Wheelchair Propulsion Test (WPT)© Version 1.0 Form

Subject # : _____. Date: _____. Time: _____Test # ___

Recorded Data*	
1. Able to successfully complete the 10m distance?	Yes ☐ No ☐
2. Direction of travel	Forward ☐ Backward ☐
3. Limbs contributing to propulsion, steering or braking (tick all that apply)	Left: Hand ☐ Leg ☐ Right: Hand ☐ Leg ☐
4. Limb monitored for timing propulsion cycles (tick one limb)	Left: Hand ☐ Leg ☐ Right: Hand ☐ Leg ☐
5. Time (to nearest second)	_____ s
6. Total number of propulsive cycles (to nearest full cycle)	_____ cycles
7. If using one or more hands for propulsion in the forward direction, during the *contact phases*, did the subject generally begin the contact between the hands and the hand-rims behind the top dead center of the rear wheel?	Yes ☐ No ☐ Not applicable ☐
8. If using one or more hands for propulsion in the forward direction, during the *recovery phases*, did the subject generally use a path of the hands that was predominantly beneath the hand-rims?	Yes ☐ No ☐ Not applicable ☐
9. If using one or more *feet for propulsion* and going forward, did the subject make initial foot contact with the knee flexed less than 90° from full extension and finish with the knee flexed more than 90° (or the opposite if going backward)?	Yes ☐ No ☐ Not applicable ☐
10. Comments: (e.g., position on seat, trunk and arm posture, hand grip, foot contact, consistency, need for training, footwear, equipment worn, wheelchair issues)	

Derived Wheelchair-Propulsion Data*	
1. Speed: 10m / _____ # seconds =	_____ m/s
2. Push frequency (cadence): _____ # cycles / _____ # seconds =	_____ cycles/s
3. Effectiveness: 10m / _____ # cycles =	_____ m/cycle

*Directions on next page.

Tester signature: _____ Tester name (print): _____

Wheelchair Propulsion Test (WPT)© Version 1.0 Directions

A. Equipment and set-up:
   - Means of recording the time (to the nearest second).
   - A 10 m path at least 1.2m wide on a smooth level surface is needed, with at least 2 m before the starting line and at least 2m beyond the finish line. The starting lines and path width should be clearly indicated. Note that longer distances (e.g. 100m) can be used with the same methodology, depending upon the purpose of the test.

B. Starting position: Wheelchair user seated in wheelchair at rest, with the wheel locks off, behind the starting line, facing forward or backwards, at the wheelchair user's preference. The casters should be oriented as they will be for moving in the selected direction. The tester positions himself/herself where it is best possible to view the limb being used to record the number of cycles and to view the leading wheel as it crosses the finish line.

C. Safety: The tester is attentive to and in a position to spot for rear tips or forward falls from the wheelchair, especially during the starting and stopping stages of the test.

D. Instructions:

- The test subject may do a practice attempt to familiarize him/her with the instructions and to provide the tester with an indication of what limb should be used for counting the cycles and propulsion method.
- Orally or in writing, the tester instructs the test subject as follows: "When you are ready, please propel your wheelchair to the finish area using your usual method and speed". The tester should indicate the finish area beyond the finish line. If it becomes clear that the wheelchair user did not understand the instructions (e.g. stopping before the finish line rather than beyond it), the test may be repeated.

E. What the tester records: The tester uses the form on the previous page to record the following data:
   1. Success at completing the 10m task (yes/no).
   2. Direction of travel (forward/backward).
   3. Limbs contributing to propulsion, steering or braking (left arm, right arm, left leg and/or right leg). Tick all that apply.
   4. Limb monitored for timing propulsion cycles (left arm, right arm, left leg or right leg). Tick one. For people with hemiplegia using an arm and a leg, generally use the leg for counting the cycles.
   5. Time (to the nearest second) from when the leading wheels cross the starting line until they cross the finish line. The tester should not be obvious about timing the test, to avoid encouraging speed.
   6. Total number of propulsive cycles in 10m (to nearest full cycle). A cycle is defined as beginning when the limb being monitored makes the initial contact with the hand-rim (if an arm) or the ground (if a leg). The end of the cycle is when this event occurs the next time.
   7. If using one or more hands for propulsion in the forward direction, during the contact phase, did the subject generally begin the contact between the hands and the hand-rims behind the top dead center of the rear wheel? (yes/no/not applicable).
   8. If using one or more hands for propulsion in the forward direction, during the recovery phases, did the subject generally use a path of the hands that was predominantly beneath the hand-rims? (yes/no/not applicable).
   9. If using one or more feet for propulsion, did the subject make initial foot contact with the knee flexed less than 90° from full extension and finish with the knee flexed more than 90° (or the opposite if going backward)? (yes/no/not applicable).
   10. Comments: The tester notes anything relevant (e.g. position on seat, trunk and arm posture, hand grip, foot contact, consistency, need for training, footwear, equipment worn, wheelchair issues).

F. What the tester calculates: The tester calculates the following derived parameters:
   1. Speed: 10m/# of seconds = # m/s
   2. Push frequency (or cadence): # of cycles / # of seconds = # cycles/s
   3. Effectiveness: 10 m / # of cycles / = # m/cycles

Note:

- No permission is needed to use the WPT, nor are there any charges.