

# CONSUMER PREFERENCE IN RANKING WALKING FUNCTION UTILIZING THE WALKING INDEX FOR SPINAL CORD INJURY (WISCI)

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## INTRODUCTION

The Walking Index for Spinal Cord Injury (WISCI) was developed for use in clinical trials as a quantification of walking impairment. The ranking of modes of walking was created by spinal cord injury (SCI) clinical investigators and was based on walking capacity, reflecting impairment severity. This differs from most disability scales where ranking is based on independence. In preparation for a study to help define the minimum clinically important difference (MCID) of the WISCI scale, we wanted to examine how consumers ranked walking modes of the WISCI scale based on their preference for walking. Our hypothesis was that consumers would rank-order the WISCI levels in terms of independence of physical assistance in walking, irrespective of need for walking aids or braces.

Country	N	Male	Cervical	AIS D	Mean Age
Canada	12	7	6	10	50.0
Italy	14	9	7	14	49.4
USA	16	13	9	15	45.6

### WISCI Levels (modes of walking)

Level	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Devices	None	1 cane	None	None	2 crutch	1 cane crutch	1 cane crutch	Walker	2 crutch	2 crutch	1 cane crutch	Walker	Walker	2 crutch	Walker	P bars	P bars	P bars	P bars	P bars	U n a b l e
Braces	No	No	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	
Phys Assist	None	None	None	1	None	None	1	None	None	1	1	None	1	1	1	None	1	1	2	2	

## METHODS

Forty-two consumers from the USA, Canada or Italy (see table) were presented with photographs depicting a WISCI mode of walking (level) and asked to rank order in his/her preference for walking from worst to best. The photos included a descriptor of any devices, braces or physical assistance, but not the original WISCI level associated with it. Median rank and interquartile range were calculated for each photo and compared to the expert consensus ranking. Conjoint analysis was used to assign a 'value' for device, brace, person, and cluster analysis was used to group those with similar 'values'.

## RESULTS

Median rank and Interquartile range (IQR) of rank of modes of walking  
Note large range of ranks for pictures representing levels 17, 14, 13, 10 and 9

WISCI pic >	20	19	18	17	16	15	14	13	12	11	10	9	8	7
Median rank	20	18	19	17	13	16	15	11	12	9.5	14	9	7	8
25 <sup>th</sup> %ile	20	17	18	12	13	15	11	9	11	8	10	8	7	7
75 <sup>th</sup> %ile	20	18	19	18	15	17	16	14	13	11	14	13	8	10
IQR	0	1	1	6	2	2	5	5	2	3	4	5	1	3

Conjoint analysis and cluster analysis. Values added to intercept give approximate rank  
Green cell = highest value for cluster; Red cell = lowest value

Cluster	Intercept	Devices					Braces		Persons		
		None	1 Cane Crutch	2 Crutches	Walker	Parallel Bars	No	Yes	None	One	Two
1 (n=20)	10.47	6.52	4.04	0.03	-3.86	-6.73	0.71	-0.71	2.19	-0.16	-2.03
2 (n=4)	10.67	6.55	4.16	-1.71	-6.78	-2.22	0.86	-0.86	2.4	-0.81	-1.59
3 (n=5)	10.36	6.49	4.56	-3.54	-0.54	-6.97	0.63	-0.63	2.27	-0.31	-1.96
4 (n=12)	10.1	4.17	2.56	0.06	-0.86	-5.92	0.58	-0.58	4.58	-1.98	-2.6
Expert	10.59	5.61	3.03	0.03	-2.47	-6.21	1.64	-1.64	3.01	-1.26	-1.75

## DISCUSSION

The hypothesis that consumers with SCI would rank modes of walking requiring physical assistance lower than modes not requiring physical assistance was not supported. The majority of consumers ranked walking modes similar to the scientist ranking (WISCI levels). However a subgroup of consumers (cluster 4) did value physical independence over physical assistance similar to SCIM/FIM levels



WISCI LEVEL 9



WISCI LEVEL 17

Rank order of pictures for cluster 1 and 4 compared to expert ranking.  
Cluster 1 accepts physical assistance and avoids use of walker. while cluster 4 values freedom of physical independence over devices. Note the location of level (picture) 9 and 17 in the ordering below.

	Physical Assist	2 crutches	Walker										
Clinical Experts	20	19	18	17	16	15	14	13	12	11	10	9	8
Clust 1	20	18	17	19	15	14	10	16	12	11	7	13	9
Clust 4	20	18	19	15	16	13	12	9	17	14	10	11	5

## CONCLUSION

Consumer ranking for modes of walking by preference differs from the clinical expert consensus ranking based on impairment. Consumer preferences for mode of walking are not uniform, particularly when it comes to the use of physical assistance. These preferences may influence subjective ratings of improvement in walking in a clinical trial. Objective and subjective assessments of improvement in walking should be considered when determining a clinically meaningful change in walking function.