Annual Mobility Assessment Interpretation Charts

Use these charts to interpret client/participant's performance on each of the tests/measures of the protocol. They are based on reference values (mean and standard deviation) by decade of age and sex reported in the recent research literature.

- The 1st column contains the **reference value** (mean & standard deviation) by age and sex.
- Performance in the 2nd column (red zone-a full standard deviation below the mean) suggests that mobility problems exist
- Performance in the 3rd column (yellow zone,1 SD below to the mean) suggests that mobility problems may be developing
- Performance in the 4th column (green zone, at the mean and better) suggests that mobility problems are not present.

To use the charts to determine categorization for each test/measure

- select the **ROW** corresponding to the client/participant's AGE category.
- Select the **column closest in value** to the participant's **performance value** (be sure to review all columns)
- Write the value of the client/participant's performance on the report card. Draw a line on the bar estimating where the value lies.

MEN USUAL WALKING SPEED (m/sec)

Fall Risk: < .76 m/sec SN .65, SP .71[a]

Frailty Risk: < .63 m/sec SN .90, SP .90 [b]

Age Group	MEN (faster = better performance)			
	Reference Mean (SD)	Red Zone	Yellow Zone	Green Zone
50-59 [c]	1.31 (.16)	≤ 1.15	1.16 - 1.30	1.31+
60-69 [c]	1.27 (.17)	≤ 1.10	1.11 - 1.26	1.27+
70-79 [c]	1.18 (.20)	≤ 0.98	.99 - 1.17	1.18+
80-89 [c]	1.02 (.20)	≤ 0.82	.83 - 1.01	1.02+
≥ 90 [c]	.91 (.17)	≤ 0.74	.75 - .90	.91+

MEN 30 SEC CHAIR STAND (# repetitions)

Fall Risk: 60-69 < 11 70-79 <10

80-89 < 8 90+ <4 [e]

Age Group	MEN (more reps, better performance			
	Reference Mean (SD)	Red Zone	Yellow Zone	Green Zone
50-59 [d]	13.9 (3.9)	14+	11 - 14	14+
60-69 [d]	10.2 (4.9)	20 +	16 - 19	20 +
70-79 [d]	14.0 (5.8)	14 +	9 -13	14 +
80-89 [d]	9.1 (6.1)	9 +	4 - 8	9 +
≥ 90 [d]	9.1 (4.2)	9 +	6 - 8	9 +

MEN TIMED UP AND GO

Fall Risk [g] > 12.0 sec SN .74 SP .52 [h]

Frailty [b] > 17.8 sec

Age Group	MEN (less time = better performance			
	Reference Mean (SD)	Red Zone	Yellow Zone	Green Zone
50-59 [d]	8.7 (3.3)	≥ 12.0	8.8 - 11.9	≤ 8.7
60-69 [d]	8.1 (1.8)	≥ 9.9	8.3 - 9.9	≤ 8.1
70-79 [d]	9.2 (2.7)	≥ 11.9	9.3 - 11.8	≤ 9.2
80-89 [d]	11.4 (3.0)	≥ 14.4	11.5-14.3	≤ 11.4
≥ 90 [d]	14.7 (6.3)	≥ 21.0	14.8 - 20.9	≤ 14.7

MEN FAST WALKING SPEED (M/SEC)

Fall Risk < 1.10 m/sec SN.76, SP .60 [a]

Age Group	MEN (faster = better performance)			
	Reference Mean (SD)	Red Zone	Yellow Zone	Green Zone
50-59 [d]	1.33 (.55)	≤ 0.78	.79 - 1.32	1.33 +
60-69 [d]	1.40 (.30)	≤ 1.10	1.11 - 1.39	1.40 +
70-79 [d]	1.58 (.51)	≤ 1.07	1.08 - 1.58	1.58 +
80-89 [d]	1.36 (.38)	≤ .98	.99 - 1.35	1.36 +
≥ 90 [d]	1.19 (.32)	≤ .87	.88 - 1.90	1.91 +

MEN FOUR SQUARE STEP TEST (sec)

Multiple Fall Risk > 15 sec SN .85, SP .88 [g]

Age Group	MEN (less time = better performance			
	Reference Mean SD[e]	Red Zone	Yellow Zone	Green Zone
50-59 [d]	10.2 (3.3)	≥ 13.5	10.3-13.4	≤ 10.2
60-69 [d]	9.4 (1.9)	≥ 11.3	9.5-11.2	≤ 9.4
70-79 [d]	10.9 (4.2)	≥ 15.1	11.0-15.0	≤ 10.9
80-89 [d]	15.8 (8.0)	≥ 23.8	15.9-23.7	≤ 15.8
≥ 90 [d]	13.0 (3.4)	≥ 16.4	13.1-16.3	≤ 13.0

MEN TIME UP AND GO with COGNITIVE TASK

Fall Risk > 11 sec SN 1.00. SP .66 [i]

Age Group	MEN (less time = better performance			
	Reference Mean (SD)	Red Zone	Yellow Zone	Green Zone
50-59 [d]	11.9 (5.9)	≥ 17.8	12.0-17.7	≤ 11.9
60-69 [d]	13.0 (5.0)	≥ 18.0	13.1-17.9	≤ 13.0
70-79 [d]	12.9 (5.0)	≥ 17.9	13.0-17.8	≤ 12.9
80-89 [d]	17.3 (4.7)	≥ 22.0	17.4-21.9	≤ 17.3
≥ 90 [d]	24.3 (10.2)	≥ 34.5	24.4-34.4	≤ 24.3

WOMEN: USUAL WALKING SPEED (m/sec)

Fall Risk: < .76 m/sec SN .65, SP .71 [a]

Frailty Risk: < .63 m/sec SN .90, SP .90 [b]

Age Group	WOMEN (faster = better performance)			
	Reference Mean (SD)	Red Zone	Yellow Zone	Green Zone
50-59[c]	1.26 (0.17)	≤ 1.09	1.10 - 1.25	1.26 +
60-69[c]	1.22 (0.16)	≤ 1.06	1.07 - 1.21	1.22 +
70-79[c]	1.12 (0.20)	≤.92	.93 - 1.11	1.12 +
80-89[c]	0.98 (0.21)	≤.77	.78 - .97	.98 +
≥ 90[c]	0.76 (0.21)	≤ .55	.56 - .75	.76+

WOMEN FAST WALKING SPEED

Fall Risk: < .1.10 m/sec Sn .76, Sp .60 [a]

Age Group	WOMEN (faster = better performance			
	Reference Mean (SD)	Red Zone	Yellow Zone	Green Zone
50-59[d]	1.67 (0.51)	≤ 1.16	1.17 - 166	1.67 +
60-69 [d]	1.59 (0.37)	≤ 1.22	1.23 - 1.58	1.59 +
70-79 [d]	1.52 (0.33)	≤ 1.19	1.20 - 1.51	1.52 +
80-89 [d]	1.20 (0.33)	≤ 0.87	.88 - 1.19	1.20 +
90+ [d]	1.02 (0.27)	≤ 0.75	.76 - 1.01	1.02 +

WOMEN 30 SEC CHAIR STAND (Repetitions)

Fall Risk: 60-69 < 11 70-79 <10 [e]

80-89 < 8 90+ < 4

Age Group	WOMEN (more reps = better)			
	Reference Mean (SD)	Red Zone	Yellow Zone	Green Zone
50-59 [d]	14.3 (6.9)	≤ 7	8 -13	14 +
60-69 [d]	13.4 (4.1)	≤ 9	10-12	13 +
70-79 [d]	11.6 (5.3)	≤ 6	7 - 11	12 +
80-89 [d]	9.7 (4.2)	≤ 6	7 - 9	10 +
90+ [d]	8.6 (3.7)	≤ 5	6 - 8	9 +

WOMEN FOUR SQUARE STEP TEST

Multiple Fall Risk. ≥15 sec SN .85, SP .88 [f]

Age Group	WOMEN (less time = better)			
	Reference Mean SD	Red Zone	Yellow Zone	Green Zone
50-59[d]	10.3 (4.7)	≥ 15.0	14.9 - 10.4	≤ 10.3
60-69 [d]	9.7 (2.4)	≥ 12.1	9.8 - 12.0	≤ 9.7
70-79 [d]	10.9 (3.6)	≥ 14.5	11.0 - 14.4	≤ 10.9
80-89 [d]	14.9 (5.7)	≥ 20.6	15.0 - 20.5	≤ 14.9
≥ 90 [d]	20.0 (16.7)	≥ 36.7	20.1 - 36.6	≤ 20.0

WOMEN TIMED UP AND GO

Fall Risk[g] > 12 sec Sn .74, Sp .31 [h]

Frailty ≥ 17.8 sec. Sn .93, Sp .98 [b]

Age Group	WOMEN (less time = better)			
	Reference Mean SD [e]	Red Zone	Yellow Zone	Green Zone
50-59 [d]	8.7 (3.3)	≥ 12.0	8.8 - 11.9	≤ 8.7
60-69 [d]	8.1 (1.8)	≥ 9.9	8.2 - 9.8	≤ 8.1
70-79[d]	9.2 (2.7)	≥ 11.9	9.3 - 11.8	≤ 9.2
80-89 [d]	11.4 (3.0)	≥ 14.4	11.5 -14.3.	≤ 11.4
≥ 90 [d]	14.7 (6.3)	≥ 21.0	14.8 - 20.9	≤ 14.7

WOMEN TIME UP AND GO with COGNITIVE TASK

Fall Risk > 11 sec. Sn 1.00, Sp .66 [i]

Age Group	WOMEN (less time = better)			
	Reference Mean SD [e]	Red Zone	Yellow Zone	Green Zone
50-59 [d]	11.9 (5.9)	≥ 17.8	12.0-17.7	≤ 11.9
60-69 [d]	13.0 (5.0)	≥ 18.0	13.1-17.9	≤ 13.0
70-79 [d]	12.9 (5.0)	≥ 17.9	13.0 -17.8	≤ 12.9
80-89[d]	17.3 (4.7)	≥ 22.0	17.4-21.9	≤ 17.3
≥ 90 [d]	24.3 (10.2)	≥ 34.5	24.4 -34.4	≤ 24.3

Minimal Detectable Change Values For Mobility Assessment Measures

Measure Name	MDC for Community Living Older Adults
Usual Walking Speed	0.05 m/sec [j]
Fast Walking Speed	0.09 m/sec [k]
30 sec. Chair Rise	0.9 repetitions [l]
Four Square Step Test	Not yet reported
Timed Up and Go	1.0 sec [m]
TUG Dual Task Cost compare TUG vs TUG-DT cog	Change of 41% from than TUG time [n]

Interpretation:

Change in performance (increase or decrease) at the reported level is thought to be beyond measurement error, and potentially meaningful.

Interpretation Chart References

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