

**WHEELCHAIR SKILLS TEST (WST)<sup>®</sup>  
VERSION 4.2 MANUAL**

**This manual and related materials can be downloaded from:**  
*[www.wheelchairskillsprogram.ca/eng/testers.php](http://www.wheelchairskillsprogram.ca/eng/testers.php)*

**For further information, contact:** *[wsp@dal.ca](mailto:wsp@dal.ca)*

### **Editorial Committee**

This Manual, like the other materials that make up the Wheelchair Skills Program, has resulted from the work of many people. Those who have had the greatest involvement in this latest version constitute the Editorial Committee. They are listed below:

R. Lee Kirby, MD, Halifax (Chair)  
Cher Smith, BScOT, MSc, Halifax  
Kim Parker, MAsc, PEng, Halifax  
Donald A. MacLeod, MSc, Halifax  
Mike McAllister, PhD, Halifax  
Paula W. Rushton, PhD, Vancouver  
François Routhier, PhD, PEng, Quebec City

This Manual has been published electronically at Dalhousie University, Halifax, Nova Scotia, Canada

**TABLE OF CONTENTS**

Editorial Committee..... 2

Table of Contents..... 3

1. Introduction..... 5

2. General Instructions for the Wheelchair Skills Test (WST) Tester..... 6

    2.1 Scope ..... 6

    2.2 Test Subjects..... 6

    2.3 Setting..... 7

    2.4 Indications ..... 8

    2.5 Contraindications..... 8

    2.6 Initial Interview ..... 8

    2.7 Wheelchair and User Set-up..... 8

    2.8 General Instructions to Test Subject ..... 9

    2.9 Getting Out of the Wheelchair to Accomplish a Task ..... 9

    2.10 Feedback..... 10

    2.11 Ensuring Safety During Testing ..... 10

    2.12 Common Risks and How to Minimize Them..... 10

    2.13 Disclaimer re Safety ..... 12

    2.14 Disclaimer re Sensitivity and Specificity ..... 12

    2.15 Starting Positions..... 12

    2.16 Testers ..... 13

    2.17 Spotters..... 14

    2.18 Number of Attempts Permitted ..... 14

    2.19 Use of Aids..... 14

    2.20 Scoring of Individual Skills on Capacity ..... 15

    2.21 Time Limits ..... 17

    2.22 Rests and Breaks ..... 17

    2.23 Timing ..... 17

    2.24 Video-Recording ..... 17

    2.25 Versions of the WST ..... 17

    2.26 Individual Skills ..... 18

    2.27 Order of Tests..... 20

    2.28 Left- vs Right-Sided Components of Skills ..... 20

    2.29 Minimizing Ways in Which Training Can Invalidate WST Scores..... 20

    2.30 Calculated Scores ..... 21

    2.31 Test Report ..... 22

3.0. Individual Skills..... 23

    Organization of Section 3..... 23

    3.1 Moves controller away and back..... 24

    3.2 Turns controller on and off..... 25

3.3 Selects drive modes and speeds.....	26
3.4 Operates body positioning options.....	27
3.5 Disengages and engages motors.....	28
3.6 Operates battery charger.....	29
3.7 Rolls forwards (10 m).....	30
3.8 Rolls backwards (2 m).....	32
3.9 Turns while moving forwards (90°).....	33
3.10 Turns while moving backwards (90°).....	34
3.11 Turns in place (180°).....	35
3.12 Maneuvers sideways (0.5 m).....	36
3.13 Gets through hinged door.....	38
3.14 Reaches high object (1.5 m).....	40
3.15 Picks object up from floor.....	42
3.16 Relieves weight from buttocks (3 sec).....	43
3.17 Transfers to and from bench.....	45
3.18 Folds and unfolds wheelchair.....	48
3.19 Rolls 100 m.....	50
3.20 Avoids moving obstacles.....	51
3.21 Ascends 5° incline.....	53
3.22 Descends 5° incline.....	55
3.23 Ascends 10° incline.....	57
3.24 Descends 10° incline.....	58
3.25 Rolls across side-slope (5°).....	59
3.26 Rolls on soft surface (2 m).....	61
3.27 Gets over gap (15 cm).....	62
3.28 Gets over threshold (2 cm).....	64
3.29 Ascends low curb (5 cm).....	66
3.30 Descends low curb (5 cm).....	68
3.31 Ascends curb (15 cm).....	69
3.32 Descends curb (15 cm).....	70
3.33 Performs stationary wheelie (30 sec).....	72
3.34 Turns in place in wheelie position (180°).....	73
3.35 Descends 10° incline in wheelie position.....	74
3.36 Descends curb in wheelie position (15 cm).....	75
3.37 Gets from ground into wheelchair.....	76
3.38 Ascends stairs.....	77
3.39 Descends stairs.....	79

## 1. INTRODUCTION

A General Introduction to the Wheelchair Skills Program (WSP) can be found in a separate document, posted on the web-site. The WSP includes the Wheelchair Skills Test (WST), the Wheelchair Skills Training Program (WSTP) and related materials.

WSP documents are regularly updated on the basis of experience with them and questions posed by users of the material. As such, the WSP documents are “living” rather than fixed. Most of the refinements are merely to clarify meaning and would have little effect on scoring. However, for academic purposes, users of the WSP documents should cite the date of the version that they use. This can be found in the footer of each page. Research evidence by the developers regarding the WSP can be found in the list of published papers on the web-site.

WST Version 4.2 is different from WST Version 4.1 in the following notable ways:

- The WST Manual has been separated from the WST-Q Manual.
- The skill set has evolved slightly.
- Some of the skills have been renamed to make them easier to understand.
- The separate scoring for safety has been eliminated.
- The capacity scoring for individual skills has been revised to permit an intermediate option between “yes” and “no”.
- A new option facilitates the identification of goals for training.
- A computer-assisted testing option will be added.

The WST is a standardized evaluation method that permits a set of representative wheelchair skills to be simply and inexpensively documented. This test is intended to assess a specific person in a specific wheelchair in a standardized manner.

The WST and WST-Q each have some advantages as well as some limitations (Table 1). There is fairly good documentation that the total WST-Q and WST scores are highly correlated, although the WST-Q values tend to be slightly higher. The major advantage of the WST over the WST-Q is that it provides detail about *how* the skills are performed and the nature of any limiting factors. This permits intervention (e.g. by altering the wheelchair set-up or by training). The mutual benefits of the WST and WST-Q can be captured by using them in combination.

**Table 1. Comparison of WST and WST-Q Advantages and Limitations**

Consideration	WST	WST-Q
Time to administer	~30 minutes	~10 minutes
Obstacles needed	Yes	No
Space needed	~1000 square feet	None
Induces a training effect	Probable (~5%)	None known
Can assess capacity ( <i>can do</i> )	Yes	Yes

Can assess performance ( <i>does do</i> )	No	Yes
Simulated vs real setting	Simulated usually	Real
Affected by missing equipment	Yes	No
Likelihood of failing a skill on a technicality	Occasional	None
Degree of specificity of settings	High	Low
Possibility of a testing error	Occasional	Rare
Can be administered by phone	No	Yes
Can be administered by mailed questionnaire	No	Yes (future)
Can be administered on-line	No	Yes (future)
Can be completed by a proxy	No	Yes
Requires ability to follow instructions	Yes	No
Requires ability to communicate	No	Yes (unless proxy)
Potential to misrepresent functional level	Low	Slightly greater
Total scores	Slightly lower	Slightly higher (~4%)
Provides detail about <i>how</i> the skills are performed	Yes	No
Risk of injury	Minimal	None

## 2. GENERAL INSTRUCTIONS FOR THE WST TESTER

### 2.1. Scope

The WST is intended for manual or powered wheelchairs, operated by wheelchair users or caregivers. Throughout the WST Manual, to simplify descriptions, it has been assumed that the wheelchair being used, whether manual or powered in type, is one with rear-wheel drive (i.e. large diameter wheels in back and smaller diameter swivel casters in front). Other types of wheelchairs and scooters can be tested, but some of the instructions and explanations may need to be adapted accordingly. Wheelchair technology is diverse and evolving at a rapid rate. There may be wheelchairs that do not easily fit the categories described. In such situations, the tester needs to exercise judgement regarding which skills are appropriate.

The WST is not intended to be an adequate measure of other important wheelchair skills (e.g. maintenance and repair skills), more extreme skills (e.g. some wheelchair sport activities) or community-integration activities that combine a number of skills (e.g. use of accessible transport, shopping). The skills chosen for inclusion in the WST are intended to be representative of the range of skills that wheelchair users and/or caregivers may need to regularly perform, varying from the most basic to the very difficult. However, it would be impossible to be all-inclusive without making the size of the WST unmanageable.

### 2.2. Test Subjects

In this Manual, we have sometimes used the term “subject” as the most generic term possible, given that the person who is the object of testing may be a wheelchair user, a caregiver, a health-care student or a research participant. In addition to the scores that can be provided for a wheelchair user

and a single caregiver separately, the WST-Q may be used to assess the extent to which one or more caregivers and a wheelchair user can function as a team; the “test subject” in such situations is the combination of the wheelchair user and the caregiver(s). The nature of the test subject(s) should be recorded. Unless otherwise specified, the assumption is that it is a single wheelchair user operating alone or a single caregiver operating alone who is the test subject. If an animal (e.g. a service dog) is used to assist with a skill, the animal is considered an “aid” rather than a caregiver.

If a caregiver is the subject of testing, in general, the caregiver must meet the same criteria used for the wheelchair user (e.g. keeping the caregiver’s feet as well as the wheelchair wheels inside any designated limits). For the purposes of the WST, the caregiver is not permitted to sit on the wheelchair occupant’s lap to operate the wheelchair but the caregiver is permitted without penalty to choose an alternative method if this is proposed. Generally, the wheelchair user is not permitted to physically assist the caregiver in any way with the execution of the skill. There are exceptions specified in the section on individual skills (e.g. the “Relieves weight from buttocks”, “Transfers to and from bench” skill, the “Gets from ground into wheelchair” skill and the “Ascends stairs” skill) because it is not a reasonable expectation that a single caregiver could complete these skills alone without special equipment. However, the wheelchair user must not provide verbal assistance or direction if it is the caregiver who is the subject of testing. If, in the setting being tested, special equipment is available, it may be used, but the special circumstances should be noted in the Comments section. If the usual circumstance for a skill in real life is that a wheelchair user and his/her caregiver ordinarily share the duties, then a “blended” wheelchair user/caregiver WST may be the most appropriate choice, using the Comments section to clarify the relative roles of the two people involved. If the wheelchair user does not require any assistance for a skill (e.g. a transfer), it is reasonable to award a caregiver pass for that skill but to make a note of this circumstance in the Comment section. Special additional caregiver considerations are noted in the later section on individual skills (section 3).

### **2.3. Setting**

The test setting for the objective WST should be reasonably quiet, private, free from distractions and well lit. A standardized obstacle course may be used, but is not necessary. The settings are described in the section on individual skills (section 3) and in the Obstacle Course Guidelines page on the website. Some of the tests (e.g. turns controller on and off) require no equipment and can be performed anywhere. In general, the settings described in the sections on individual skills should be considered as guidelines to enhance standardization, rather than as rigid constraints. If lines are used to mark limits (e.g. during moving turns), whether it is permissible for the wheelchair parts in contact with the floor (or the subject’s feet) to touch the lines depends on whether the inner or outer borders of the lines reflect the dimensions specified. For instance, if a skill setting states that the subject must stay within a 1.5 m-wide space, if the outer borders of the lines represent the 1.5 m dimension then the subject may touch the line. Comparable challenges in the existing natural or built environment (e.g. in and around a hospital or the wheelchair user’s home), may be used. However, if the setting is materially different than the one specified, this should be noted in the Comments section of the WST

Form and may preclude the WST values from being compared to those in more standardized settings.

#### **2.4. Indications**

For clinical purposes, the WST can be used early in the course of a rehabilitation program as a diagnostic measure, especially to determine which (if any) skills might be addressed during the rehabilitation process (e.g. by training or wheelchair changes). By repeating the test on completion of the rehabilitation phase (or later during follow-up), the WST can be used as an outcome measure. The WST may also be used for program evaluation, to answer research questions and to assist in wheelchair design.

#### **2.5. Contraindications**

No skill should be objectively evaluated if the subject is unwilling to attempt it or if the subject or WST personnel (i.e. tester and spotter) would be placed at undue risk during testing (e.g. due to the subject's unstable cardiac disease, uncontrolled seizures, excessive weight).

#### **2.6. Initial Interview**

Wheelchair skills assessment in the clinical context usually takes place as part of a broader evaluation of the wheelchair user's health, function and context. Prior to beginning WST testing, the tester should screen the test subject for any contraindications to testing and should obtain consent to proceed. If appropriate, demographic, clinical and wheelchair-related data are recorded on the appropriate forms. These data may be obtained from the wheelchair user, the caregiver and/or the health record.

#### **2.7. Wheelchair and User Set-up**

The wheelchair user should be dressed and equipped as usual when using the wheelchair (e.g. wearing prostheses or orthoses). The wheelchair should be set up as usual for that user. This is important because changes in the personal equipment or wheelchair set-up can affect how well the skills are performed.

If the wheelchair has user-adjustable features that could affect test performance (e.g. rear anti-tip devices for a manual wheelchair or a more powerful controller mode for a powered wheelchair), the test subject is permitted to adjust them as long as the subject can do so unassisted. If tools are needed to make the adjustment, then they must be carried by the subject. The tester must not cue the test subject to make the adjustment. Having adjusted the wheelchair to accomplish a skill, unless otherwise specified, the subject may leave the wheelchair in the new configuration for the remainder of the WST. If the subject wishes to restore the wheelchair to its original configuration, he/she must do so without assistance and without cueing from the tester until the test is over. When the WST is over, the tester should remind the subject about any adjustment that has been made, especially if the adjustment might affect safety.



## 2.8. General Instructions to Test Subject

The tester instructs the test subject on the general purpose of the WST and potential risks. The subject is instructed not to attempt any task that he/she is not comfortable performing. Also, to avoid overuse injury, the subject should not overexert him/herself in the mistaken belief that success on every skill is expected. Skill and safety are the primary considerations, not speed. The tester explains to the test subject that he/she is permitted to ask questions about the test requirements before beginning the task, but not during the task.

The paragraph below may be read to wheelchair-using subjects when the objective WST is being administered. It can be modified slightly if the subject is a caregiver or if the purpose of the WST is research.

“For about the next 30 minutes, I will be asking you to perform a number of different skills in your wheelchair. The reason for this is to find out which skills you do well and which might benefit from some practice or from changes to your wheelchair. We want to see if you can perform the skill properly and safely. We do not want you to hurt yourself, but there are some mild risks involved. For instance, you could scrape your knuckles, strain your shoulders or back, tip your wheelchair over or fall out of your wheelchair. To reduce the chances of you hurting yourself, we will be spotting you while you try each skill. Please wait until the spotter is in position before attempting each skill. Also, please do not overexert yourself. We do not expect you to be able to perform every skill. Please do not try any skill that you are not comfortable performing. If you do not understand what we are asking you to do, feel free to ask questions. There is no need to hurry; this is not a race. If you would like to take a rest or to stop at any time, feel free to tell us. Do you have any general questions now, before we begin?”

Instructions may include gestures for people with language disorders or be in writing for people with hearing disorders. When giving instructions for each skill, before moving into the best position for observing and spotting the skill (if the tester is also serving as the spotter), the tester should stand to the front or side of the subject so the subject can see and hear the tester well. The tester must not instruct the subject in *how* to accomplish the task. If the tester asks for the task to be performed on both the left and right sides (e.g. turning the wheelchair around) but the subject performs the skill on only one side, the tester may prompt the subject (e.g. “Now in the other direction”) without penalty.

## 2.9. Getting Out of the Wheelchair to Accomplish a Task

If he/she can do so safely, the subject may get out of the wheelchair to accomplish a task or to adjust a wheelchair feature (e.g. the rear anti-tip devices). This does not include using any sitting surface other than the ground, unless specifically noted in the individual skill section, because such a surface might not always be available when such an adjustment is needed. The policy of permitting subjects to get out of their wheelchairs is in recognition that many people who use wheelchairs do so in combination with walking for their mobility.

### **2.10. Feedback**

There should be no feedback regarding the correctness of the skill performance. After the attempt, feedback may be given on how the subject did – for instance, “You did very well”. If the subject fails a skill, neither feedback on the reason for failure nor instruction on how it might have been performed better may be given prior to completion of the entire WST. To do so would not affect the score for the skill already tested, but there may be other skills later in the WST that could be influenced by premature feedback. If observers (e.g. students or family members) are present during the test, they should be asked to remain silent and to refrain from providing cues or feedback. Once the entire WST has been completed, the tester may explain the reasons for any failures unless the WST is being administered to a research participant.

### **2.11. Ensuring Safety During Testing**

The tester or another trained person must serve as a spotter for any task during which there is a risk of the subject losing control of the wheelchair, tipping the wheelchair over or the wheelchair occupant falling from it. A temporary seat belt may be added for skills during which there is a risk of a forward tip or the wheelchair user falling from the wheelchair. The tester should not permit the subject to attempt or complete any task that the tester has reason to believe that the subject will be unable to complete without risk to the subject, tester or spotter. For some skills (specified later in the section on individual skills), before attempting a specific skill, the tester should ask the subject about whether or not he/she feels able to perform the test. If not, a “fail” score may be awarded for capacity without requiring the subject to attempt the skill. For such skills, if the subject believes that he/she would be able to perform the skill, the tester should inquire about the method that the subject intends to use. If an unsafe method is described, the tester is justified in preventing the objective testing of that skill and awarding a “fail” score. The reasons for any intervention should be recorded in the Comments section of the WST Form. Despite these precautions, as a general rule, the tester should avoid preemptively disqualifying the subject and should allow him/her to attempt a skill.

### **2.12. Common Risks and How to Minimize Them**

There are several types of common risks that can cause injury during wheelchair use. Those that require spotter intervention and a general approach to preventing serious injury are described in more detail in the Spotter Manual (see web-site). Risks during specific skills are described later in the section on individual skills. Minor injuries (e.g. pinches, scrapes) can be difficult to prevent, because they occur without sufficient time for intervention. Overuse injuries (e.g. of shoulder) can also be difficult to prevent, because symptoms may not occur until later. Although minor injuries and ergonomically unsound methods may not be a sufficient problem to warrant awarding a “fail” score, a score of “pass with difficulty” or a note in the Comments section may be appropriate. Some common risks will now be described.

- **Rear tips:** A rear tip occurs when the pitch of the wheelchair exceeds the rear stability limit to the extent that the wheelchair falls backwards. This may occur while the wheelchair is

stationary (e.g. when reaching backwards) or moving (e.g. when accelerating forwards). If the wheelchair user lets go of the rear wheels during a rear tip, the wheelchair will roll quickly forwards while tipping backwards. This is called “submarining”.

- Forward tips and/or falls: A forward tip occurs when the pitch of the wheelchair exceeds the forward stability limit to the extent that the wheelchair tips forward. This may occur while the wheelchair is stationary (e.g. when leaning forward) or moving (e.g. when striking an obstacle). The tip may be partial, but sufficient for the wheelchair occupant to slide or fall forward out of the wheelchair. In some instances, such as during a sudden deceleration, the wheelchair occupant may slide or fall forward out of the wheelchair without any tip.
- Sideways tips: A sideways tip occurs when the pitch of the wheelchair exceeds the sideways stability limit to the extent that the wheelchair tips sideways. This may occur while the wheelchair is stationary (e.g. when leaning sideways) or moving (e.g. if one rear wheel ascends a curb before the other).
- Combination tip/fall risks: Tips and falls do not always occur in the pure rear, forward or sideways directions. For instance, when descending an incline with one footrest elevated and the other lowered, a combined forward and sideways tip may occur when the lowered footrest strikes the ground at the incline-level transition, decelerating one side of the wheelchair. Another combination risk is when different risks present themselves sequentially. For instance, during an attempt to overcome a threshold with the momentum approach, there is the risk of a rear tip when the wheelchair user attempts to pop the casters high enough to clear the threshold. If the casters do not clear the threshold, the sudden deceleration of the wheelchair can then cause a forward tip or fall.
- Runaways: A runaway occurs when the wheelchair user loses control of the speed or direction of the wheelchair (e.g. when descending an incline or stairs). This can lead to a collision or a tip.
- Injury due to contact with a wheelchair part: Pinches can occur when a part of the subject’s body becomes caught in a wheelchair part (e.g. when opening a folded wheelchair). Injury can also occur if a body part is dragged over or rubbed against a sharp wheelchair part (e.g. the under-surface of a flipped-up footrest). Also, during some activities (e.g. curb ascent) that require the wheelchair user to push forcefully on the hand-rims, the thumbs may get abraded by the wheelchair brakes. During incline descent, the hands slowing the wheelchair by friction on the hand-rims can experience friction burns or lacerations due to sharp burrs on the hand-rims.
- Injuries due to contact with the environment: When exposed parts of the wheelchair user’s body (e.g. hands, feet or head) strike or get pinched by objects in the environment (e.g. doors or walls), injury may occur.

- Lower-limb hyper-flexion injury: The lower limb can be injured if the wheelchair moves forward with the foot planted on the surface. This is most likely to occur when the foot catches on the ground (e.g. at an incline-level transition, or when negotiating obstacles or level changes). Examples of injuries are hyper-flexion sprain of the knee or fracture of the tibia or femur due to a knee being forcibly flexed beyond its available range.
- Jarring: Sudden jarring forces can be experienced when the wheelchair decelerates suddenly (e.g. when rolling into a threshold or dropping off a curb).
- Over-exertion injuries: If subjects over-exert themselves when attempting skills that they are unfamiliar with or incapable of performing, they may experience overuse injuries (e.g. affecting the shoulder or back). Similarly, subjects with limited exercise tolerance due to medical conditions (e.g. of heart or lung) may cause themselves harm by over-exertion.
- Poor ergonomic technique: Subjects are at risk of acute or chronic injuries due to poor ergonomic technique (e.g. folding the wheelchair with a bent and twisted back).

### 2.13. Disclaimer re Safety

Safely performing a skill in the supervised WST environment provides no guarantee that the subject will perform the same or similar skills safely on other occasions.

### 2.14. Disclaimer re Sensitivity and Specificity

The WST is a sensitive and specific test. A change in the subject (e.g. by a reduction of spasticity), the subject's equipment (e.g. removal of a prosthesis), a change in the wheelchair (e.g. by addition of a rear anti-tip device) and/or a change in the test environment (e.g. by lowering lighting conditions) may affect the test scores. The objective WST findings are therefore specific to the situation assessed.

Furthermore, the objective WST is a measure of what a subject *can do* ("capacity", in the terms of the International Classification of Functioning, Disability, and Health [ICF]) during a specific test administration, in a specific wheelchair and in a specific setting. It is not a measure of what he/she *does do* ("performance", in ICF terms) on a regular basis or *will do* in the future. The questionnaire version of the WST (WST-Q) can be used as a measure of performance.

### 2.15. Starting Positions

Starting positions for the test subject, the wheelchair, the tester and the spotter(s) are specified in the section on individual skills. Unless otherwise noted, the starting positions for each WST skill are as follows:

- Wheelchair user: the wheelchair user is seated in the wheelchair, in whatever position and state that he/she prefers.
- Caregiver: If a caregiver is the subject of testing, his/her starting position is generally standing

near the wheelchair.

- **Wheelchair:** all of the wheelchair components that are usually used by the subject are in place. The brakes may be locked or unlocked. A rolling start is permitted (i.e. there is no need to come to a complete stop before beginning the skill attempt). Unless otherwise specified, when a starting position for the wheelchair user or wheelchair is defined (e.g. relative to an obstacle), the tester may assist the subject in getting into this position. The tester should be careful not to provide inadvertent cues to the subject on how to perform the skill. For instance, with a powered wheelchair that has both caregiver and user-operated controls, the tester should use the caregiver controls because they are usually out of the wheelchair user's line of sight. If the subject expresses the wish to attempt a task by moving the wheelchair backwards, the tester may assist him/her in getting into the requested starting position, but the tester must not suggest alternative approaches. Also, when the instructions call for the axles of the leading wheels to be behind a starting line, the leading wheels are ones that are normally in contact with the ground (i.e. not the wheels of anti-tip devices that are off the ground).
- **Tester:** The starting position for the tester is where he/she can be well seen and heard when providing instructions for the skill.
- **Spotter(s):** The starting position for the spotter(s) is near the wheelchair, but the exact position varies with the skill being attempted, the number of spotters involved and the method being used to complete the skill. For powered wheelchairs, the spotter should be in a position where the power can be turned off and the joystick accessed.

### **2.16. Testers**

The position for the tester, after initially communicating instructions to the subject, is generally where he/she will be best able to view the skill. The tester is an important element in the reliability and validity of the test results. The tester may be a rehabilitation clinician (e.g. an occupational or physical therapist) who is regularly involved in wheelchair prescription and training, but there are no minimum educational pre-requisites for those interested in becoming WST testers. However, the tester must be thoroughly familiar with all elements of the WST, including the general principles and the specific test elements. It is important that the test elements be administered in a consistent manner. The tester should feel free to refer to the WST Manual whenever necessary.

Those interested in becoming WST testers should read the WST Manual and related materials thoroughly, review practice materials (e.g. videos on the website) and, if possible, observe in-person how a skilled tester administers the test. Ideally, the WST should only be used by testers who have been trained in its administration and have the necessary knowledge, skills and attitudes. However, good results should be possible by careful attention to the WST Manual, because the test has been designed to be reasonably self-explanatory and to reflect normal clinical practices.

### **2.17. Spotters**

Spotters play an important role in ensuring safety during WST testing. The spotter role is dealt with in detail in a separate Spotter Manual (see website). Although we have separated the testing and

spotter roles for the purposes of discussing the different roles, usually a single person can easily fulfill both roles. With few exceptions, a single spotter can adequately minimize the likelihood of serious injury. However, for some situations (e.g. a heavy wheelchair user), an additional spotter may be useful. Testers should understand the spotter's role and be able to supervise the spotter(s), although the testers need not be able to perform the physical spotter tasks themselves.

If a caregiver is the subject of testing, he/she is expected to behave in a manner that is safe for both the wheelchair occupant and the caregiver. The spotter in such situations should remain close enough to intervene if the caregiver fails to exercise due caution.

### **2.18. Number of Attempts Permitted**

For each skill during the objective WST, the subject is ordinarily permitted only a single attempt. However, if the subject misunderstands the instructions or indicates convincingly that an unsuccessful attempt was unrepresentative of the usual performance level, a second attempt may be permitted. A second attempt is not permitted if the first attempt was unsafe. During the course of any single attempt, a subject may use different approaches (e.g. in a manual wheelchair first attempting the soft-surface skill forwards, then backwards if unable to proceed or, in a powered wheelchair, pausing to change controller settings or the degree of tilt). It is only considered a second attempt if the subject clearly starts over (e.g. with a repeat of the instructions) and a significant pause between attempts. If there was something unfair about an initial attempt (e.g. the spotter intervened prematurely), it is permissible to repeat the attempt without penalty. If a subject appears to be rushing his/her skill attempts and failing to meet test criteria because of this, on the first occasion that this occurs, the tester may permit a second attempt and explain the importance of listening carefully to the instructions before beginning the skill attempt.

A second attempt should not be considered a routine; ultimately, this is at the tester's discretion. If a second attempt is believed to be appropriate, the tester should provide no feedback on the reason for the failure, nor any instruction on how to perform the task, between the two attempts. The task instructions may be repeated. If the skill is performed better on the second trial, record the better score. If a subject is unsuccessful when asked to perform a task (e.g. sideways maneuvering) but does it correctly later, incidental to another task (e.g. the transfer), the score must not be revised. The WST requires that the subject be able to perform the skill on command. It is sometimes the case that a test subject who has just failed a skill will ask for a chance to "try again". This may be permitted, at the tester's discretion, but it is the first attempt that is scored.

### **2.19. Use of Aids**

Aids (e.g. for reaching) are permitted if the subject carries them with him/her or if they are available in the subject's personal environment and the WST is conducted there (e.g. a transfer aid at the bedside). An animal (e.g. a service dog) that assists with the performance of a skill is considered an aid, not a caregiver.

## 2.20. Scoring of Individual Skills on Capacity

The tester scores the success in accomplishing each skill, using the scale shown in Table 2. Specific criteria can be found later in the section on individual skills.

**Table 2: Scale for Scoring Skill Capacity Objectively**

<p><b>Pass (Score of 2):</b></p> <ul style="list-style-type: none"> <li>• Task independently and safely accomplished without any difficulty. Unless otherwise specified, the skill may be performed in any manner. The focus is on meeting the task requirements, not the method used. Aids may be used.</li> <li>• A “pass” score may be awarded if the subject has passed a more difficult version of the same skill (e.g. if a subject successfully “ascends curb [15 cm]”, a pass may be awarded on the “ascends low curb [5 cm]” skill without the subject needing to actually perform the latter).</li> </ul> <p><b>Pass with difficulty (Score of 1):</b></p> <ul style="list-style-type: none"> <li>• If the evaluation criteria are met, but the subject experienced some difficulty worthy of note (e.g. excessive time or effort required, inefficient method used, ergonomically unsound method used, poor technique that may or may not lead to overuse injury at a later time, minor injury [e.g. minor blisters, abrasions or superficial lacerations] incurred) or a caregiver creates more than minimal discomfort or potential harm (e.g. using excessive force with the knee against a flexible backrest of the wheelchair to help push the wheelchair through gravel).</li> </ul> <p><b>Fail (Score of 0):</b></p> <ul style="list-style-type: none"> <li>• Task incomplete.</li> <li>• If there are limitations of the space within which the skill is to be performed and the wheelchair wheels or the subject’s feet in contact with the ground extend beyond those limits. Feet on footrests or wheelchair parts not in contact with the ground are usually permitted to extend beyond the limits, to simplify testing.</li> <li>• Unsafe performance. A skill is considered significantly unsafe if the subject requires appropriate and significant spotter intervention to prevent acute injury to the subject or others. Performing a skill quickly is not, in and of itself, unsafe. A skill performance is obviously unsafe if it results in a significant acute injury (e.g. sprains, strains, fractures or head injury).</li> <li>• Likely to be unsafe in the opinion of the clinician or tester (e.g. on the basis of the subject’s description of how a task will be attempted).</li> <li>• Unwilling to try.</li> <li>• Has failed an easier version of the same skill (e.g. if the subject fails the “ascends 5°</li> </ul>
--

incline” skill, he/she automatically fails the “ascends 10° incline” skill).

- If a caregiver is the subject of testing, he/she may not ask the wheelchair occupant for advice or physical assistance in the performance of the skill unless specifically permitted in the caregiver section of the individual skill descriptions.
- Wheelchair part malfunction preventing completion of the skill.

**Not Possible (NP):**

- The wheelchair does not have the component.

**Testing Error (TE):**

- If the tester cannot get the wheelchair user into position to test the skill (e.g. out of the wheelchair for the “folds and unfolds wheelchair” skill, on the floor for the “gets from ground into wheelchair” skill or up the stairs to allow the assessment of the “descends stairs” skill).
- If the battery charger is not available where testing occurs.
- If testing of the skill was not sufficiently well observed to provide a score (e.g. if the skill is being scored from videotape and the entire skill could not be viewed).
- If a correctable testing error is recognized when it occurs, the test should be repeated.
- If there is a minor testing error that the tester judges as not affecting his/her ability to score the test, this can be ignored.

If there is spotter intervention during a skill attempt, the extent of the intervention and the reason for it should be recorded in the Comments section. The extent of spotter intervention may consist of a warning to a subject to stop or change the approach, minor physical contact from the spotter (even if the subject was able to complete the trial) or full intervention (e.g. if the subject required the spotter to prevent him/her from potentially injuring him/herself). If a spotter believes that a significant injury is imminent, he/she should intervene.

Transient tips (when one or more wheels unintentionally lift from the surface, but the wheelchair returns to the upright position without spotter intervention), are not sufficient reasons to fail a subject’s attempt at a skill. Indeed, intentional transient tips are necessary to accomplish some skills. Full tips should never occur, because the spotter should intervene.

If any significant and justifiable spotter intervention is needed, the subject must be awarded a “fail” score on this skill. The tester may decide that an intervention was not warranted and allow the subject to attempt the skill again. A significant intervention is one that interferes with the performance of the skill. A spotter may occasionally intervene inappropriately. If this is a minor intervention, that neither hinders nor helps the subject, it can be ignored (“no harm, no foul”).



### 2.21. Time Limits

There is no formal upper time limit for each skill or for the entire WST. This is to avoid the necessity of the tester timing each skill and to avoid having the subject feel rushed to complete the task. Although, in real life, a skill must be performed within a practical time to be useful, the definition of what such a time limit should be may vary with the circumstances. Fortunately, when administering the WST, this does not usually present a dilemma because the subject stops a task when it is taking too long. Also, if a subject is perseverating or taking an apparently hopeless approach, the tester may intervene and stop the test of that skill.

### 2.22. Rests and Breaks

Rests are permitted during the skill attempts, unless precluded by the nature of the skill (e.g. the “performs stationary wheelie [30 sec]” skill). If the subject is making progress, he/she should be allowed to continue. It is also permissible for subjects to rest between skills. Indeed, there is no need for all of the skills to be performed on the same day. The WST is a test of individual skills, not a test of endurance. However, if the testing is conducted on more than one day, the tester should document the dates. Also, the wheelchair, its set-up and subject aids (e.g. prosthesis) must remain the same if an overall score is to be valid.

### 2.23. Timing

The WST only requires the timing of two skills – “relieves weight from buttocks (3 sec)” and “performs stationary wheelie (30 sec)”. These need only be timed to the nearest second. However, the time required to perform other individual skills, a series of skills or the entire WST can provide an additional level of sensitivity to change (e.g. due to training or the use of a different wheelchair) that clinicians or researchers may wish to use.

### 2.24. Video-Recording

Video-recording of the tasks is not necessary, but can provide useful qualitative information about how the task is accomplished. Video feedback can also be a useful training aid.

### 2.25. Versions of the WST

There are four modular versions of WST 4.1 (Table 3). Which version should be used in a specific instance is based on the type of wheelchair and the nature of the test subject. Table 4 shows the individual skills for each version.

**Table 3. Versions of WST by Type of Wheelchair and Nature of the Test Subject**

Type of Wheelchair	Type of Test Subject
Manual	Wheelchair user
	Caregiver
Powered	Wheelchair user
	Caregiver

### 2.26. Individual Skills

The individual skills (Table 4) are the units of assessment. A brief description of each skill and the rationale for including it in the WST can be found in the section on individual skills. In naming the individual skills, we have attempted to be as generic and universal as possible. This is in recognition that the environments in which wheelchairs are used vary widely around the world, although they share many common characteristics. The WST and the WST-Q both use the same skill set, but the correspondence should not be considered exact. The WST, by its nature, deals with reasonably exact dimensions (e.g. “rolls forwards [10 m]”). Because test subjects may not be able to easily visualize such exact distances, the WST-Q questions are stated in more general terms (e.g. “rolls forwards short distance”).

The order of skills in Table 4 reflects the functional groupings of skills and the approximate order of difficulty (although this can vary depending upon the subject and wheelchair). Although somewhat arbitrary, it is possible on the basis of difficulty to roughly group skills into three levels – indoor, community and advanced. This can be helpful for communicating with others, for planning therapies and for justifying the purchase of different types of wheelchairs. Which skills have been assigned to which levels is indicated in Table 4.

**Table 4: WST and WST-Q 4.2 List of Individual Skills**

#	Skill Level	Individual Skill Names		Manual WC		Powered WC	
		WST	WST-Q	WCU	CG	WCU	CG
1.	Indoor	Moves controller away and back	Moves controller away and back	X	X	✓	✓
2.	Indoor	Turns controller on and off	Turns controller on and off	X	X	✓	✓
3.	Community	Selects drive modes and speeds	Selects drive modes and speeds	X	X	✓	✓
4.	Indoor	Operates body positioning options	Operates body positioning options	X	✓	✓	✓
5.	Indoor	Disengages and engages motors	Disengages and engages motors	X	X	✓	✓
6.	Indoor	Operates battery charger	Operates battery charger	X	X	✓	✓
7.	Indoor	Rolls forwards (10 m)	Rolls forwards short distance	✓	✓	✓	✓
8.	Indoor	Rolls backwards (2 m)	Rolls backwards short distance	✓	✓	✓	✓
9.	Indoor	Turns while moving forwards (90°)	Turns while moving forwards	✓	✓	✓	✓
10.	Indoor	Turns while moving backwards (90°)	Turns while moving backwards	✓	✓	✓	✓
11.	Indoor	Turns in place (180°)	Turns in place	✓	✓	✓	✓

12.	Indoor	Maneuvers sideways (0.5 m)	Maneuvers sideways	✓	✓	✓	✓
13.	Indoor	Gets through hinged door	Gets through hinged door	✓	✓	✓	✓
14.	Indoor	Reaches high object (1.5 m)	Reaches high object	✓	X	✓	X
15.	Indoor	Picks object up from floor	Picks object up from floor	✓	X	✓	X
16.	Indoor	Relieves weight from buttocks (3 sec)	Relieves weight from buttocks	✓	✓	✓	✓
17.	Indoor	Transfers to and from bench	Transfers to and from bench	✓	✓	✓	✓
18.	Community	Folds and unfolds wheelchair	Folds and unfolds wheelchair	✓	✓	X	X
19.	Community	Rolls 100 m	Rolls longer distance	✓	✓	✓	✓
20.	Community	Avoids moving obstacles	Avoids moving obstacles	✓	✓	✓	✓
21.	Community	Ascends 5° incline	Ascends slight incline	✓	✓	✓	✓
22.	Community	Descends 5° incline	Descends slight incline	✓	✓	✓	✓
23.	Advanced	Ascends 10° incline	Ascends steep incline	✓	✓	✓	✓
24.	Advanced	Descends 10° incline	Descends steep incline	✓	✓	✓	✓
25.	Community	Rolls across side-slope (5°)	Rolls across side-slope	✓	✓	✓	✓
26.	Community	Rolls on soft surface (2 m)	Rolls on soft surface	✓	✓	✓	✓
27.	Community	Gets over gap (15 cm)	Gets over gap	✓	✓	✓	✓
28.	Community	Gets over threshold (2 cm)	Gets over threshold	✓	✓	✓	✓
29.	Community	Ascends low curb (5 cm)	Ascends low curb	✓	✓	✓	✓
30.	Community	Descends low curb (5 cm)	Descends low curb	✓	✓	✓	✓
31.	Advanced	Ascends curb (15 cm)	Ascends high curb	✓	✓	X	X
32.	Advanced	Descends curb (15 cm)	Descends high curb	✓	✓	X	X
33.	Advanced	Performs stationary wheelie (30 sec)	Performs stationary wheelie	✓	✓	X	X
34.	Advanced	Turns in place in wheelie position (180°)	Turns in place in wheelie position	✓	✓	X	X
35.	Advanced	Descends 10° incline in wheelie position	Descends steep incline in wheelie position	✓	X	X	X
36.	Advanced	Descends curb in wheelie position (15 cm)	Descends high curb in wheelie position	✓	X	X	X
37.	Advanced	Gets from ground into wheelchair	Gets from ground into wheelchair	✓	✓	✓	✓
38.	Advanced	Ascends stairs	Ascends stairs	X	✓	X	X

39.	Advanced	Descends stairs	Descends stairs	✓	✓	X	X
-----	----------	-----------------	-----------------	---	---	---	---

Abbreviations and symbols: WC = wheelchair, WCU = wheelchair user, CG = caregiver,

✓ = included, X = not included

### 2.27. Order of Tests

During the WST, the tests may be performed in any order. For instance, it is usually practical to test the subject's ability to fold and unfold the wheelchair after testing the ability to transfer out of the wheelchair, but before evaluating the transfer back into the wheelchair. The order of testing may also vary depending on the availability and layout of equipment and test settings. For highly skilled test subjects, it may even be practical to use a "top-down" approach, starting with the more advanced of similar skills. If the subject can perform the advanced-level version of some skills (e.g. the "ascends curb [15 cm]" skill), then a pass may also be awarded for the simpler version of the same skill (e.g. the "ascends low curb [5 cm]" skill).

### 2.28. Left- vs. Right-Sided Components of Skills

In objectively evaluating skill performance, both sides are tested (e.g. turning to left and right). Although this may be redundant for subjects with symmetrical impairments (e.g. of strength or range of motion), it may be valuable for subjects with asymmetrical impairments (e.g. due to hemiplegia or amputation) or for wheelchairs with asymmetrical flaws (e.g. a bent wheel rim on one side). A left-sided skill can be performed using the right hand without penalty and vice versa.

### 2.29. Minimizing Ways in Which Training Can Invalidate WST Scores

There are three avoidable ways that wheelchair skills training can have undesirable effects on WST scores:

1. **Inflation of the baseline score:** If the same person is serving as both the tester and trainer, he/she may be tempted to conduct testing and training together. For instance, if the subject fails the "gets over gap (15 cm)" skill, the tester/trainer may be tempted to provide instruction immediately, before continuing with the testing. However, the tester should complete as much of the pre-training WST as possible before beginning any training, because the pre-training score of some skills may be artificially inflated by just having learned about a similar skill. In the gap-skill example, training is likely to improve the subject's ability to perform the subsequent "gets over threshold (2 cm)" skill. To reduce potential frustration by a subject who wants to proceed immediately to training, the tester should explain the process and indicate when training on the skills will be provided.
2. **Failure to ensure skill retention:** It is not unusual for a subject learning a new skill to experience transient success during a training session, but to be unable to perform the same skill at the next session. The ultimate goal of training is that the subject will retain the ability to perform the skill at any time in the future. To ensure at least short-term retention, the post-training WST should be performed at least 3 days after the training has been completed.

3. **The “training to the test” or “specificity of training” phenomenon:** If the training and testing are carried out in the same setting, it is possible that the subject may perform well in that setting, but not others. The onus is on the trainer to be aware of this phenomenon, to have the subject practice in a variety of settings and to vary the order of skills during practice. This increases the likelihood that the subject will be able to transfer or generalize the skill, which is usually the object of training. The tester should also be aware of this phenomenon, varying the WST to the extent possible during subsequent tests. This may be as simple as having the person face a different direction while attempting a skill or varying the order of skills assessed. The WST-Q is less susceptible to this limitation than the objective WST.

### 2.30. Calculated Scores

The following scores can be calculated by hand (as described below) or by using the software that will be part of the computer-assisted testing option. Subtracting the number of NP (not possible) scores from the denominator avoids penalizing test subjects by the inclusion of skills that would be impossible to complete. Subtracting the number of TE (testing error) scores has a similar purpose.

1. **Total Capacity WST-Q Score (%):** The numerator is the total raw capacity score (i.e. the sum of the individual skill scores) and the denominator is the total possible raw capacity score (i.e. the total number of skills minus the number of skills awarded NP [not possible] or TE [testing error] scores x 2). 100% is the maximum possible percentage score.

Total Capacity Score =  $\frac{\text{sum of individual skill scores}}{([\text{number of possible skills} - \text{number of NP scores} - \text{number of TE scores}] \times 2)} \times 100\%$

2. **Goal Attainment Score (%):** The Goal Attainment Score (GAS) is of use when there is only a limited set of the skills that are addressed, such as through wheelchair modifications or training. The numerator is the number of skills that are met and the denominator is the number of goals set. 100% is the maximum possible percentage score.

Goal Attainment Score =  $\frac{\text{number of goals met}}{\text{number of goals set}} \times 100\%$

3. **Special Purpose Score (optional):** Any subset of individual skills may be selected for a calculated subtotal percentage score. For instance, the scores for individual skill levels (i.e. Indoor, Community and Advanced) can be calculated.

### 2.31. Test Report

There is one WST Form for each of the four versions of the WST (see website). The WST Form may be completed by hand or generated by the software that will be part of the computer-assisted testing option. The completed WST Form includes identifying data, the scores for individual skills, the calculated score, comments and the skills (if any) for which the subject would be interested in receiving training.

The tester should record any comments that are appropriate (e.g. the reasons for any failures, left-right asymmetry). The nature of any potentially dangerous incident should be documented. Comments by the test subject may also be recorded. Note should be made of any observations that require action (e.g. further training in alternative ways to accomplish a task or a change in equipment that might help). The WST tester should be alert to potentially correctable limiting factors in the wheelchair user's health (e.g. limited range of motion), wheelchair (e.g. rear axles too far back) and environment (e.g. if the WST is performed in the subject's home, a doorway that is too narrow).

### 3. INDIVIDUAL SKILLS

#### Organization of Section 3

This section is organized by individual skills, in the order listed in Table 4. The descriptions are primarily for the objective WST, but the WST-Q is intended to assess skills with roughly similar characteristics and expectations. For each skill in Section 3, the following headings are used:

- Versions applicable: For which of the four WST versions (Table 3) this skill is applicable.
- Description: A brief general description of the skill.
- Rationale: The reason why this skill has been included.
- Equipment: Suggested equipment (other than the wheelchair) and set-up, if any, for the objective WST. Equivalent alternatives may be used. Whenever a “line” is mentioned, it need not be visible to the test subject. It could be some other indicator, such as a mark on the floor, a doorway or a coffee cup on the floor.
- Starting positions: If other than the general starting positions described earlier, the starting positions for the objective WST are described for the wheelchair user, the wheelchair, the tester and the spotter(s). These positions may need to be altered, depending upon the subject’s approach to the skill. When a spotter strap is mentioned, this only applies to the version of the WST for manual wheelchairs operated by their users.
- Instructions to subject: An example of the language that the tester might use in directing the objective completion of the skill. Also, any actions by the tester are noted here. If success on screening questions (“can you do it... how do you do it?”) is a strongly recommended pre-condition to attempting the skill, it is noted here.
- Capacity criteria: It is noted in this section what must be accomplished to warrant a score of “pass” or “pass with difficulty”, in addition to the general scoring criteria described earlier. It is also noted here whether success or failure on a related harder or easier skill (e.g. inclines of different slopes) may result in a pass or a fail without needing to actually attempt the skill.
- Caregiver considerations: Any special considerations are noted here that were not covered earlier, if the test subject is the caregiver.
- Powered wheelchair considerations: Any special considerations are noted here if the wheelchair is powered.

<b>3.1 Moves controller away and back</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU <b>X</b> WST-M/CG <b>X</b></li> <li>• WST-P/WCU <b>✓</b> WST-P/CG <b>✓</b></li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the controller (e.g. joystick) away from its usual operating position and then returns it to its original position.</li> <li>• This skill is <u>only</u> for powered wheelchairs.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• This skill is useful when the controller is in the way for some activities (e.g. approaching a table, feeding, transfers). Some wheelchair users may need to move the controller in order to change the modes or speed.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Controller in its usual operating position and the power off.</li> <li>• Spotter: Beside the wheelchair, on the side of the controller.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Move the controller out of the way. Return the controller to its usual position.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The subject successfully and safely moves the controller away from its usual operating position and then returns it to the original position.</li> <li>• Within the limits of the controller design, the controller should be moved sufficiently out of the way so that it would not interfere with closely approaching a table of the same height.</li> <li>• On restoring the controller to the operating position, it should be secured in this position, to the extent possible.</li> </ul> </li> <li>• A “not possible” score can be awarded for this skill because all wheelchairs do not have this capability.</li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>



<b>3.2 Turns controller on and off</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU <b>X</b> WST-M/CG <b>X</b></li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject turns the controller on and off.</li> <li>• This skill is only for powered wheelchairs.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• The functions of the powered wheelchair require power.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Controller on or off, whichever is the case when the skill assessment begins.</li> <li>• Spotter: Beside the wheelchair, on the side of the controller.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Turn the power on. Turn the power off.” The order is not important as long as both actions are assessed.</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if the subject successfully and safely turns the controller on and off.</li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.3 Selects drive modes and speeds</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU <b>X</b> WST-M/CG <b>X</b></li> <li>• WST-P/WCU <b>✓</b> WST-P/CG <b>✓</b></li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject operates the controller to switch between drive modes and speeds and then returns to the original setting.</li> <li>• This skill is <u>only</u> for powered wheelchairs.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Most powered wheelchairs provide an opportunity for the user to operate the wheelchair in different modes and speeds. The controller settings that are most appropriate for driving slowly in tight quarters are different from the settings that would work best when ascending inclines or low curbs.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Controller in operating position and turned on.</li> <li>• Spotter: Beside the wheelchair, on the side of the controller.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• "Put the wheelchair controller into each of the drive and speed settings that you can, one at a time. Put your chair back into the original drive mode/speed".</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A "pass" should be awarded if: <ul style="list-style-type: none"> <li>• The subject successfully and safely switches the joystick controller through all available drive modes and/or speeds and returns to the original driving mode when asked.</li> <li>• If the wheelchair has both adjustable modes and speeds, the subject must be able to handle both for a pass.</li> </ul> </li> <li>• A "not possible" score can be awarded for this skill because all wheelchairs do not have this capability.</li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.4 Operates body positioning options</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU <b>X</b> WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject changes body position (e.g. tilt, recline, seat elevation, legrest elevation) using the available wheelchair options and then restores the wheelchair to the original position.</li> <li>• This skill is for powered wheelchairs as well as manual wheelchairs operated by caregivers.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Wheelchairs capable of variable body positions are used for a variety of reasons, including pressure relief, comfort, to enhance breathing, postural control, stability, to enhance transfers, facilitate bladder management, reduce spasticity or reduce edema.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: In whatever position the person is in so as not to demonstrate the skill.</li> <li>• Spotter: Beside the wheelchair, on the side of the controller.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Show me how your wheelchair allows you to change body positions. Bring the wheelchair back into the original position. Are there any other options that you can show me?”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if the subject successfully and safely changes body position in all of the ways possible for the wheelchair and returns to the original position.</li> <li>• A “not possible” score can be awarded for this skill because all wheelchairs do not have this capability.</li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.5 Disengages and engages motors</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU <b>X</b> WST-M/CG <b>X</b></li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject disengages and engages the motors.</li> <li>• This skill is only for powered wheelchairs.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Disengaging the motors allows the wheelchair to be pushed manually without power (e.g. if the battery is dead).</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Power on. Motors engaged.</li> <li>• Subject: The subject may be out of the wheelchair to perform this task, but no sitting surface other than the floor or ground may be used.</li> <li>• Spotter: Beside the wheelchair, on the side that the subject leans toward.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Disengage the motors of the wheelchair, so that the wheelchair can be pushed by hand. Engage the motors”.</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The subject successfully and safely disengages and engages the motors.</li> <li>• The tester should confirm that the motors have been disengaged by checking if the wheelchair can be rolled a short distance.</li> <li>• The tester should confirm that the motors have been engaged by checking if the wheelchair cannot be rolled.</li> </ul> </li> <li>• For some powered wheelchairs, the power may need to be turned off for the wheelchair to be easily pushed. Failure to do so may result in either a “pass with difficulty” or “fail” score depending upon the difficulty that the tester experiences in moving the wheelchair.</li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.6 Operates battery charger</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU <b>X</b> WST-M/CG <b>X</b></li> <li>• WST-P/WCU <b>✓</b> WST-P/CG <b>✓</b></li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject operates the battery charger, setting it up for charging and returning it to the original condition.</li> <li>• This skill is <u>only</u> for powered wheelchairs.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Powered wheelchairs utilize battery power. The battery needs to be charged regularly, as often as daily.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• The battery charger used with the wheelchair.</li> <li>• If the battery charger is not available where the WST is being performed, a “testing error” (TE) score should be awarded and this should be noted in the Comments section.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Facing the battery charger and 0.5 m away from it. The battery charger should be plugged into the power source.</li> <li>• Subject: The subject may be out of the wheelchair to perform this task and may sit on another surface if there is one available at the charging station used.</li> <li>• Spotter: Beside the wheelchair, on the side that the subject leans toward.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Set up the wheelchair so that the battery can be charged. Restore the wheelchair to its original condition.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if the subject successfully and safely attaches the battery charger to the wheelchair, activates the battery charge function and then reverses the procedure.</li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.7 Rolls forwards (10 m)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the wheelchair forwards 10 m on a smooth level surface.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Forward rolling is a skill used during many wheelchair activities. The forward propulsion distance (10 m) is intended to simulate moving about indoors or when crossing a two-lane street.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• A smooth level surface, 1.5 m wide and 10 m long.</li> <li>• Starting and finishing lines at 0 and 10 m. Space at least 1.5 m before the starting line and beyond the finishing line.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Stationary, facing the starting line, with the leading wheel axles behind it.</li> <li>• Spotter: Behind the wheelchair, holding onto the spotter strap with one hand.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• "Move the wheelchair forwards over the finish line without going outside of the boundaries (indicate them)."</li> <li>• The tester should indicate where he/she wishes the subject to stop on completion of the skill rather than emphasizing the finish line. Otherwise, the subject may misinterpret the instruction to mean that he/she is supposed to stop just short of the line rather than beyond it.</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A "pass" should be awarded if: <ul style="list-style-type: none"> <li>• The task is completed safely.</li> <li>• Any safe forward propulsion method is acceptable.</li> <li>• The end of the task is when the front-wheel axles cross the finish line and the subject comes to a controlled stop. Subjects who stop short of the finish line may be prompted, without penalty, to continue until the axles are over the finish line.</li> <li>• If a solid barrier is used on either side, the subject may allow the wheelchair to gently slide along or glance off the barrier as long as there is no injury.</li> </ul> </li> <li>• A "pass with difficulty" may be awarded if: <ul style="list-style-type: none"> <li>• There is a transient rear tip as the subject accelerates.</li> <li>• The subject takes more than 30 seconds to cover the 10m distance. Timing this skill provides a means of identifying whether the subject would be able to get across a street quickly enough to be safe (e.g. when traffic flow is controlled by lights). Although there is considerable variability, most traffic signals</li> </ul> </li> </ul>

	<p>provide at least 30s for a full cycle.</p> <ul style="list-style-type: none"><li>• A “fail” score is awarded if a wheel strays outside the lateral boundaries.</li></ul>
Caregiver considerations	<ul style="list-style-type: none"><li>• None.</li></ul>
Powered wheelchair considerations	<ul style="list-style-type: none"><li>• None.</li></ul>

<b>3.8 Rolls backwards (2 m)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the wheelchair backwards 2 m on a smooth level surface.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Backward rolling is a skill used during many wheelchair activities. However, a short distance is usually all that is necessary, unless overcoming high rolling resistance.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• A smooth level surface, 1.5 m wide and 2 m long.</li> <li>• Starting and finishing lines at 0 and 2 m.</li> <li>• Space at least 1.5 m before the starting line and beyond the finishing line.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: The back of the wheelchair facing the starting line and the rear-wheel axles behind it.</li> <li>• Spotter: Behind the wheelchair, holding onto the spotter strap.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• "Move the wheelchair backwards over the finish line (indicate it) without going outside of these boundaries (indicate them)".</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A "pass" should be awarded if: <ul style="list-style-type: none"> <li>• The task is safely completed.</li> <li>• Any safe backward propulsion method is acceptable.</li> <li>• The end of the task is when the rear-wheel axles cross the finish line and the subject comes to a controlled stop. Subjects who stop short of the finish line may be prompted, without penalty, to continue until the rear-wheel axles are over the finish line.</li> <li>• If a solid barrier is used on either side, the subject may slide along or glance off the barrier.</li> </ul> </li> <li>• A "pass with difficulty" may be awarded if: <ul style="list-style-type: none"> <li>• There is a transient rear tip as the subject stops.</li> <li>• The subject fails to look backwards over the shoulders to monitor that the path is clear.</li> </ul> </li> <li>• A "fail" score should be awarded if: <ul style="list-style-type: none"> <li>• A wheel strays outside the lateral boundaries.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>



<b>3.9 Turns while moving forwards (90°)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject turns the wheelchair 90° to the left and right around a corner while moving forwards.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Moving turns are often necessary to avoid obstacles or to change direction.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• At least 1.2 m wide level surface with a 90° turn. Solid barriers (preferred) or lines may be used to define the lateral limits.</li> <li>• At least 2 m space before and beyond the corner.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Facing the corner, with the front-wheel axles at least 0.5m from the corner.</li> <li>• Spotter: Behind the wheelchair, holding onto the spotter strap, unless the subject has safely performed the “rolls forward (10m)” skill, in which case the spotter need only be nearby.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Move the wheelchair forward and turn around this corner (indicate it). Now do the same thing, turning in the other direction.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The subject safely completes the task.</li> <li>• The endpoint is when the wheelchair is around the corner, 90° from its original orientation and with the leading wheel axles at least 0.5 m from the corner. Subjects who stop short of this distance may be prompted, without penalty, to continue.</li> <li>• The subject may touch (or even use) the walls.</li> <li>• If lines are used to define the lateral limits, to simplify scoring, it is permissible for parts of the wheelchair user or wheelchair (e.g. a foot on a footrest) to extend beyond the lines, as long as the wheels or feet on the floor stay within the prescribed limits.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.10 Turns while moving backwards (90°)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject turns the wheelchair 90° to the left and right around a corner while moving backwards.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Moving turns are often necessary to avoid obstacles or to change direction.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for previous skill.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: The back of the wheelchair facing the corner, with the rear-wheel axles at least 0.5m from the corner.</li> <li>• Spotter: Behind the wheelchair, holding onto the spotter strap, unless the subject has safely performed the “rolls backward (2 m)” skill, in which case the spotter need only be nearby.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Move the wheelchair backwards and turn around this corner (indicate it). Now do the same thing, turning in the other direction.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The task is safely completed.</li> <li>• The endpoint is when the wheelchair is around the corner, 90° from its original orientation and with the leading wheel axles at least 0.5 m from the corner. Subjects who stop short of the finish line may be prompted, without penalty, to continue.</li> <li>• If lines are used to define the lateral limits, to simplify scoring, it is permissible for parts of the wheelchair user or wheelchair (e.g. a foot on a footrest) to extend beyond the lines, as long as the wheels or feet on the floor stay within the prescribed limits.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.11 Turns in place (180°)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject turns the wheelchair around 180° to the left and right to face in the opposite direction, while remaining within a square space with 1.5 m sides.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Turning around in tight spaces is a common challenge for wheelchair users.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Smooth level surface and a 1.5 m square, marked out by lines on the floor. Solid barriers should not be used unless they are low enough to permit the footrests and anti-tip devices to pass over them.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: In the center of the square, facing one side of the square.</li> <li>• Spotter: Near the wheelchair.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Keeping the wheelchair within this square (indicate it), turn the wheelchair around until you are facing the opposite direction. Now turn the chair in the other direction (indicate it) until you are back where you started.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The subject turns at least 160° in each direction. If the subject has turned, but has not yet turned at least 160°, he/she may be prompted (e.g. “Keep going”) without penalty.</li> <li>• All parts of the wheelchair and subject that touch the ground must remain within the square. However, to simplify scoring, it is permissible for parts of the wheelchair user’s body or wheelchair (e.g. a foot on a footrest) to extend beyond the lines, as long as the feet and wheels on the floor stay within the prescribed limits.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• The caregiver’s feet need to remain inside the square.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.12 Maneuvers sideways (0.5 m)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject maneuvers the wheelchair 0.5 m sideways to the left and right parallel to an object (e.g. bed or wall).</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Positioning oneself in a tight space involves maneuvering of the wheelchair, to move the wheelchair closer to or farther away from objects.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Target lateral barrier or line.</li> <li>• Means to limit the extent of forward-backward movement to 1.5 m. If these limits are solid barriers, they must be low enough that the footrests or anti-tip devices can pass over them.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Parallel to the target with the closest rear wheel at least 0.5 m from it.</li> <li>• Spotter: Near the wheelchair.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Get this wheel (indicate the one closest to the target) as close as you can to this wall/line (indicate it), using the space available (indicate it).”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The most lateral aspect of the wheelchair is moved to within 10 cm of the target. For manual wheelchairs, the most lateral aspect of the wheelchair will usually be the rear-wheel hand-rim. For powered wheelchairs, this will usually be the drive wheel. The wheelchair may touch the lateral barrier.</li> <li>• On completion, the fore-aft axis of the wheelchair must not be at an angle of &gt;20 degrees from the wall.</li> <li>• If the wheelchair is close to the desired finish position, but not quite there (too far away or at an angle), it is permissible to prompt the subject without penalty (e.g. “Can you get a little closer?” or “Can you straighten out the wheelchair?”).</li> <li>• Most subjects will use to-and-fro motions (as in parallel parking a car), but “bunny hopping” in a manual wheelchair is permitted.</li> <li>• The parts of the wheelchair or subject in contact with the ground must stay within the 1.5 m forward-backward limits, but other parts of the wheelchair or subject (e.g. feet on footrests) may extend beyond these limits without penalty.</li> <li>• It is permissible for the subject to move from the starting position into one in which the lateral barrier is approached from</li> </ul> </li> </ul>

	the front or back, turning into the final position.
Caregiver considerations	<ul style="list-style-type: none"><li>• The caregiver's feet need to stay within the available space.</li></ul>
Powered wheelchair considerations	<ul style="list-style-type: none"><li>• None.</li></ul>

<b>3.13 Gets through hinged door</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject opens, passes through and closes a hinged door that opens without resistance away from the subject, then repeats the task in the opposite direction (with the door opening toward the subject).</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Wheelchair users frequently encounter such hinged doors or gates. Although there are a variety of door types, this is considered a representative skill.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Door ~81cm wide, preferably with little or no resistance to opening.</li> <li>• Preferably a lever handle &gt;10 cm in length and 75-90cm above the floor.</li> <li>• Preferably no threshold (evaluated separately).</li> <li>• There should be enough space (preferably at least 1.5 m<sup>2</sup>), on both sides of the door, to allow the subject to maneuver.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Facing the closed door with the front wheels at least 0.5 m from it.</li> <li>• Spotter: Near the wheelchair and the door.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• "Open the door, move the wheelchair through it and close it behind you. Now, go back through the door the other way."</li> <li>• The order of performing the two components of this skill test is not important.</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A "pass" should be awarded if: <ul style="list-style-type: none"> <li>• The subject safely completes the task.</li> <li>• The subject may use the door-frame to assist in passing through the door.</li> <li>• The skill in each direction is completed when the door closes firmly. If the subject leaves the door slightly ajar, he/she may be prompted, without penalty, to finish closing it.</li> <li>• The subject may close the door by reaching back for it. Alternatively, the subject may proceed away from the door and then turn around and come back to close it.</li> </ul> </li> <li>• During the course of any single attempt, a subject may use different approaches.</li> <li>• A "fail" score should be awarded if: <ul style="list-style-type: none"> <li>• The subject is unsuccessful at getting through the door in one direction. There is no need to attempt the skill in the other direction for scoring purposes, but useful information for</li> </ul> </li> </ul>

	<p>training purposes may be obtained.</p> <ul style="list-style-type: none"> <li>• A pinch seems likely because a subject attempts to close the door by placing the fingers in the gap between the door and the frame on the hinged side of the door. The spotter should intervene to prevent injury. Some wheelchair users can use this technique to safely initiate door movement.</li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.14 Reaches high object (1.5 m)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG X</li> <li>• WST-P/WCU ✓ WST-P/CG X</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject reaches up to touch an object 1.5 m above the floor.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• A combination of upward and sideways or forward reaching is often needed when reaching for a light switch, high elevator button or cupboard.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Target about 2.5 cm in diameter and 1.5 m above the floor.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Facing the target with the front-wheel axles at least 0.5 m away.</li> <li>• Spotter: Near the wheelchair and close to the target.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• "Touch the target (indicate it). You may move your wheelchair."</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A "pass" should be awarded if: <ul style="list-style-type: none"> <li>• The subject reaches up under control, touches the target and then resumes the normal sitting position.</li> <li>• The subject may use either hand.</li> <li>• A reaching aid may be used, if it is carried by the subject.</li> <li>• If the subject chooses to remove or reposition parts of the wheelchair (e.g. the footrests) to improve the reach (e.g. by standing), this is permitted as long as the subject can remove and replace the parts independently. After touching the target, the subject may be prompted, without penalty, to restore the wheelchair to its original state.</li> <li>• The finishing position is with the wheelchair user sitting upright.</li> <li>• A stand-up or elevating wheelchair may be used, as long as the subject can operate it independently.</li> </ul> </li> <li>• A "pass with difficulty" score should be awarded if: <ul style="list-style-type: none"> <li>• The wheelchair user who chooses to stand to accomplish the task does not lock the brakes or clear the footrests away, recognizing that some wheelchair users can accomplish the task in a careful and safe manner without these precautions.</li> <li>• If the wheelchair user, in the course of leaning in any direction, induces a wheelchair tip that is transient and self-contained.</li> </ul> </li> <li>• A "fail" score should be awarded if: <ul style="list-style-type: none"> <li>• The subject loses balance, requiring spotter intervention.</li> <li>• If a wheelchair user attempts to stand with a foot on a footrest. The spotter should intervene.</li> <li>• If the wheelchair user stands up without locking the brakes and</li> </ul> </li> </ul>



	the wheelchair rolls backwards far enough to cause a fall.
Caregiver considerations	<ul style="list-style-type: none"><li>• This skill is not included in the caregiver WSTs because it is not a challenge for most caregivers.</li></ul>
Powered wheelchair considerations	<ul style="list-style-type: none"><li>• None.</li></ul>

<b>3.15 Picks object up from floor</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG X</li> <li>• WST-P/WCU ✓ WST-P/CG X</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject picks a small object up from the floor.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Objects that need to be picked up from the floor or ground vary from those as small and light as a coin or a piece of paper to those as bulky and heavy as a young child. We have chosen an object of intermediate size and weight for the test, about the size and shape of a paperback book.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Object about the size of a paperback book (dimensions about 5 cm x 10 cm x 10 cm and weighing less than 0.2 kg) placed flat on the floor. Any object of roughly equivalent size and weight may be used.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Facing the target with the front-wheel axles at least 0.5 m away.</li> <li>• Spotter: Near the wheelchair and the object on the floor.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Pick up the object (indicate it). You may move your wheelchair.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• As for the “reaches high object (1.5m)” skill except: <ul style="list-style-type: none"> <li>• The finishing position is with the object in the lap or in the hand and the wheelchair user sitting upright. The subject may use either hand.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• This skill is not included in the caregiver WSTs because it is not a challenge for most caregivers.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• The spotter should intervene if he/she is concerned that the subject might move the wheelchair in a way that might result in the fingers being run over by the wheels.</li> </ul>

<b>3.16 Relieves weight from buttocks (3 sec)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject relieves weight from both buttocks for 3 seconds, although not necessarily at the same time.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Weight relief is important for comfort and the prevention of pressure sores. Ideally, such relief should be performed often (at least every 20 minutes) and for prolonged periods of time (at least 2 minutes). However, for the purposes of this test, a few seconds is considered representative of the subject's capability.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Spotter: near the wheelchair, on the side towards which the subject leans (if any).</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• "Take the weight off your bottom, either one at a time or both together&gt; Hold your position until I tell you to stop."</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A "pass" should be awarded if: <ul style="list-style-type: none"> <li>• Weight is relieved for a count of 3.</li> <li>• While the weight is being relieved, the tester should be able to easily slide a hand between pressure-sensitive areas (the ischial tuberosities, coccyx and greater trochanters) and the wheelchair or cushion. However, placing a hand into the pressure-sensitive areas is not required for the WST and this should only be done with the permission of the subject. The tester must make his/her best judgment about the extent of the pressure relief achieved. If the tester is uncertain and the subject refuses to permit the tester to perform a manual check, a "testing error" score may be awarded.</li> <li>• It is permissible for the wheelchair user to stand up, to push down on the armrests or seat with both arms, to bridge (lifting the buttocks by extending the legs, pushing the feet on the footrests or floor), to lean side to side or to lean forward to relieve pressure. If the wheelchair can be tilted or reclined to 40° or more, this is considered a pass, even though this is not as effective a means of pressure relief as leaning.</li> <li>• If the subject leans, he/she must lean to both sides and needs to recover independently (e.g. using push-handles or armrest).</li> <li>• If the subject's wheelchair is fitted with an alternating pressure cushion, the tester needs to be convinced that there is adequate relief under the pressure points.</li> </ul> </li> </ul>

Caregiver considerations	<ul style="list-style-type: none"><li>• None.</li></ul>
Powered wheelchair considerations	<ul style="list-style-type: none"><li>• None.</li></ul>

<b>3.17 Transfers to and from bench</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The wheelchair user transfers from the wheelchair to another surface about the same height as the wheelchair seat and back again. The subject positions the wheelchair, then removes and restores wheelchair components as necessary to complete the transfer. Transfer aids (e.g. sliding board, lift) may be used if they are present in the wheelchair user's own setting and testing occurs there.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• A transfer is a commonly used skill to move between the wheelchair and a chair, bed, tub, toilet, car or other surface. The wheelchair-bench transfer should only be considered a representative transfer. More difficulty may be experienced when transferring to and from other surfaces.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• The following transfer surface is suggested (although any equivalent one is acceptable): a bench with a padded flat surface, no backrest and no armrests. The sitting surface should be at least 1.0 m wide, at least 0.5 m deep and 45-47 cm high. The bench legs should have rubber on their undersurfaces or other means to prevent the surface from moving.</li> <li>• A transfer board (a piece of wood or plastic with bevelled edges) should be made available for subjects who ordinarily use one. The subject may use his/her own equipment (if carried). The transfer board should be on the transfer bench within the subject's reach.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair user: Seated in the wheelchair, and oriented in the chair as if he/she is ready to propel the chair (e.g. feet on footplates, if used).</li> <li>• Wheelchair: Facing the bench and at least 0.5 m from it.</li> <li>• Spotter: In front of the wheelchair and slightly to one side, close enough to catch the subject if he/she falls and to prevent the wheelchair from rolling away, sliding away or tipping.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• Success on screening questions is strongly recommended before the subject is allowed to proceed to the objective testing of this skill.</li> <li>• "Transfer from the wheelchair to the bench (indicate it). Transfer back into the wheelchair. Get the wheelchair back into its usual condition and move it away from the bench."</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A "pass" should be awarded if: <ul style="list-style-type: none"> <li>• The wheelchair user is able to independently and safely set up</li> </ul> </li> </ul>

	<p>the wheelchair for the transfer, transfer to and from the bench without incident, and restore the wheelchair to its operational condition.</p> <ul style="list-style-type: none"> <li>• Any safe and independent transfer technique is acceptable. If the WST is performed in the subject's home, other assistive technology may be used (e.g. ceiling lift). Any such equipment should be noted in the Comments section.</li> <li>• If, during the transfer, the subject is sitting on the bench with the transfer board under him/her, it is permissible to cue the subject to "move the transfer board away from you" without penalty. The transfer is not considered complete until the subject is off the transfer board.</li> <li>• The wheel locks (brakes), if any, may or may not be used.</li> <li>• For powered wheelchairs, the controller may be on or off.</li> <li>• If armrests need to be detached or moved out of the way for the transfer, after transferring back into the chair, the armrest must be restored to the original position. The subject may be prompted, without penalty, to "Put your arm back on the armrest, the way that it was before you began". If the wheelchair user's arm is secured to the arm support he/she must independently release and, later replace his/her arm in the original position and state.</li> <li>• Although recommended, the subject need not clear the footrests if the transfer can be effectively and safely completed without doing so. After transferring back into the chair, the footrests and feet should be as they were prior to the transfer. The subject may be prompted, without penalty, to "Put your feet back on the footrests, the way that they were before you began".</li> <li>• If a positioning belt is intended for independent use and is fastened around the wheelchair user at the beginning of the test, then he/she is expected to be able to undo it and fasten it again after transferring back into the wheelchair. If the wheelchair is equipped with a positioning belt, but the wheelchair user is not using it, the subject is not required to be able to use it.</li> <li>• If the subject needs to reposition the unoccupied wheelchair between the transfer out of the wheelchair and the transfer back into it, the subject must do so him/herself.</li> <li>• A "pass with difficulty" score should be awarded if: <ul style="list-style-type: none"> <li>• During a standing-pivot transfer, a 270° turn is used instead of</li> </ul> </li> </ul>
--	--

	<p>using the shortest possible rotation.</p> <ul style="list-style-type: none"> <li>• The fingers get pinched under sliding board.</li> <li>• The buttocks scrape over the rear wheel or brake extension during a sideways transfer.</li> <li>• The lower limbs scrape over a footrest.</li> <li>• Poor ergonomic technique is used.</li> </ul> <ul style="list-style-type: none"> <li>• A “fail” score should be awarded if: <ul style="list-style-type: none"> <li>• If the subject is the wheelchair user and the screening questions indicate that assistance is always required. There is no need to proceed to objective testing.</li> <li>• If the subject falls onto the transfer bench and cannot get up without help.</li> <li>• If the wheelchair user has a rear-closing seat belt or other restraint that is not intended for independent use, this is usually considered an automatic fail, unless the WST is being used to assess caregiver function.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• The caregiver may receive physical assistance from the wheelchair user in performing the skill. This is an exception to the general rule that the wheelchair user should not assist when the caregiver is being assessed alone because it is not a reasonable expectation that a single caregiver could carry out this skill alone without additional equipment.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.18 Folds and unfolds wheelchair</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU X WST-P/CG X</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject folds or takes apart the unoccupied wheelchair to make it as small as possible, and then restores it to its original condition. If the rear wheels can be removed without tools, this should be done.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• For transport or storage, the size of the wheelchair may need to be reduced. This can be done by folding the wheelchair. Removal of the rear wheels or other parts is a useful way to further diminish the size and weight of the wheelchair.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Transfer bench.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair user: Seated on the transfer bench or standing beside the wheelchair. The wheelchair user must be out of the wheelchair to attempt this skill. If the transfer cannot be achieved independently, the tester has the options of either assisting the wheelchair user out of the wheelchair or awarding a “testing error” score.</li> <li>• Wheelchair: In the same position and condition as immediately after the wheelchair user had transferred out of it. If the subject has removed some wheelchair parts (e.g. an armrest or footrest) as part of the transfer out of the wheelchair and restores the wheelchair to its original state after transferring back into it, the tester may consider these actions as part of the “folds and unfolds wheelchair” skill.</li> <li>• Spotter: near the subject and wheelchair.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Fold the wheelchair as tightly as you can or take it apart, as if you were going to store it. Remove the rear wheels, if you can do so without tools. Put the wheel back together and open the wheelchair so that you can get back into it.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• If the wheelchair is folded or taken apart such as to reduce the dimensions of the wheelchair as much as possible without tools. If the wheelchair is incompletely folded or taken apart, it is acceptable to prompt the subject without penalty (e.g. “Can you get it a little tighter or smaller?” or “What if it was still too big or heavy?”)</li> <li>• If wheelchair components or accessories (e.g. cushion, rigid seat, backrest, knapsack, footrests) need to be removed to achieve the smallest dimension, this should be done.</li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>• For a rigid chair with a backrest that folds forward, the backrest canes and the seat rails should be as close to parallel with each other as is mechanically possible. If the cushion prevents this, the tester may prompt the subject by asking “Can you get this folded more tightly?”, but the tester must not suggest the solution of removing the cushion.</li> <li>• The rear wheels should be removed if this can be done without tools (e.g. if they are of the quick-release type).</li> <li>• It is acceptable for the subject to use the foot to help fold and unfold the wheelchair.</li> <li>• For the unfold component of the skill, the wheelchair should be opened fully.</li> <li>• If the wheelchair is incompletely restored to its original condition, it is permissible, without penalty, to cue the subject by inquiring “Is the wheelchair in the same condition that it was in before you folded it?”</li> <li>• A “pass with difficulty” should be awarded if:             <ul style="list-style-type: none"> <li>• The test subject puts a contoured cushion in backwards, because of the potential for causing a pressure sore.</li> </ul> </li> <li>• A “fail” score should be awarded if:             <ul style="list-style-type: none"> <li>• The subject does not know that the wheelchair folds or that the rear wheels are removable without tools.</li> <li>• The wheelchair has been opened in a way that precludes full use of the wheelchair (e.g. by tangling a seatbelt strap in a way that will cause it to rub on a wheel, or seat rails not sitting in rail saddles). The tester should correct the problem before the wheelchair user gets back into the wheelchair.</li> </ul> </li> <li>• A “not possible” score can be awarded for this skill because all wheelchairs do not have this capability.</li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• This skill is not for powered wheelchairs.</li> </ul>

<b>3.19 Rolls 100 m</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the wheelchair 100 m on a smooth level surface. This may be done in the forwards or backwards direction.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• The ability to manage distances of this magnitude allows wheelchair users to get around in the community (e.g. getting from a parking lot to an office or getting around inside a store).</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• A smooth level surface at least 1.5 m wide and 50-100 m long is ideal. Using multiple laps of a shorter distance is permissible, but it is preferable for the straight stretches to be at least 25 m in length, to minimize the number of turns. A curved path may be used.</li> <li>• Space at least 1.5 m before the starting line and beyond the finishing line.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Leading wheel axles facing and behind the starting line.</li> <li>• Spotter: If the subject uses the forward direction and he/she has already safely performed the “rolls forward (10 m)” skill, the spotter need merely be nearby.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Move the wheelchair to the finish line (indicate it or the number of laps). Avoid bumping into anyone or anything that gets in your way.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• Generally as for the “rolls forward (10 m)” skill except:</li> <li>• A “pass” score may be awarded if: <ul style="list-style-type: none"> <li>• The subject propels the wheelchair backwards.</li> </ul> </li> <li>• A “pass with difficulty” should be awarded if: <ul style="list-style-type: none"> <li>• The subject develops symptoms of over-exertion.</li> </ul> </li> <li>• A “fail” score should be awarded if: <ul style="list-style-type: none"> <li>• The subject fails the “rolls forward (10 m)” skill.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.20 Avoids moving obstacles</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• While moving, the subject avoids moving obstacles approaching from different directions.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• In addition to stationary obstacles (dealt with in other skills), wheelchair users must avoid moving obstacles (e.g. other wheelchair users, pedestrians) to avoid injury to themselves or others.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Corridor or pathway as for the “rolls 100 m” skill.</li> <li>• An unoccupied manual wheelchair for the tester to push. Although using his/her body as the moving obstacle is permitted, the tester is not expected to endanger him/herself.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• As for the “rolls 100 m” skill.</li> <li>• Tester: the tester stands behind the unoccupied wheelchair, holding the push-handles, near the pathway but not in it. The tester should be able to see the approaching test subject.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• As for the “rolls 100 m” skill. The two skills are usually assessed together. However, a subject need not be able to pass the “rolls 100 m” skill to be tested for and pass the “avoids moving obstacles” skill. A shorter distance can provide the opportunity to assess this skill.</li> <li>• The tester waits until the wheelchair user gets close. Then, moving at a normal walking speed, the tester pushes the unoccupied wheelchair forwards at a right angle into the path of the test subject and stops. The tester times his/her movement to provide the test subject with 2-3 seconds to avoid a collision. This provision of a moving-obstacle challenge is done again later, from the other side. If a collision appears to be imminent, the tester should take evasive action.</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if:                             <ul style="list-style-type: none"> <li>• The subject avoids any contact with the moving obstacle without the tester needing to take evasive action.</li> <li>• The subject may avoid contact by stopping and/or slowing down and changing direction.</li> <li>• The subject need not remain within the boundaries of the corridor and may be prompted, without penalty, to return to the corridor boundaries and to continue with the “rolls 100 m” skill.</li> </ul> </li> <li>• A “pass with difficulty” should be awarded if:</li> </ul>

	<ul style="list-style-type: none"><li>• The subject has minimal but insignificant contact (i.e. insufficient to potentially cause injury to the wheelchair occupant or another person).</li><li>• A “fail” score should be awarded if the subject fails the “rolls forward (10 m)” skill.</li></ul>
Caregiver considerations	<ul style="list-style-type: none"><li>• None.</li></ul>
Powered wheelchair considerations	<ul style="list-style-type: none"><li>• None.</li></ul>

<b>3.21 Ascends 5° incline</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the wheelchair up a 5° incline.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Inclines are encountered frequently in the natural and built environments. The 5° (~1:12) grade meets the current building codes for ramps in North America.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Incline at least 2.5 m long and at least 1.2 m wide.</li> <li>• A lip and a handrail on both sides of the incline are desirable, to prevent injuries but handrails should not be used in the performance of the skill.</li> <li>• The incline should end at the upper end on a level surface or platform that is large enough for wheelchairs of all types, caregivers and WST personnel to turn around safely (2.0 m<sup>2</sup> or more is recommended). A 15cm-high lip around the open edges of the platform is recommended.</li> <li>• There should be little or no lip at the lower junction of the floor and incline. The ability to overcome such obstacles is tested elsewhere.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: On the level at the bottom of the incline, with the front wheels of the wheelchair facing the incline and at least 0.5 m away.</li> <li>• Spotter: Behind the wheelchair, holding onto the spotter strap.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Move the wheelchair up the ramp, without using the ramp handrails.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” score should be awarded if: <ul style="list-style-type: none"> <li>• The subject safely completes the task.</li> <li>• The subject may use any type of propulsion, in the forward or backwards direction.</li> <li>• The finishing point is when all wheelchair parts are completely off the incline at the top.</li> <li>• The subject or wheelchair may make contact with the ramp lips or rails without penalty, as long as the rails are not grasped and no wheel goes outside the lateral boundaries of the incline.</li> <li>• Grade aids may be used, but the wheelchair user must be able to independently activate and inactivate them.</li> </ul> </li> <li>• A “pass with difficulty” should be awarded if: <ul style="list-style-type: none"> <li>• The footrests or rear anti-tip devices make significant contact with the surface at the lower transition.</li> <li>• A transient wheelchair tip occurs.</li> <li>• A foot catches on the floor as the wheelchair continues to</li> </ul> </li> </ul>

	<p>move forward, without injury.</p> <ul style="list-style-type: none"><li>• The subject exhibits over-exertion symptoms due to unaccustomed exercise.</li><li>• The thumb is injured by the brakes during forward thrusts.</li></ul>
Caregiver considerations	<ul style="list-style-type: none"><li>• None.</li></ul>
Powered wheelchair considerations	<ul style="list-style-type: none"><li>• None.</li></ul>

<b>3.22 Descends 5° incline</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the wheelchair down a 5° incline.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• As for the “ascends 5° incline” skill.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for the “ascends 5° incline” skill.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: All wheels are on the level surface at the top of the incline with the leading wheels of the wheelchair facing the incline.</li> <li>• Spotter: Behind the wheelchair, holding onto the spotter strap with one hand and the other hand in front of the wheelchair user’s shoulder. If using two spotters, one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair to resist a forward tip or fall.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Move the wheelchair down the ramp, without using the ramp handrails. Keep the wheelchair under control.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The subject safely completes the task.</li> <li>• The finish point is when all wheelchair parts are completely off the incline at the bottom.</li> <li>• The subject may use any type of propulsion (e.g. arm and leg, feet only, forward or backward).</li> <li>• The subject or wheelchair may make contact with the ramp lips or rails without penalty, as long as the rails are not grasped and no wheel goes outside the lateral boundaries of the incline.</li> <li>• The wheelie position may be used for descending all or part of the incline.</li> <li>• The subject must be under control during the full descent, including the transition to level ground.</li> <li>• The subject may stop during the descent.</li> <li>• It is permissible for the subject to use the bottoms of the shod feet as brakes.</li> </ul> </li> <li>• A “pass with difficulty” should be awarded if: <ul style="list-style-type: none"> <li>• The subject uses the wheel locks as rolling brakes (e.g. by partially or repeatedly applying them).</li> <li>• The subject sustains mild friction burns of the hands.</li> <li>• The subject drags the bottoms of unshod feet to slow the wheelchair by friction between the feet and floor.</li> <li>• The subject drags the toes, even if the feet are shod.</li> <li>• The subject catches the foot on the floor as the wheelchair</li> </ul> </li> </ul>

	continues to move forward, without injury.
Caregiver considerations	<ul style="list-style-type: none"><li>• None.</li></ul>
Powered wheelchair considerations	<ul style="list-style-type: none"><li>• Disengaging the motors and letting the wheelchair roll down the ramp is not considered a safe method for the purposes of the WST.</li></ul>



<b>3.23 Ascends 10° incline</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the wheelchair up a 10° incline.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Inclines with slopes greater than the standard recommended value are encountered frequently in the natural and built environments.</li> <li>• The appropriate technique for a steep incline often differs from that used for a lesser slope. For instance, the subject may use an S-shaped path or may need to turn sideways to rest part-way.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for “ascends 5° incline” skill, except that the incline has a 10° slope, is at least 1.0 m long and is at least 1.2 m wide.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• As for “ascends 5° incline” skill.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Move the wheelchair up the ramp, without using the ramp handrails.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• As for “ascends 5° incline” skill.</li> <li>• A “fail” score should be awarded if the subject fails the “ascends 5° incline” skill.</li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.24 Descends 10° incline</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the wheelchair down a 10° incline.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• As for the “ascends 10° incline” skill.</li> <li>• The appropriate technique for a steep incline often differs from that used for a lesser slope. For instance, the subject may use an S-shaped path, descend the steep incline in the forward wheelie position in a manual wheelchair (dealt with in another skill) or in a rear-tilted position in a power wheelchair.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for “ascends 10° incline” skill.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• As for “descends 5° incline” skill.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• As for “descends 5° incline” skill.</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• As for “descends 5° incline” skill.</li> <li>• A “fail” score should be awarded if the subject fails the “descends 5° incline” skill.</li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• As for “descends 5° incline” skill.</li> </ul>

<b>3.25 Rolls across side-slope (5°)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the wheelchair across a 5° side slope without turning downhill significantly, then repeats the task in the opposite direction.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Side (or cross) slopes are frequently encountered in man-made and natural environments. Sidewalks, for instance, are usually sloped ~2% (1:50) toward the street to allow water to run off, although steeper grades are often found (e.g. where sidewalks cross driveways).</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Incline of 5°, at least 2 m long (in the line of progression) and at least 1.2 m wide.</li> <li>• At least an extra 1.5 m before the starting line and beyond the finishing line.</li> <li>• Start and finish lines perpendicular to the line of progression.</li> <li>• Means of monitoring if the wheelchair drifts downhill by greater than 10 cm from the starting position. The slope-level transition can be used, or any line parallel to it.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: with the brakes off, and all wheels on the sloped surface, oriented in the line of progression across the slope. The downhill main wheel is positioned 10 cm up the slope from the line by which it will be possible to detect if the wheelchair has turned or drifted downhill. The axles of the leading wheels must be behind the starting line.</li> <li>• Spotter: Slightly behind and downhill from the wheelchair.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Move the wheelchair across the slope to the finish line (indicate it) without letting the wheels turn downhill below the line (indicate it).”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The subject safely completes the task.</li> <li>• The finish point is when the axles of the leading wheels cross the finish line.</li> <li>• No downhill wheel crosses the line 10 cm downhill from the starting position.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• The caregiver’s feet need not remain above the line being avoided because the caregiver’s usual position relative to the wheelchair is slightly downhill to the wheelchair.</li> </ul>
Powered wheelchair	<ul style="list-style-type: none"> <li>• None.</li> </ul>

considerations	
----------------	--

<b>3.26 Rolls on soft surface (2 m)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the wheelchair 2 m on a soft surface.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• There are many soft surfaces (e.g. carpet, dirt, grass, gravel, sand or snow) with increased rolling resistance. Propulsion is more difficult on such surfaces because the wheels tend to sink into the surface.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Pathway that includes a soft surface at least 2.0 m long and 1.5 m wide.</li> <li>• There should be an additional 1.5 m of soft surface before the starting line and 1.5 m beyond the finishing line.</li> <li>• Options for the soft surface include gravel (medium-grade, 5 -6 cm deep), sand (fine grain, 5-6 cm deep), gym mat (10 cm thick), indoor/outdoor carpet over 5 cm open-cell foam or equivalent.</li> <li>• Note that some sand and gravel areas have lips that make it difficult to get into and out of them. It is the 2 m of soft surface that is the focus of this skill, not the entry and exit.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: On the soft surface with the leading wheel axles behind the starting line.</li> <li>• Spotter: Behind the wheelchair.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Move the wheelchair over the finish line (indicate it).”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The leading wheel axles are beyond the finish line.</li> <li>• All techniques are permitted, such as forward or backward approaches, using the feet or even standing. Sustained or transient wheelies are often necessary.</li> <li>• During the course of any single attempt, a subject may use different approaches.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.27 Gets over gap (15 cm)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the wheelchair over a gap that is 15 cm across (in the line of progression) and at least as wide as the wheelchair.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Such loss of surface support is a commonly encountered barrier (e.g. a rut in the road). Small-diameter wheels such as casters can drop into such gaps, causing a sudden deceleration that can tip the wheelchair over or lead to the wheelchair user falling out of the wheelchair. Even if no tip or fall occurs, it can be difficult to get the wheelchair out of the gap.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Smooth level surface 1.5 m wide, with at least 1.5 m before and after the gap.</li> <li>• The gap should be ~5 cm deep, the full width of the path and 15 cm across (in the line of progression).</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Leading wheels at least 0.5 m in front of the gap.</li> <li>• Spotter: Behind the wheelchair, holding onto the spotter strap with one hand and the other hand in front of the wheelchair user's shoulder. If using two spotters (as is recommended), one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• "Get your wheelchair over the gap (indicate it)."</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A "pass" score should be awarded if: <ul style="list-style-type: none"> <li>• All components of the wheelchair are on the level surface beyond the gap.</li> <li>• Any technique is permitted. The gap may be approached in the forwards or backwards directions.</li> </ul> </li> <li>• A "pass with difficulty" score should be awarded if: <ul style="list-style-type: none"> <li>• There is jarring due to sudden stopping.</li> <li>• There is unintended hyper-flexion of the lower limb without injury.</li> </ul> </li> <li>• A "fail" score should be awarded if: <ul style="list-style-type: none"> <li>• Spotter intervention is needed to prevent the wheelchair from tipping over or the wheelchair user falling from the wheelchair.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• The caregiver may request assistance from the wheelchair user during this skill, in the form of having the wheelchair user lean backwards or forwards at the caregiver's direction, to facilitate the different stages of the skill.</li> </ul>
Powered wheelchair	<ul style="list-style-type: none"> <li>• None.</li> </ul>

considerations	
----------------	--

<b>3.28 Gets over threshold (2 cm)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject moves the wheelchair over a threshold that is 2 cm high.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Wheelchair users often encounter obstacles (e.g. door thresholds) that they may need to use alternative strategies to overcome. For example, a manual wheelchair user might pop the casters over the obstacle whereas a powered wheelchair user might change the mode setting to one with more power.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Threshold about 2 cm high, 1.5 m wide and 10 cm across (in the line of progression), rectangular in cross-section (i.e. a vertical front face without a bevel).</li> <li>• The threshold should be secured so that it can withstand horizontal forces.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: Facing the threshold with the leading wheels at least 0.5 m from it.</li> <li>• Spotter: Behind the wheelchair, holding onto the spotter strap with one hand and the other hand in front of the wheelchair user's shoulder. If using two spotters (as is recommended), one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• "Get your wheelchair over the threshold."</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A "pass" should be awarded if: <ul style="list-style-type: none"> <li>• All parts of the wheelchair have passed beyond the threshold.</li> <li>• The threshold may be approached in the forwards or backwards directions.</li> <li>• The wheelchair user is permitted to use his/her feet or stand to get over the threshold.</li> </ul> </li> <li>• A "pass with difficulty" should be awarded if: <ul style="list-style-type: none"> <li>• There is jarring due to sudden stopping. <ul style="list-style-type: none"> <li>• There is unintended hyper-flexion of the lower limb without injury.</li> </ul> </li> </ul> </li> <li>• A "fail" score should be awarded if: <ul style="list-style-type: none"> <li>• Spotter intervention is needed to prevent the wheelchair from tipping over or the wheelchair user falling from the wheelchair.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• The caregiver may request assistance from the wheelchair user during this skill, in the form of having the wheelchair user lean backwards or forwards at the caregiver's direction, to facilitate the</li> </ul>



	different stages of the skill.
Powered wheelchair considerations	<ul style="list-style-type: none"><li>• None.</li></ul>

<b>3.29 Ascends low curb (5 cm)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject gets the wheelchair up a curb that is 5 cm-high.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Level changes (e.g. curbs, steps, home entries, uneven sidewalk sections) are common obstacles in the natural and man-made environments.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• The pathway on the lower level leading to the curb should be at least 1.5 m wide and at least 3 m long, for subjects who use the momentum method. The pathway on the upper level leading from the curb edge should be at least 1.5 m wide and at least 1.5 m long.</li> <li>• The curb should be 5 cm high.</li> <li>• The nosing of the curb should be gently rounded and covered with a non-slip material (e.g. gritted paint).</li> <li>• Bracing or weighting may be needed to prevent the curb from moving when struck by the wheelchair.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: All wheels are on the level surface below the curb, facing the curb and at least 0.5 m from it. If the subject uses the momentum method, the subject may begin farther away.</li> <li>• Spotter: Behind the wheelchair, holding onto the spotter strap with one hand and with the other hand in front of the wheelchair user's shoulder. The spotter should be alert to the possibility of a sideways tip if one rear wheel gets up onto the upper level before the other. If using two spotters (as is recommended), one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• "Get the wheelchair up on the curb."</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A "pass" score should be awarded if: <ul style="list-style-type: none"> <li>• All wheels are on the top surface, with the wheelchair user seated upright in the wheelchair.</li> <li>• The subject may remove the footrests and reposition the rear anti-tip devices but must be able to do so independently.</li> <li>• The wheelchair user may get out of the wheelchair to accomplish the task, if he/she can do so safely.</li> <li>• Curb-climbing aids may be used if the wheelchair is equipped with these devices, but the subject must be able to activate and inactivate the aids independently.</li> </ul> </li> <li>• A "pass with difficulty" should be awarded if: <ul style="list-style-type: none"> <li>• There is jarring due to sudden stopping.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• There is unintended hyper-flexion of the lower limb without injury.</li> <li>• There is a minor thumb laceration by contact with the brakes.</li> <li>• A “fail” score should be awarded if: <ul style="list-style-type: none"> <li>• Spotter intervention is needed to prevent the wheelchair from tipping over or the wheelchair user falling from the wheelchair.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• The caregiver may request assistance from the wheelchair user during this skill, in the form of having the wheelchair user lean backwards or forwards at the caregiver’s direction, to facilitate the different stages of the skill.</li> <li>• A “pass with difficulty” should be awarded if: <ul style="list-style-type: none"> <li>• If a caregiver uses poor ergonomic technique (e.g. lifting rather than rolling the wheelchair up onto the upper level).</li> </ul> </li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.30 Descends low curb (5 cm)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject gets the wheelchair down a curb that is 5 cm high.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• As for “ascends low curb (5 cm)” skill.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for “ascends low curb (5 cm)” skill except, because many subjects can descend level changes from a higher level than they can ascend, some alternative means (e.g. an incline) of getting to the upper level is recommended. Alternatively, the tester can help get the wheelchair to the upper level.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: All wheels are on the level surface above the curb edge, facing the edge, with the leading wheels at least 0.5 m away from it.</li> <li>• Spotter: Behind the wheelchair, holding onto the spotter strap with one hand and, if the subject is using a forward approach, the other hand in front of the wheelchair user’s shoulder. The spotter should be alert to the possibility of a sideways tip if one rear wheel drops off the upper level before the other. If using two spotters, one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Get the wheelchair down to the lower level.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• All wheels are on the lower level, the wheelchair user is seated upright in the wheelchair and the wheelchair is free to roll away (i.e. not hung up on the footrests or rear anti-tip devices).</li> <li>• Any technique is permitted.</li> <li>• The wheelchair user may get out of the wheelchair to accomplish the task, if he/she can do so safely.</li> <li>• The subject may remove the footrests and reposition the rear anti-tip devices but must be able to do so independently.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• The caregiver may request assistance from the wheelchair user during this skill, in the form of having the wheelchair user lean backwards or forwards at the caregiver’s direction, to facilitate the different stages of the skill.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.31 Ascends curb (15 cm)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU X WST-P/CG X</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject ascends a curb that is 15 cm high.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• As for “ascends low curb (5 cm)” skill.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for “ascends low curb (5cm)” skill except 15 cm high.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• As for “ascends low curb (5cm)” skill.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Get the wheelchair up on the curb.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• As for “ascends low curb (5cm)” skill.</li> <li>• A “fail” score should be awarded if the subject has failed the “ascends low curb (5cm)” skill.</li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• As for “ascends low curb (5cm)” skill.</li> <li>• A “pass with difficulty” score should be awarded if: <ul style="list-style-type: none"> <li>• The caregiver fails to have the wheelchair user lean as far forward as possible while rolling the rear wheels forward up the curb.</li> <li>• The caregiver lifts rather than rolls the wheelchair to the upper level.</li> <li>• The caregiver pulls the wheelchair up the curb backwards in the wheelie position, which is usually ergonomically unsound.</li> </ul> </li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• This skill is not applicable for most powered wheelchairs because of the difficulty and danger involved.</li> </ul>

<b>3.32 Descends curb (15 cm)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU X WST-P/CG X</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject gets the wheelchair down a curb that is 15 cm high.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• As for “descends low curb (5 cm)” skill.</li> <li>• The appropriate technique for a high curb may differ from that used for a lesser level change.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for “ascends 15 cm curb” skill.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: The leading wheels at least 0.5 m from the curb edge.</li> <li>• Spotter: For the backwards approach, behind the wheelchair, holding onto the spotter strap. For the forward-wheelie approach, behind the wheelchair, holding onto the spotter strap with one hand and the other hand in front of the wheelchair user’s shoulder. If using two spotters for the forward-wheelie approach, one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• Success on screening questions is strongly recommended before the subject is allowed to proceed to the objective testing of this skill. If a method is described that may not be unsafe but the tester has concerns about from the perspective of being able to spot the skill in a manner that is safe for both the subject and the WSP personnel, the tester may allow the subject to choose another method without penalty.</li> <li>• “Get the wheelchair down the curb.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• Except as noted below, as for the “descends 15 cm curb” skill.</li> <li>• A “fail” score should be awarded if:                             <ul style="list-style-type: none"> <li>• On the screening questions, the subject is unable to describe an acceptable method of performing the skill.</li> <li>• The subject fails the “descends low curb (5cm)” skill.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• Except as noted below, as for the “descends low curb (5 cm)” skill.</li> <li>• A “pass with difficulty” score should be awarded if:                             <ul style="list-style-type: none"> <li>• There is notable jarring due to uncontrolled drop of wheels to lower level.</li> <li>• If the caregiver fails to have the wheelchair user lean as far forward as possible while rolling the rear wheels backwards down the curb.</li> <li>• A caregiver lowers the wheelchair, in the forward wheelie position, in a way that is ergonomically unsound.</li> </ul> </li> <li>• A “fail” score should be awarded if:</li> </ul>

	<ul style="list-style-type: none"><li>• A caregiver attempts to bring the wheelchair off the curb backwards in the wheelie position. The tester should intervene.</li></ul>
Powered wheelchair considerations	<ul style="list-style-type: none"><li>• This skill is not applicable for most powered wheelchairs because of the difficulty and danger involved.</li></ul>

<b>3.33 Performs stationary wheelie (30 sec)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU X WST-P/CG X</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The subject achieves the wheelie position (balancing on the rear wheels), maintains it for 30 seconds and brings the casters back to the floor.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• The stationary wheelie position can be used to avoid postural problems that can cause neck strain from looking up or to decrease the likelihood of pressure sores on the ischial tuberosities. The stationary wheelie is also a foundation skill for a number of functional skills that can be best performed in the full wheelie position.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for the “turns in place (180°)” skill.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: In the center of the square.</li> <li>• Spotter: Behind the wheelchair, holding onto the spotter strap.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Get the wheelchair into the wheelie position and hold it there until I tell you to stop. Keep the rear wheels within the box (indicate it).”</li> <li>• After 30s, “Come down now.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The subject achieves the wheelie position and holds this position in a controlled manner for 30s, while all wheels that are in contact with the floor remain within the square.</li> <li>• After 30s, a controlled return to the upright position is made. The subject must wait for the instruction to bring the casters back to the floor before doing so. The casters must land inside the square.</li> <li>• It is permissible to use the feet to achieve the wheelie position but not to maintain it.</li> </ul> </li> <li>• A “pass with difficulty” should be awarded if: <ul style="list-style-type: none"> <li>• An aided-wheelie is used (casters off the floor, balanced on rear anti-tip devices).</li> <li>• There is notable jarring because the subject lands too vigorously.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• There is no need for the caregiver to maintain the wheelie for 30 seconds.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• This skill is not applicable for powered wheelchairs because of the difficulty and danger involved.</li> </ul>



<b>3.34 Turns in place in wheelie position (180°)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU X WST-P/CG X</li> </ul>
Description	<ul style="list-style-type: none"> <li>• In the wheelie position, the subject turns the chair 180° in place, both to the left and right.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Wheelchair users often encounter situations in which they need to perform a wheelie to make a tight turn. The area needed on the support surface is less than that needed with all wheels on the surface.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for the “turns in place (180°)” skill.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• As for the “performs stationary wheelie (30 sec)” skill.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Get the wheelchair into the wheelie position. Now, keeping the chair within this square (indicate it), turn the wheelchair around until it is facing the opposite direction. Now turn the chair in the other direction (indicate it) until it is back where you started.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• As for the “turns in place (180°)” and “performs stationary wheelie (30 sec)” skills, except as below.</li> <li>• The subject is permitted to return the casters to the floor between the turns to the left and right.</li> <li>• A “fail” score should be awarded if: <ul style="list-style-type: none"> <li>• The subject fails the “performs stationary wheelie (30 sec)” skill.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• This skill is not applicable for most powered wheelchairs because of the difficulty and danger involved.</li> </ul>

<b>3.35 Descends 10° incline in wheelie position</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG X</li> <li>• WST-P/WCU X WST-P/CG X</li> </ul>
Description	<ul style="list-style-type: none"> <li>• In the wheelie position, the subject descends a 10° incline.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Descending a moderate or steep incline forwards in the wheelie position has a number of benefits. This method allows the wheelchair user to continue moving forward, alert to any potential hazards (e.g. approaching cars). This technique lessens the problem of loss of traction (affecting braking and control) when the uphill wheels become unweighted. This technique also reduces the likelihood of forward tips or digging the footrests into the floor at the transition between the bottom of the incline and the level surface.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for “descends 10° incline”.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• As for “descends 10° incline”.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Get your wheelchair into the wheelie position. Now, staying in the wheelie position, move down the ramp under control, and stop when you reach the floor at the bottom.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• Generally, as for the “descends 10° incline” and “performs stationary wheelie (30 sec)” skills.</li> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The subject achieves the wheelie position on the platform above the incline, proceeds down the incline with the chair under control and brings the wheelchair to a stop in the space available at the bottom of the ramp.</li> </ul> </li> <li>• A “fail” score should be awarded if: <ul style="list-style-type: none"> <li>• The subject fails the “performs stationary wheelie (30 sec)” skills.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• This skill is not included because this method is not considered superior to other methods of descending a steep incline by caregivers.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• This skill is not applicable for powered wheelchairs because of the difficulty and danger involved.</li> </ul>

<b>3.36 Descends curb in wheelie position (15 cm)</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG X</li> <li>• WST-P/WCU X WST-P/CG X</li> </ul>
Description	<ul style="list-style-type: none"> <li>• In the wheelie position, the subject descends a 15 cm curb in the forwards direction.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Level changes (e.g., curbs, steps) are common obstacles for wheelchair users. Descending a level change in the forwards direction allows the wheelchair user to maintain forward movement and to see any dangers that may lie ahead. Also, the wheelie position prevents the footrests from making contact with the lower level, which can decelerate the wheelchair and cause a forward tip or fall.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for the “descends curb (15 cm)” skill.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• As for the “descends curb (15 cm)” skill.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• “Get your wheelchair into the wheelie position. Now, staying in the wheelie position, move forwards down the curb under control.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• Generally, as for the “descends curb (15 cm)” and “performs stationary wheelie (30 sec)” skills.</li> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The subject achieves a controlled wheelie on the upper level, approaches the curb by moving forward in this position and then lowers the rear wheels under control with the rear wheels striking the floor before the casters.</li> </ul> </li> <li>• A “fail” score should be awarded if: <ul style="list-style-type: none"> <li>• The subject fails the “performs stationary wheelie (30 sec)” skills.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• This skill is not included for caregivers because this method is not considered superior to other methods of descending a curb by caregivers.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• This skill is not applicable for powered wheelchairs because of the difficulty and danger involved.</li> </ul>

<b>3.37 Gets from ground into wheelchair</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU ✓ WST-P/CG ✓</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The wheelchair user gets from the ground into the wheelchair.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• This skill is useful when recovering from a fall or from an occasion when the wheelchair user is on the ground for another reason.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• Smooth level surface.</li> <li>• No external aids (e.g. the transfer bench or stairs) may be used, unless they are carried by the subject or present in his/her natural environment and testing is performed there.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair user: Seated or lying on the ground, out of the wheelchair. If the transfer to the ground cannot be achieved independently, the tester has the options of either assisting the wheelchair user out of the wheelchair or awarding a “testing error” score.</li> <li>• Wheelchair: Within reach, with the brakes unlocked.</li> <li>• Spotter: Near the wheelchair, in a position to prevent the wheelchair from tipping over or to prevent the subject from falling to the ground. If two spotters are used, one spotter should focus on the wheelchair user and the other spotter on preventing the wheelchair from sliding or rolling away. The second spotter should not touch the wheelchair until and unless it is necessary to intervene.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• Success on screening questions is strongly recommended before the subject is allowed to proceed to the objective testing of this skill.</li> <li>• “Get into the wheelchair.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The subject safely completes the task.</li> <li>• Any effective and safe technique is permitted.</li> </ul> </li> <li>• A “fail” score should be awarded if: <ul style="list-style-type: none"> <li>• The subject does not describe a safe and effective method.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• The caregiver may receive assistance from the wheelchair user in performing the skill. This is an exception to the general rule that the wheelchair user should not assist when the caregiver is being assessed alone because it is not a reasonable expectation that a single caregiver could carry out this skill alone.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>

<b>3.38 Ascends stairs</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU X WST-M/CG ✓</li> <li>• WST-P/WCU X WST-P/CG X</li> </ul>
Description	<ul style="list-style-type: none"> <li>• A caregiver gets the wheelchair user and the wheelchair from the bottom to the top of a set of at least 3 stairs. The skill is assumed to be a combined effort of the caregiver and the wheelchair user because it is not a reasonable expectation that a single caregiver could carry out this skill alone.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• Although alternative means of getting from a lower to a higher level are often present, the use of stairs is frequently the only option. Although exceptional manual wheelchair users can accomplish this skill alone while sitting in the wheelchair, it is not recommended due to the ergonomic stresses involved. Using caregivers or passersby to assist with stair ascent is the recommended method. Although 3 stairs are not many, they are representative of the skills needed for a full flight of steps.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• There should be at least 3 stairs, with the following approximate dimensions – 18 cm rise, 28 cm run/tread and width of at least 1.2 m.</li> <li>• Rails should be available on both sides, at a height of about 86-92 cm above the steps. The rails should extend beyond the upper and lower stair boundaries by 30 cm or more.</li> <li>• The set of stairs should end at the upper end on a level surface or platform that is at least 2 m<sup>2</sup>. A 15 cm-high lip around the open edges of the platform is recommended.</li> <li>• No external aids (e.g. stair lift) may be used, unless they are carried by the subject or are present in his/her natural environment and testing is performed there.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: At the bottom of the stairs, usually with the back of the wheelchair facing the stairs and at least 0.5 m from the bottom stair.</li> <li>• Spotter: If using a single spotter, he/she should be below and beside the wheelchair with one hand near a fixed part of the wheelchair and the other on a handrail. If using two spotters, one spotter behind and uphill to the wheelchair, holding onto the spotter strap. The second spotter is in front of and beside the wheelchair, downhill. The spotter may hold the wheelchair loosely, as long as he/she does not interfere with the performance of the skill. The other hand may be used to grasp a hand-rail.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• Success on screening questions is strongly recommended before</li> </ul>

	<p>allowing the subject to proceed with objective testing.</p> <ul style="list-style-type: none"> <li>• “Get the wheelchair user and the wheelchair up the stairs.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• Any effective and safe technique is permitted, as long as at least 3 stairs are completed.</li> <li>• The wheelchair user may be lifted out of the wheelchair and carried up the stairs.</li> </ul> </li> <li>• A “pass with difficulty” should be awarded if: <ul style="list-style-type: none"> <li>• There is excessive jarring as the wheelchair moves from stair to stair.</li> <li>• The caregiver over-exerts him/herself.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• The caregiver may receive assistance from the wheelchair user in performing the skill. This is an exception to the general rule that the wheelchair user should not assist when the caregiver is being assessed alone.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• This skill is not applicable for most powered wheelchairs because of the difficulty and danger involved.</li> </ul>

<b>3.39 Descends stairs</b>	
Versions applicable	<ul style="list-style-type: none"> <li>• WST-M/WCU ✓ WST-M/CG ✓</li> <li>• WST-P/WCU X WST-P/CG X</li> </ul>
Description	<ul style="list-style-type: none"> <li>• The wheelchair user and the wheelchair get from the top to the bottom of a set of at least 3 stairs.</li> </ul>
Rationale	<ul style="list-style-type: none"> <li>• As for “ascends stairs” skill except that this skill can be performed by wheelchair users without assistance.</li> </ul>
Equipment	<ul style="list-style-type: none"> <li>• As for the “ascends stairs” skill.</li> <li>• Because it is often possible to descend stairs that cannot be ascended, an alternative means (e.g. a ramp, lift or test personnel) should be available to allow the wheelchair to get to the top of the stairs.</li> <li>• External aids (e.g. stair lift) may only be used if they are carried by the subject or are present in his/her natural environment and testing is done there.</li> </ul>
Starting positions	<ul style="list-style-type: none"> <li>• Wheelchair: At the top of the stairs, with the leading wheels at least 0.5 m from the top stair.</li> <li>• Spotter: Below the wheelchair, between the wheelchair and the top step. At least one of the spotter’s hands will be near a fixed part of the wheelchair to resist tipping or runaway. The spotter may hold the wheelchair loosely, as long as he/she does not interfere with the performance of the skill. The other hand may be used to grasp a hand-rail.</li> </ul>
Instructions to subject	<ul style="list-style-type: none"> <li>• Success on screening questions is strongly recommended before the subject is allowed to proceed to objective testing.</li> <li>• “Get yourself and the wheelchair down the stairs.”</li> </ul>
Capacity criteria	<ul style="list-style-type: none"> <li>• A “pass” should be awarded if: <ul style="list-style-type: none"> <li>• The subject safely completes the task.</li> </ul> </li> <li>• A “pass with difficulty” should be awarded if: <ul style="list-style-type: none"> <li>• There is excessive jarring as the wheelchair moves from stair to stair.</li> <li>• The caregiver over-exerts him/herself.</li> </ul> </li> </ul>
Caregiver considerations	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Powered wheelchair considerations	<ul style="list-style-type: none"> <li>• This skill is not applicable for most powered wheelchairs because of the difficulty and danger involved.</li> </ul>