

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@praxisinstitute.org.



Table of Contents

01	BACKGROUND	5
02	SWAT TOOLKIT OVERVIEW	7
	a)Canadian SCI Standing and Walking Assessment Tool	8
	b)What happens once I collect SWAT with my client?	9
	c)Why is this information important and how can it be used?	10
03	SWAT STAGING	13
	a) Stage Definitions	14
04	SWAT OUTCOME MEASURES	15
	a) Procedures	
	b) How do I decide which outcome measure to use and when to use it?	
	 c) SWAT Outcome Measure Overview Berg Balance Scale (BBS) Modified Timed Up and Go (mTUG) Activities Specific Balance Confidence Scale (ABC) Modified 6-Minute Walk Test (m6MWT) 10 Metre Walk Test (10MWT) Modified Spinal Cord Injury Functional Ambulation Profile (mSCI-FAP) Modified Mini-BEStest (mMini-BEStest) 	19 22 25 28 32 35 41
05	CLINICAL FORMS	47
	Standing and Walking Mobility Tracking Form Berg Balance Scale (BBS) Modified Timed Up and Go (mTUG) Activities Specific Balance Confidence Scale (ABC) Modified 6-Minute Walk Test (m6MWT) 10 Metre Walk Test (10MWT) Modified Spinal Cord Injury Functional Ambulation Profile (mSCI-FAP) Modified Mini-BEStest (mMini-BEStest)	48 49 51 52 53 54 56 58
06	TRAINING AND ADDITIONAL RESOURCES	62
07	REFERENCES	63



01 BACKGROUND

The ability to walk is typically a high priority of individuals following a spinal cord injury (SCI). As such, the physical therapist, who is tasked with providing interventions focused on standing and walking, requires appropriate assessment tools to guide the rehabilitation plan and document the individual's progress. Historically, while several assessment tools were available, there was limited consensus amongst therapists regarding which tool to use during a course of rehabilitation. Lacking a standardized approach to the assessment of standing and walking in the Canadian healthcare system, the Canadian SCI Standing and Walking Measures Group was initiated in 2012 by the Rick Hansen Institute, renamed as Praxis Spinal Cord Institute in 2019. This group of researchers and physical therapists from across Canada were tasked with developing the Standing and Walking Assessment Tool (SWAT). In order to realize this mission, the SWAT was developed via a synthesis of the literature in combination with clinical expertise and feasibility discussions.

The resulting SWAT is a comprehensive tool that incorporates five validated standing balance and walking measures along with a unique 11-point staging tool. This SWAT staging tool provides the physical therapist with a standardized approach to which assessment to use based on the individual's strength and functional standing and walking abilities.

In 2014, nine Canadian rehabilitation facilities began implementing the use of the SWAT. As of 2023, there are now 13 facilities across Canada who are utilizing the SWAT.

Most of the facilities utilizing the SWAT also participate in the Rick Hansen Spinal Cord Injury Registry (RHSCIR). Using standardized research protocols and data collection forms, RHSCIR tracks the experiences and outcomes of people with SCI during their journey from injury through acute care, rehabilitation to community reintegration and beyond. Details about participants' spinal cord injuries, including the level and severity of injury, clinical interventions, and outcomes are among the information captured. The data collected in RHSCIR contains powerful information, including the SWAT, that helps track the effectiveness of specific treatments, practices, or programs for improving functional outcomes and quality of life after SCI.

RHSCIR is used to support the collection and use of SWAT data on both a facility and national level. It allows facilities to understand how their clients' walking outcomes compare to others across the country and answer important clinical and research questions.

Historically RHSCIR has captured only those individuals with traumatic SCI, but those with non-traumatic SCI attending inpatient rehab were added in 2021.

Currently, 30 facilities across Canada contribute to RHSCIR, of which 12 offer rehabilitation services, 16 offer acute services, and two offer combined services. RHSCIR was established in 2004 and includes data on over 10,000 individuals living with SCI in Canada.

To learn more about RHSCIR, please visit www.praxisinstitute.org/research-care/key-initiatives/ national-sci-registry.



SWAT facilities are located in 13 cities across Canada





02 STANDING AND WALKING ASSESSMENT TOOL (SWAT) OVERVIEW

The SWAT Staging Tool is used to determine what SWAT stage a client is at and indicate the relevant outcome measure(s) to collect for that client at that time. Threshold stages for each outcome measure have been determined based on floor effects for each measure.

Staging is determined on admission to rehabilitation (within 7 days), ideally repeated regularly during a client's rehabilitation stay, and determined again prior to discharge (within 7 days). Once a client achieves the threshold stage for a given outcome measure (e.g. Stage 1B for the Berg Balance Scale), that measure should be completed with that client at the given time point. On discharge, all outcome measures that the client has met the threshold stage for are then repeated.

There are three levels of SWAT collection for a facility to choose from, depending on feasibility and goals in their local context. Facilities will collect their chosen level of SWAT (e.g. Basic) on all of their clients with SCI.

Levels of collection:

The Basic SWAT. This includes:

- Berg Balance Scale (BBS)
- Modified Timed Up and Go (mTUG)
- Activities Specific Balance Confidence Scale (ABC administered at discharge)
- Modified 6 Minute Walk Test (m6MWT)
- 10 Metre Walk Test (10MWT)

The Advanced SWAT. This includes:

- The Basic SWAT; AND
- Modified Spinal Cord Injury Functional Ambulation Profile (mSCI-FAP)
- The Research SWAT. This includes:
- The Basic SWAT, the Advanced SWAT; AND
- Modified Mini-BEStest (mMini-BEStest)

Canadian SCI Standing and Walking Assessment Tool



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8 | Toolkit for SCI Standing and Walking Assessment



2B. WHAT HAPPENS ONCE I COLLECT SWAT WITH MY CLIENT?

First and foremost, this information will become part of the client's medical record (following your facility's standard documentation processes) for your clinical use in evaluating the clients progress, provide information to facilitate the development of the client's plan of care as well as discharge planning. At the facility level these outcomes can help evaluate its overall client care efficacy and provide insight into strengths and weaknesses in providing therapies related to standing and walking.

For facilities that are also a part of RHSCIR, once you collect the SWAT information, your facility's RHSCIR coordinator will collect SWAT outcome measures and input them into the RHSCIR database along with additional relevant clinical information. RHSCIR's team of clinical and data experts at the Praxis Spinal Cord Institute will provide you and your program with data entry, analysis services, and nationally benchmarked reports free of charge. This wealth of information assists 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 SCI.

The SWAT component of the RHSCIR data set provides a baseline for walking management across Canada. De-identified data from your facility will be tabulated along with other information collected in RHSCIR (e.g. neurology, length of stay, etc.) and reported back on a biannual basis to provide information on your facility's clients that are in RHSCIR.

To access your facility's SWAT clincal reports, contact us at <u>clinical@praxisinstitute.org</u> or contact your local RHSCIR Coordinator.

SWAT PUBLICATIONS

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2C. WHY IS THIS INFORMATION IMPORTANT?

For some individuals with SCI, the ability to stand and walk is a very real and powerful motivational goal during their rehabilitative experience and often for some period of time after discharge. The SWAT toolkit puts the focus on the individuals SWAT stage, their functional ability, and then links appropriate outcome measures to use when clients reach these milestones. The SWAT stage-specific outcome measures allow clinicians to objectively assess their client's readiness for standing and/or walking, assist in identifying areas of deficit that need to be addressed, and track progress.

Why Collect and Report SWAT Outcomes?

Benefits to Clients and Clinicians:

- Standardized, evidence-based approach to the standing and walking assessment in the rehabilitation environment
- Supports setting realistic, timely goals with clients
- Standardized way to track, document, and demonstrate a client's progress (e.g. objective assessment of whether clients are able to stand or ambulate independently and safely)
- Supports providing feedback clients are seeking around their standing and walking abilities A recent study, 'Communicating standing and walking data after spinal cord injury: a patient- engaged, qualitative study' involved interviews with 14 individuals who had recently completed inpatient SCI rehabilitation. The study found that people with SCI want verbal feedback on their standing and walking ability provided to them during at least 2 different time points while in rehab. Some also wanted written feedback in order to facilitate sharing the information with family/friends/other healthcare professionals (especially for the transition from inpatients to outpatients). They perceived the feedback to be useful for their goal setting and to track their progress.
- Assists in the clinical decision-making process (e.g. safety/readiness for progressing standing &/or ambulation, need for outpatients, determination of when to use a wheelchair or other mobility aid for safety or energy conservation reasons)
- Guides therapeutic interventions and priorities customized to specific client's goals in the context of their potential capabilities
- Helps identify the clients who have the most potential for walking recovery

* Benefits to Program

- Can be used to evaluate practice changes or implementation of new equipment aimed at improving standing and walking outcomes (e.g. ABT, FES cycling, exoskeleton, etc.) (Can be supported by RHSCIR)
- Can be used when developing guidelines on which clients are appropriate for access to certain types of equipment (e.g. programs have used the SWAT stages as a standardized way to determine clients appropriate for therapy using an Exoskeleton)
- Can assist in development of standardized standing and walking therapy protocols (e.g. SWAT Stage or outcome measures used to determine therapies delivered)
- Provides the ability to track standing and walking outcomes from your program relative to other rehabilitation centers in Canada (supported by RHSCIR)
- Guidance and justification for determining required equipment (e.g. walking aids, transfer aids, body weight support treadmills, orthoses, robot aided gait training devices etc.)
- Continuity between health care providers with regard to standing and walking mobility
- Reporting metrics to facility administrators which may assist with determining staffing allocation and budget priorities (supported by RHSCIR)

Senefits to Research

- Provides a large amount of data from the SCI population across Canada to allow for more accurate and meaningful interpretation and analysis (supported by RHSCIR)
- Supports development and participation in clinical trials designed to evaluate the efficacy of interventions to optimize walking capacity
- Allows evaluation of the effectiveness of various treatment approaches nationally (supported by RHSCIR)
- Assists with the creation of best practice guidelines in walking assessment with the SCI population
- Assists in identifying clinically relevant research priorities and working with clinicians to develop research questions and proposals (supported by RHSCIR)
- Allows development of predictive models for overall prognosis, motor recovery, and rehabilitation potential (supported by RHSCIR)



03 SWAT STAGING

When determining the stage of a client, please remember:

- i. 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 SWAT Stage a client achieves does not direct the clinician as to how or where to do the measures. If there are factors like pain and spasticity which impact a clients functional abilities, time your assessment to optimize management (e.g. after stretching/weight bearing to minimize spasticity, etc.).
- ii. The measures have standards and conventions that should be adhered to as closely as possible in every case (this is the how/where).

A client 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 client'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 client requires physical assistance of one person and the use of parallel bars to prevent a fall during most attempts at walking.

- The client is staged as a 2A because their functional level matches the definition of 2A.
- The mTUG conventions do not 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 client is able to attempt walking outside of the parallel bars, the mTUG should be attempted and the scoring form completed again.

The same scenario can happen at any threshold stage — where client meets the definition for the given SWAT Stage, but cannot complete the measure in a way that is compliant with the standards for that measure.

NOTES:

'Ability to stand' refers to a clients 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 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.

STAGE DEFINITIONS (VApr2018)

0.0 No Independent Sitting Capacity

Client is unable 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.

0.5 Independent Sitting Capacity

Client 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. Standing Capacity

Client 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 client must have attempted a stand.

Examples of Total Assistance in Standing:

- Client stands at parallel bars with full weight bearing through U/Es and minimal weight through the feet.
- Client stands in parallel bars/walker/forearm crutches with bilateral Knee-Ankle-Foot Orthoses (KAFOs).
- Client 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 3 or higher in less than 4 of the anti-gravity muscles*).

Example of Standing with Assistance:

• Client stands in parallel bars/walker/bedside without total assistance of another person or walking aid and therapist assistance to maintain upright posture. Client may have only partial weight bearing through the U/Es with weight bearing through the feet. Client 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 4 or more of the anti-gravity muscles*. Gr 1 Tib. Ant with an orthoses would fit this group).

Examples of Independent Standing:

- Client stands in parallel bars/walker/bedside with occasional U/E contact. Client may have L/E orthoses on except for Bilateral KAFOs.
- *ANTI-GRAVITY MUSCLES: Tib Ant, Soleus, Quads, Glutei.

2. Therapeutic Walking Capacity (Indoors)

Client 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(cannot use parallel bars or suspension harness)

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.

3. Functional Walking Capacity (Outdoors)

Client is starting to ambulate without Therapist Assistance but still requires Gait Aids/Orthoses. Client 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

Client 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.

04 SWAT OUTCOME MEASURES

Procedures

1. Within 7 days of admission*:

- Determine what stage your client is at according to the <u>Canadian SCI Standing and Walking Stage Definitions</u> (See Section 03 Definitions) The Decision Making Diagram below can also be used for guidance. Please note that the admission staging is meant to reflect the functional ability of your client so should be determined once safe to fully assess (which may be at the end of your intake assessment). If there are factors like pain and spasticity which impact a clients functional abilities, time your assessment to optimize management (e.g. time with pain medication, etc.).
- Record the stage your client is at on the <u>Canadian SCI Standing and Walking Mobility Tracking Form</u> (See Section 05 Forms).
- If your client is at Stage 1B or greater, perform the outcome measure(s) indicated on the <u>Canadian SCI Standing</u> and <u>Walking Assessment Tool</u>. If not, continue to step 4.

2. Regularly reassess your client'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. Notes: any outcome measures where a baseline threshold assessment was completed previously do not need to be reassessed at this time; your client's SWAT Stage may fluctuate up or down.

3. Within 7 days of discharge*:

- Determine what stage your client is at according to the Canadian SCI Standing and Walking Stage Definitions. Decision Making Diagram below can also be used for guidance. If there are factors like pain and spasticity which impact a clients functional abilities, time your assessment to optimize management (e.g. after stretching/weight bearing to minimize spasticity, etc.).
- Record the stage your client is at on the Canadian SCI Standing and Walking Mobility Tracking Form.
- If your client 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.

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

• Please refer to the Canadian SCI Standing and Walking Assessment Tool and Canadian SCI Standing and Walking Stage Definitions to determine which Outcome Measures your client has met the threshold to collect. To help facilitate staging and Outcome Measure determination, a SWAT Staging and Outcome Measure Algorithm has been developed.

Legend: bilat – bilateral; gr – manual muscle grade; KAFO – knee ankle foot orthosis; LE – lower extremity; mvt – movement; pt – client; UE - upper extremity; w/o - without

*It is ideal to complete the staging and relevant measures within 7 days of admission and discharge. If not possible, please still complete staging and outcome measure collection and ensure all forms are dated with the date they were collected.

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Canadian SCI Standing and Walking Assessment Tool Staging and Outcome Measure Algorithm



*VAug2022 Developed by Kristina Guy based on the Standing & Walking Definitions

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SWAT Outcome Measure Overview

In this Section we have provided a complete set of instructions for the set up and use of each SWAT outcome measure, including:

- Berg Balance Scale (BBS)
- Modified Timed Up and Go (mTUG)
- Activities Specific Balance Confidence Scale (ABC)
 - Collected at discharge from Rehab only
- Modified 6-Minute Walk Test (m6MWT)
- 10 Metre Walk Test (10MWT)
- Modified Spinal Cord Injury Functional Ambulation Profile (mSCI-FAP)
 - Only collected by facilities using Advanced and Research SWAT
- Modified Mini-BEStest (mMini-BEStest)
 - Only collected by facilities using Research SWAT

These instructions were designed to provide you with the information required to successfully perform and utilize the results of these outcome measures. For each outcome measure as appropriate we have provided: a brief clarification of when the tool is to be used, time and equipment required, therapist instructions, client instructions, scoring, interpretation values, and references.



BERG BALANCE SCALE (BBS) INSTRUCTIONS

Completed at or above 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+/2- to Gr3- in anti-gravity muscles which are Tib Ant, Soleus, Quads, Glutei).

Example of Standing with Assistance:

• Client stands in parallel bars/walker/bedside without total assistance of another person or walking aid and therapist assistance to maintain upright posture. Client may have only partial weight bearing through the U/Es with weight bearing through the feet. Client 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 for the 14 task scores is calculated.
- Client 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 client. Poor judgment will adversely influence the performance and the scoring. Client can wear their usual shoes and braces, if necessary, during testing.

Client Instructions

Described on test sheet for each task.

Assessments are conducted without the client's walking assistive device if they use one.

SCORING

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

CLINICAL REFERENCE VALUES

Cut-off Values:

Fall risk in otherwise healthy older adults:

Score	Fall Risk
41-56	Low fall risk
21-40	medium fall risk
0-20	high fall risk

Combined the data from two previously published research reports designed to determine the validity of the Berg Balance Test for predicting risk of falls among elderly people. *Riddle et al.*, 1999.

Fall risk in those living with SCI:

No significant relationship between total falls and BBS score. No cut-off score effectively discriminated fallers. n = 42 (AIS A = 2, AIS B = 2, AIS C = 35, AIS D = 3), > 1-year post injury *Wirz et al.*, 2010.

Other cut-off values in those living with SCI:

Cut off for distinguishing high vs low participant concerns about falling: $\leq 46/56$ Cut off for distinguishing participants with vs without mobility aids: > 47/56n=46 (AIS ABC = 7, AIS D = 39), chronic SCI *Jorgensen et al.*, 2017

Normative Values from SCI studies with small number of participants: BBS Scores for individuals living with SCI:

Study Sample	BBS Score: mean (SD)	Range
Individuals with SCI	47.9 (10.7)	17-56
Paraplegia	44.8 (13.0)	17-56
Tetraplegia	50.7 (7.5)	31-56

n = 32 (AIS D, 15 with paraplegia, 17 with tetraplegia), inpatient rehabilitation, able to walk 10m independently with or without an assistive device.

Lemay et al., 2010.

Minimal Detectable Change (MDC) or Minimal Clinically Important Difference (MCID):

"A change of 4 points is needed to be 95% confident that true change has occurred if a client 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."

n = 118, otherwise healthy seniors over 65 years of age *Donoghue and Stokes*, 2009

MDC = 4.4 n = 69 (AIS C = 35, AIS D = 34), 55% > 9 months post injury Morrison et al., 2018

Standard Error of Measurement (SEM): Not currently available

Reliability: Inter-rater: Excellent inter-rater reliability (ICC = 0.95) in individuals with chronic SCI

n = 42 (AIS A n = 2, AIS B, n = 2, AIS C = 35, AIS D n = 3), > 1-year post injury Wirz et al., 2010

Intra-rater: Not currently available

Test-Retest Reliability: Not currently available



MODIFIED TIMED UP AND GO TEST (mTUG) INSTRUCTIONS

Perform this test only if client 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. Please note that this is a modified version of the TUG which aligns to the TUG item collected in the SCI-FAP, thus there are differences in the level of assistance a client may require and still perform the test as well as scoring.

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 client 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 client cannot attempt the mTUG, or does not complete the test, he/she is assigned the maximum time (455s), 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 time recorded should be the time in seconds taken from the time the tester says "go" and presses stopwatch to begin timing to the time the client is fully seated with their back against the chair.

Client 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:

Cut-off value for risk of falls in community dwelling older adults post-stroke: 13.5s n=196, (community dwelling) 6 and 12 month follow up post-stroke. *Andersson et al.*, 2006.

Cut-off value for risk of falls in older adults: 14s n=30 (included n=15 no fall history in the past 6 months, and n=15 with 2 or more falls in the past 6 months, all community dwelling). *Shumway-Cook et al.*, 2000.

Normative values from SCI studies with small number of participants:

TUG Score	Mean (SD)	Range
Overall	17.0 (18.7)	6.4 to 111.3
Individuals with Paraplegia	19.7 (25.9)	6.4 to 111.3
Individuals with Tetraplegia	14.6 (8.8)	6.5 to 36.7

n = 32 (AIS D, 15 with paraplegia, 17 with tetraplegia), inpatient rehabilitation, able to walk 10m independently with or without an assistive device *Lemay et al.*, 2010

Reliability:

Inter-rater: Excellent inter-rater reliability (r = 0.973) (-0.3 to 7.5 s) n=22 (AIS A=1, B= 0, C= 3, D=18), acute SCI. *Van Hedel et al.*, 2005

Intra-rater: Excellent intra-rater reliability (r = 0.979) (3.3. to 7.5 s) n=22 (AIS A=1, B= 0, C= 3, D=18), acute SCI. Van Hedel et al., 2005

Test-retest: not currently available

Minimal Detectable Change (MDC) or Minimal Clinically Important Difference (MCID):

MCID = 10.8 seconds or 30%, was found to detect significant clinical change in the TUG in clients with SCI

A comprehensive systematic review of seven outcome measures that were broadly categorized into timed and categorical measures of ambulation *Lam et al.*, 2008.

Standard Error of Measurement (SEM):

SEM = 3.9s

A comprehensive systematic review of seven outcome measures and were broadly categorized into timed and categorical measures of ambulation; (calculated from *van Hedel et a.*, 2005 (n = 20 acute SCI)) *Lam et al.*, 2008

Reliability: Inter-rater: Excellent inter-rater reliability (r = 0.973) (-0.3 to 7.5 s)

n=22 (AIS A=1, B= 0, C= 3, D=18), acute SCI Van Hedel et al., 2005

Intra-rater: Excellent intra-rater reliability(r = 0.979) (3.3. to 7.5 s)

n=22 (AIS A=1, B= 0, C= 3, D=18), acute SCI Van Hedel et al., 2005



ACTIVITIES OF SPECIFIC BALANCE CONFIDENCE SCALE (ABC) INSTRUCTIONS

Perform this test if client 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

10-20 minutes.

Equipment

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

Therapist Instructions

The client is given the form and the instructions below are reviewed. If the client 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.

Client Instructions

For each of the following, please indicate your level of confidence in doing the activity without losing your balance or becoming unsteady by choosing one of the percentage points on the scale from 0% to 100% using whole numbers. 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 it you were using these supports. If you have any questions about answering any of these items, please ask the administrator.

CLINICAL REFERENCE VALUES

Cut-off Values:

Cut-off value for risk of falls in elderly community: <67% n=125, (community dwelling) Lajoie and Gallagher, 2003

Normative values

For individuals post stroke:

Activity	Mean (SD)	ICC
Total (ABC)	68.3 (17.5)	0.85
Walk around the house	83.3 (18.6)	0.89
Walk up and down stairs	76.3 (17.7)	0.53
Pick up a slipper	74.1 (25.5)	0.88
Reach at eye level	79.4 (20.9)	0.57
Reach while on tiptoes	57.3 (29.3)	0.64
Stand on a chair to reach	38.1 (30.0)	0.81
Sweep the floor	70.0 (28.7)	0.59
Walk outside to a nearby car	82.3 (19.4)	0.69
Get in and out of a car	84.2 (18.3)	0.73
Walk across a parking lot	78.8 (19.3)	0.75
Walk up and down a ramp	71.9 (22.8)	0.93
Walk in a crowded mall	72.9 (20.7)	0.69
Walk in a crowd and get bumped	65.4 (21.4)	0.58
Ride an escalator holding the rail	70.6 (26.0)	0.58
Walk on icy sidewalk	41.7 (28.7)	0.79

n=177, (community dwelling older adults), at least 1-year post-stroke *Botner et al.*, 2005

From SCI studies with small number of participants: Total mean (SD) = 67.7 (20.3)% n=26 (AIS C = 5, AIS D = 21), > 2 years post SCI. Shah et al., 2017

$\label{eq:model} \mbox{Minimal Detectable Change (MDC) or Minimal Clinically Important Difference (MCID):}$

MDC = 14.87% n=26 (AIS C = 5, AIS D = 21), > 2 years post SCI. Shah et al., 2017

Standard Error of Measurement (SEM):

SEM = 8.81 n=177, (community dwelling older adults), at least 1 year post-stroke *Botner et al.*, 2005

Post Stroke

SEM 8.81 and 5.05

SEM = 5.05 n=86 (Community dwelling older adults), 2 to 12 months post stroke Salbach et al., 2006

Post SCI:

SEM = 5.37 n=26 (AIS C = 5, AIS D = 21), > 2 years post injury Shah et al., 2017

Reliability:

Inter-rater:

Not currently available

Intra-rater: Not currently available

Test-Retest:

Excellent 4-week Test-Retest reliability post stroke (ICC=0.85)

n=177, (community dwelling older adults), at least 1-year post-stroke *Botner et al.*, 2005



MODIFIED 6 MINUTE WALK TEST (m6MWT) INSTRUCTIONS

Perform this test if client 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. Stopwatch, course with distances marked at least every 5m; vital signs monitoring equipment, Borg Scale.

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 client to initiate the start of the test. At each minute, inform the individual about the time that is left, ask whether the participant feels fine, and motivate the participant by providing standardized encouragement using the phrases, "You're doing well!" or "Keep up the good work!". The client is allowed the use of walking aids but no physical assistance is permitted. You may walk behind the client but you may not be in their field of vision. The individual is allowed to stand and rest but is not allowed to sit down or lean against a support to rest during the test if they need 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 client is walking with multiple walking aids and is independent with one but requires supervision with another, the test should be done with the walking aid where the client is independent. For the purposes of the SWAT data collection, please record the distance the participant has walked at each of the following time points that the participant reaches: 2 minutes, 4 minutes, and 6 minutes. 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:

- i. 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
- 1. Facial expressions signifying distress

- ii. 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 client was walking the last minute of the test vs. resting)

Notify physician if test is terminated for any of the above reasons.

CLINICAL REFERENCE VALUES

Normative or Cut-off Values:

Normative values from SCI studies with small number of participants

Individuals with AIS D >=6 months post Injury			
6 min Distance	Gym Setting (meters)	Community Setting (meters)	
Mean (SD)	382.29 (120.99)	401.44 (130.28)	
Min	151	151	
Max	560	584	

n=18 (Community ambulators) AIS D, at least 6 months post injury *Olmos et al.*, 2008

Individuals with Incomplete SCI participating in the SCI Locomotor Trial			
Months after entry to trial	Total Meters in 6MWT	Walking Speed in m/s (SD)	
3	230.4 (21.6)	0.64 (0.06)	
6	284.4 (18.0)	0.79 (0.05)	
12	302.4 (21.6)	0.88 (0.06)	

n=66 (3 months) to 70 (12 months), (AIS B, C, D), unable to ambulate at admission, acute SCI *Barbeau et al.*, 2007

Minimal Detectable Change (MDC) or Minimally Clinically Important Difference (MCID):

MDC = 45.8 meters(150 feet) This represents a 22% change SCI; C2-L1; < 12 months post injury

A comprehensive systematic review of seven outcome measures which were broadly categorized into timed and categorical measures of ambulation. *Lam, et al.*, 2008

Standard Error of Measurement(SEM):

SEM = 16.5 m

n=22 (AIS A=1, B= 0, C= 3, D=18), acute SCI van Hedel et al., 2005

Reliability:

Inter-rater: Excellent Inter-rater reliability (ICC = 0.99)

n=37 (AIS C=2, D=35), chronic SCI Scivoletto et al., 2011

Excellent Inter-rater reliability (r = 0.97) - tested on 3 occasions

n=20 (AIS A=1, B= 0, C= 3, D=18), acute SCI Van Hedel et al., 2005

Intra-rater: Excellent Intra-rater reliability (ICC = 0.99)

n=37 (AIS C=2, D=35), chronic SCI Scivoletto et al., 2011

Excellent Intra-rater reliability (r = 0.98) - 1 therapist 2 occasions

n=22 (AIS A=1, B= 0, C= 3, D=18), acute SCI Van Hedel et al., 2005

Test-Retest: Not currently available





10 METER WALK TEST (10MWT) INSTRUCTIONS

Perform this test if client 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 client should be instructed to walk 14m. The measurement starts when the individual'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 client continues until her or she has reached the end of the 14m track. Allow the client to initiate the start of the test. The client is allowed the use of walking aids but no physical assistance is permitted. The participant should be wearing shoes. You may walk behind the client but you may not be in their field of vision.

Note: A special condition occurs when the client 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.

Client 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.

CLINICAL REFERENCE VALUES

Cut off values post stroke:

Household ambulation: <0.4m/s Limited community ambulation: 0.4-0.8m/s Full community ambulation: >0.8m/s n=147, (post stroke) *Perry et al.*, 1995

Normative or Cut-off Values:

Normative values from SCI studies (Note: some studies below have a small number of participants).

Individuals with AIS C/D during Outpatient Rehab		
Fastest walking speed Mean (SD) m/s		
Enrollment	0.51 (0.53)	
Discharge	0.81 (0.55)	

n=249, AIS C/D, outpatient rehab, enrolled in locomotor training program *Forrest et al*, 2014

Individuals with AIS D During Inpatient Rehab			
Preferred Walking Speed	Mean(SD) (m/s)	Range (m/s)	
Total	0.81 (0.34)	0.08 to 1.43	
Paraplegia	0.73 (0.32)	0.08 to 1.35	
Tetraplegia	0.87 (0.34)	0.34 to 1.43	

n=32 (AIS D, 15 paraplegia, 17 tetraplegia), inpatient rehabilitation, able to walk 10m independently with or without an assistive device *Lemay et al.*, 2010

Individuals with AIS D = 6 months post injury			
Preferred Walking Speed	Gym setting (m/s)	Community setting (m/s)	
Mean (SD)	1.3706(0.39)	1.3567 (0.39)	
Min	0.52	0.51	
Max	2.12	1.91	

n=18 (Community ambulators) AIS D, at least 6 months post injury *Olmos et al.*, 2008

Minimal Detectable Change (MDC) or Minimally Clinical Important Difference (MCID): $\rm MDC$ = 0.13 m/s

A comprehensive systematic review of seven outcome measures which were broadly categorized into timed and categorical measures of ambulation *Lam et al.*, 2008

MCID = 0.06 m/s

A review looking at several methods of determining clinical significance *Musselman et al.*, 2007

Standard Error of Measurement (SEM):

SEM = 0.05 m/s

A review looking at several methods of determining clinical significance *Musselman et al.*, 2007

Reliability:

Inter-rater:

Excellent Inter-rater reliability (r= 0.974)

n=20 (AIS A=1, B= 0, C= 3, D=18), acute SCI Van Hedel et al., 2005

Test-Retest:

Excellent Test-Retest reliability (r=0.983)

A comprehensive systematic review of seven outcome measures which were broadly categorized into timed and categorical measures of ambulation *Lam et al.*,2008





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

Perform this test if client 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 client 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 individual 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).

Client 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.

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. The individual 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 the client as needed in placing toes on starting line tape. Tester stands beside the chair and prepares to walk with the individual. 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 on data collection form.

4. Steps

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 the clients as needed in placing toes on the starting point. Tester says "go" and presses stopwatch to begin timing. The individual walks toward the end point. Tester follows client 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 client 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:

Normative or Cut-off Values:

Normative, Able-bodied individuals

Task	Mean (SD)
Carpet	4.4 (0.6)
Up & Go	9.1 (1.2)
Obstacles	11.4 (1.3)
Stairs	6.2 (0.8)
Carry	4.4 (0.5)
Step	3.7 (0.5)
Door	5.0 (0.7)

Mean times from (n=60) able-bodied data are used to normalize the task scores for the SCI-FAP.

n=22 chronic incomplete SCI Musselman et al., 2011 Minimal Detectable Change (MDC) or Minimal Clinically Important Difference (MCID):

Task	MDC
Carpet*	9.0
Up & Go*	14.0
Obstacles*	14.7
Stairs	20.6
Carry	12.4
Step*	36.1
Door	10.2

*Used in SWAT modified version (mSCI-FAP)

n=22 (AIS C and D paraplegia and tetraplegia), chronic incomplete SCI Musselman et al., 2014

Standard Error of Measurement (SEM):

SEM for overall SCI-FAP Score = 34.5 SEM for overall SCI-FAP Time = 41.2 SEM for overall SCI-FAP Tasks

Task	SEM
Carpet*	3.2
Up & Go*	5.0
Obstacles*	5.3
Stairs	7.5
Carry	4.5
Step*	13.0
Door	3.7

*Used in SWAT modified version (mSCI-FAP)

n=20 (AIS C and D paraplegia and tetraplegia), chronic incomplete SCI $\it Musselman~et~al., 2014$

Reliability:

Inter-rater:

Excellent Inter-rater reliability (ICC = 1.000 for total score, time = 1.000) Excellent Inter-rater reliability of all individual items

Item	ICC
Carpet*	1.000
Up and Go*	1.000
Obstacles*	0.996
Stairs	0.994
Carry	1.000
Step*	13.0
Door	0.999

*Used in SWAT modified version (mSCI-FAP)

n=32 (AIS C and D paraplegia and tetraplegia), chronic incomplete SCI $\it Musselman~et~al.,~2011$

Intra-rater:

Not currently available

Test-Retest:

Excellent test-retest reliability (ICC = 0.983 for total score, Time = 0.952)

Excellent Test-Retest reliability of all individual items

Item	ICC
Carpet*	0.972
Up and Go*	0.978
Obstacles*	0.977
Stairs	0.964
Carry	0.992
Step*	0.959
Door	0.982

*Used in SWAT modified version (mSCI-FAP) n=32 (AIS C and D paraplegia and tetraplegia), chronic incomplete SCI *Musselman et al.*, 2011



MODIFIED BALANCE EVALUATION SYSTEMS TEST (mMINI-BEStest) INSTRUCTIONS

Perform this test if the client 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-foamTM 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

Client Conditions: The participant 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 client must use an assistive device for an item, score that item one category lower.

If a client requires physical assistance to perform an item, score "o" 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 client's hands on the seat of the chair, the thighs, or the thrusting of the arms forward.

2. RISE TO TOES

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

3. STAND ON ONE LEG

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

4. COMPENSATORY STEPPING CORRECTION-FORWARD

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

5. COMPENSATORY STEPPING CORRECTION - BACKWARD

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

6. COMPENSATORY STEPPING CORRECTION - LATERAL

Stand to the side of the client, place one hand on the side of the individual's pelvis, and have them lean their whole body into your hands. Require the client 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 the client. A small readjustment step is allowed and not counted.

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

Record the time the client was able to stand with feet together up to a maximum of 30 seconds. Make sure participant 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 the client in stepping onto foam. Record the time the client was able to stand in each condition to a maximum of 30 seconds. Have the participant 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 client onto the ramp. Once the individual closes eyes, begin timing and record time. Note if there is excessive sway.

10. CHANGE IN SPEED

Allow the client 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 participant stops walking.

11. WALK WITH HEAD TURNS- HORIZONTAL

Allow the client to reach normal speed, and give the commands "right, left" every 3-5 steps. Score if you see a problem in either direction. If participant 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 client is walking at normal speed, say "turn and stop." Count the number of steps from "turn" until the client 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 client 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 client should walk a 3 meter distance.TUG: Have the participant sitting with their back against the chair. The client will be timed from the moment you say "Go" until they returns to sitting. Stop timing when the individual's buttocks hit the chair bottom and their back is against the chair. The chair should be firm with arms. TUG With Dual Task: While sitting determine how fast and accurately the client can count backwards by threes starting from a number between 100-90. Then, ask the client to count from a different number and after a few numbers say "Go". Time the client from the moment you say "Go" until they 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.

Client Instructions

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

CLINICAL REFERENCE VALUES FOR MINI-BESTest

Cut off values:

Identifying those with history of falls post stroke: \leq 17.5 n=125, (community dwelling) *Tsang et al.*, 2013

Cut-off values in those living with SCI:

Cut off for distinguishing high vs low participant concerns about falling: $\leq 19/28$ Cut off for distinguishing participants with vs without mobility aids: > 19/28n=46 (AIS ABC = 7, AIS D = 39), chronic SCI Jorgensen et al., 2017

Normative values:

Not currently available

Minimal Detectable Change (MDC) or Minimal Clinically Important Difference (MCID):

MDC = 5 (Calculated from Shah et al., 2017 n=26, > 2 years post SCI) *Unger et al.*, 2019

MDC = 4 n=23 (AIS B = 1, AIS D = 22), Rehabilitation setting. *Roy et al.*, 2021

Standard Error of Measurement (SEM):

Not currently available

Reliability:

Inter-rater: Excellent inter-rater reliability (ICC = 0.96) n=23 (AIS B=1, AIS D=22), Rehabilitation setting. *Roy et al.*, 2021

Intra-rater: Not currently available

Test-Retest:

Excellent test-retest reliability (ICC = 0.94–0.98) n=21 (AIS not reported, all incomplete injuries), > 1 year post injury. *Chan et al.*, 2019

Excellent test-retest reliability (ICC = 0.94) n=23 (AIS B = 1, AIS D=22), Rehabilitation setting. *Roy et al.*, 2021

Other Clinically Relevant Findings:

While there are currently limited data for this test specific to those living with SCI, this study demonstrated that the contribution of visual inputs in individuals with SCI when maintaining quasi-static standing posture is critical. *Lemay et al.*, 2013

Demonstration of no ceiling effect as compared to the Berg Balance Scale n=46 ((AIS ABC = 7, AIS D = 39), chronic SCI) *Jørgensen et al.*, 2017



Reference Value Definitions and Abbreviations

We have provided a variety of clinically important reference values for each of the SWAT outcome measures (clinical reference values). These validate the clinical relevance and evidence that supports the use of any given outcome measure. Definitions for the different types of reference values are below.

While not every outcome measure used in the SWAT has a complete set of clinical reference values for individuals living with a SCI, we have provided you with the most current data available. Future versions of the SWAT Toolkit will continue to update these values as they become available.

Measures of Association

Correlation coefficient (r)

A correlation coefficient (r) is a measure of the closeness of association. The value of r ranges from -1.0 to +1.0. The closer r is to +1 or -1, the more closely the two variables are related. If r is close to 0, it means there is no relationship between the variables.

Measures of Clinical Utility Minimal Detectable Change (MDC) or Minimally Clinically Important Difference (MCID)

The minimal detectable change (MDC) is defined as a valid change in a score or measurement that is not due to chance, whilst in comparison the minimally clinically important difference (MCID), goes beyond valid change to assess the minimal meaningful difference in client function.

Normative or Cut-off Values

Normative values or data, from diagnostic or screening tests, characterize what is usual or expected in a defined population at a specific point in time or over a period of time. Whilst cut-off values are the dividing points where the test results are divided into different categories, such as risk levels for a fall. We use Normative and Cut-off values all the time, Body Mass Index to classify level of obesity and standardized height/weight charts to follow the development of children. A typical clinical example would be using the Berg Balance Scale to determine the risk for a fall in your geriatric client. After performing and scoring this outcome measure, BBS = 36, you would look at the appropriate Cut-off table (it may be generalized or based on characteristics of gender, age, and race) and determine their fall risk. In this case the generalized fall risk table suggests that they are at a medium risk for a fall.

Standard Error of Measurement (SEM)

The standard error of measurement (SEM) estimates how repeated measures of the same instrument on the same individual tends to be distributed around his or her "true" score (the true score is never really known but statistically estimated). The SEM is a function of both the standard deviation of observed scores and the reliability of the test. When the test is perfectly reliable, the standard error of measurement equals 0.

Standard deviation (SD)

The standard deviation (SD) is a measure of the amount of variation or dispersion of a set of values. A lower SD means that the data are clustered around the mean (there is little variation in the measures) and large standard deviation indicates that the data are more spread out (there is a large amount of variation in the measures).

Measures of Reliability

Interclass correlation coefficient (ICC)

An Intraclass correlation (ICC) measures the reliability of ratings or measurements and describes how strongly these units in the same group resemble each other. ICC values less than 0.5 are indicative of poor reliability, values between 0.5 and 0.75 indicate moderate reliability, values between 0.75 and 0.9 indicate good reliability, and values greater than 0.90 indicate excellent reliability.

Inter-rater or Intra-rater Reliability:

Inter-rater reliability is the degree of agreement among independent observers who rate, code, or assess the same phenomenon. In contrast, intra-rater reliability is a score of the consistency in ratings given by the same person across multiple instances and can be reported as an "ICC" and/or a "r".

Test-Retest Reliability

Test-retest reliability measures the consistency of results when you repeat the same test on the same sample at a different point in time and is often reported as "r". Test-retest reliability values of less than 0.5 are indicative of poor test-retest reliability, values between 0.5 and 0.75 indicate moderate reliability, values between 0.75 and 0.9 indicate good reliability, and values greater than 0.90 indicate excellent reliability.



05 CLINICAL FORMS

In this Section we have provided a complete set of clinical forms that can be used to collect the SWAT. These forms can be used as is or customized for your facility. If you would like assistance with incorporating your facility information on any of the forms, please contact us at clinical@praxisinstitute.org.

The forms in this Section include:

- Standing and Walking Tracking Form
 - For the collection of data regarding what stage each client is a during their rehabilitation stay. This information is to be collected at least at admission and upon discharge
- Berg Balance Scale (BBS)
- Modified Timed Up and Go (mTUG)
- Activities Specific Balance Confidence Scale (ABC)
 only collected at discharge
- 10 Metre Walk Test (10MWT)
- Modified 6-Minute Walk Test (m6MWT)
 - Modified Spinal Cord Injury Functional Ambulation Profile (mSCI-FAP) - only used by facilities collecting the Advanced and Research SWAT
- Modified Mini-BEStest (mMini-BEStest)
 - only used by facilities collecting the research SWAT

FACILITY NAME

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.	YYYY-MM-DD	YYY-MM-DD	YYYY-MM-DD					
0.5 Independent Sitting Capacity			•					
0.5) Able to sit independently on firm surface hands free for 60 sec.	 Y Y Y Y - M M - DD	 Y Y Y Y - M M - DD	YYYY-MM-DD					
1. Standing Capacity								
1A) Trace L/E Movement	YYYY-MM-DD	YYYY-MM-DD	YYYY-MM-DD					
1B) Voluntary Non-Functional L/E Movement	YYYY-MM-DD	YYY-MM-DD	YYYY-MM-DD					
1C) Voluntary Functional L/E Movement	 Y Y Y Y - M M - DD	YYYY-MM-DD	YYYY-MM-DD					
w	ALKING STAGES							
2. Therapeutic Walking Capacity (Indoors)								
2A) Max Assist	YYYY-MM-DD	YYYY-MM-DD	 Y Y Y Y - M M - DD					
2B) Mod Assist	YYY-MM-DD	YYY- M M - DD	YYYY-MM-DD					
2C) Min Assist	YYY-MM-DD	YYY- M M - DD	YYYY-MM-DD					
3. Therapeutic Walking Capacity (Indoors)								
3A) Supervised Household Ambulator	YYY-MM-DD	YYY-MM-DD	 Y Y Y Y - M M - DD					
3B) Independent Household Ambulator	YYY-MM-DD	YYY- M M - DD	YYYY-MM-DD					
3C) Community Ambulator	YYYY-MM-DD	Y Y Y Y - M M - DD	YYYY-MM-DD					
4. Therapeutic Walking Capacity (Indoors)								
4) Independent Ambulator	YYYY-MM-DD	YYYY-MM-DD	Y Y Y Y - M M - DD					

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	ian Standing & Walking Module Group Praxis Spinal Cord Institute .	2014 V12JUN2018				
FAC	LITY NAME					
Be	rg Balance Scale (BBS)	A	ADDRESSOGRAPH			
Only co 1B) Vol indepe and/or allowed	ompleted if client achieves the following threshold stage: luntary Non-Functional L/E Movement — unable to stand ndently/needs partial assistance of gait aid and/or orthoses therapist(s) to stand. The use of Bilateral KAFOs is not d.	ADMISSION (Within 7 days) OR THRESHOLD (Within 2 days of meeting threshold)	INTERIM	DISCHARGE (Within 7 days)		
Date						
(If com	pleted over multiple sessions, enter date of completion.)	YYYY-MIMI-DD	YYYY-MIM-DD	YYYY-MINI-DD		
Numb	er of sessions test completed over					
Note: T period	est can be completed over multiple sessions during the time indicated if required.					
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		

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ITEM	DESCRIPTION	ITEM	I DESCRIPTION			
1.	SITTING TO STANDING Please stand up. Try not to use your hands for support. 4 able to stand without using hands and stabilize independently 3 able to stand independently using hands 2 able to stand using hands after several tries 1 needs minimal aid to stand or stabilize 0 needs moderate or maximal assist to stand	8.	REACHING FORWARD WITH OUTSTRETCHED ARM WHILE STANDING 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 client is in the most forward lean position. When possible, ask client to use both arms when reaching to avoid rotation of the trunk.)4can reach forward confidently 25 cm (10 inches)3can reach forward 12 cm (5 inches)2can reach forward 5 cm (2 inches)1reaches forward but needs supervision0loses balance while trying/requires external support			
2.	STANDING UNSUPPORTEDPlease stand for two minutes without holding on. If a client is able to stand2 minutes unsupported, score full points for sitting unsupported. Proceed toitem #4.4able to stand safely for 2 minutes3able to stand 2 minutes with supervision2able to stand 30 seconds unsupported1needs several tries to stand 30 seconds unsupported0unable to stand 30 seconds unsupported	9.	 PICK UP OBJECT FROM THE FLOOR FROM A STANDING POSITION Pick up the shoe/slipper, which is in front of your feet. able to pick up slipper safely and easily able to pick up slipper but needs supervision unable to pick up but reaches 2-5 cm(1-2 inches) from slipper and keeps balance independently unable to pick up and needs supervision while trying unable to try/needs assist to keep from losing balance or falling 			
3.	SITTING WITH BACK UNSUPPORTED BUT FEET SUPPORTED ON FLOOR OR ON A STOOL Please sit with arms folded for 2 minutes. 4 able to sit safely and securely for 2 minutes 3 able to sit 2 minutes under supervision 2 able to sit 30 seconds 1* able to sit 10 seconds 0 unable to sit without support 10 seconds	10.	TURNING TO LOOK BEHIND OVER LEFT AND RIGHT SHOULDERS WHILE STANDING 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 client to encourage a better twist turn.) 4 looks behind from both sides and weight shifts well 3 looks behind one side only other side shows less weight shift 2 turns sideways only but maintains balance 1 needs supervision when turning 0 needs assist to keep from losing balance or falling			
4.	STANDING TO SITTING Please sit down. 4 sits safely with minimal use of hands 3 controls descent by using hands 2 uses back of legs against chair to control descent 1 sits independently but has uncontrolled descent 0 needs assist to sit	11.	TURN 360 DEGREES Turn completely around in a full circle. Pause. Then turn a full circle in the other direction. 4 able to turn 360 degrees safely in 4 seconds or less 3 able to turn 360 degrees safely one side only 4 seconds or less 2 able to turn 360 degrees safely but slowly 1 needs close supervision or verbal cuing 0 needs assistance while turning			
5.	TRANSFERSArrange chair(s) for pivot transfer. Ask client 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.4able to transfer safely with minor use of hands a able to transfer safely definite need of hands 2 able to transfer with verbal cuing and/or supervision 1 needs one person to assist 0 needs two people to assist or supervise to be safe	12.	PLACE ALTERNATE FOOT ON STEP OR STOOL WHILE STANDING UNSUPPORTED Place each foot alternately on the step/stool. Continue until each foot has touched the step/stool four times. 4 able to stand independently and safely and complete 8 steps in 20 seconds 3 able to stand independently and complete 8 steps in > 20 seconds 2 able to complete 4 steps without aid with supervision 1 able to complete > 2 steps needs minimal assist 0 needs assistance to keep from falling/unable to try			
6.	NOTE: ITEMS 6-14 ARE TESTED IN A STANDING POSITION STANDING UNSUPPORTED WITH EYES CLOSED Please close your eyes and stand still for 10 seconds. 4 able to stand 10 seconds safely 3 able to stand 10 seconds with supervision 2 able to stand 3 seconds 1 unable to keep eyes closed 3 seconds but stays safely 0 needs help to keep from falling	13.	STANDING UNSUPPORTED ONE FOOT IN FRONT(DEMONSTRATE TO CLIENT) Place one foot directly in front of the other. Ifyou feel that you cannot place your foot directly in front, try to step far enoughahead 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 otherfoot and the width of the stance should approximate the client's normal stride4able to place foot tandem independently and hold 30 seconds3able to place foot ahead independently and hold 30 seconds2able to take small step independently and hold 30 seconds1needs help to step but can hold 15 seconds0loses balance while stepping or standing			
7.	STANDING UNSUPPORTED WITH FEET TOGETHER Place your feet together and stand without holding on. 4 able to place feet together independently and stand 1 minute safely 3 able to place feet together independently and stand 1 minute with supervision 2 able to place feet together independently but unable to hold for 30 seconds 1 needs help to attain position but able to stand 15 seconds feet together 0 needs help to attain position and unable to hold for 15 seconds	14.	STANDING ON ONE LEG Stand on one leg as long as you can without holding on. 4 able to lift leg independently and hold > 10 seconds 3 able to lift leg independently and hold 5-10 seconds 2 able to lift leg independently and hold at least 3 seconds 1 tries to lift leg unable to hold 3 seconds but remains standing independently 0 unable to try of needs assist to prevent fall			

FACILITY NAME						
Modified Timed Up and Test (mTUG)	ADDRESSOGRAPH					
Only completed if client achieves the following threshold stage: 2A) Requires Maximal Assist (>50% of total effort) during therapeutic walking	□ (W □ • (Within 2 day	ADMISSIC /ithin 7 day OR THRESHO /s of meetin	DN /s) LD ng threshold)		DISCHARGE (Within 7 days)	
Date (If completed over multiple sessions, enter date of completion.)	ŶŶŶ		DD		YYYY-MM-DD	
Therapist Name/Initials						
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 a independent (walking without any walking aids or a 1 cane/crutch/rail 2 canes/crutches/rails walker (standard walker or 2- or 4-wheeled walker) assist of 1 (physical assistance of 1 person whether unable to complete 	n assistive device a assistance) minimum, moderat	and/or brad	ce(s) as needed. num assist)			
1. Up & Go (Max time: 455a)	iloor) is placed on ti q tape is placed on	he hard, no the floor.	on-carpeted floor.	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. Participant assumes sitting position in the chair. Tester assists participant as	
		N			needed in placing toes on starting line	
	(Within 7 da OR THRESHO (Within 2 days of	uys) L D meeting	DISCHARGE (Within 7 days)	3. 4.	prepares to walk with the participant. Tester says "go," and presses stopwatch to begin timing. Tester monitors line to ensure both of participant's fast gross the line before	
	threshold)		-	turning around.	
A. IIme (seconds)				5.	Tester stops timing when participant is	
D. Assistance Hating (I-b)				6	Tully seated with back against the chair. Tester records time and assistance rating	
D. 91 sec. (mean time of able-bodied individuals)					required for task.	
Task Score (Up & Go) = C ÷ D						

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FACILITY NAME				
Activities Specific Balance Confidence Scale (ABC)	ADDRESSOGRAPH			
		DISCHARGE		
		(Within 7 days)		
Date (If completed over multiple sessions, enter date of completion.)				
Therapist Name/Initials				
Did client meet threshold criterion at discharge? 2A) Requires Maximal Assist (>50% of total effort) during therapeutic walking	□ YES □ NO			
If client met threshold criterion, but test not performed, specify reason				
i olione moe amoshola ontonon, bat toot not pononnoa, opoony roadoni				
Activities Specific Balance Scale (ABC) – Completed by interview For each of the following activities, please indicate your level of self-confidence	e by choosing a correspond	ling number from the following rating scale:		
Activities Specific Balance Scale (ABC) – Completed by interview For each of the following activities, please indicate your level of self-confidence 0% 10% 20% 30% 40% 509 no confidence	e by choosing a correspond 6 60% 70% 80% compl	ling number from the following rating scale: 90% 100% etely confident		
Activities Specific Balance Scale (ABC) – Completed by interview For each of the following activities, please indicate your level of self-confidence 0% 10% 20% 30% 40% 509 no confidence "How confident are you that you will not lose your balance or become unsteady when you	e by choosing a correspond 6 60% 70% 80% compl Discharge (Within 7 days)	ling number from the following rating scale: 90% 100% etely confident Client Instructions		
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Activities Specific Balance Scale (ABC) - Completed by interview For each of the following activities, please indicate your level of self-confidence 0% 10% 20% 30% 40% 50% no confidence "How confident are you that you will not lose your balance or become unsteady when you 1walk around the house? 2walk up and down the stairs? 3bend over and pick up a slipper from the front of a closet floor? 4reach for a small can off a shelf at eye level?? 5stand on your tiptoes and reach for something? 7sweep the floor? 8walk outside the house to a car parked in the driveway?	e by choosing a correspond 6 60% 70% 80% compl Discharge (Within 7 days) % % % % %	ting number from the following rating scale: 90% 100% etely confident Client Instructions For each of the following, please indicate your level of confidence in doing the activity without losing your balance or becoming unsteady. Choose 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 feel if you had to do the activity. If you normally use a walking aid to do the activity or hold onto some- one, rate your confidence as if you were using these supports.		
Activities Specific Balance Scale (ABC) - Completed by interview For each of the following activities, please indicate your level of self-confidence 0% 10% 20% 30% 40% 509 no confidence "How confident are you that you will not lose your balance or become unsteady when you 1walk around the house? 2walk up and down the stairs? 3bend over and pick up a slipper from the front of a closet floor? 4reach for a small can off a shelf at eye level?? 5stand on your tiptoes and reach for something above your head? 6stand on a chair and reach for something? 7sweep the floor? 8walk outside the house to a car parked in the driveway? 9get into or out of a car?	e by choosing a correspond 6 60% 70% 80% compl Discharge (Within 7 days) % % % % %	Image number from the following rating scale: 90% 100% etely confident Client Instructions For each of the following, please indicate your level of confidence in doing the activity without losing your balance or becoming unsteady. Choose 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 feel 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 final structure and the structure of the structure and the structure of the str		
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FA	ACILITY NAME		
N	Iodified 6 Minute Walk	A Test	DDRESSOGRAPH
(1	m6MWT)		
Only completed if client 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.		C ADMISSION (Within 7 days) OR THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)
Da (If o cor	te completed over multiple sessions, enter date of npletion.)	 Y Y Y Y - M M - DD	 Y Y Y Y - M M - DD
Th	erapist 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.
	of test (6-20)	7 } Extremely light 9 Very light 10 Light 11 Somewhat hard 13 Hard (heavy) 15 Very hard 17 Extremely hard 18 Extremely hard 20 Maximum exertion	0 No exertion at all 7 Extremely light 9 Very light 10 Light 11 Somewhat hard 13 Somewhat hard 14 Hard (heavy) 15 Very hard 17 Extremely hard 18 Extremely hard 20 Maximum exertion
7.	Walking Aid used (and circle right/left/both if applicable to indicate the side on which the aid is used)	 None Parallel bars Standard walker 2 wheeled walker 4 wheeled walker Crutches - Right / Left / Both Quad cane Standard cane - Right / Left / Both Knee Ankle Foot Orthosis (KAFO) - Right/Left (if required bilaterally, client does not meet threshold criteria for test) Ankle Foot Orthosis - Right / Left / Both Other aid (specify): 	 None Parallel bars Standard walker 2 wheeled walker 4 wheeled walker Crutches - Right / Left / Both Quad cane Standard cane - Right / Left / Both Knee Ankle Foot Orthosis (KAFO) - Right/Left (if required bilaterally, client does not meet threshold criteria for test) Ankle Foot Orthosis - Right / Left / Both Other aid (specify):

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	8		12)0112010		
FAG	CILITY NAME				
10 Meter Walk Test (10MWT)			AD	DRESSOGR	APH
Only thres 3B)I abilit over indep	completed if client achieves the following hold stage: ndependent Household Ambulator: y to ambulate daily using reciprocal steps ground for short distances (10-100m) bendently for functional walking.	ADMISSION (Within 7 days) OR THRESHOLD (Within 2 days of meeting threshold)		DISCHARGE (Within 7 days)	
Date (If completed over multiple sessions, enter date of completion.)		 Y Y Y Y - M M - DD		 YYYY - M M - DD	
Therapist Name/Initials Number of sessions test completed over Note: Test can be completed over multiple sessions during the time period indicated if required.					
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 (and circle right/left/both if applicable to indicate the side on which the aid is used)	 None Parallel bars Standard walker 2 wheeled walke 4 wheeled walke Crutches – Right / Left / f Quad cane Standard cane – Right / Left / f Knee Ankle Foot Right/Left (if re does not meet ti Ankle Foot Orthor Right / Left / f Other aid (specified) 	r Both Orthosis (KAFO) — equired bilaterally, client preshold criteria for test) psis — Both fy):	 None Parallel bars Standard walker 2 wheeled walker 4 wheeled walker Crutches – Right / Left / Quad cane Standard cane - Right / Left / Knee Ankle Food Right/Left (if r does not meet Ankle Foot Orth Right / Left / Other aid (spec 	r er Both t Orthosis (KAFO) — required bilaterally, client threshold criteria for test) osis — Both ify):

FACILITY NAME					
Modified Spinal Cord Injur Ambulation Profile (mSCI-	y Functional FAP)	ADDRESSOGRAPH			
Only completed if client achieves the following threshold stage: 2A) Requires Maximal Assist (> 50% of total effort) during therapeutic walking.	ADMISSION (Within 7 days) OR THRESHOLD (Within 2 days of meeting threshold)		DISCHARGE (Within 7 days)		
Date (If completed over multiple sessions, enter date of completion.)	 Y Y Y Y -	 M M - DD	YYYY-MM-DD		
Therapist Name/Initials					
Number of sessions test completed over Note: Test can be completed over multiple ses- sions during the time period indicated if required.					
 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

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FACILITY NAME					
Modified Spin Ambulation Pi	al Cord Injury Fu rofile (mSCI-FAP	unctional ?)			ADDRESSOGRAPH
TASK	ADMISSION (Within 7 days) OR THRESHOLD (Within 2 days of meeting threshold)	DISCHARG (Within 7 day	iE ys)		INSTRUCTIONS
#1 Carpet (Max time: 220s) 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 poing 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.					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.
A. Time (seconds) B. Assistance Rating (1-6) C. = A x B D. 4.4 sec. (mean time of ab Task score (Carpet)	Time (seconds) Assistance Rating (1-6) A X B A.4 Sec. (mean time of able-bodied individuals)			5. 6.	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.
= C ÷ D					
#2 Up & Go (Max time: 45	5s)			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."
3m Setup: Standard armchair with a 44-cm seat height (from floor) is placed on th			e hard,	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.
non-carpeted floor. Three meters away from the start line, a 1-m strip of masking ta is placed on the floor.			g tape	3. 4.	Tester says "go," and presses stopwatch to begin timing. Tester monitors line to ensure both of participant's feet cross
B. Assistance Rating (1-6)				5.	Tester stops timing when participant is fully seated with back against the chair.
D 9.1 sec. (mean time of able	e-bodied individuals)			6.	Tester records time and assistance rating required for task.
iask score (Up & Go) = C ÷ D					

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FACILITY NAME			
Modified Spina	al Cord Injury Fu	ADDRESSOGRAPH	
Ambulation Pr	ofile (mSCI-FAP	·)	
TASK	□ ADMISSION (Within 7 days) OR □ THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)	INSTRUCTIONS
#3 Obstacles (Max time: 57 1.5m 3m Setup: A 1-m piece of masking the starting point. A standard 3-m mark. A trash can (diam A. Time (seconds) B. Assistance Rating (1-6) C. Hit Obstacle (11)	ng tape is placed on a hard, nor d brick is placed on the floor at the theter 56cm, height 70cm) is placed	n-carpeted floor to mark the 1.5-m mark and the the 5-m mark.	 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 partici- pant to "stop" when he or she is beyond the end line. Tester records time, assistance rating required for task, and
D. = A x (B + C) E. 11.4 sec. (mean time of able Task score (Carpet) = D ÷ E	e-bodied individuals)		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 (Max time: 185s)	122cm		 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 partici- negative to the total form a final start of the starting participant.
Setup: A 1-m piece of maskii the starting point. A standard 3-m mark. A trash can (diam A. Time (seconds) B. Assistance Rating (1-6) C. = A x B D. 3.7 sec. (mean time of able Task score (Step) = C ÷ D Total abbreviated SCI-FAP score: Sum the 4 task scores	ng tape is placed on a hard, nor d brick is placed on the floor at t heter 56cm, height 70cm) is plac e-bodied individuals)	n-carpeted floor to mark the 1.5-m mark and the ced at the 5-m mark.	 pant through the task for safety. 5. Tester presses stopwatch to stop timing when both of the participant's feet have crossed the end point. 6. Tester records time and assistance rating required for task.
Sum the 4 task scores above.			

FACILITY NAME Modified Mini-BEST Test of Dynamic Balance (mMini-BEStest) Balance Evaluation Systems Test © 2005-2013 Oregon Health & Science University. All rights reserved.				ADDRESSOGRAPH			
Only completed if client achieves the following threshold stage: 2B) Requires Moderate Assist (25-50% of total effort) during therapeutic walking.	ADMISSION (Within 7 days) OR THRESHOLD (Within 2 days of meeting threshold)		DISCF (Within	IARGE 7 days)			
Date (If completed over multiple sessions, enter date of completion.) Therapist Name/Initials Number of sessions test completed over Note: Test can be completed over	YYYY-MM-DD		YYYY-	—— [—] —— M M - DD			
multiple sessions during the time period indicated if required. ITEM	Client should remove foot/ank		nkle bracing fo	or entire test.	CLIENT	THERAPIST	
ANTICIPATORY	SUB SCORE:	/6	SUB SCORE: /6				
 SIT TO STAND Normal: Comes to stand without use of hands and stabilizes independently. Moderate: Comes to stand WITH use of hands on first attempt. Severe: Impossible to stand up from chair without assistance, OR several attempts with use of hands. RISE TO TOES Normal: Stable for 3 s with maximum height. 					"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." "Place your feet shoulder width apart. Place your hands on your hips. Try to rise as	Note the initiation of the movement, and the use of the client's hands on the seat of the chair, the thighs, or the thrusting of the arms forward. Allow the client two attempts. Score the best attempt. (If you suspect that client is using less	
 Moderate: Heels up, but not full range (smaller than when holding hands), OR noticeable instability for 3s. Severe: < 3 s. 					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."	than full height, ask the client to rise up while holding the examiners' hands.) Make sure the client looks at a non-moving target 4-12 feet away.	
 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: 	Right Side (Standing Leg) Trial 1: 	Left Side (Standing Leg) Trial 1: Sec. Trial 2: Sec. L SCORE: Only use the lowest score sub-score an LOWEST SCO	Right Side (Standing Leg) Trial 1:	"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."	Allow the client two attempts and record the times. Record the number of seconds the client can hold up to a maximum of 20 seconds. Stop timing when the client moves hands off of hips or puts a foot down. Make sure the client looks at a non-moving target 4-12 feet ahead. Repeat on other side.	

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Modified Mini-BEST Test of Dynamic Balance (mMini-BEStest)

ADDRESSOGRAPH

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ITEM	(Within (Within C UTHRE (Within) meeting t	IISSION 7 days) DR ESHOLD 2 days of threshold)	DISC (Within	DISCHARGE (Within 7 days)		CLIENT INSTRUCTIONS	THERAPIST INSTRUCTIONS	
REACTIVE POSTURAL CONTROL	SUB SCO	RE: /6	SUB SCO	ORE:	/6			
 COMPENSATORY STEPPING CORRECTION—FORWARD Normal: Recovers independently a single, large step (second realignment step is allowed) Moderate: More than one step used to recover equilibrium. Severe: No step, OR would fall if not caught, OR falls spontaneously. 						"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."	Stand in front of the client with one hand on each shoulder and ask the client to lean forward (Make sure there is room for them to step forward). Require the client to lean until the client shoulders and hips are in front of toes. After you feel the client's body weight in your hands, very suddenly release your support. The test must elicit a step. NOTE: Be prepared to catch client.	
 COMPENSATORY STEPPING CORRECTION—BACKWARD Normal: Recovers independently a single, large step (a second re- alignment step is allowed and not counted). Moderate: More than one step used to recover equilibrium. Severe: No step, OR would fall if not caught, OR falls spontaneously. 						"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 what- ever is necessary, including taking a step, to avoid a fall."	Stand behind the client with one hand on each scapula and ask the client to lean backward (Make sure there is room for the client to step backward.) Require the client to lean until their shoulders and hips are in back of their heels. After you feel the client's body weight in your hands, very suddenly release your support. Test must elicit a step. NOTE: Be prepared to catch client.	
6. COMPENSATORY STEPPING CORRECTION—LATERAL	Left	Right	Left	Right	t	"Stand with your feet togeth- er, arms down at your sides.	Stand to the side of the client, place one hand on the side of	
 (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. 	Only use f with the lo score to c sub-score score.	the side owest calculate and total SCORE:	Only use with the score to sub-scor total sco LOWEST	Only use the side with the lowest score to calculate sub-score and total score.		your sideways limit. When I let go, do whatever is necessary, including taking a step, avoid a fall."	client lean the whole body into your hands. Require the client 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 client.	
SENSORY ORIENTATION	SUB SCC	DRE: /6	SUB SC	ORE:	/6			
 7. STANCE (FEET TOGETHER); EYES OPEN, FIRM SURFACE (2) Normal: 30 s. (1) Moderate: < 30 s. (0) Severe: Unable. 		_ sec.	sec.			"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."	Record the time the client was able to stand with feet together up to a maximum of 30 seconds. Make sure client looks at a non-moving target 4-12 feet away. If the client is able to achieve a time of 30 seconds in the first trial, a second trial is not required.	
	SCORE:		SCORE:					

FACILITY NAME

Modified Mini-BEST Test of Dynamic Balance (mMini-BEStest)

ADDRESSOGRAPH

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

FACILITY NAME

Modified Mini-BEST Test of Dynamic Balance (mMini-BESTest)

ADDRESSOGRAPH

Balance Evaluation Systems Test © 2005-2013 Oregon Health & Science University. All rights reserved.

ITEM	□ ADMISSION (Within 7 days) OR □ THRESHOLD (Within 2 days of meeting threshold)	DISCHARGE (Within 7 days)	CLIENT INSTRUCTIONS	THERAPIST INSTRUCTIONS
 WALK WITH PIVOT TURNS Normal: Turns with feet close, FAST (< 3 steps) with good balance. Moderate: Turns with feet close SLOW (>4 steps) with good balance. Severe: Cannot turn with feet close at any speed without imbalance. 			"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."	Demonstrate a pivot turn. Once the client is walking at normal speed, say "turn and stop." Count the number of steps from "turn" until the client is stable. Imbalance may be indicated by wide stance, extra stepping or trunk motion.
 STEP OVER OBSTACLES Normal: Able to step over box with minimal change of gait speed and with good balance. Moderate: Steps over box but touches box OR displays cautious behavior by slowing gait. Severe: Cannot step over box OR steps around box. 			"Begin walking at your normal speed. When you come to the box, step over it, not around it and keep walking."	Place the box (9" or 23 cm height) 10 feet away from where the client will begin walking. Two shoe boxes 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 client should walk a 3 meter distance. (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 	TUG: sec.	TUG: sec.	TUG: "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."	TUG: Have the client sitting with the client's back against the chair. The client will be timed from the moment you say "Go" until the client returns to sitting. Stop timing when the client's buttocks hit the chair bottom and the client's back is against the chair. The chair should be firm with arms.
 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. 	DUAL TASK TUG: sec.	DUAL TASK TUG: sec.	Tug with Dual Task: "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."	TUG With Dual Task: While sitting determine how fast and accurately the client can count backwards by threes starting from a number between 100-90. Then, ask the client to count from a different number and after a few numbers say "Go". Time the client from the moment you say "Go" until the client 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.
	SCORE:	SCORE:		
TOTAL SCORE:	/ 28	/ 28		



06 TRAINING & ADDITIONAL RESOURCES

- i. 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.
- ii. Instructional videos for the mSCI-FAP tasks are available on the Praxis Spinal Cord Institute Youtube channel: bit.ly/mSCI-FAP or see Clinical Assessment Toolkits section: praxisinstitute.org/research-care/ professional-resources/clinician-education/
- iii. mMini-BEStest, an extended version of the mMini-BEStest video will be provided to the sites performing this measure. Instructions can be found at: bestest.us/learn/portal/.
- iv. Rehabmeasures.org contains more information on each measure, along with more normative values. Search for each test at: www.rehabmeasures.org.
- v. SCIRE has training materials on many other outcome measures: https://scireproject.com/outcome-measures/.
- vi. SCIRE also has evidence based guidelines for lower limb rehabilitation: www.scireproject.com/rehabilitation-evidence/lower-limb.
- vii. 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. 27-52.
- viii. Unger, J. The ABC's of balance confidence: Using the Activities-specific Balance Confidence Scale in neurological PT practice. Neurosciences Division of the Canadian Physiotherapy Association. Webinar presentation given February 25, 2020. Slides available upon request to clinical@praxisinstitute.org.
- ix. The ABC and Berg have published Canadian French translations, see the following pages for the Canadian French forms. Refer to SCIRE or other outcome measure databases (links above) for lists of available languages for each outcome measure.

© Canadian Standing & Walking Module Group Praxis Spinal Cord Institute V31JAN2024							
FACILITY NAME							
Activities-Specific Balance Confidence Scale Canadian French (ABC-CF)	ADDRESSOGRAPH						
		<u> </u>		Congé (En decà de 7 jours)			
Date (Si rempli au cours de multiples séances, entrez la date de complétion	n.)						
Nom du thérapeute /Initiales :	,						
Est-ce que le patient rencontre les critères de base lors de l'obtention 2A) Aide maximale requise (>50% de l'effort total) durant la marche th	de son co nérapeutio	ongé? que.		🗆 Oui 🗖 Non			
Si le patient rencontre les critères de base, mais que le test n'est pas e	effectué, ir	ndiquez la raisor	l.	Raison:			
ACTIVITIES SPECIFIC BALANCE SCALE (ABC) - COMPLÉTÉE F	AR ENTR	REVUE					
Pour chacune des activités suivantes, veuillez indiquer votre niv	eau de co	onfiance en vou	is-même e	n choisissant un chiffre sur l'échelle suivante:			
0% 10 20 30 40) (50 60	70	80 90 100%			
AUCUNE CONFIANCE				PLEINE CONFIANCE			
"À quel point êtes-vous confiant de ne pas perdre l'équilibre ou de ne pas chancelant(e) instable lorsque vous	Congé (En deç	ça de 7 jours)					
1marchez dans la maison?	_		- %				
2 montez ou descendez les escaliers?			- %				
3 vous penchez et ramassez une pantoufle sur le plancher du garde-robe près de la porte?			%				
4 étendez le bras pour atteindre une petite boîte de conserve d'une tablette à la hauteur des yeux?			- %				
5 vous mettez sur la pointe des pieds et étendez le bras pour atteindre quelque chose au-dessus de votre tête?	_		. %	Pour chacune des situations suivantes, veuillez			
6 vous tenez debout sur une chaise et étendez le bras pour atteindre quelque chose?	_		%	indiquer votre niveau de confiance pour réaliser l'activité sans perdre l'équilibre ou sans devenir instable on chaisissant un chiffe que l'échelle de			
7 balayez le plancher?	_		- %	0% à 100%.			
8 sortez de la maison et marchez jusqu'à une voiture stationnée dans l'entrée de garage?	_		%	Si vous ne faites pas l'activité en question			
9entrez ou sortez de la voiture?	<u> </u>		- %	votre niveau de confiance si vous deviez faire			
10 marchez à travers un stationnement jusqu'au centre d'achat?	- 1		%	aide technique à la marche ou si vous devez vous appuyer			
11 montez ou descendez une rampe d'accès?	_		- %	sur quelqu'un pour réaliser cette activité, évaluez votre niveau de confiance comme si vous			
12 marchez dans un centre d'achat plein de monde où les gens vous croisent rapidement?	- 1		. %	utilisiez ces supports. Si vous avez quelque question que ce soit, veuillez les poser à la personne responsable.			
13 vous faites bousculer par des gens en marchant dans un centre d'achat?	_		. %				
14 montez ou descendez d'un escalier roulant en tenant la rampe?			%				
15 montez ou descendez d'un escalier roulant tout en tenant des paquets qui vous empêchent de tenir la rampe?	_		. %				
16marchez sur des trottoirs glacés?			. %				

Adapted from Salbach et al., 2006

FACILITY NAME L'Évaluation de l'équilibre selon BERG		ADI	DRESSOGR/	APH
Complété seule 1BMotricité vol de façon auton marche et/ou o latérale n'est pa	ement si le patient a atteint le seuil suivant: ontaire non-fonctionnelle aux MI's – ne peut se tenir debout ome/besoin de l'assistance partielle d'un accessoire de d'orthèses pour se tenir debout. L'utilisation de KAFO bi- as permise.	□ ADMISSION (À l'itérieur de 7 jours □ SEUIL (À l'intérieur de 2 jours de l'atteinte du seuil)	INTERMÉDIAIRE	CONGÉ (À l'intérieur de 7 jours)
Date (Si rempli au co	ours de multiples séances, entrez la date de	⁻ ⁻		[_] [_]
complétion.)	eute / Initiales		AAAA - MIM - JJ	
Nombre de sessions pour compléter le testNote: selon le besoin, le test peut être complété sur plus d'une session durant la période de temps indiqué.Test can				
ITEM	DESCRIPTION			
1	Passer de la position assise à debout			
2	Se tenir debout sans appui (2 min)			
3	Se tenir assis sans appui, pieds au sol (2 min)			
4	Passer de la position debout à assise			
5	Transferts			
6	Se tenir debout les yeux fermés (10 sec)			
7	Se tenir debout les pieds ensemble (1 min)			
8	Déplacement antérieur bras étendu(s) (> 25 cm)			
9	Ramasser un objet qui est par terre			
10	Se retourner et regarder en arrière			
11	Pivoter (360 degrés) sur place (< 4 sec)			
12	Placer en alternance un pied sur le tabouret (20 sec)			
13	Se tenir debout, un pied devant l'autre (30 sec)			
14	Se tenir debout sur une jambe (> 10 sec)			
	TOTAL:			
		/56	/56	/56

Adapted from Begin et al., 2009

Adapted from Begin et al., 2009

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ITEM	DESCRIPTION	ITEM	DESCRIPTION
1.	Passer de la position assise à debout Veuillez vous lever en essayant de ne pas vous aider avec les mains. 4 Peut se lever sans l'aide des mains et garder son équilibre 3 Peut se lever seul avec l'aide des mains 2 Peut se lever en s'aidant des mains, après plusieurs essais 3 Besoin d'un peu d'aide pour se lever ou garder l'équilibre 0 Besoin d'une aide modérée ou importante pour se lever	8.	Déplacement vers l'avant, bras étendu(s) (> 25 cm) Levez les bras à 90°. Étendez les doigts et allez le plus loin possible vers l'avant. 4 Peut se pencher sans danger, 25 cm (10 pouces) et plus 3 Peut se pencher sans danger, entre 12 et 25 cm (5 et 10 pces) 2 Peut se pencher sans danger, entre 5 et 12 cm (2et 5 pces) 1 Peut se pencher mais sous surveillance 0 A besoin d'aide pour ne pas tomber
2.	 Se tenir debout sans appui (2 min) Essayer de rester debout 2 minutes sans prendre appui Peut rester debout sans danger pendant 2 minutes Peut tenir debout pendant 2 minutes, sous surveillance Peut tenir debout 30 secondes sans prendre appui Doit faire plusieurs tentatives pour tenir debout 30 sec. san prendre appui Est incapable de tenir debout 30 secondes sans aide de quelqu'un 	9.	Ramasser un objet au sol Ramassez votre chaussure qui est devant vos pieds. 4 Peut ramasser sa chaussure facilement sans danger 3 Peut ramasser sa chaussure mais sous surveillance 2 Ne peut ramasser sa chaussure mais s'arrête à 2-5 cm (1-2 pouces) de l'objet et garde l'équilibre 1 Ne peut ramasser sa chaussure, a besoin de surveillance 0 Incapable d'essayer l'exercice / a besoin d'aide pour ne pas tomber
3.	Se tenir assis sans appui, pieds au sol ou sur un tabouret (2 min) Asseyez-vous les bras croisés pendant 2 min. 4 Peut rester assis(e) 2 minutes sans danger 3 Peut rester assis(e) 2 minutes, sous surveillance 2 Peut rester assis pendant 30 secondes 1 Peut rester assis(e) 10 secondes 0 Incapable de rester assis(e) sans appui, 10 secondes	10.	 Se retourner pour regarder par-dessus l'épaule gauche et l'épaule droite Retournez-vous et regardez directement derrière vous par-dessus votre épaule gauche puis la droite. 4 Se retourne des 2 côtés; bon déplacement du poids 3 Se retourne d'un côté seulement, mauvais déplacement du poids de l'autre côté 2 Se retourne de profil seulement en gardant son équilibre 1 A besoin de surveillance 0 A besoin d'aide pour ne pas tomber
4.	Passer de la position debout à assise Please sit down. 4 Peut s'asseoir correctement en s'aidant légèrement des mains 3 Contrôle la descente avec ses mains 2 Contrôle la descente avec le derrière des jambes sur la chaise 1 S'assoit sans aide, sans contrôler la descente 0 A besoin d'aide pour s'asseoir	11.	Pivoter sur place (360 degrés) Placez en alternance un pied sur un tabouret. Continuez jusqu'à ce que chaque pied ait touché le tabouret au moins 4 fois. 4 Peut tourner 360° sans danger de chaque côté, en < de 4 sec
5.	Transferts - Placer la chaise pour un transfert pivot Assoyez-vous sur le siège avec accoudoirs et ensuite sans accoudoirs. On peut utiliser deux chaises (l'une avec et l'autre sans accoudoirs) ou un lit et une chaise avec accoudoirs 4 Exécute sans difficulté, en s'aidant un peu des mains 3 Exécute sans difficulté, en s'aidant beaucoup des mains 2 Exécute l'exercice moyennant des instructions verbales et surveillance 1 A besoin d'être aidé par quelqu'un 0 A besoin de l'aide/surveillance de deux personnes afin d'être sécuritaire	12.	Debout et sans support, placement alternatif d'un pied sur une marche ou tabouret Placez en alternance un pied sur un tabouret. Continuez jusqu'à ce que chaque pied ait touché le tabouret au moins 4 fois. 4 Peut tenir sans appui, sans danger et toucher 8 fois en 20 sec 3 Peut tenir debout sans appui et toucher 8 fois en plus de 20 sec 2 Peut toucher 4 fois sans aide et sous surveillance 1 Ne peut toucher plus de 2 fois; a besoin d'aide 0 A besoin d'aide pour ne pas tomber / ne peut faire l'exercice
6.	NOTE: LES ITEMS 6-14 SONT TESTÉS EN POSITION DEBOUT Se tenir debout les yeux fermés (10 sec) Fermez les yeux et rester immobile 10 secondes. 4 Peut se tenir debout sans appui pendant 10 sec, sans danger 3 Peut se tenir debout pendant 10 sec, sous surveillance 2 Peut se tenir debout pendant 3 secondes 1 Incapable de fermer les yeux 3 sec mais garde l'équilibre 0 A besoin d'aide pour ne pas tomber	13.	 Se tenir debout sans appui, un pied devant l'autre Placez un pied directement devant l'autre (faire une démonstration devant le sujet). Si impossible, faites un grand pas (pour obtenir trois points, la longueur du pas devra dépasser la longueur de l'autre pied et l'écart entre les pieds devra être à peu près l'équivalent d'un pas normal) Peut placer un pied directement devant l'autre sans aide et tenir la position 30 sec Peut faire un grand pas sans aide et tenir la position 30 sec Peut faire un petit pas sans aide et tenir la position 30 sec A besoin d'aide pour faire un pas mais peut tenir 15 sec Perd l'équilibre en faisant un pas ou en essayant de se tenir debout
7.	 Se tenir debout les pieds ensemble (1 min) Placez vos pieds ensemble. 4 Peut joindre les pieds sans aide et rester debout 1 min sans danger 3 Peut joindre les pieds sans aide et rester debout 1 min sous surveillance 2 Peut joindre les pieds sans aide mais ne peut rester debout plus de 30 sec 1 A besoin d'aide pour joindre les pieds mais peut tenir 15 sec 0 a besoin d'aide pour exécuter l'exercice et ne peut se tenir debout 15 secondes 	14.	Se tenir debout sur une jambe Tenez debout sur une seule jambe le plus longtemps possible, sans prendre appui. 4 Peut lever une jambe sans aide et tenir plus de 10 sec 3 Peut lever une jambe sans aide et tenir de 5 à 10 sec 2 Peut lever une jambe sans aide et tenir de 3 à 5 sec 1 Essaie de lever une jambe mais ne peut tenir 3 sec. tout en restant debout, sans aide. 0 Ne peut exécuter l'exercice ou a besoin d'aide pour ne pas tomber
	SCORE TOTAL:		/56

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65 | Toolkit for SCI Standing and Walking Assessment



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