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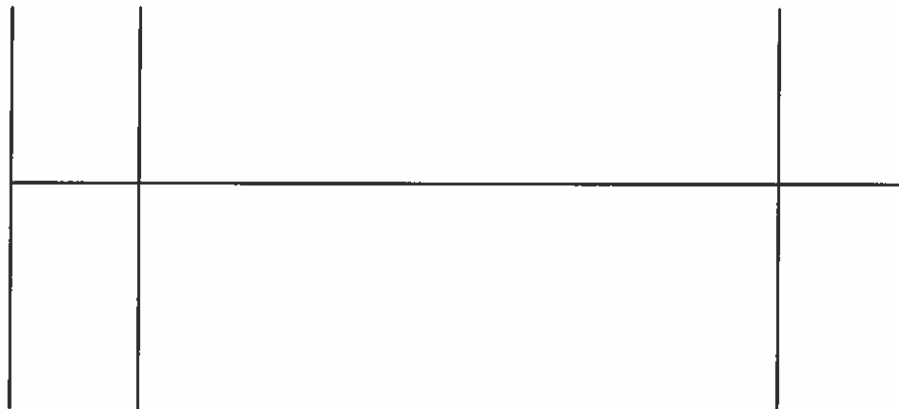
## Timed 10-Meter Walk Test

### General Information:

- individual walks without assistance 10 meters (32.8 feet) and the time is measured for the intermediate 6 meters (19.7 feet) to allow for acceleration and deceleration
  - start timing when the toes of the leading foot crosses the 2-meter mark
  - stop timing when the toes of the leading foot crosses the 8-meter mark
  - assistive devices can be used but should be kept consistent and documented from test to test
  - if physical assistance is required to walk, this should not be performed
- can be performed at preferred walking speed or fastest speed possible
  - documentation should include the speed tested (preferred vs. fast)
- collect three trials and calculate the average of the three trials

### Set-up (derived from the reference articles):

- measure and mark a 10-meter walkway
- add a mark at 2-meters
- add a mark at 8-meters



**Meter 0**   **Meter 2**  
**Start**   **Start**  
**Walk**   **Timing**

**Meter 8**   **Meter 10**  
**End**   **End**  
**Timing**   **Walk**

### Patient Instructions (derived from the reference articles):

- Normal comfortable speed: *"I will say ready, set, go. When I say go, walk at your normal comfortable speed until I say stop"*
- Maximum speed trials: *"I will say ready, set, go. When I say go, walk as fast as you safely can until I say stop"*

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## 10 Meter Walk Testing Form

Name: \_\_\_\_\_

Assistive Device and/or Bracing Used: \_\_\_\_\_

Date: \_\_\_\_\_

Seconds to ambulate 10 meters (only the middle 6 meters are timed)

Self-Selected Velocity: Trial 1 \_\_\_\_\_ sec.      Fast Velocity: Trial 1 \_\_\_\_\_ sec.

Self-Selected Velocity: Trial 2 \_\_\_\_\_ sec.      Fast Velocity: Trial 2 \_\_\_\_\_ sec.

Self-Selected Velocity: Trial 3 \_\_\_\_\_ sec.      Fast Velocity: Trial 3 \_\_\_\_\_ sec.

Self-Selected Velocity: Average time \_\_\_\_\_ sec.      Fast Velocity: Average time \_\_\_\_\_ sec.

Actual velocity: Divide 6 by the average seconds

Average Self-Selected Velocity: \_\_\_\_\_ m/s

Average Fast-Velocity: \_\_\_\_\_ m/s

Date: \_\_\_\_\_

Seconds to ambulate 10 meters (only the middle 6 meters are timed)

Self-Selected Velocity: Trial 1 \_\_\_\_\_ sec.      Fast Velocity: Trial 1 \_\_\_\_\_ sec.

Self-Selected Velocity: Trial 2 \_\_\_\_\_ sec.      Fast Velocity: Trial 2 \_\_\_\_\_ sec.

Self-Selected Velocity: Trial 3 \_\_\_\_\_ sec.      Fast Velocity: Trial 3 \_\_\_\_\_ sec.

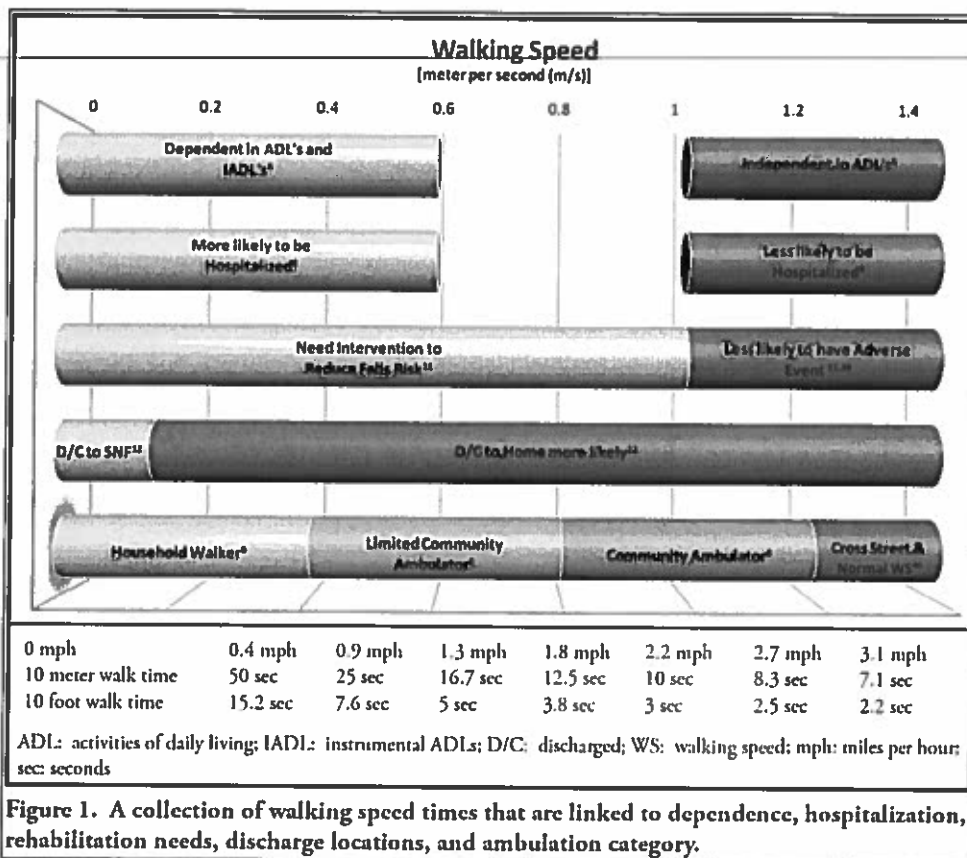
Self-Selected Velocity: Average time \_\_\_\_\_ sec.      Fast Velocity: Average time \_\_\_\_\_ sec.

Actual velocity: Divide 6 by the average seconds

Average Self-Selected Velocity: \_\_\_\_\_ m/s

Average Fast-Velocity: \_\_\_\_\_ m/s

## Gait Speed (self-selected): Interpretation and Norms



Fritz S. Lusardi M. (2010). White Paper: Walking Speed: the Sixth Vital Sign. *Journal of Geriatric Physical Therapy* 32(2): 2-5. Figure 1.

**Table 2. Comfortable Gait Speed: Means, Standard Deviations, and Confidence Intervals by Age, Gender, and Use of Assistive Device (in Meters per Second)**

Age (y)	Group	N	Mean	SD	CI
60-69	Male	1	1.26	—	0.84 – 1.67
	Female	5	1.24	0.12	1.05 – 1.42
	Overall	6	1.24	0.10	1.13 – 1.35
70-79	Male	9	1.25	0.23	1.11 – 1.39
	Female	10	1.25	0.18	1.11 – 1.38
	Overall	19	1.25	0.20	1.15 – 1.34
80-89	Male	10	0.88	0.24	0.75 – 1.01
	Female	24	0.80	0.20	0.72 – 0.89
	No Device	24	0.91	0.16	0.84 – 0.98
	Device	10	0.63	0.17	0.52 – 0.74
	Overall	34	0.82	0.21	0.75 – 0.90
90-101	Male	2	0.72	0.14	0.43 – 1.02
	Female	15	0.71	0.23	0.60 – 0.82
	No Device	7	0.88	0.23	0.76 – 1.01
	Device	10	0.59	0.10	0.48 – 0.70
	Overall	17	0.71	0.22	0.60 – 0.82

**Table 3. Fast Gait Speed: Means, Standard Deviations, and Confidence Intervals by Age, Gender, and Use of Assistive Device (in Meters per Second)**

Age (y)	Group	N	Mean	SD	CI
60-69	Male	1	1.96	—	1.37 – 2.56
	Female	5	1.81	0.17	1.55 – 2.08
	Overall	6	1.84	0.17	1.67 – 2.02
70-79	Male	9	1.94	0.26	1.74 – 2.14
	Female	10	1.80	0.26	1.61 – 1.99
	Overall	19	1.86	0.27	1.73 – 1.99
80-89	Male	10	1.29	0.38	1.10 – 1.48
	Female	24	1.20	0.29	1.08 – 1.33
	No Device	24	1.38	0.22	1.28 – 1.47
	Device	10	0.88	0.23	0.73 – 1.03
	Overall	34	1.23	0.32	1.12 – 1.34
90-101	Male	2	1.27	0.13	0.85 – 1.69
	Female	15	1.05	0.32	0.90 – 1.21
	No Device	7	1.29	0.33	1.11 – 1.47
	Device	10	0.93	0.20	0.78 – 1.08
	Overall	17	1.08	0.31	0.92 – 1.24

Lusardi, M.M. (2003). Functional Performance in Community Living Older Adults. *Journal of Geriatric Physical Therapy*, 26(3), 14-22.

Gain of 0.1 m/s is predictor for well-being in those without normal WS. (Purser 2005; Hardy, Perera 2007). Therefore could use a change of 0.1 m/s for patient goal.

Purser, J. L., M. Weinberger, et al. (2005). "Walking speed predicts health status and hospital costs for frail elderly male veterans." *J Rehabil Res Dev* 42(4): 535-46.  
Hardy, S. E., S. Perera, et al. (2007). "Improvement in usual gait speed predicts better survival in older adults." *J Am Geriatr Soc* 55(11): 1727-34.

### Interpretation:

- Less than 0.4 m/sec: Household ambulator
- 0.4 to 0.8 m/sec: Limited community ambulator
- 0.8 to 1.2 m/sec: Community ambulator
- 1.2 m/sec and above: Able to safely cross streets



## References

1. Bohannon RW. Reference values for the Timed Up and Go Test: A Descriptive Meta-Analysis. *Journal of Geriatric Physical Therapy*, 2006;29(2):64-8.
2. Shumway-Cook A, Brauer S, Woollacott M. Predicting the probability for falls in community-dwelling older adults using the timed up & go test. *Phys Ther*. 2000;80:896-903.
3. Kristensen MT, Foss NB, Kehlet H. Timed "Up and Go" Test as a predictor of falls within 6 months after hip fracture surgery. *Phys Ther*. 2007.87(1):24-30.

## Additional References

- Bischoff HA, Stahelin HB, et al. Identifying a cut-off point for normal mobility: A comparison study of the timed "up and go" test in community-dwelling and institutionalized elderly women. *Age and Ageing*. 2003;32:315-320.
- Boulgarides LK, McGinty SM, et al. Use of clinical and impairment-based tests to predict falls by community-dwelling older adults. *Phys Ther*. 2003;83:328-339.
- Podsiadlo D, Richardson S. The timed "up & go": A test of basic functional mobility for frail elderly persons. *JAGS*. 1991;39:142-148.

**ANTICIPATORY**

**SUB SCORE: /6**

**1. SIT TO STAND**

*Instruction: "Cross your arms across your chest. Try not to use your hands unless you must. Do not let your legs lean against the back of the chair when you stand. Please stand up now."*

- (2) Normal: Comes to stand without use of hands and stabilizes independently.
- (1) Moderate: Comes to stand WITH use of hands on first attempt.
- (0) Severe: Unable to stand up from chair without assistance, OR needs several attempts with use of hands.

**2. RISE TO TOES**

*Instruction: "Place your feet shoulder width apart. Place your hands on your hips. Try to rise as high as you can onto your toes. I will count out loud to 3 seconds. Try to hold this pose for at least 3 seconds. Look straight ahead. Rise now."*

- (2) Normal: Stable for 3 s with maximum height.
- (1) Moderate: Heels up, but not full range (smaller than when holding hands), OR noticeable instability for 3 s.
- (0) Severe:  $\leq$  3 s.

**3. STAND ON ONE LEG**

*Instruction: "Look straight ahead. Keep your hands on your hips. Lift your leg off of the ground behind you without touching or resting your raised leg upon your other standing leg. Stay standing on one leg as long as you can. Look straight ahead. Lift now."*

**Left:** Time in Seconds Trial 1: \_\_\_\_\_ Trial 2: \_\_\_\_\_      **Right:** Time in Seconds Trial 1: \_\_\_\_\_ Trial 2: \_\_\_\_\_

- (2) Normal: 20 s.
  - (1) Moderate: < 20 s.
  - (0) Severe: Unable.
- (2) Normal: 20 s.  
(1) Moderate: < 20 s.  
(0) Severe: Unable

To score each side separately use the trial with the longest time.

To calculate the sub-score and total score use the side [left or right] with the lowest numerical score [i.e. the worse side].

**REACTIVE POSTURAL CONTROL**

**SUB SCORE: /6**

**4. COMPENSATORY STEPPING CORRECTION- FORWARD**

*Instruction: "Stand with your feet shoulder width apart, arms at your sides. Lean forward against my hands beyond your forward limits. When I let go, do whatever is necessary, including taking a step, to avoid a fall."*

- (2) Normal: Recovers independently with a single, large step (second realignment step is allowed).
- (1) Moderate: More than one step used to recover equilibrium.
- (0) Severe: No step, OR would fall if not caught, OR falls spontaneously.

**5. COMPENSATORY STEPPING CORRECTION- BACKWARD**

*Instruction: "Stand with your feet shoulder width apart, arms at your sides. Lean backward against my hands beyond your backward limits. When I let go, do whatever is necessary, including taking a step, to avoid a fall."*

- (2) Normal: Recovers independently with a single, large step.
- (1) Moderate: More than one step used to recover equilibrium.
- (0) Severe: No step, OR would fall if not caught, OR falls spontaneously.

**6. COMPENSATORY STEPPING CORRECTION- LATERAL**

*Instruction: "Stand with your feet together, arms down at your sides. Lean into my hand beyond your sideways limit. When I let go, do whatever is necessary, including taking a step, to avoid a fall."*

- |   |   |
|---|---|
| <b>Left</b>   | <b>Right</b>  |
| (2) Normal: Recovers independently with 1 step (crossover or lateral OK). | (2) Normal: Recovers independently with 1 step (crossover or lateral OK). |
| (1) Moderate: Several steps to recover equilibrium.                       | (1) Moderate: Several steps to recover equilibrium.                       |
| (0) Severe: Falls, or cannot step.  | (0) Severe: Falls, or cannot step.  |

Use the side with the lowest score to calculate sub-score and total score.

**SENSORY ORIENTATION**

**SUB SCORE: /6**

**7. STANCE (FEET TOGETHER); EYES OPEN, FIRM SURFACE**

*Instruction: "Place your hands on your hips. Place your feet together until almost touching. Look straight ahead. Be as stable and still as possible, until I say stop."*

Time in seconds: \_\_\_\_\_

- (2) Normal: 30 s.
- (1) Moderate: < 30 s.
- (0) Severe: Unable.

## **8. STANCE (FEET TOGETHER); EYES CLOSED, FOAM SURFACE**

*Instruction: "Step onto the foam. Place your hands on your hips. Place your feet together until almost touching. Be as stable and still as possible, until I say stop. I will start timing when you close your eyes."*

*Time in seconds: \_\_\_\_\_*

- (2) Normal: 30 s.
- (1) Moderate: < 30 s.
- (0) Severe: Unable.

## **9. INCLINE- EYES CLOSED**

*Instruction: "Step onto the incline ramp. Please stand on the incline ramp with your toes toward the top. Place your feet shoulder width apart and have your arms down at your sides. I will start timing when you close your eyes."*

*Time in seconds: \_\_\_\_\_*

- (2) Normal: Stands independently 30 s and aligns with gravity.
- (1) Moderate: Stands independently <30 s OR aligns with surface.
- (0) Severe: Unable.

## **DYNAMIC GAIT**

**SUB SCORE: \_\_\_\_\_ /10**

## **10. CHANGE IN GAIT SPEED**

*Instruction: "Begin walking at your normal speed, when I tell you 'fast', walk as fast as you can. When I say 'slow', walk very slowly."*

- (2) Normal: Significantly changes walking speed without imbalance.
- (1) Moderate: Unable to change walking speed or signs of imbalance.
- (0) Severe: Unable to achieve significant change in walking speed AND signs of imbalance.

## **11. WALK WITH HEAD TURNS – HORIZONTAL**

*Instruction: "Begin walking at your normal speed, when I say "right", turn your head and look to the right. When I say "left" turn your head and look to the left. Try to keep yourself walking in a straight line."*

- (2) Normal: performs head turns with no change in gait speed and good balance.
- (1) Moderate: performs head turns with reduction in gait speed.
- (0) Severe: performs head turns with imbalance.

## **12. WALK WITH PIVOT TURNS**

*Instruction: "Begin walking at your normal speed. When I tell you to 'turn and stop', turn as quickly as you can, face the opposite direction, and stop. After the turn, your feet should be close together."*

- (2) Normal: Turns with feet close FAST ( $\leq 3$  steps) with good balance.
- (1) Moderate: Turns with feet close SLOW ( $\geq 4$  steps) with good balance.
- (0) Severe: Cannot turn with feet close at any speed without imbalance.

## **13. STEP OVER OBSTACLES**

*Instruction: "Begin walking at your normal speed. When you get to the box, step over it, not around it and keep walking."*

- (2) Normal: Able to step over box with minimal change of gait speed and with good balance.
- (1) Moderate: Steps over box but touches box OR displays cautious behavior by slowing gait.
- (0) Severe: Unable to step over box OR steps around box.

## **14. TIMED UP & GO WITH DUAL TASK [3 METER WALK]**

*Instruction TUG: "When I say 'Go', stand up from chair, walk at your normal speed across the tape on the floor, turn around, and come back to sit in the chair."*

*Instruction TUG with Dual Task: "Count backwards by threes starting at \_\_\_\_\_. When I say 'Go', stand up from chair, walk at your normal speed across the tape on the floor, turn around, and come back to sit in the chair. Continue counting backwards the entire time."*

*TUG: \_\_\_\_\_ seconds; Dual Task TUG: \_\_\_\_\_ seconds*

- (2) Normal: No noticeable change in sitting, standing or walking while backward counting when compared to TUG without Dual Task.
- (1) Moderate: Dual Task affects either counting OR walking (>10%) when compared to the TUG without Dual Task.
- (0) Severe: Stops counting while walking OR stops walking while counting.

**When scoring Item 14, if subject's gait speed slows more than 10% between the TUG without and with a Dual Task the score should be decreased by a point.**

**TOTAL SCORE: \_\_\_\_\_ /28**

## Mini-BESTest Instructions

**Subject Conditions:** Subject should be tested with flat-heeled shoes OR shoes and socks off.

**Equipment:** Temper® foam (also called T-foam™ 4 inches thick, medium density T41 firmness rating), chair without arm rests or wheels, incline ramp, stopwatch, a box (9" height) and a 3 meter distance measured out and marked on the floor with tape [from chair].

**Scoring:** The test has a maximum score of 28 points from 14 items that are each scored from 0-2.

"0" indicates the lowest level of function and "2" the highest level of function.

If a subject must use an assistive device for an item, score that item one category lower.

If a subject requires physical assistance to perform an item, score "0" for that item.

For Item 3 (stand on one leg) and Item 6 (compensatory stepping-lateral) only include the score for one side (the worse score).

For Item 3 (stand on one leg) select the best time of the 2 trials [from a given side] for the score.

For Item 14 (timed up & go with dual task) if a person's gait slows greater than 10% between the TUG without and with a dual task then the score should be decreased by a point.

1. SIT TO STAND	Note the initiation of the movement, and the use of the subject's hands on the seat of the chair, the thighs, or the thrusting of the arms forward.
2. RISE TO TOES	Allow the subject two attempts. Score the best attempt. (If you suspect that subject is using less than full height, ask the subject to rise up while holding the examiners' hands.) Make sure the subject looks at a non-moving target 4-12 feet away.
3. STAND ON ONE LEG	Allow the subject two attempts and record the times. Record the number of seconds the subject can hold up to a maximum of 20 seconds. Stop timing when the subject moves hands off of hips or puts a foot down. Make sure the subject looks at a non-moving target 4-12 feet ahead. Repeat on other side.
4. COMPENSATORY STEPPING CORRECTION-FORWARD	Stand in front of the subject with one hand on each shoulder and ask the subject to lean forward (Make sure there is room for them to step forward). Require the subject to lean until the subject's shoulders and hips are in front of toes. After you feel the subject's body weight in your hands, very suddenly release your support. The test must elicit a step. NOTE: Be prepared to catch subject.
5. COMPENSATORY STEPPING CORRECTION - BACKWARD	Stand behind the subject with one hand on each scapula and ask the subject to lean backward (Make sure there is room for the subject to step backward.) Require the subject to lean until their shoulders and hips are in back of their heels. After you feel the subject's body weight in your hands, very suddenly release your support. Test must elicit a step. NOTE: Be prepared to catch subject.
6. COMPENSATORY STEPPING CORRECTION- LATERAL	Stand to the side of the subject, place one hand on the side of the subject's pelvis, and have the subject lean their whole body into your hands. Require the subject to lean until the midline of the pelvis is over the right (or left) foot and then suddenly release your hold. NOTE: Be prepared to catch subject.
7. STANCE (FEET TOGETHER); EYES OPEN, FIRM SURFACE	Record the time the subject was able to stand with feet together up to a maximum of 30 seconds. Make sure subject looks at a non-moving target 4-12 feet away.
8. STANCE (FEET TOGETHER); EYES CLOSED, FOAM SURFACE	Use medium density Temper® foam, 4 inches thick. Assist subject in stepping onto foam. Record the time the subject was able to stand in each condition to a maximum of 30 seconds. Have the subject step off of the foam between trials. Flip the foam over between each trial to ensure the foam has retained its shape.
9. INCLINE EYES CLOSED	Aid the subject onto the ramp. Once the subject closes eyes, begin timing and record time. Note if there is excessive sway.
10. CHANGE IN SPEED	Allow the subject to take 3-5 steps at normal speed, and then say "fast". After 3-5 fast steps, say "slow". Allow 3-5 slow steps before the subject stops walking.
11. WALK WITH HEAD TURNS-HORIZONTAL	Allow the subject to reach normal speed, and give the commands "right, left" every 3-5 steps. Score if you see a problem in either direction. If subject has severe cervical restrictions allow combined head and trunk movements.
12. WALK WITH PIVOT TURNS	Demonstrate a pivot turn. Once the subject is walking at normal speed, say "turn and stop." Count the number of steps from "turn" until the subject is stable. Imbalance may be indicated by wide stance, extra stepping or trunk motion.
13. STEP OVER OBSTACLES	Place the box (9 inches or 23 cm height) 10 feet away from where the subject will begin walking. Two shoeboxes taped together works well to create this apparatus.
14. TIMED UP & GO WITH DUAL TASK	Use the TUG time to determine the effects of dual tasking. The subject should walk a 3 meter distance. TUG: Have the subject sitting with the subject's back against the chair. The subject will be timed from the moment you say "Go" until the subject returns to sitting. Stop timing when the subject's buttocks hit the chair bottom and the subject's back is against the chair. The chair should be firm without arms. TUG With Dual Task: While sitting determine how fast and accurately the subject can count backwards by threes starting from a number between 100-90. Then, ask the subject to count from a different number and after a few numbers say "Go". Time the subject from the moment you say "Go" until the subject returns to the sitting position. Score dual task as affecting counting or walking if speed slows (>10%) from TUG and or new signs of imbalance.



## STRENGTH

### HAND GRIP STRENGTH

RIGHT HAND: \_\_\_\_\_ MEAN \_\_\_\_\_

LEFT HAND: \_\_\_\_\_ MEAN \_\_\_\_\_

ASSESSMENT: \_\_\_\_\_

**Table 1**

Mean and Standard Deviation and Hand Grip Strength in kilograms, for men and women, presented in ascending age groups

Age	Men			Age	Women		
	right	left	BMI		right	left	BMI
20 to 29	47(9.5)	45(8.8)	26.4(5.1)	20 to 29	30(7)	28(6.1)	25.1(5.8)
30 to 39	47(9.7)	47(9.8)	28.3(5.2)	30 to 39	31(6.4)	29(6)	27.3(6.8)
40 to 49	47(9.5)	45(9.3)	28.4(4.6)	40 to 49	29(5.7)	28(5.7)	27.7(7.7)
50 to 59	45(8.4)	43(8.3)	28.7(4.3)	50 to 59	28(6.3)	26(5.7)	29.1(6.4)
60 to 69	40(8.3)	38(8)	28.6(4.4)	60 to 69	24(5.3)	23(5)	28.1(5.1)
70 +	33(7.8)	32(7.5)	27.2(3.9)	70 +	20(5.8)	19(5.5)	27(4.7)

**Table 2: Performance of All Subjects on Grip Strength (pounds)**

Hand	Men						Women				
	Mean	SD	SE	Low	min	Mean	SD	SE	Low	High	
20-24 R	121.0	20.8	3.8	91	167	70.4	14.5	2.8	46	95	
20-24 L	104.5	21.8	4.0	71	150	81.0	13.1	2.6	33	88	
25-29 R	120.8	23.0	4.4	78	158	74.8	13.9	2.7	48	97	
25-29 L	110.5	16.2	3.1	77	139	83.5	12.2	2.4	48	97	
30-34 R	121.8	22.4	4.3	70	170	78.7	19.2	3.8	46	137	
30-34 L	110.4	21.7	4.2	64	145	68.0	17.7	3.5	36	115	
35-39 R	119.7	24.0	4.8	78	178	74.1	10.8	2.2	60	99	
35-39 L	112.9	21.7	4.4	73	157	66.3	11.7	2.3	49	91	
40-44 R	118.8	20.7	4.1	84	185	70.4	13.5	2.4	38	103	
40-44 L	112.8	18.7	3.7	73	157	82.3	13.8	2.5	35	94	
45-49 R	109.9	23.0	4.3	65	155	82.2	15.1	3.0	39	100	
45-49 L	100.8	22.8	4.3	58	160	56.0	12.7	2.5	37	83	
50-54 R	113.0	18.1	3.8	79	151	65.8	11.6	2.3	38	87	
50-54 L	101.9	17.0	3.4	70	143	57.3	10.7	2.1	35	78	
55-59 R	101.1	26.7	5.8	59	154	57.3	12.5	2.5	33	86	
55-59 L	83.2	23.4	5.1	43	129	47.3	11.9	2.4	31	78	
60-64 R	89.7	20.4	4.2	51	137	55.1	10.1	2.0	37	77	
60-64 L	78.8	20.3	4.1	27	110	45.7	10.1	2.0	29	66	
65-69 R	81.1	20.8	4.0	58	131	49.8	9.7	1.8	35	74	
65-69 L	78.8	19.8	3.8	43	117	41.0	8.2	1.5	29	63	
70-74 R	75.3	21.5	4.2	32	108	49.8	11.7	2.2	33	78	
70-74 L	64.8	18.1	3.7	32	93	41.5	10.2	1.9	23	67	
75+ R	65.7	21.0	4.2	40	136	42.6	11.0	2.2	25	65	
75+ L	55.0	17.0	3.4	31	119	37.6	8.9	1.7	24	61	
All R	104.3	28.3	1.8	32	176	62.8	17.0	0.96	25	137	
All L	93.1	27.6	1.6	27	160	53.9	15.7	0.88	23	115	

LBS TO Kg: LBS X 0.4536

Kg TO LBS. Kg X 2.205

## STAIR CLIMBING POWER TEST

### PURPOSE:

This is a simple and safe measure associated with measures of lower-limb muscle strength, power, and functional performance in older adults

### EQUIPMENT REQUIRED:

1. Staircase of 10 steps
2. Tape measure
3. Stop watch

### METHODOLOGY

The subject is told to ascend 10 steps as quickly and as safely as possible. The subject may use the handrail if he/she thinks it is necessary for safety purposes.

The instructor says "Ready, set, go." At "go", the patient starts ascending the stairs and timing begins.

Timing ends when both feet of a subject reached the top step.

### DATA FORM

PATIENT NAME: \_\_\_\_\_ AGE: \_\_\_\_\_

PATIENT HEIGHT: \_\_\_\_\_ WEIGHT: (KG) \_\_\_\_\_

STEP HEIGHT (m): \_\_\_\_\_ X \_\_\_\_\_ (# Of stairs) = \_\_\_\_\_ (m)

### TIME:

TRIAL #1: \_\_\_\_\_ TRIAL #2: \_\_\_\_\_ AVG: \_\_\_\_\_

VELOCITY: velocity = distance/time; distance (m)/ time (sec);

$$V = ( \text{_____ (m)} ) / ( \text{_____ (sec)} ) = \text{_____ (m/sec)}$$

POWER: power = vertical height (m)/time X body weight X 9.81 N

$$\text{Power} = ( \text{_____ (m/sec)} ) \times ( \text{_____ Kg} ) \times ( \text{9.81} ) = \text{W}$$

# Six Minute Walk Test Recording Sheet

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Age: \_\_\_\_\_ Predicted HRmax (220-age): \_\_\_\_\_

Medications: \_\_\_\_\_

## Initial Assessment

## Re-evaluation/final evaluation

### Walk 1

### Walk 2

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Time: \_\_\_\_\_

Bronchodilator/time since last dose: \_\_\_\_\_

Bronchodilator/time since last dose: \_\_\_\_\_

BP	Supplemental Oxygen	Gait Aid
----	---------------------	----------

BP	Supplemental Oxygen	Gait Aid
----	---------------------	----------

Time mins	SpO <sub>2</sub>	HR	Dyspnoea	Rests
Rest				
1				
2				
3				
4				
5				
6				
Recovery 1 min				
3 min				

Time mins	SpO <sub>2</sub>	HR	Dyspnoea	Rests
Rest				
1				
2				
3				
4				
5				
6				
Recovery 1 min				
3 min				

Distance \_\_\_\_\_

Distance: \_\_\_\_\_

Limiting factor to the test:

SOB  Low SpO<sub>2</sub>   
 Leg fatigue  Other: \_\_\_\_\_

Limiting factor to the test:

SOB  Low SpO<sub>2</sub>   
 Leg fatigue  Other: \_\_\_\_\_

You do not need to record SpO<sub>2</sub>%, heart rate and dyspnoea every minute but there is space on the table above if you wish to.

---

**Predicted Normal Values for the 6MWT**

The following predictive equation uses the reference values determined from a study that performed two 6MWTs and recorded the best result [For further details, see Troosters, 1999].

- Predictive equation:  $6MWD_{pred} = 218 + (5.14 \times \text{height}_{cm} - 5.32 \times \text{age}) - 1.80 \times \text{weight}_{kg} + 51.31 \times \text{gender}$   
Note: Gender is factored into the equation by: male = 1, female = 0.

6 min walk predicted:  $218 + (5.14 \times \underline{\hspace{2cm}} \text{ (cm)} - 5.32 \times \underline{\hspace{2cm}} \text{ (yrs)}) - 1.80 \times \underline{\hspace{2cm}} \text{ (kg)} + 51.31 \times \underline{\hspace{2cm}} \text{ (gen)}$

Current status:  $\frac{\text{6 min walk distance measured}}{\text{6 min walk predicted}} \times 100 = \underline{\hspace{2cm}}$

---

## **BASIC STEPS FOR PERFORMING 1-REP MAX**

- 1. Warm up by completing 3-4 sub-maximum repetitions.**
- 2. Select an initial weight that is within the person's perceived capacity equivalent to 75% of capacity.**
- 3. Increase increments of weight by 5-10 pounds until patient cannot complete a repetition.**
- 4. Final weight that person can move successfully is recorded**
- 5. Rest 3-5 minutes between trials.**
- 6. Perform all repetitions at a constant and consistent rate of speed.**
- 7. Perform all repetitions through full range of motion.**

**Daniel's & Worthingham's, Muscle Testing, 9<sup>th</sup> edition, 2014.**

## Bruce Protocol Exercise Test

**AIM:** to evaluate cardiac function and physical fitness level

**PROCEDURE:** Exercise is performed on a treadmill. If required, the leads of the ECG are placed on the chest wall. The treadmill is started at 2.74 km/hr (1.7 mph) and at a gradient (or incline) of 10%. At three minute intervals the incline of the treadmill increases by 2%, and the speed increases as shown in the table below. (see Bruce Test video examples). The test should be stopped when the subject cannot continue due to fatigue or pain, or due to many other medical indications or achieved a predetermined HR<sub>max</sub>.

Stage	Speed (mph)	Grade (%)	Duration (min)
0	1.7	0	3
0.5	1.7	5	3
1	1.7	10	3
2	2.5	12	3
3	3.4	14	3
4	4.2	16	3
5	5.0	18	3
6	5.5	20	3
7	6.0	22	3

**RESULTS:** The test score is the time taken on the test, in minutes. This can also be converted to an estimated VO<sub>2</sub>max score using the calculator below and the following formulas, where the value "T" is the total time completed (expressed in minutes and fractions of a minute e.g. 9 minutes 15 seconds = 9.25 minutes). As with many exercise test equations, there have been many regression equations developed that may give varying results. If possible, use the one derived from a similar population and which best suits your needs.

VO<sub>2</sub>max (ml/kg/min) = 14.76 - (1.379 × T) + (0.451 × T<sup>2</sup>) - (0.012 × T<sup>3</sup>) (this formula is the one used for the calculator below)

Women: VO<sub>2</sub>max (ml/kg/min) = 2.94 × T + 3.74

Women: VO<sub>2</sub>max (ml/kg/min) = 4.38 × T - 3.9

Men: VO<sub>2</sub>max (ml/kg/min) = 2.94 × T + 7.65

Young Men: VO<sub>2</sub>max (ml/kg/min) = 3.62 × T + 3.91

---

Stage	Speed (mph)	Grade (%)	Duration (min)	HR (bpm)	BP	Borg	Sats (%)
0	1.7	0	3				
0.5	1.7	5	3				
1	1.7	10	3				
2	2.5	12	3				
3	3.4	14	3				
4	4.2	16	3				
5	5/0	18	3				
6	5.5	20	3				
7	6.0	22	3				

## EXERCISE TESTING PROTOCOL: MODIFIED BRUCE PROTOCOL (TREADMILL)

- Heart rate is measured at each stage
- RPE is measured at each stage
- BP if possible
- Criteria for ending/stopping the test:
  - Subject achieves estimated  $HR_{max}$  ?
  - Subject achieves a predetermine % of estimated  $HR_{max}$
  - Test is stopped with the appearance of symptoms



**6 No exertion at all**

**7 Extremely light**

**8**

**9 Very light**

**10**

**11 Light**

**12**

**13 Somewhat hard**

**14**

**15 Hard (heavy)**

**16**

**17 Very hard**

**18**

**19 Extremely hard**

**20 Maximal exertion**

## FACT-G (Version 4)

Below is a list of statements that other people with your illness have said are important. Please circle or mark one number per line to indicate your response as it applies to the past 7 days.

### \*PHYSICAL WELL-BEING

		Not at all	A little bit	Some- what	Quite a bit	Very much
GP1	I have a lack of energy .....	0	1	2	3	4
GP2	I have nausea .....	0	1	2	3	4
GP3	Because of my physical condition, I have trouble meeting the needs of my family .....	0	1	2	3	4
GP4	I have pain .....	0	1	2	3	4
GP5	I am bothered by side effects of treatment .....	0	1	2	3	4
GP6	I feel ill .....	0	1	2	3	4
GP7	I am forced to spend time in bed .....	0	1	2	3	4

### SOCIAL/FAMILY WELL-BEING

		Not at all	A little bit	Some- what	Quite a bit	Very much
GS1	I feel close to my friends.....	0	1	2	3	4
GS2	I get emotional support from my family .....	0	1	2	3	4
GS3	I get support from my friends.....	0	1	2	3	4
GS4	My family has accepted my illness .....	0	1	2	3	4
GS5	I am satisfied with family communication about my illness.....	0	1	2	3	4
GS6	I feel close to my partner (or the person who is my main support) .....	0	1	2	3	4
Q1	<i>Regardless of your current level of sexual activity, please answer the following question. If you prefer not to answer it, please mark this box <input type="checkbox"/> and go to the next section.</i>					
GS7	I am satisfied with my sex life .....	0	1	2	3	4

**FACT-G (Version 4)**

Please circle or mark one number per line to indicate your response as it applies to the past 7 days.

**\*EMOTIONAL WELL-BEING**

		Not at all	A little bit	Some- what	Quite a bit	Very much
GE1	I feel sad .....	0	1	2	3	4
GE2	I am satisfied with how I am coping with my illness.....	0	1	2	3	4
GE3	I am losing hope in the fight against my illness.....	0	1	2	3	4
GE4	I feel nervous.....	0	1	2	3	4
GE5	I worry about dying.....	0	1	2	3	4
GE6	I worry that my condition will get worse .....	0	1	2	3	4

**FUNCTIONAL WELL-BEING**

		Not at all	A little bit	Some- what	Quite a bit	Very much
GF1	I am able to work (include work at home) .....	0	1	2	3	4
GF2	My work (include work at home) is fulfilling.....	0	1	2	3	4
GF3	I am able to enjoy life.....	0	1	2	3	4
GF4	I have accepted my illness.....	0	1	2	3	4
GF5	I am sleeping well .....	0	1	2	3	4
GF6	I am enjoying the things I usually do for fun .....	0	1	2	3	4
GF7	I am content with the quality of my life right now.....	0	1	2	3	4

**FACT-BP**  
**QUALITY OF LIFE MEASUREMENT IN PATIENTS WITH BONE PAIN**

Please answer the following questions about your bone pain. Sometimes it is not easy to tell whether a pain you might have is bone pain or some other type of pain. Please do the best you can to answer these questions about your bone pain in particular. By circling one (1) number per line, please indicate how true each statement has been for you during the past 7 days.

Q7	In how many places in your body have you felt bone pain?.....	0	1	2	3	4+
----	---	---	---	---	---	----

		Not at all	A little bit	Some-what	Quite a bit	Very much
GF7	I am content with the quality of my life right now .....	0	1	2	3	4
P2	I have certain parts of my body where I experience significant pain.....	0	1	2	3	4
BP1	I have bone pain.....	0	1	2	3	4
BP2	It hurts when I put weight or pressure on the place where I have bone pain .....	0	1	2	3	4
BP3	I have bone pain even when I sit or lie still .....	0	1	2	3	4
BP4	I need help doing my usual activities because of bone pain .....	0	1	2	3	4
BP5	I am forced to rest during the day because of bone pain .	0	1	2	3	4
BP6	I have trouble walking because of bone pain.....	0	1	2	3	4
BP7	Bone pain interferes with my ability to care for myself (bathing, dressing, eating, etc.).....	0	1	2	3	4
BP8	Bone pain interferes with my social activities.....	0	1	2	3	4
BP9	Bone pain wakes me up at night.....	0	1	2	3	4
BP10	I am frustrated by my bone pain .....	0	1	2	3	4
BP11	I feel depressed about my bone pain.....	0	1	2	3	4
BP12	I worry that my bone pain will get worse.....	0	1	2	3	4
BP13	My family has trouble understanding when my bone pain interferes with my activity .....	0	1	2	3	4

---

## GENERAL MEASURES

**FACT-G: Functional Assessment of Cancer Therapy - General (constitutes the core of all subscales; the FACT-G can be used with patients of any tumor type)**

**FACT-G7: Functional Assessment of Cancer Therapy - General - (7 item version; be used with patients of any tumor type)**

**FACT-GP: Functional Assessment of Cancer Therapy - General Population**

**FANLTC: Functional Assessment of Non-Life Threatening Conditions**

## CANCER SPECIFIC MEASURES

**FACT-B: For patients with Breast cancer**

**FACT-BI: For patients with Bladder cancer**

**FACT-Br: For patients with Brain cancer**

**FACT-C: For patients with Colorectal cancer**

**FACT-CNS: For patients with cancer in the Central Nervous System**

**FACT-Cx: For patients with cancer of the Cervix**

**FACT-Lym: For patients with Lymphoma (NHL)**

**FACT-M: Functional Assessment of Cancer Therapy - Melanoma**

**FACT-MM: Functional Assessment of Cancer Therapy - Multiple Myeloma**

**FACT-NP: For patients with Nasopharyngeal cancer**

**FACT-H&N: For patients with Head & Neck cancer**

**FACT-Leu: For patients with Leukemia**

**FACT-M: Functional Assessment of Cancer Therapy - Melanoma**

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## CANCER SPECIFIC SYMPTOM INDEXES

**FAPSI 8:** For patients with Prostate cancer; A FACT-Prostate Symptom Index (a subset of FACT-P containing 8 items)

**FBISI:** For patients with Bladder cancer; a FACT-Bladder Symptom Index (a subset of FACT-BI containing 7 items)

**NCCN-FACT FBISI:** For patients with Bladder cancer; A FACT/NCCN-Bladder Symptom Index

**FBrSI:** For patients with Brain cancer; a FACT-Brain Symptom Index (a subset of FACT-Br containing 15 items)

**NCCN-FACT FBrSI:** For patients with Brain cancer; A FACT/NCCN-Brain Symptom Index

## TREATMENT SPECIFIC MEASURES

**FACT/GOG-Nbx4:** For patients with Neurotoxicity

**FACT-BMT:** For patients undergoing Bone Marrow Transplantation

**FACT-BRM:** For patients receiving Biologic Response Modifiers

**FACT-Taxane:** For patients receiving Taxane therapy

**FACT-BI-Cys:** For patients undergoing cystectomy (formerly FACT-VCI)

## SYMPTOM SPECIFIC MEASURES

**FAACT:** Functional Assessment of Anorexia/Cachexia Treatment

**FACIT-AD:** For patients with Abdominal symptoms

**FACIT-AI:** For patients with Ascites

**FACIT-CD:** For patients with Cervical Dysplasia

# Brief Fatigue Inventory

STUDY ID# \_\_\_\_\_

HOSPITAL # \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Time: \_\_\_\_\_

Name \_\_\_\_\_

Last

First

Middle Initial

Throughout our lives, most of us have times when we feel very tired or fatigued. Have you felt unusually tired or fatigued in the last week? Yes  No

1. Please rate your fatigue (weariness, tiredness) by circling the one number that best describes your fatigue right NOW.

0	1	2	3	4	5	6	7	8	9	10
No										As bad as
Fatigue										you can imagine

2. Please rate your fatigue (weariness, tiredness) by circling the one number that best describes your USUAL level of fatigue during past 24 hours.

0	1	2	3	4	5	6	7	8	9	10
No										As bad as
Fatigue										you can imagine

3. Please rate your fatigue (weariness, tiredness) by circling the one number that best describes your WORST level of fatigue during past 24 hours.

0	1	2	3	4	5	6	7	8	9	10
No										As bad as
Fatigue										you can imagine

4. Circle the one number that describes how, during the past 24 hours, fatigue has interfered with your:

**A. General activity**

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

Does not interfere

Completely Interferes

**B. Mood**

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

Does not interfere

Completely Interferes

**C. Walking ability**

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

Does not interfere

Completely Interferes

**D. Normal work (includes both work outside the home and daily chores)**

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

Does not interfere

Completely Interferes

**E. Relations with other people**

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

Does not interfere

Completely Interferes

**F. Enjoyment of life**

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

Does not interfere

Completely Interferes

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## Physical Activity Readiness Questionnaire (PAR-Q) and You

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly:

YES	NO		
<input type="checkbox"/>	<input type="checkbox"/>	1.	Has your doctor ever said that you have a heart condition <u>and</u> that you should only do physical activity recommended by a doctor?
<input type="checkbox"/>	<input type="checkbox"/>	2.	Do you feel pain in your chest when you do physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	3.	In the past month, have you had chest pain when you were not doing physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	4.	Do you lose your balance because of dizziness or do you ever lose consciousness?
<input type="checkbox"/>	<input type="checkbox"/>	5.	Do you have a bone or joint problem that could be made worse by a change in your physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	6.	Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?
<input type="checkbox"/>	<input type="checkbox"/>	7.	Do you know of <u>any other reason</u> why you should not do physical activity?

YES to one or more questions	
<b>If you answered:</b>	<p>Talk to your doctor by phone or in person <b>BEFORE</b> you start becoming much more physically active or <b>BEFORE</b> you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.</p> <ul style="list-style-type: none"> <li>You may be able to do any activity you want – as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.</li> <li>Find out which community programs are safe and helpful for you.</li> </ul>
NO to all questions	
<p>If you answered NO honestly to <u>all</u> PAR-Q questions, you can be reasonably sure that you can:</p> <ul style="list-style-type: none"> <li>Start becoming much more physically active – begin slowly and build up gradually. This is the safest and easiest way to go.</li> <li>Take part in a fitness appraisal – this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively.</li> </ul>	<p><b>Delay becoming much more active:</b></p> <ul style="list-style-type: none"> <li>If you are not feeling well because of a temporary illness such as a cold or a fever – wait until you feel better; or</li> <li>If you are or may be pregnant – talk to your doctor before you start becoming more active.</li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>Please note:</b> If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.</p> </div>



# MONITORING DYSPNEA

(important measure of intensity)

Table 3. 5-Grade Dyspnea Scale

- |   |                                       |
|---|---------------------------------------|
| 0 | no dyspnea                            |
| 1 | mild, noticeable                      |
| 2 | mild, some difficulty                 |
| 3 | moderate difficulty, but can continue |
| 4 | severe difficulty, cannot continue    |

Reprinted, with permission from American Association of Cardiovascular and Pulmonary Rehabilitation. *Guidelines for Cardiac Rehabilitation and Secondary Prevention Programs*. 4<sup>th</sup> ed. Champaign, IL: Human Kinetics; 2004:81.