	<input type="checkbox"/> _____ YYYY - MM - DD



FACILITY NAME	<i>Sample size version only. To print out the full size version, visit http://sci2.rickhanseninstitute.org.</i>
Berg Balance Scale	

Only completed if patient achieves the following threshold stage: 1B) Voluntary Non-Functional L/E Movement – unable to stand independently/Needs partial assistance of gait aid and/or orthoses and/or therapist(s) to stand. The use of Bilateral KAFOs is not allowed.		<input type="checkbox"/> ADMISSION (Within 7 days) OR <input type="checkbox"/> THRESHOLD (Within 2 days of meeting threshold)	INTERIM	DISCHARGE (Within 7 days)
Date <i>(If completed over multiple sessions, enter date of completion.)</i>		----'---'-- YYYY - MM - DD	----'---'-- YYYY - MM - DD	----'---'-- YYYY - MM - DD
Therapist Name / Initials				
Number of sessions test completed over <i>Note: Test can be completed over multiple sessions during the time period indicated if required.</i>				
ITEM	DESCRIPTION			
1	Sitting to Standing			
2	Standing unsupported			
3	Sitting with back unsupported but feet supported on floor or on a stool			
4	Standing to sitting			
5	Transfers			
6	Standing with eyes closed			
7	Standing with feet together			
8	Reaching forward with outstretched arm			
9	Retrieving object from floor			
10	Turning to look behind			
11	Turning 360 degrees			
12	Placing alternate foot on stool			
13	Standing with one foot in front			
14	Standing on one foot			
	TOTAL:			
		/56	/56	/56



ITEM	DESCRIPTION	ITEM	DESCRIPTION
1.	<p>SITTING TO STANDING</p> <p>Please stand up. Try not to use your hands for support.</p> <p>4 able to stand without using hands and stabilize independently</p> <p>3 able to stand independently using hands</p> <p>2 able to stand using hands after several tries</p> <p>1 needs minimal aid to stand or stabilize</p> <p>0 needs moderate or maximal assist to stand</p>	8.	<p>REACHING FORWARD WITH OUTSTRETCHED ARM WHILE STANDING</p> <p>Lift arm to 90 degrees. Stretch out your fingers and reach forward as far as you can. (Examiner places a ruler at the end of fingertips when arm is at 90 degrees. Fingers should not touch the ruler while reaching forward. The recorded measure is the distance forward that the fingers reach while the subject is in the most forward lean position. When possible, ask subject to use both arms when reaching to avoid rotation of the trunk.)</p> <p>4 can reach forward confidently 25 cm (10 inches)</p> <p>3 can reach forward 12 cm (5 inches)</p> <p>2 can reach forward 5 cm (2 inches)</p> <p>1 reaches forward but needs supervision</p> <p>0 loses balance while trying/requires external support</p>
2.	<p>STANDING UNSUPPORTED</p> <p>Please stand for two minutes without holding on. If a subject is able to stand 2 minutes unsupported, score full points for sitting unsupported. Proceed to item #4.</p> <p>4 able to stand safely for 2 minutes</p> <p>3 able to stand 2 minutes with supervision</p> <p>2 able to stand 30 seconds unsupported</p> <p>1 needs several tries to stand 30 seconds unsupported</p> <p>0 unable to stand 30 seconds unsupported</p>	9.	<p>PICK UP OBJECT FROM THE FLOOR FROM A STANDING POSITION</p> <p>Pick up the shoe/slipper, which is in front of your feet.</p> <p>4 able to pick up slipper safely and easily</p> <p>3 able to pick up slipper but needs supervision</p> <p>2 unable to pick up but reaches 2-5 cm(1-2 inches) from slipper and keeps balance independently</p> <p>1 unable to pick up and needs supervision while trying</p> <p>0 unable to try/needs assist to keep from losing balance or falling</p>
3.	<p>SITTING WITH BACK UNSUPPORTED BUT FEET SUPPORTED ON FLOOR OR ON A STOOL</p> <p>Please sit with arms folded for 2 minutes.</p> <p>4 able to sit safely and securely for 2 minutes</p> <p>3 able to sit 2 minutes under supervision</p> <p>2 able to sit 30 seconds</p> <p>1* able to sit 10 seconds</p> <p>0 unable to sit without support 10 seconds</p>	10.	<p>TURNING TO LOOK BEHIND OVER LEFT AND RIGHT SHOULDERS WHILE STANDING</p> <p>Turn to look directly behind you over toward the left shoulder. Repeat to the right. (Examiner may pick an object to look at directly behind the subject to encourage a better twist turn.)</p> <p>4 looks behind from both sides and weight shifts well</p> <p>3 looks behind one side only other side shows less weight shift</p> <p>2 turns sideways only but maintains balance</p> <p>1 needs supervision when turning</p> <p>0 needs assist to keep from losing balance or falling</p>
4.	<p>STANDING TO SITTING</p> <p>Please sit down.</p> <p>4 sits safely with minimal use of hands</p> <p>3 controls descent by using hands</p> <p>2 uses back of legs against chair to control descent</p> <p>1 sits independently but has uncontrolled descent</p> <p>0 needs assist to sit</p>	11.	<p>TURN 360 DEGREES</p> <p>Turn completely around in a full circle. Pause. Then turn a full circle in the other direction.</p> <p>4 able to turn 360 degrees safely in 4 seconds or less</p> <p>3 able to turn 360 degrees safely one side only 4 seconds or less</p> <p>2 able to turn 360 degrees safely but slowly</p> <p>1 needs close supervision or verbal cuing</p> <p>0 needs assistance while turning</p>
5.	<p>TRANSFERS</p> <p>Arrange chair(s) for pivot transfer. Ask subject to transfer one way toward a seat with armrests and one way toward a seat without armrests. You may use two chairs (one with and one without armrests) or a bed and a chair.</p> <p>4 able to transfer safely with minor use of hands</p> <p>3 able to transfer safely definite need of hands</p> <p>2 able to transfer with verbal cuing and/or supervision</p> <p>1 needs one person to assist</p> <p>0 needs two people to assist or supervise to be safe</p>	12.	<p>PLACE ALTERNATE FOOT ON STEP OR STOOL WHILE STANDING UNSUPPORTED</p> <p>Place each foot alternately on the step/stool. Continue until each foot has touched the step/stool four times.</p> <p>4 able to stand independently and safely and complete 8 steps in 20 seconds</p> <p>3 able to stand independently and complete 8 steps in > 20 seconds</p> <p>2 able to complete 4 steps without aid with supervision</p> <p>1 able to complete > 2 steps needs minimal assist</p> <p>0 needs assistance to keep from falling/unable to try</p>
6.	<p>NOTE: ITEMS 6 -14 ARE TESTED IN A STANDING POSITION</p> <p>STANDING UNSUPPORTED WITH EYES CLOSED</p> <p>Please close your eyes and stand still for 10 seconds.</p> <p>4 able to stand 10 seconds safely</p> <p>3 able to stand 10 seconds with supervision</p> <p>2 able to stand 3 seconds</p> <p>1 unable to keep eyes closed 3 seconds but stays safely</p> <p>0 needs help to keep from falling</p>	13.	<p>STANDING UNSUPPORTED ONE FOOT IN FRONT</p> <p>(DEMONSTRATE TO SUBJECT) Place one foot directly in front of the other. If you feel that you cannot place your foot directly in front, try to step far enough ahead that the heel of your forward foot is ahead of the toes of the other foot. (To score 3 points, the length of the step should exceed the length of the other foot and the width of the stance should approximate the subject's normal stride width.)</p> <p>4 able to place foot tandem independently and hold 30 seconds</p> <p>3 able to place foot ahead independently and hold 30 seconds</p> <p>2 able to take small step independently and hold 30 seconds</p> <p>1 needs help to step but can hold 15 seconds</p> <p>0 loses balance while stepping or standing</p>
7.	<p>STANDING UNSUPPORTED WITH FEET TOGETHER</p> <p>Place your feet together and stand without holding on.</p> <p>4 able to place feet together independently and stand 1 minute safely</p> <p>3 able to place feet together independently and stand 1 minute with supervision</p> <p>2 able to place feet together independently but unable to hold for 30 seconds</p> <p>1 needs help to attain position but able to stand 15 seconds feet together</p> <p>0 needs help to attain position and unable to hold for 15 seconds</p>	14.	<p>STANDING ON ONE LEG</p> <p>Stand on one leg as long as you can without holding on.</p> <p>4 able to lift leg independently and hold > 10 seconds</p> <p>3 able to lift leg independently and hold 5-10 seconds</p> <p>2 able to lift leg independently and hold at least 3 seconds</p> <p>1 tries to lift leg unable to hold 3 seconds but remains standing independently</p> <p>0 unable to try of needs assist to prevent fall</p>



FACILITY NAME	<i>Sample size version only. To print out the full size version, visit http://sci2.rickhanseninstitute.org.</i>
Modified Timed Up and Go (TUG) Test	ADDRESSOGRAPH

Only completed if patient achieves the following threshold stage: 2A) Requires Maximal Assist (>50% of total effort) during therapeutic walking	<input type="checkbox"/> ADMISSION (Within 7 days) OR <input type="checkbox"/> THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)
Date <i>(If completed over multiple sessions, enter date of completion.)</i>	_ _ _ _ - _ _ - _ _ Y Y Y Y - M M - D D	_ _ _ _ - _ _ - _ _ Y Y Y Y - M M - D D
Therapist Name/Initials		

General Instructions:

- The tester provides physical assistance if needed. The tester provides feedback/encouragement only after the task is completed. Each participant is given a rest period between tasks long enough for the tester to explain and demonstrate the next task.
- The tester records the performance time and assistance rating in the data collection table below.
- If the participant cannot attempt the test, or does not complete the test, he/she is assigned the maximum time (455 sec.), and an assistance rating of 6 ('unable to complete'). Participants can use gait aids for all tasks if required.
- If the participant takes longer than the maximum time to complete the test, he/she is assigned the maximum time, and the assistance rating that corresponds to the devices/assistance used for that task.

Assistance Ratings: Each participant is instructed to use an assistive device and/or brace(s) as needed.
1 = independent (walking without any walking aids or assistance)
2 = 1 cane/crutch/rail
3 = 2 canes/crutches/rails
4 = walker (standard walker or 2- or 4-wheeled walker)
5 = assist of 1 (physical assistance of 1 person whether minimum, moderate or maximum assist)
6 = unable to complete

<p>1. Up & Go (Max time: 455s)</p> <p>Setup: Standard armchair with a 44-cm seat height (from floor) is placed on the hard, non-carpeted floor. Three meters away from the start line, a 1-m strip of masking tape is placed on the floor.</p>	<p>1. Tester explains while demonstrating the Up & Go task: "You will sit in this chair with your back against the back of the chair and your arms resting on the armrests. When I say 'go,' you will stand up from the chair, walk at your normal comfortable pace past this line, turn around, walk back to the chair, and sit down, making sure your back is against the back of the chair." You may use the arms of the chair if needed.</p> <p>2. Participant assumes sitting position in the chair. Tester assists participant as needed in placing toes on starting line tape. Tester stands beside the chair and prepares to walk with the participant.</p> <p>3. Tester says "go," and presses stopwatch to begin timing.</p> <p>4. Tester monitors line to ensure both of participant's feet cross the line before turning around.</p> <p>5. Tester stops timing when participant is fully seated with back against the chair.</p> <p>6. Tester records time and assistance rating required for task.</p>	
	ADMISSION (Within 7 days) OR THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)
A. Time (seconds)		
B. Assistance Rating (1-6)		
C. = A x B		
D. 9.1 sec. (mean time of able-bodied individuals)		
Task Score (Up & Go) = C ÷ D		



FACILITY NAME	<i>Sample size version only. To print out the full size version, visit http://sci2.rickhanseninstitute.org.</i>
10 Meter Walk Test	ADDRESSOGRAPH

Only completed if patient achieves the following threshold stage: 3B) Independent Household Ambulator: ability to ambulate daily using reciprocal steps over ground for short distances (10-100m) independently for functional walking.	<input type="checkbox"/> ADMISSION (Within 7 days) OR <input type="checkbox"/> THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)
Date <i>(If completed over multiple sessions, enter date of completion.)</i>	_ _ _ _ - _ _ - _ _ Y Y Y Y - M M - D D	_ _ _ _ - _ _ - _ _ Y Y Y Y - M M - D D
Therapist Name/Initials		
Number of sessions test completed over <i>Note: Test can be completed over multiple sessions during the time period indicated if required.</i>		
1. 10 Meter Walk Test (10MWT) at preferred speed	Time: _____(sec) Speed: _____(m/sec)	Time: _____(sec) Speed: _____(m/sec)
2. 10 Meter Walk Test (10MWT) at maximum speed	Time: _____(sec) Speed: _____(m/sec)	Time: _____(sec) Speed: _____(m/sec)
3. Walking Aid Used: <i>(and circle right/left/both if applicable to indicate the side on which the aid is used)</i>	<input type="checkbox"/> None <input type="checkbox"/> Parallel bars <input type="checkbox"/> Standard walker <input type="checkbox"/> 2 wheeled walker <input type="checkbox"/> 4 wheeled walker <input type="checkbox"/> Crutches – Right / Left / Both <input type="checkbox"/> Quad cane <input type="checkbox"/> Standard cane – Right / Left / Both <input type="checkbox"/> Knee Ankle Foot Orthosis (KAFO) – Right/Left (if required bilaterally, patient does not meet threshold criteria for test) <input type="checkbox"/> Ankle Foot Orthosis - Right / Left / Both <input type="checkbox"/> Other Aid (specify): _____	<input type="checkbox"/> None <input type="checkbox"/> Parallel bars <input type="checkbox"/> Standard walker <input type="checkbox"/> 2 wheeled walker <input type="checkbox"/> 4 wheeled walker <input type="checkbox"/> Crutches – Right / Left / Both <input type="checkbox"/> Quad cane <input type="checkbox"/> Standard cane – Right / Left / Both <input type="checkbox"/> Knee Ankle Foot Orthosis (KAFO) – Right/Left (if required bilaterally, patient does not meet threshold criteria for test) <input type="checkbox"/> Ankle Foot Orthosis - Right / Left / Both <input type="checkbox"/> Other Aid (specify): _____

V24Sept2014

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FACILITY NAME	<i>Sample size version only. To print out the full size version, visit http://sci2.rickhanseninstitute.org.</i>
Modified 6 Minute Walk Test	ADDRESSOGRAPH

Only completed if patient achieves the following threshold stage: 3B) Independent Household Ambulator: ability to ambulate daily using reciprocal steps over ground for short distances (10-100m) independently for functional walking.	<input type="checkbox"/> ADMISSION (Within 7 days) OR <input type="checkbox"/> THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)
Date <i>(If completed over multiple sessions, enter date of completion.)</i>	_ _ _ _ - _ - _ - _ Y Y Y Y - M M - D D	_ _ _ _ - _ - _ - _ Y Y Y Y - M M - D D
Therapist Name/Initials		
1. 2 Minute Distance (m)		
2. 4 Minute Distance (m)		
3. 6 Minute Distance (m)		
4. Total Distance Achieved (m)		
5. Total time for the test (if less than 6 minutes)	_____ min. _____ sec.	_____ min. _____ sec.
6. Borg RPE® Scale of Perceived Exertion at end of test (6-20)	<input type="checkbox"/> 6 No exertion at all <input type="checkbox"/> 7 } Extremely light <input type="checkbox"/> 8 } <input type="checkbox"/> 9 Very light <input type="checkbox"/> 10 } Light <input type="checkbox"/> 11 } <input type="checkbox"/> 12 } Somewhat hard <input type="checkbox"/> 13 } <input type="checkbox"/> 14 } Hard (heavy) <input type="checkbox"/> 15 } <input type="checkbox"/> 16 } Very hard <input type="checkbox"/> 17 } <input type="checkbox"/> 18 } Extremely hard <input type="checkbox"/> 19 } <input type="checkbox"/> 20 Maximal exertion	<input type="checkbox"/> 6 No exertion at all <input type="checkbox"/> 7 } Extremely light <input type="checkbox"/> 8 } <input type="checkbox"/> 9 Very light <input type="checkbox"/> 10 } Light <input type="checkbox"/> 11 } <input type="checkbox"/> 12 } Somewhat hard <input type="checkbox"/> 13 } <input type="checkbox"/> 14 } Hard (heavy) <input type="checkbox"/> 15 } <input type="checkbox"/> 16 } Very hard <input type="checkbox"/> 17 } <input type="checkbox"/> 18 } Extremely hard <input type="checkbox"/> 19 } <input type="checkbox"/> 20 Maximal exertion
7. Walking Aid Used: (and circle right/left/both if applicable to indicate the side on which the aid is used)	<input type="checkbox"/> None <input type="checkbox"/> Parallel bars <input type="checkbox"/> Standard walker <input type="checkbox"/> 2 wheeled walker <input type="checkbox"/> 4 wheeled walker <input type="checkbox"/> Crutches – Right/Left/Both <input type="checkbox"/> Quad cane <input type="checkbox"/> Standard cane – Right/Left/Both <input type="checkbox"/> Knee Ankle Foot Orthosis (KAFO) <input type="checkbox"/> Right/Left (if required bilaterally, patient does not meet threshold criteria for test) <input type="checkbox"/> Ankle Foot Orthosis – Right/Left/Both <input type="checkbox"/> Other Aid (specify): _____	<input type="checkbox"/> None <input type="checkbox"/> Parallel bars <input type="checkbox"/> Standard walker <input type="checkbox"/> 2 wheeled walker <input type="checkbox"/> 4 wheeled walker <input type="checkbox"/> Crutches – Right/Left/Both <input type="checkbox"/> Quad cane <input type="checkbox"/> Standard cane – Right/Left/Both <input type="checkbox"/> Knee Ankle Foot Orthosis (KAFO) <input type="checkbox"/> Right/Left (if required bilaterally, patient does not meet threshold criteria for test) <input type="checkbox"/> Ankle Foot Orthosis – Right/Left/Both <input type="checkbox"/> Other Aid (specify): _____



FACILITY NAME	<i>Sample size version only. To print out the full size version, visit http://sci2.rickhanseninstitute.org.</i>
Modified Spinal Cord Injury Functional Ambulation Profile (mSCI-FAP)	ADDRESSOGRAPH

Only completed if patient achieves the following threshold stage: 2A) Requires Maximal Assist (> 50% of total effort) during therapeutic walking.	<input type="checkbox"/> ADMISSION (Within 7 days) OR <input type="checkbox"/> THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)
Date <i>(If completed over multiple sessions, enter date of completion.)</i>	_ _ _ _ - _ - - _ _ Y Y Y Y - M M - D D	_ _ _ _ - _ - - _ _ Y Y Y Y - M M - D D
Therapist Name/Initials		
Number of sessions test completed over <i>Note: Test can be completed over multiple sessions during the time period indicated if required.</i>		

General Instructions:

- The tester provides physical assistance if needed. The tester provides feedback/encouragement only after the task is completed. Each participant is given a rest period between tasks long enough for the tester to explain and demonstrate the next task.
- The tester records the performance time and assistance rating for all 4 tasks in data collection table below.
- If the participant cannot attempt a task, or does not complete a task, he/she is assigned the maximum time for that task, and an assistance rating of 6 ('unable to complete'). Maximum times are listed for each task below. Participants can use gait aids for all tasks if required.
- If the participant takes longer than the maximum time to complete a task, he/she is assigned the maximum time, and the assistance rating that corresponds to the devices/assistance used for that task.

Assistance Ratings: Each participant is instructed to use an assistive device and/or brace(s) as needed.

1 = independent (walking without any walking aids or assistance)

2 = 1 cane/crutch/rail

3 = 2 canes/crutches/rails

4 = walker (standard walker or 2- or 4-wheeled walker)

5 = assist of 1 (physical assistance of 1 person whether minimum, moderate or maximum assist)

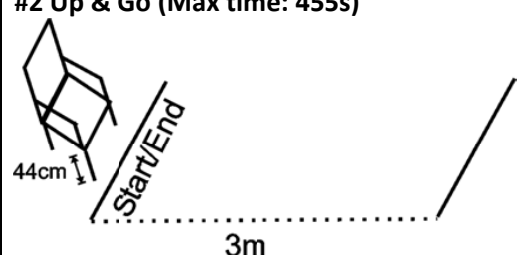
6 = unable to complete

FACILITY NAME

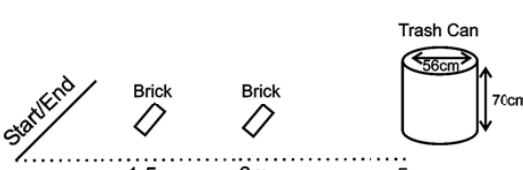
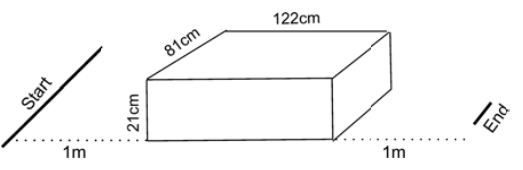
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**Modified Spinal Cord
Injury Functional
Ambulation Profile
(mSCI-FAP)**

ADDRESSOGRAPH

TASK	<input type="checkbox"/> ADMISSION (Within 7 days) OR <input type="checkbox"/> THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)	INSTRUCTIONS
<p>#1 Carpet (Max time: 220s)</p> <p>Setup: Carpeted area or a piece of short pile carpet, no less than 7-m long and 2-m wide, securely taped to the floor. Starting point is marked with a 1-m strip of masking tape. End point is marked exactly 5-m from the starting point with a 2-cm piece of masking tape. Both starting point and end point are at least 1-m from the edge of the carpet.</p>			<ol style="list-style-type: none"> 1. Tester explains while demonstrating the Carpet task: "When I say 'go,' walk at your normal, comfortable pace until I say 'stop.' " 2. Tester assists participant as needed in placing toes on starting line tape. 3. Tester says "go," and presses stopwatch to begin timing. 4. Participant walks toward the end point. Tester walks alongside the participant as the participant traverses the 5-m distance. 5. Tester presses stopwatch to stop timing once both of the participant's feet have crossed the end point. Tester tells the participant to stop when he or she is beyond the end point. 6. Tester records time and assistance rating required for task.
A. Time (seconds)			
B. Assistance Rating (1-6)			
C. = A x B			
D. 4.4 sec. (mean time of able-bodied individuals)			
Task Score (Carpet) = C ÷ D			
<p>#2 Up & Go (Max time: 455s)</p>  <p>Setup: Standard armchair with a 44-cm seat height (from floor) is placed on the hard, non-carpeted floor. Three meters away from the start line, a 1-m strip of masking tape is placed on the floor.</p>			<ol style="list-style-type: none"> 1. Tester explains while demonstrating the Up & Go task: "You will sit in this chair with your back against the back of the chair and your arms resting on the armrests. When I say 'go,' you will stand up from the chair, walk at your normal comfortable pace past this line, turn around, walk back to the chair, and sit down, making sure your back is against the back of the chair. You may use the arms of the chair if needed." 2. Participant assumes sitting position in the chair. Tester assists participant as needed in placing toes on starting line tape. Tester stands beside the chair and prepares to walk with the participant. 3. Tester says "go," and presses stopwatch to begin timing. 4. Tester monitors line to ensure both of participant's feet cross the line before turning around. 5. Tester stops timing when participant is fully seated with back against the chair. 6. Tester records time and assistance rating required for task.
A. Time (seconds)			
B. Assistance Rating (1-6)			
C. = A x B			
D. 9.1 sec. (mean time of able-bodied individuals)			
Task Score (Up & Go) = C ÷ D			

FACILITY NAME	<i>Sample size version only.</i> To print out the full size version, visit http://sci2.rickhanseninstitute.org .
Modified Spinal Cord Injury Functional Ambulation Profile (mSCI-FAP)	ADDRESSOGRAPH

TASK	<input type="checkbox"/> ADMISSION (Within 7 days) OR <input type="checkbox"/> THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)	INSTRUCTIONS
#3 Obstacles (Max time: 570s)  <p>Setup: A 1-m piece of masking tape is placed on a hard, non-carpeted floor to mark the starting point. A standard brick is placed on the floor at the 1.5-m mark and the 3-m mark. A trash can (diameter 56cm, height 70cm) is placed at the 5-m mark.</p>			<ol style="list-style-type: none"> Tester explains while demonstrating the Obstacles task: "When I say 'go,' walk forward at your normal, comfortable pace and step over each brick. Then, walk around the trash can from either the left or right. Then walk back stepping over the bricks again. Do not hit the bricks or bin with your body or walking aid, if possible. Continue walking until I say 'stop.'" Tester assists participant as needed in placing toes on starting line. Tester says "go," and presses stopwatch to begin timing. Tester walks with participant. When both of the participant's feet have crossed the end line, tester presses stopwatch to stop timing. Tester tells the participant to "stop" when he or she is beyond the end line. Tester records time, assistance rating required for task, and completes the 'C: Hit Obstacle' row (by entering a "1" if the participant hit any obstacles with his/her body or walking aid while completing the task or a "0" if no obstacle was hit).
A. Time (seconds)			
B. Assistance Rating (1-6)			
C. Hit Obstacle (+1)			
D. = A x (B+C)			
E. 11.4 sec. (mean time of able-bodied individuals)			
Task Score (Obstacles) = D ÷ E			
#4 Step (Max time: 185s)  <p>Setup: A 1-m piece of masking tape is placed on a hard, non-carpeted floor to mark the starting point. A standard brick is placed on the floor at the 1.5-m mark and the 3-m mark. A trash can (diameter 56cm, height 70cm) is placed at the 5-m mark.</p>			<ol style="list-style-type: none"> Tester explains while demonstrating the Step task: "When I say 'go', walk towards the step, up and over, and continue walking until I say stop." Tester assists participant as needed in placing toes on the starting point. Tester says "go" and presses stopwatch to begin timing. Participant walks toward the end point. Tester follows participant through the task for safety. Tester presses stopwatch to stop timing when both of the participant's feet have crossed the end point. Tester records time and assistance rating required for task.
A. Time (seconds)			
B. Assistance Rating (1-6)			
C. = A x B			
D. 3.7 sec. (mean time of able-bodied individuals)			
Task Score (Step) = C ÷ D			
Total abbreviated SCI-FAP score: Sum the 4 task scores above.			

FACILITY NAME	<i>Sample size version only. To print out the full size version, visit http://sci2.rickhanseninstitute.org.</i>
Modified Mini-BESTest- of DYNAMIC BALANCE Balance Evaluation Systems Test © 2005-2013 Oregon Health & Science University. All rights reserved.	ADDRESSOGRAPH

Only completed if patient achieves the following threshold stage: 2B) Requires Moderate Assist (25-50% of total effort) during therapeutic walking.	<input type="checkbox"/> ADMISSION (Within 7 days) OR <input type="checkbox"/> THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)	
Date: <i>(If completed over multiple sessions, enter date of completion)</i>	____ - ____ - ____ YYYY - MM - DD	____ - ____ - ____ YYYY - MM - DD	
Therapist Name/Initials:			
Number of sessions test completed over: <i>Note: Test can be completed over multiple sessions during the time period indicated if required.</i>			

ITEM	Patient should remove foot/ankle bracing for entire test.				PATIENT INSTRUCTIONS	THERAPIST INSTRUCTIONS
ANTICIPATORY	SUB SCORE: /6		SUB SCORE: /6			
1. SIT TO STAND (2) Normal: Comes to stand without use of hands and stabilizes independently. (1) Moderate: Comes to stand WITH use of hands on first attempt. (0) Severe: Impossible to stand up from chair without assistance, OR several attempts with use of hands.				<i>"Cross arms across your chest. Try not to use your hands unless you must. Do not let your legs lean against the back of the chair when you stand. Please stand up now."</i>	<i>Note the initiation of the movement, and the use of the subject's hands on the seat of the chair, the thighs, or the thrusting of the arms forward.</i>	
2. RISE TO TOES (2) Normal: Stable for 3 s with maximum height. (1) Moderate: Heels up, but not full range (smaller than when holding hands), OR noticeable instability for 3s. (0) Severe: < 3 s.				<i>"Place your feet shoulder width apart. Place your hands on your hips. Try to rise as high as you can onto your toes. I will count out loud to 3 seconds. Try to hold this pose for at least 3 seconds. Look straight ahead. Rise now."</i>	<i>Allow the subject two attempts. Score the best attempt. (If you suspect that subject is using less than full height, ask the subject to rise up while holding the examiners' hands.) Make sure the subject looks at a non-moving target 4-12 feet away.</i>	
3. STAND ON ONE LEG Use the trial with the longest time to determine score below on each side. (2) Normal: 20 s. (1) Moderate: < 20 s. (0) Severe: Unable.	Left Side (Standing Leg) Trial 1: _____ sec. Trial 2: _____ sec. L SCORE:	Right Side (Standing Leg) Trial 1: _____ sec. Trial 2: _____ sec. R SCORE:	Left Side (Standing Leg) Trial 1: _____ sec. Trial 2: _____ sec. L SCORE:	Right Side (Standing Leg) Trial 1: _____ sec. Trial 2: _____ sec. R SCORE:	<i>"Look straight ahead. Keep your hands on your hips. Lift your leg off of the ground behind you without touching or resting your raised leg upon your other standing leg. Stay standing on one leg as long as you can. Look straight ahead. Lift now."</i>	<i>Allow the subject two attempts and record the times. Record the number of seconds the subject can hold up to a maximum of 20 seconds. Stop timing when the subject moves hands off of hips or puts a foot down. Make sure the subject looks at a non-moving target 4-12 feet ahead. Repeat on other side.</i>
	Only use the side with the lowest score to calculate sub-score and total score.		Only use the side with the lowest score to calculate sub-score and total score.			
	LOWEST SCORE:		LOWEST SCORE:			



FACILITY NAME	<i>Sample size version only. To print out the full size version, visit http://sci2.rickhanseninstitute.org.</i>
Modified Mini-BESTest- of DYNAMIC BALANCE Balance Evaluation Systems Test © 2005-2013 Oregon Health & Science University. All rights reserved.	<h1 style="font-size: 4em; opacity: 0.2; margin: 0;">ADDRESSOGRAPH</h1>

ITEM	<input type="checkbox"/> ADMISSION (Within 7 days) OR <input type="checkbox"/> THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)		PATIENT INSTRUCTIONS	THERAPIST INSTRUCTIONS	
REACTIVE POSTURAL CONTROL	SUB SCORE: /6	SUB SCORE: /6				
4. COMPENSATORY STEPPING CORRECTION-FORWARD (2) Normal: Recovers independently a single, large step (second realignment step is allowed) (1) Moderate: More than one step used to recover equilibrium. (0) Severe: No step, OR would fall if not caught, OR falls spontaneously.				<i>"Stand with your feet shoulder width apart, arms at your sides. Lean forward against my hands beyond your forward limits. When I let go, do whatever is necessary, including taking a step, to avoid a fall."</i>	<i>Stand in front of the subject with one hand on each shoulder and ask the subject to lean forward (Make sure there is room for them to step forward). Require the subject to lean until the subject's shoulders and hips are in front of toes. After you feel the subject's body weight in your hands, very suddenly release your support. The test must elicit a step. NOTE: Be prepared to catch subject.</i>	
5. COMPENSATORY STEPPING CORRECTION-BACKWARD (2) Normal: Recovers independently a single, large step (a second realignment step is allowed and not counted). (1) Moderate: More than one step used to recover equilibrium. (0) Severe: No step, OR would fall if not caught, OR falls spontaneously.				<i>"Stand with your feet shoulder width apart, arms at your sides. Lean backward against my hands beyond your backward limits. When I let go, do whatever is necessary, including taking a step, to avoid a fall."</i>	<i>Stand behind the subject with one hand on each scapula and ask the subject to lean backward (Make sure there is room for the subject to step backward.) Require the subject to lean until their shoulders and hips are in back of their heels. After you feel the subject's body weight in your hands, very suddenly release your support. Test must elicit a step. NOTE: Be prepared to catch subject.</i>	
6. COMPENSATORY STEPPING CORRECTION-LATERAL (2) Normal: Recovers independently with 1 step (crossover or lateral OK as is a second realignment step). (1) Moderate: Several steps to recover equilibrium. (0) Severe: Falls, or cannot step.	Left	Right	Left	Right	<i>"Stand with your feet together, arms down at your sides. Lean into my hand beyond your sideways limit. When I let go, do whatever is necessary, including taking a step, avoid a fall."</i>	<i>Stand to the side of the subject, place one hand on the side of the subject's pelvis, and have the subject lean the whole body into your hands. Require the subject to lean until the midline of the pelvis is over the right (or left) foot and then suddenly release your hold. NOTE: Be prepared to catch subject.</i>
	Only use the side with the lowest score to calculate sub-score and total score.		Only use the side with the lowest score to calculate sub-score and total score.			
	LOWEST SCORE:		LOWEST SCORE:			
SENSORY ORIENTATION	SUB SCORE: /6	SUB SCORE: /6				
7. STANCE (FEET TOGETHER); EYES OPEN, FIRM SURFACE (2) Normal: 30 s. (1) Moderate: < 30 s. (0) Severe: Unable	_____ sec.	_____ sec.		<i>"Place your hands on your hips. Place your feet together until almost touching. Look straight ahead. Be as stable and as still as possible, until I say stop."</i>	<i>Record the time the subject was able to stand with feet together up to a maximum of 30 seconds. Make sure subject looks at a non-moving target 4-12 feet away. If the subject is able to achieve a time of 30 seconds in the first trial, a second trial is not required.</i>	
	SCORE:	SCORE:				

FACILITY NAME

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<http://sci2.rickhanseninstitute.org>.

Modified Mini-BESTest- of DYNAMIC BALANCE

Balance Evaluation Systems Test
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ADDRESSOGRAPH

ITEM	<input type="checkbox"/> ADMISSION (Within 7 days) OR <input type="checkbox"/> THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)	PATIENT INSTRUCTIONS	THERAPIST INSTRUCTIONS
8. STANCE (FEET TOGETHER); EYES CLOSED, FOAM SURFACE (2) Normal: 30 s. (1) Moderate: < 30 s. (0) Severe: Unable	_____ sec.	_____ sec.	<i>"Step onto the foam. Place your hands on your hips. Place your feet together until almost touching. Be as stable and as still as possible, until I say stop. I will start timing when you close your eyes."</i>	<i>Use medium density Temper® foam, 4 inches thick. Assist subject in stepping onto foam. Record the time the subject was able to stand in each trial to a maximum of 30 seconds. Have the subject step off the foam between trials. Flip the foam over between each trial to ensure the foam has retained its shape. If the subject is able to achieve a time of 30 seconds in the first trial, a second trial is not required.</i>
	SCORE:	SCORE:		
9. INCLINE- EYES CLOSED (2) Normal: Stands independently 30 s and aligns with gravity. (1) Moderate: Stands independently < 30 s OR aligns with surface (0) Severe: Unable.	_____ sec.	_____ sec.	<i>"Step onto the incline ramp. Please stand on the incline ramp with your toes toward the top. Place your feet shoulder width apart and have your arms down at your sides. I will start timing when you close your eyes."</i>	<i>Aid the subject onto the ramp. Once the subject closes eyes, begin timing and record time. Note if there is excessive sway. If the subject is able to achieve a time of 30 seconds in the first trial, a second trial is not required.</i>
	SCORE:	SCORE:		
DYNAMIC GAIT	SUB SCORE /10	SUB SCORE /10		
10. CHANGE IN GAIT SPEED (2) Normal: Significantly changes walking speed without imbalance. (1) Moderate: Unable to change walking speed or signs of imbalance. (0) Severe: Unable to achieve significant change in speed AND signs of imbalance.			<i>"Begin walking at your normal speed, when I tell you 'fast' walk as fast as you can. When I say 'slow', walk very slowly."</i>	<i>Allow the subject to take 3-5 steps at normal speed, and then say "fast". After 3-5 fast steps, say "slow". Allow 3-5 slow steps before the subject stops walking.</i>
11. WALK WITH HEAD TURNS – HORIZONTAL (2) Normal: performs head turns with no change in gait speed and good balance. (1) Moderate: performs head turns with reduction in gait speed. (0) Severe: performs head turns with imbalance.			<i>"Begin walking at your normal speed, when I say "right", turn your head and look to the right. When I say "left" turn your head and look to the left. Try to keep yourself walking in a straight line."</i>	<i>Allow the subject to reach normal speed, and give the commands "right, left" every 3-5 steps. Score if you see a problem in either direction. If subject has severe cervical restrictions allow combined head and trunk movements.</i>



FACILITY NAME _____

Modified Mini-BESTest- of DYNAMIC BALANCE
 Balance Evaluation Systems Test
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*Sample size version only.
 To print out the full size version, visit
<http://sci2.rickhanseninstitute.org>.*

ADDRESSOGRAPH

ITEM	<input type="checkbox"/> ADMISSION (Within 7 days) OR <input type="checkbox"/> THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)	PATIENT INSTRUCTIONS	THERAPIST INSTRUCTIONS
12. WALK WITH PIVOT TURNS (2) Normal: Turns with feet close, FAST (< 3 steps) with good balance. (1) Moderate: Turns with feet close SLOW (>4 steps) with good balance. (0) Severe: Cannot turn with feet close at any speed without imbalance.			<i>"Begin walking at your normal speed. When I tell you to 'turn and stop', turn as quickly as you can, face the opposite direction, and stop. After the turn, your feet should be close together."</i>	<i>Demonstrate a pivot turn. Once the subject is walking at normal speed, say "turn and stop." Count the number of steps from "turn" until the subject is stable. Imbalance may be indicated by wide stance, extra stepping or trunk motion.</i>
13. STEP OVER OBSTACLES (2) Normal: Able to step over box with minimal change of gait speed and with good balance. (1) Moderate: Steps over box but touches box OR displays cautious behavior by slowing gait. (0) Severe: cannot step over box OR steps around box.			<i>"Begin walking at your normal speed. When you come to the box, step over it, not around it and keep walking."</i>	<i>Place the box (9" or 23 cm height) 10 feet away from where the subject will begin walking. Two shoeboxes taped together works well to create this apparatus.</i>
14. TIMED UP & GO WITH DUAL TASK <i>Use the TUG time to determine the effects of dual tasking. The subject should walk a 3 meter distance.</i> (2) Normal: No noticeable change in sitting, standing, or walking while backward counting when compared to TUG without Dual Task. (1) Moderate: Dual task affects either counting OR walking (>10%) when compared to the TUG without Dual Task. (this can be affected by errors or decrease in speed) (0) Severe: Stops counting while walking OR stops walking while counting.	TUG: _____sec.	TUG: _____sec.	TUG: <i>"When I say 'Go', stand up from chair, walk at your normal speed across the tape on the floor, turn around, and come back to sit in the chair."</i> Tug with Dual Task: <i>"Count backwards by threes starting at _____. When I say 'Go', stand up from chair, walk at your normal speed across the tape on the floor, turn around, and come back to sit in the chair. Continue counting backwards the entire time."</i>	TUG: <i>Have the subject sitting with the subject's back against the chair. The subject will be timed from the moment you say "Go" until the subject returns to sitting. Stop timing when the subject's buttocks hit the chair bottom and the subject's back is against the chair. The chair should be firm with arms.</i> TUG With Dual Task: <i>While sitting determine how fast and accurately the subject can count backwards by threes starting from a number between 100-90. Then, ask the subject to count from a different number and after a few numbers say "Go". Time the subject from the moment you say "Go" until the subject returns to the sitting position. Score dual task as affecting counting or walking if speed slows (>10%) from TUG and or new signs of imbalance.</i>
	Dual Task TUG: _____sec.	Dual Task TUG: _____sec.		
	SCORE:	SCORE:		
TOTAL SCORE:	/ 28	/ 28		

05

INSTRUCTIONS

1. At admission, determine what stage your patient is at according to the Canadian SCI Standing and Walking Stage Definitions sheet &/or Decision tree.
2. Record the stage your patient is at on the Canadian SCI Standing and Walking Mobility Tracking Form.
3. If your patient is at Stage 1B or greater, perform the outcome measure(s) indicated on the Canadian SCI Standing and Walking Assessment Tool. If not, continue to step 4.
4. Regularly reassess your patient's stage during their inpatient stay. If the stage changes, record it on the Canadian SCI Standing and Walking Mobility Tracking Form and perform a baseline 'threshold' assessment for any new outcome measure(s) indicated. *Note: any outcome measures where a baseline threshold assessment was completed previously do not need to be reassessed at this time.*
5. At discharge, determine what stage your patient is at according to the Canadian SCI Standing and Walking Stage Definitions sheet &/or Decision tree.
6. Record the stage your patient is at on the Canadian SCI Standing and Walking Mobility Tracking Form.
7. If your patient is at Stage 1B or greater, perform the outcome measure(s) indicated on the Canadian SCI Standing and Walking Assessment Tool. *Note: any outcome measures where a baseline threshold assessment has been completed previously should be reassessed at this time.*

More detailed Instructions for each specific outcome measure, including equipment requirements, and drawings of the set-up for each test are available on <http://sci2.rickhanseninstitute.org>, as is a copy of this toolkit with all of the instructions included.

The instruction sheets also include interpretation values, as well as references.

BERG BALANCE SCALE (BBS) INSTRUCTIONS

Completed at threshold 1B): Standing Capacity - Voluntary non-functional LE movement: unable to stand independently/needs partial assistance of gait aid and/or orthoses (except bilateral KAFOs) and/or therapist(s) to stand. The use of Bilateral KAFOs is not allowed. Voluntary L/E Movement (L/E MMTs of Gr 1 +/- to Gr3- in anti-gravity muscles which are Tib Ant, Soleus, Quads, Glutei).

Example of Standing with Assistance:

- Patient stands in parallel bars/walker/bedside without total assistance of another person or walking aid and therapist assistance to maintain upright posture. Patient may have only partial weight bearing through the U/Es with weight bearing through the feet. Patient may have L/E orthoses on except for Bilateral KAFOs

Time

Approximately 20 minutes.

Equipment

- Stopwatch or wristwatch with a second hand.
- a ruler or other indicator of 2, 5, and 10 inches (5, 13 and 25 cm).
- two standard chairs (one with arm rests, one without).
- either a step or a stool (of average step height).

Therapist Instructions

- Please document each task and/or give instructions as written. When scoring, please record the lowest response category that applies for each item. Each item is scored on a 5 point scale 0 (cannot perform) to 4 (normal performance). The total of the 14 questions is calculated.
- Subject should understand that they must maintain their balance while attempting the tasks. The choices of which leg to stand on or how far to reach are left to the subject. Poor judgment will adversely influence the performance and the scoring. Subjects can wear their usual shoes and braces, if necessary, during testing. Assessments are conducted without the subjects' walking assistive device if they use one.

Patient Instructions

Described on test sheet for each task

Scoring

The scores for all questions are added up to give a total score.

Clinical Reference Values:

Not available for SCI. In older adults:

Interpretation: 41-56 = low fall risk

21-40 = medium fall risk

0 –20 = high fall risk

Riddle, Daniel L., and Paul W. Stratford. "Interpreting validity indexes for diagnostic tests: an illustration using the Berg Balance Test." *Physical therapy* 79.10 (1999): 939-948.

Minimal Detectable Change:

"A change of 4 points is needed to be 95% confident that true change has occurred if a patient scores within 45-56 initially, 5 points if they score within 35-44, 7 points if they score within 25-34 and, finally, 5 points if their initial score is within 0-24 on the Berg Balance Scale."

Donoghue D; Physiotherapy Research and Older People (PROP) group, Stokes EK. (2009). How much change is true change? The minimum detectable change of the Berg Balance Scale in elderly people. *J Rehabil Med.* 41(5):343-6.

In individuals living with SCI:

Norms (AIS D only):

Population	BBS score: mean (SD), range
Individuals with SCI (n= 32)	47.9 (10.7), 17-56
Paraplegia (n= 15)	44.8 (13.0), 17-56
Tetraplegia (n= 17)	50.7 (7.5), 31-56

Lemay JF, Nadeau S. Standing balance assessment in ASIA D paraplegic and tetraplegic participants: concurrent validity of the Berg Balance Scale. *Spinal Cord.* 2010 Mar;48(3):245-50.

MODIFIED TIMED UP AND GO TEST (MTUG) INSTRUCTIONS

Perform this test only if patient meets the following threshold criteria: 2A) Therapeutic Walking Capacity – Maximum Assist: ability to stand and initiate reciprocal steps through voluntary L/E movement but requires maximal physical assistance (>50% of total effort) of at least one person and may include use of assistive devices and/or orthoses with the exception of bilateral KAFOs.

Time

Less than 5 minutes.

Equipment

Modified Timed Up and Go test: standard armchair with a 44-cm seat height (from floor), stopwatch, a 3 metre distance measured out and marked on the floor with tape (from chair).

Therapist Instructions

- Each participant is instructed to use an assistive device and/or brace(s) as needed. The tester provides instructions and answers the participant's questions.
- The tester provides physical assistance if needed. The tester times the participant during the task. The tester provides feedback/encouragement only after the task is completed.
- If the participant cannot attempt the mTUG, or does not complete the test, he/she is assigned the maximum time (45s), and an assistance rating of 6 ('unable to complete') (see scoring table on test sheet). If the participant takes longer than the maximum time, he/she is assigned the maximum time, and the assistance rating that corresponds to the devices/assistance used.
- Prior to performance of the TUG, the tester explains and demonstrates the task. The participant is informed that performance of the task is timed and is instructed to ask for clarification at any time.
- The individual is instructed to stand up from an arm chair, walk 3 meters, return to the chair and sit down at their preferred walking speed.

Note: the timing starts when the tester says "go" until the time he/she sits down again.

Patient Instructions

"When I say 'go' I want you to stand up and walk to the line, turn and then walk back to the chair and sit down again. Walk at your normal pace."

Clinical Reference Values:

Cut-off values: 13.5s for community dwelling older adults, 14s for older stroke patients indicates a risk of falls.

Shumway-Cook, A., Brauer, S., et al. (2000). "Predicting the probability for falls in community-dwelling older adults using the Timed Up & Go Test." *Physical Therapy* 80(9): 896-903.

Andersson, A. G., Kamwendo, K., et al. (2006). "How to identify potential fallers in a stroke unit: validity indexes of 4 test methods." *J Rehabil Med* 38(3): 186-191.

Smallest Real Difference = 10.8 seconds or 30%, found to detect significant clinical change in the TUG in SCI patients

Lam, T., Noonan, V. K., et al. (2008). "A systematic review of functional ambulation outcome measures in spinal cord injury." *Spinal Cord* 46(4): 246-254

Normative, SCI (AIS D):

- Mean (SD) TUG score; 17.0 (18.7), range = 6.4 to 111.3
- Mean (SD) TUG for Paraplegia; 19.7 (25.9), range = 6.4 to 111.3
- Mean (SD) TUG for Tetraplegia; 14.6 (8.8), range = 6.5 to 36.7

Lemay, J. F. and Nadeau, S. (2010). "Standing balance assessment in ASIA D paraplegic and tetraplegic participants: concurrent validity of the Berg Balance Scale." *Spinal Cord* 48(3): 245-250.

ACTIVITIES-SPECIFIC BALANCE CONFIDENCE SCALE (ABC) INSTRUCTIONS

Perform this test if patient meets the following stage: 2A) Therapeutic Walking Capacity – Maximum Assist: ability to stand and initiate reciprocal steps through voluntary L/E movement but requires maximal physical assistance (>50% of total effort) of at least one person and may include use of assistive devices/parallel bars/suspension harness and/or orthoses with the exception of bilateral KAFOs.

Time

15-20 minutes

Equipment

Paper survey includes the visual analogue scale from 0-100%.

Therapist Instructions

The patient is given the form and the instructions below are reviewed. If the patient is not able to fill out the form independently assistance is given. The score is calculated by adding the total score and dividing by the number of items in the test.

Patient Instructions

For each of the following, please indicate your level of confidence in doing the activity without losing your balance or becoming unsteady from choosing one of the percentage points on the scale from 0% to 100%. If you do not currently do the activity in question, try and imagine how confident you would be if you had to do the activity. If you normally use a walking aid to do the activity or hold onto someone, rate your confidence as if you were using these supports. If you have any questions about answering any of these items, please ask the administrator.

MODIFIED SPINAL CORD INJURY FUNCTIONAL AMBULATION PROFILE (MSCI-FAP) INSTRUCTIONS

Perform this test if patient meets the following stage: 2A) Therapeutic Walking Capacity – Maximum Assist: ability to stand and initiate reciprocal steps through voluntary L/E movement but requires maximal physical assistance (>50% of total effort) of at least one person and may include use of assistive devices and/or orthoses with the exception of bilateral KAFOs.

Time

15-45 minutes.

Equipment

- Masking tape
- Stopwatch
- Carpet – no less than 7m long and about 2m wide (5m are timed)
- Standard armchair (44cm seat height)
- 2 standard bricks
- A trash can
- A step, 81-cm width, 122-cm length, 21-cm height

Therapist Instructions

- The modified SCI-FAP is composed of 4 tasks: (1) Carpet, (2) Up & Go, (3) Obstacles, and (4) Step. Each participant is given a rest period between tasks long enough for the tester to explain and demonstrate the next task. Each participant is instructed to use an assistive device and/or brace(s) as needed. The tester provides instructions and answers the participant's questions.
- The tester provides physical assistance if needed. The tester times the participant during each task. The tester provides feedback/encouragement only after the task is completed.
- The tester records the performance time for all 4 tasks on a data collection table (see scoring table on testing sheet). If the participant cannot attempt a task, or does not complete a task, he/she is assigned the maximum time for that task, and an assistance rating of 6 ('unable to complete') (scoring table for assistance rating is below as well as on the testing sheet). If the participant takes longer than the maximum time to complete a task, he/she is assigned the maximum time, and the assistance rating that corresponds to the devices/assistance used for that task. Upon completion of all tasks, the tester calculates a total abbreviated SCI-FAP score (see Scoring the Spinal Cord Injury Functional Ambulation Profile below).

Patient Instructions

The tester provides an explanatory overview of the 4 tasks comprising the abbreviated SCI-FAP. Prior to performance of each task, the tester explains and demonstrates the task. The participant is informed that performance of each task is timed and is instructed to ask for clarification at any time.

Instructions per test

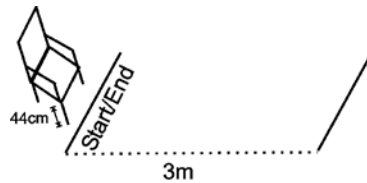
#1 Carpet

Setup: Carpeted area or a piece of short pile carpet, no less than 7-m long and 2-m wide, securely taped to the floor. Starting point is marked with a 1-m strip of masking tape. End point is marked exactly 5-m from the starting point with a 2-cm piece of masking tape. Both starting point and end point are at least 1-m from the edge of the carpet.

Instructions: Tester explains while demonstrating the Carpet task: "When I say 'go,' walk at your normal, comfortable pace until I say 'stop.'" Tester assists participant as needed in placing toes on starting line tape. Tester says "go," and presses stopwatch to begin timing. Participant walks toward the end point. Tester walks alongside the participant as the participant traverses the 5-m distance. Tester presses stopwatch to stop timing once both of the participant's feet have crossed the end point. Tester tells the participant to stop when he or she is beyond the end point. Tester records time and assistance rating required for task.

#2 Up and Go

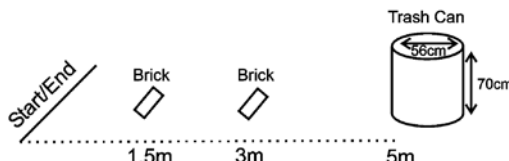
Setup: Standard armchair with a 44-cm seat height (from floor) is placed on the hard, non-carpeted floor. Three meters away from the start line, a 1-m strip of masking tape is placed on the floor.



Instructions: Tester explains while demonstrating the up & go task: "You will sit in this chair with your back against the back of the chair and your arms resting on the armrests. When I say 'go,' you will stand up from the chair, walk at your normal comfortable pace past this line, turn around, walk back to the chair, and sit down, making sure your back is against the back of the chair. You may use the arms of the chair if needed." Participant assumes sitting position in the chair. Tester assists participant as needed in placing toes on starting line tape. Tester stands beside the chair and prepares to walk with the participant. Tester says "go," and presses stopwatch to begin timing. Tester monitors line to ensure both of participant's feet cross the line before turning around. Tester stops timing when participant is fully seated with back against the chair. Tester records time and assistance rating required for task.

#3 Obstacles

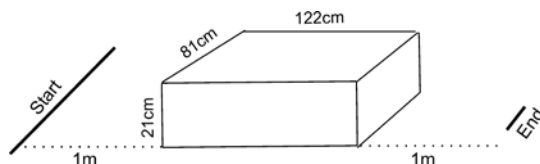
Setup: A 1-m piece of masking tape is placed on a hard, non-carpeted floor to mark the starting point. A standard brick is placed on the floor at the 1.5-m mark and the 3-m mark. A trash can (diameter 56cm, height 70cm) is placed at the 5-m mark.



Instructions: Tester explains while demonstrating the obstacles task: "When I say 'go,' walk forward at your normal, comfortable pace and step over each brick. Then, walk around the trash can from either the left or right. Then walk back stepping over the bricks again. Do not hit the bricks or bin with your body or walking aid, if possible. Continue walking until I say 'stop.'" Tester assists participant as needed in placing toes on starting line. Tester says "go," and presses stopwatch to begin timing. Tester walks with participant. When both of the participant's feet have crossed the end line, tester presses stopwatch to stop timing. Tester tells the participant to "stop" when he or she is beyond the end line. Tester records time, assistance rating required for task, and completes the 'C: Hit Obstacle' row (by entering a "1" if the participant hit any obstacles with his/her body or walking aid while completing the task or a "0" if no obstacle was hit).

#4 Step

Setup: A step with the measurements shown in the diagram below is used. Two pieces of masking tape are placed on the floor to indicate the start and finish points. The first, 1-m in length, is placed 1-m in front of the step. The second piece, 2-cm in length, is placed 1-m behind the step.



Instructions: Tester explains while demonstrating the Step task: "When I say 'go', walk towards the step, up and over, and continue walking until I say stop." Tester assists participant as needed in placing toes on the starting point. Tester says "go" and presses stopwatch to begin timing. Participant walks toward the end point. Tester follows participant through the task for safety. Tester presses stopwatch to stop timing when both of the participant's feet have crossed the end point. Tester records time and assistance rating required for task.

Scoring

Assistance Ratings: Each participant is instructed to use an assistive device and/or brace(s) as needed.

1 = **independent** (walking without any walking aids or assistance)

2 = **1 cane/crutch/rail**

3 = **2 canes/crutches/rails**

4 = **walker** (standard walker or 2- or 4-wheeled walker)

5 = **assist of 1** (physical assistance of 1 person whether minimum, moderate or maximum assist)

6 = **unable to complete**

Clinical Reference Values:

In SCI:

Minimal Detectable Change: Carpet: 9.0; Up & Go: 14.0; Obstacles: 14.7; Step: 36.1 (total score reference values are not available because the full SCI-FAP includes seven items, whereas this version has only four)

Musselman, Kristin E., and Jaynie F. Yang. "Spinal Cord Injury Functional Ambulation Profile: A Preliminary Look at Responsiveness." *Physical Therapy* 94.2 (2014): 240-250.

Normative, Able-bodied individuals:

- Floor 4.4 + 0.6s
- Carpet 4.4 + 0.6s
- Up & Go 9.1 + 1.2s
- Obstacles 11.4 + 1.3s
- Stairs 6.2 + 0.8s
- Carry 4.4 + 0.5s
- Step 3.7 + 0.5s
- Ramp 6.2 + 1.0s
- Door 5.0 + 0.7s

Mean times from the able-bodied data are used to normalize the task scores for the SCI-FAP.

Musselman, K., Brunton, K., et al. (2011). "Spinal cord injury functional ambulation profile: a new measure of walking ability." *Neurorehabilitation* 25(3): 285-293.

MODIFIED BALANCE EVALUATION SYSTEMS TEST (MMINI-BESTEST) INSTRUCTIONS

Perform this test if patient meets the following stage: 2B) Therapeutic Walking Capacity - Moderate Assist: ability to stand and initiate reciprocal steps through voluntary L/E movement but requires moderate physical assistance (25-50% of total effort) of one person and may include use of assistive walking aids and/or orthoses with the exception of the bilateral KAFOs.

Time

Can be completed over multiple sessions. Approximate time will be included for each subtest.

Equipment

Temper® foam (also called T-foam™ 4 inches thick, medium density T41 firmness rating), chair with arm rests or wheels, incline ramp, stopwatch, a box (9" height) and a 3 meter distance measured out and marked on the floor with tape [from chair].

Therapist Instructions

Subject Conditions: Subject should be tested with flat-heeled shoes OR shoes and socks off. They should not be wearing any foot or ankle bracing.

Scoring: The test has a maximum score of 28 points from 14 items that are each scored from 0-2.

"0" indicates the lowest level of function and "2" the highest level of function.

If a subject must use an assistive device for an item, score that item one category lower.

If a subject requires physical assistance to perform an item, score "0" for that item.

For Item 3 (stand on one leg) and Item 6 (compensatory stepping-lateral) only include the score for one side (the worse score).

For Item 3 (stand on one leg) select the best time of the 2 trials [from a given side] for the score.

For Item 14 (timed up & go with dual task) if a person's gait slows greater than 10% between the TUG without and with a dual task then the score should be decreased by a point.

1. SIT TO STAND

Note the initiation of the movement, and the use of the subject's hands on the seat of the chair, the thighs, or the thrusting of the arms forward.

2. RISE TO TOES

Allow the subject two attempts. Score the best attempt. (If you suspect that subject is using less than full height, ask the subject to rise up while holding the examiners' hands.) Make sure the subject looks at a non-moving target 4-12 feet away.

3. STAND ON ONE LEG

Allow the subject two attempts and record the times. Record the number of seconds the subject can hold up to a maximum of 20 seconds. Stop timing when the subject moves hands off of hips or puts a foot down. Make sure the subject looks at a non-moving target 4-12 feet ahead. Repeat on other side.

4. COMPENSATORY STEPPING CORRECTION-FORWARD

Stand in front of the subject with one hand on each shoulder and ask the subject to lean forward (Make sure there is room for them to step forward). Require the subject to lean until the subject's shoulders and hips are in front of toes. After you feel the subject's body weight in your hands, very suddenly release your support. The test must elicit a step. NOTE: Be prepared to catch subject. A small readjustment step is allowed and not counted.

5. COMPENSATORY STEPPING CORRECTION - BACKWARD

Stand behind the subject with one hand on each scapula and ask the subject to lean backward (Make sure there is room for the subject to step backward.) Require the subject to lean until their shoulders and hips are in back of their heels. After you feel the subject's body weight in your hands, very suddenly release your support. Test must elicit a step. NOTE: Be prepared to catch subject. A small readjustment step is allowed and not counted.

6. COMPENSATORY STEPPING CORRECTION - LATERAL

Stand to the side of the subject, place one hand on the side of the subject's pelvis, and have the subject lean their whole body into your hands. Require the subject to lean until the midline of the pelvis is over the right (or left) foot and then suddenly release your hold. NOTE: Be prepared to catch subject. A small readjustment step is allowed and not counted.

7. STANCE (FEET TOGETHER); EYES OPEN, FIRM SURFACE

Record the time the subject was able to stand with feet together up to a maximum of 30 seconds. Make sure subject looks at a non-moving target 4-12 feet away.

8. STANCE (FEET TOGETHER); EYES CLOSED, FOAM SURFACE

Use medium density Temper® foam, 4 inches thick. Assist subject in stepping onto foam. Record the time the subject was able to stand in each condition to a maximum of 30 seconds. Have the subject step off of the foam between trials. Flip the foam over between each trial to ensure the foam has retained its shape.

9. INCLINE EYES CLOSED

Aid the subject onto the ramp. Once the subject closes eyes, begin timing and record time. Note if there is excessive sway.

10. CHANGE IN SPEED

Allow the subject to take 3-5 steps at normal speed, and then say "fast". After 3-5 fast steps, say "slow". Allow 3-5 slow steps before the subject stops walking.

11. WALK WITH HEAD TURNS- HORIZONTAL

Allow the subject to reach normal speed, and give the commands "right, left" every 3-5 steps. Score if you see a problem in either direction. If subject has severe cervical restrictions allow combined head and trunk movements. Veering from the intended direction is considered an imbalance.

12. WALK WITH PIVOT TURNS

Demonstrate a pivot turn. Once the subject is walking at normal speed, say "turn and stop." Count the number of steps from "turn" until the subject is stable. Imbalance may be indicated by wide stance, extra stepping or trunk motion.

13. STEP OVER OBSTACLES

Place the box (9 inches or 23 cm height) 10 feet away from where the subject will begin walking. Two shoeboxes taped together works well to create this apparatus.

14. TIMED UP & GO WITH DUAL TASK

Use the TUG time to determine the effects of dual tasking. The subject should walk a 3 meter distance.

TUG: Have the subject sitting with the subject's back against the chair. The subject will be timed from the moment you say "Go" until the subject returns to sitting. Stop timing when the subject's buttocks hit the chair bottom and the subject's back is against the chair. The chair should be firm with arms. TUG

With Dual Task: While sitting determine how fast and accurately the subject can count backwards by threes starting from a number between 100-90. Then, ask the subject to count from a different number and after a few numbers say "Go". Time the subject from the moment you say "Go" until the subject returns to the sitting position. Score dual task as affecting counting or walking if speed slows (> 10%) from TUG and or new signs of imbalance. Counting is considered affected by either increased errors or slower speed.

Patient Instructions

Instructions given for each specific test by therapist included on Mini-BESTest form.

MODIFIED 6 MINUTE WALK TEST (M6MWT) INSTRUCTIONS

Perform this test if patient meets the following stage: 3B) Functional Walking Capacity – Independent Household Ambulator: ability to ambulate daily using reciprocal steps over ground for short distances (10-100m) independently. Person may use assistive devices and/or orthoses with the exception of bilateral KAFOs).

Time

5-10 minutes for set-up, 6 minutes for the test.

Equipment

Stopwatch, course with distances marked at least every 5m; vital signs monitoring equipment, Borg Scale.

Set Up

A flat, smooth, non-slippery surface, with no disturbing factors, is required and the pathway should contain as few turns as possible (preferably a large round or oval shaped path). Distances should be marked at least every 5 meters.

Therapist Instructions

- Monitor vital signs before and after each test if indicated. Allow the patient to initiate the start of the test. At each minute, inform the patient about the time that is left, ask whether the patient feels fine, and motivate the patient by providing standardized encouragement using the phrases, “You’re doing well!” or “Keep up the good work!”. The patient is allowed the use of walking aids but no physical assistance is permitted. You may walk behind the patient but you may not be in their field of vision. The patient is allowed to stand and rest but is not allowed to sit down or lean against a support to rest during the test so once the patient needs to sit down or lean against a support, record that distance and time as the “total distance achieved” and “total time for the test”.
 - Scoring: total distance walked, time of test if less than 6 minutes and walking aid(s) used. If the patient is working with multiple walking aids and is independent with one and requires supervision with another, the test should be done with the walking aid where the patient is independent. The therapist may want to record the number of rests but this is not required on the data collection form. Physiological measures such as dyspnea and the level of fatigue can be reported using the Borg Scale.
 - Stop testing based on the following criteria:
 1. Any of the following symptoms:
 - a. Angina (chest pain or tightness)
 - b. Light-headedness
 - c. Confusion
 - d. Ataxia, staggering unsteadiness
 - e. Pallor
 - f. Cyanosis
 - g. Nausea
 - h. Marked dyspnea
 - i. Unusual fatigue
 - j. Signs of peripheral circulatory insufficiency
 - k. Claudication or other significant pain
 - l. Facial expressions signifying distress
 2. Abnormal cardiac responses
 - a. Systolic blood pressure drops < 10mmHg
 - b. Systolic blood pressure rises > 250 mmHg
 - c. Diastolic blood pressure rises to > 120 mmHg
 - d. Heart rate drops more than 15 beats per minute (given the subject was walking the last minute of the test vs. resting)
- Notify physician if test is terminated for any of the above reasons.

"The goal of this test is to assess the distance you can cover during 6 minutes. I will inform you every minute about the time you have left. If you feel uncomfortable, you can stop at any time. If you need to sit down or lean against a support that will be the end of the test. Although I will clock the time, perform this test at your own preferred speed."

Scoring

Clinical Reference Values:

Minimal Detectable Change = 45.8 meters (150 feet) or a 22% change in Incomplete SCI; C2-L1; < 12 months post injury

Lam, T., Noonan, V., et al. (2007). "A systematic review of functional ambulation outcome measures in spinal cord injury." *Spinal Cord* 46(4): 246-254.

Norms:

AIS D patients, N= 18	Experimental environment
Mean	382.39m
Median	371.75
Min	151
Max	560

Olmos LE, Freixes O, Gatti MA, Cozzo DA, Fernandez SA, Vila CJ, Agrati PE, Rubel IF. Comparison of gait performance on different environmental settings for patients with chronic spinal cord injury. *Spinal Cord*, 2008; 46, 331-334.

Comparison of Walking Speed With Upper Motor Neuron Lesions During the SCI Locomotor Trial (SCILT):

Months after entry to trial	Metres in 6MWT	Walking Speed in m/s (SD), over 6 minutes
3	230.4 (21.6)	0.64 (0.06)
6	284.4 (18)	0.79 (0.05)
12	302.4 (21.6)	0.88 (0.06)

n = 66, AIS-C and D; with lesions between C-5 and L-3

Barbeau, H., et al. "Comparison of speeds used for the 15.2-meter and 6-minute walks over the year after an incomplete spinal cord injury: the SCILT Trial." *Neurorehabilitation and neural repair* 21.4 (2007): 302-306.

10 METRE WALK TEST(10MWT) INSTRUCTIONS

Perform this test if patient meets the following stage: 3B) Functional Walking Capacity – Independent Household Ambulator: ability to ambulate daily using reciprocal steps over ground for short distances (10-100m) independently. Person may use assistive devices and /or orthoses with the exception of bilateral KAFOs).

Time

Less than 5 minutes.

Equipment

Stopwatch with a 14m walkway marked on a smooth floor, with the middle 10m marked as well.

Therapist Instructions

The patient should be instructed to walk 14m. The measurement starts when the patient's lead foot crosses a mark on the floor that indicates the onset of the 10m pathway (a "flying start"). After the toe of the leading leg crosses the line at the end of the 10m, the timing is stopped but the patient continues until her or she has reached the end of the 14m track. Allow the patient to initiate the start of the test. The patient is allowed the use of walking aids but no physical assistance is permitted. The patient should be wearing shoes. You may walk behind the patient but you may not be in their field of vision.

Note: A special condition occurs when the patient requires the use of parallel bars, as these are rarely 14m long. If parallel bars are used, please record the middle 5m between the parallel bars twice. The first and second 5m times are summed and written down.

Patient Instructions

"The goal of this test is to assess the time you need to walk 10 meters. Please walk in a straight line without any breaks to the end point." The test be administered twice. On one test the instructions will include asking him/her to walk at their preferred speed and on a second test to ask him/her to walk at his/her maximal speed.

Scoring

The time to the nearest second is recorded. Distance m/s can be calculated.

Clinical Reference Values:

In SCI:

Minimal detectable change = 0.13 m/s

Lam, T., Noonan, V., et al. (2008). "A systematic review of functional ambulation outcome measures in spinal cord injury." Spinal Cord 46(4): 246-254

<http://www.scireproject.com/outcome-measures-new/10-meter-walking-test-10-mwt#>

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TRAINING RESOURCES

A Standing and Walking Module Overview video is available on the SCI² site under 'RHSCIR toolkits'.

Videos for the following outcome measures can be found on the Spinal Cord Injury Rehabilitation Evidence (SCIRE) website: 10MWT, 6MWT (though not with the Borg) and the Berg Balance Scale: www.scireproject.com/outcome-measures/video.

Instructional videos for the mSCI-FAP tasks are available on the Rick Hansen Institute Youtube channel: <https://www.youtube.com/user/RickHansenInstitute> (See the "Clinical Guides" section). You can also find the videos on the SCI² site.

mMiniBESTest, an extended version of the miniBESTest video will be provided to the sites performing this measure. Instructions can be found at: <http://bestest.us/learn/portal/>.

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Questions or comments regarding this guideline?
Email clinical@rickhanseninstitute.org.

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ADDITIONAL RESOURCES

Rehabmeasures.org contains more information on each measure, along with more normative values. Search for each test at: www.rehabmeasures.org.

SCIRE has training materials on many other outcome measures:
www.scireproject.com/outcome-measures/list.

SCIRE also has evidence based guidelines for lower limb rehabilitation:
www.scireproject.com/rehabilitation-evidence/lower-limb.

Verrier MC, Craven C, Flett HM, Nadeau S, & the E-Scan Investigative Team. **Walking**. In: Craven C, Verrier M, Balioussis C, Wolfe D, Hsieh J, Noonan V, Rasheed A, Cherban E, editors. Rehabilitation Environmental Scan Atlas: Capturing Capacity in Canadian SCI Rehabilitation. Vancouver: Rick Hansen Institute; 2012. p. 52–27.
www.rickhanseninstitute.org/images/stories/ESCAN/RHESCANATLAS2012WEB_2014.pdf



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