Assessment Overview

Assessment Area

ICF Domain: Activity Subcategory: Mobility

You Will Need

Length:

Approx. 90 min / 14 tasks.

Equipment:

Adjustable mat, a wood board (1.20 x .15 x .012m), a wooden platform (1.22 x 1.22 x .10m), Stopwatch.

0.10 m platform on floor.
Wood doorstep height 0.4 m.
4m 3% ramp, 4m 6% ramp,
Open space, e.g., 15 m corridor.
2 pylons (set 1.5m apart for
Figure 8)

Scoring:

Items include figure-8, ramps ascents, sprints and wheelies.

- Ability score (sum of the scores of the 14 items, 0-14): All items performed correctly within the designated time are assigned 1 point. For 3 tasks, 0.5 may be awarded if it is partially completed.
- Performance score (sum of time [seconds] of the 3 timed items).

Less time = better performance. AWMC+3:

Ribeiro Neto et al. (2020) added 3 items which involved skills that challenge the person's trunk control and balance (distinctive characteristics of individuals with paraplegia):

- (1) 0.12-m Platform Ascent
- (2) 4-m 3% Ramp Ascent in a Wheelie
- (3) 4-m 6% Ramp Ascent in a Wheelie

Summary

The Adapted Manual Wheelchair Circuit (AMWC) is a performance measure consisting of 14 tasks considered essential to independent mobility in a manual wheelchair. It is a performance-based measure with the tasks designed to be performed in a fixed order and with two minutes' rest between each item (Cowan et al. 2011).

The AMWC is a more clinic-friendly adaptation of the original wheelchair circuit (WC) as a wheelchair-accessible treadmill is no longer required (for three skills - 3% and 6% slope, 3-minute wheelchair propulsion).

The AMWC+3 version added three specific tasks (0.12-m Platform Ascent, 4-m 3% Ramp Ascent in a Wheelie, 4-m 6% Ramp Ascent in a Wheelie) that better differentiate between people with paraplegia and people with tetraplegia because of the trunk control required to complete them.

Availability

Worksheet: Can be found in the appendix of the following articles:

- AMWC: <u>https://pubmed.ncbi.nlm.nih.gov/21807146/</u>
- AMWC+3: https://pubmed.ncbi.nlm.nih.gov/30686099/

Languages: English and Brazilian-Portuguese

Assessment Interpretability	/		
Minimal Clinically Important Difference	nically Important Statistical Erro		Typical Values
Not established in SCI Not established i		n SCI	Not established in SCI
Measurement Properties			
Validity – High		Reliability – High	
High criterion validity – able to discriminate between people with paraplegia and people with tetraplegia: AMWC+3 ability score presented a better sensitivity compared to AMWC ability score (lower success rate for all subgroups, 38.5% vs. 82.1% for HP; 49.0% vs. 75.5% for MP; 78.9% vs. 94.7% for LP). AMWC+3 total time was significantly lower in LP compared to MP and HP (139.85 s vs. 242.52 s and 326.21 s, respectively, p \leq 0.05). (Ribeiro Neto et al. 2020; n=126; median age 28.9 years; injury level: high paraplegia [HP], medium paraplegia [MP] and low paraplegia [LP]; ASIA A-B; median time since injury 35.3 months, AMWC+3 version) High correlation with SCIM-III: Ability score: $r_s = 0.74$ Performance score: $r_s = -0.75$ 3-minute wheeling: $r_s = 0.78$ (Ribeiro Neto et al. 2018; n=66; median age 30.6 years; injury level: 22 tetraplegia, 44 paraplegia; median time since injury 30.8 months, Brazilian- Portuguese version)		High Test-retest Reliability: ICC > 0.90 (Cowan et al. 2011; n=50; 42 males, 8 females; paraplegia and tetraplegia; ASIA A-D; mean time since injury 11.8 years) Number of studies reporting reliability data: 1	
	Respon	siveness	
Floor/Ceiling Effect: Floor effect: Not observed Ceiling effect for the group with paraplegia = 81.8% Ceiling effect for the group for tetraplegia = 15.2%	Effect Size: Not established in SCI		Number of studies reporting responsiveness data: 1
(Ribeiro Neto et al. 2018; n=66; median age 30.6 years; 22 tetraplegia, 44 paraplegia; median time since injury 30.8 months, Brazilian-Portuguese version)			