

Wheelchair Circuit

Adapted from Kilkens OJ et al. The Wheelchair Circuit: Reliability of a test to assess mobility in persons with spinal cord injuries, Arch Phys Med Rehabil, 83: 1783-8, 2002; Methods. Used with permission from Elsevier Publishing.

The wheelchair circuit test consists of 9 standardized ADL tests relating mainly to 3 aspects of mobility – tempo, technical skills and physical capacity.

During each of the following tasks, performance time, distance or successful completion are recorded. There is a resting time of 2 minutes between each task.

Figure-of-8 shape

Set up a course with 3 markers placed in a straight line, each 1.5 m apart.

Instruct the subject to start at the first marker, driving the wheelchair in a figure of 8 shape around the other 2 markers. Record the time from the moment the subjects start wheeling until the front wheels of the wheelchair pass the first marker again. (max time allowed = 1 min)

Crossing a doorstep

Set up a wooden doorstep (.04 m high, .15 m wide, 1.20 m long) in a doorway. Place a marker 1m in front of and 1m behind the doorstep.

Instruct the subject to start at the first marker and cross the doorstep and wheel until they passed the second marker. Record the time the subject took from passing the first marker to the second marker.

Note: subjects are allowed several attempts (max of 2 min).

Mounting a platform

Set up a wooden platform (.10m high, 1.20m wide, 1.20m long) against a wall. Place a marker 2m before the platform.

Instruct the subject to start at the marker and drive up the platform until all 4 wheels of the wheelchair are on the platform. Record the time taken to do this.

Note: Subjects are allowed several attempts within a maximum time of 2 minutes.

Sprint

Set up 2 markers on the floor, 15 m apart.

Instruct the subject to wheel from one marker to the other as fast as possible. Record the time taken to do this.

Walking

Set up 2 markers on the floor, 15 m apart.

If the subject is able to ambulate, instruct the subject to walk back and forth **at a safe and comfortable pace** between these 2 markers for 2 minutes and measure the distance ambulated. Subjects are allowed to use their normal walking aids. If they are unable to walk for 2 minutes, measure the distance they covered until they stopped.

3% Slope

Equipment needed: treadmill

Start the subject on the treadmill with the speed set at 0.56m/s. After 10 seconds, incline the treadmill to a slope of 3%. After the 3% inclination is reached, instruct subjects to keep driving for 10 seconds before returning the treadmill to 0% inclination, for the conclusion of the test.

Indicate whether the subject was successful in completion of this task.

6% Slope

Equipment needed: treadmill

Start the subject on the treadmill with the speed set at 0.56m/s. After 10 seconds, incline the treadmill to a slope of 6%. After the 6% inclination is reached, instruct subjects to keep driving for 10 seconds before returning the treadmill to 0% inclination, for the conclusion of the test.

Indicate whether the subject was successful in completion of this task.

Wheelchair driving

Equipment needed: treadmill

Instruct the subject to drive on a treadmill set at 0.83m/s for 5 minutes.

Transfer

Place a marker on the floor 1m from a table that is the same height as a wheelchair with a cushion.

Instruct the subject to start at the marker, drive to the table, and perform a transfer to the table. Record the time needed to complete the task (max. time of 5 min).

Note: Do not attempt this task if subject has a score of <3 on the FIM item transfer bed/chair/wheelchair.

Wheelchair Circuit Worksheet:

Patient name: _____

Date: _____

Item 1 (figure-of-8): _____ seconds

Item 2 (crossing a doorstep): _____ seconds

Item 3 (mounting a platform): _____ seconds

Item 4 (sprint): _____ seconds

Item 5 (walking): _____ metres

Item 6 (3% slope): successfully completed? Y / N

Item 7 (6% slope): successfully completed? Y / N

Item 8 (wheelchair driving): successfully completed? Y / N

Item 9 (transfer): _____ seconds