

Supplemental Appendix 1: Fried Frailty Index cut-offs and scoring

Domain	Test	Cut-off Score
Slowness	4-meter gait speed component of SPPB	>5s
Weakness	Handgrip Strength Test	male \leq 30 kg, female \leq 20kg
Weight Loss	Self-reported	\geq 4.5 kg
Low Physical Activity	Paffenbarger Physical Activity Index	male<383 kcals/week, female <270 kcals/week
Exhaustion	2 Item CES-D Questionnaire	\geq 2

CES-D: Center for Epidemiologic Studies Depression; s: second; kg: kilogram; kcal: kilocalories; each of the five domains was scored as 0 or 1 indicating the absence or presence of that component. The frailty score was calculated as the sum of the domain scores (range 0–5); frail: \geq 3 criteria present; pre-frail:1 or 2 criteria present; robust: 0 criteria present.

Supplemental Appendix 2: Paffenbarger Physical Activity Index

1. Over the past 7 days, how often did you take a walk outside your home or yard for any reason? For example for fun or exercise, walking to work, walking the dog etc?

(0) never	(1) seldom (1-2 days)	(2) sometimes (3-4 days)	(3) often (5-7 days)
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1a. On average, how many hours per day did you spend walking <u>on these days</u> ?	
(1) less than 1 hour	(2) 1 but less than 2 hours
(3) 2-4 hours	(4) more than 4 hours

b) What was the total distance (kms/miles/blocks) that you walked in the past 7 days?
(1 mile = 12 blocks: 1km = 0.625miles).

Total number of blocks walked in the past week, or km....., or miles....

- (1) Less than 1 mile
- (2) One but less than 2 miles
- (3) Two to 4 miles
- (4) More than 4 miles

2. How many flights of stairs did you climb up in the past 7 days? (One flight= 10 steps)

Total number of steps climbed in the past week....., or flights of steps.....

- (1) Less than 1 flight
- (2) One but less than 2 flights
- (3) Two to 4 flights
- (4) More than 4 flights

3. Over the past 7 days, how often did you engage in **light** sport or recreational activities such as 'light' cycling on an exercise bike, lawn bowls, bowling, water aerobics, golf with a cart, yoga, tai chi, fishing from a boat or pier or other similar activities?


(0) never	(1) seldom (1-2 days)	(2) sometimes (3-4 days)	(3) often (5-7 days)
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<p>3a. What were these activities? </p> <p>3b. On average, how many hours per day did you engage in these light sport or recreational activities <u>on these days</u>?</p> <p>(1) less than 1 hour (2) 1 but less than 2 hours (3) 2-4 hours (4) more than 4 hours</p>

4. Over the past 7 days, how often did you engage in **moderate** sport or recreational activities such as double tennis, ballroom dancing, golf without a cart, softball or other similar activities?

(0) never	(1) seldom (1-2 days)	(2) sometimes (3-4 days)	(3) often (5-7 days)
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Go to Q.5

<p>4a. What were these activities? </p> <p>4b. On average, how many hours per day did you engage in these moderate sport or recreational activities <u>on these days</u>?</p> <p>(1) less than 1 hour (2) 1 but less than 2 hours (3) 2 - 4 hours (4) more than 4 hours</p>
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5. Over the past 7 days, how often did you engage in **strenuous** sport and recreational activities such as jogging, swimming, cycling, single tennis, aerobic dance, skiing (downhill or cross country) or other similar activities?

(0) never	(1) seldom (1-2 days)	(2) sometimes (3-4 days)	(3) often (5-7 days)
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Go to Q.6

<p>5a. What were these activities? </p> <p>5b. On average, how many hours per day did you engage in these moderate sport or recreational activities <u>on these days</u>?</p> <p>(1) less than 1 hour (2) 1 but less than 2 hours (3) 2 - 4 hours (4) more than 4 hours</p>
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Paffenbarger Score:

Blocks walked	X	8 kcal / block	=	kcal
Flights climbed	X	4 kcal / flight	=	kcal
Minutes light sport/recreation	X	5 kcal / min	=	kcal
Minutes Moderate sport recreation or muscle strength	X	7.5 kcal / min	=	kcal
Minutes heavy sport/recreation	X	10 kcal / min	=	kcal
			Total	kcal/week

Supplemental Appendix 3: 2 Item CES–D Questionnaire

2 Item CES–D Questionnaire	Scoring
<p>How often in the last week did you feel that everything was an effort?</p> <p>Rarely or none of the time (<1 day)</p> <p>Some or a little of the time (1–2 days)</p> <p>Occasionally or a moderate amount of time (3–4 days)</p> <p>Most or all of the time (5–7 days)</p>	<p>0</p> <p>1</p> <p>2</p> <p>3</p>
<p>How often in the last week did you feel that you could not “get going”?</p> <p>Rarely or none of the time (<1 day)</p> <p>Some or a little of the time (1–2 days)</p> <p>Occasionally or a moderate amount of time (3–4 days)</p> <p>Most or all of the time (5–7 days)</p>	<p>0</p> <p>1</p> <p>2</p> <p>3</p>

CES-D: Center for Epidemiologic Studies Depression; score of 2 or more to either of questions defined as exhaustion.

Supplemental Appendix 4: Montreal Cognitive Assessment

MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.1 Original Version

VISUOSPATIAL / EXECUTIVE										
		Copy cube	Draw CLOCK (Ten past eleven) (3 points)							
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	
			Contour	Numbers	Hands					___/5
NAMING										
										___/3
[]	[]	[]								
MEMORY		Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.		FACE	VELVET	CHURCH	DAISY	RED	No points	
		1st trial								
		2nd trial								
ATTENTION		Read list of digits (1 digit/ sec.). Subject has to repeat them in the forward order [] 2 1 8 5 4 Subject has to repeat them in the backward order [] 7 4 2								___/2
		Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors		[] FBACMNAAJKLBAFAKDEAAAJAMOF AAB						___/1
		Serial 7 subtraction starting at 100 [] 93 [] 86 [] 79 [] 72 [] 65		4 or 5 correct subtractions: 3 pts , 2 or 3 correct: 2 pts , 1 correct: 1 pt , 0 correct: 0 pt						___/3
LANGUAGE		Repeat : I only know that John is the one to help today. [] The cat always hid under the couch when dogs were in the room. []								___/2
		Fluency / Name maximum number of words in one minute that begin with the letter F [] _____ (N ≥ 11 words)								___/1
ABSTRACTION		Similarity between e.g. banana - orange = fruit [] train - bicycle [] watch - ruler								___/2
DELAYED RECALL		Has to recall words WITH NO CUE	FACE	VELVET	CHURCH	DAISY	RED	Points for UNCUED recall only		___/5
		Category cue	[]	[]	[]	[]	[]			
		Multiple choice cue								
Optional										
ORIENTATION		[] Date	[] Month	[] Year	[] Day	[] Place	[] City			___/6
© Z.Nasreddine MD		www.mocatest.org		TOTAL						___/30
Administered by: _____						Add 1 point if ≤ 12 yredu				

Supplemental Appendix 5: 5-Item GDS

5 Item GDS	
Are you basically satisfied with your life?	Yes No
Do you often get bored?	Yes No
Do you often feel helpless?	Yes No
Do you prefer to stay at home rather than going out and doing new things?	Yes No
Do you feel pretty worthless the way you are now?	Yes No

GDS: Geriatric Depression Scale; each bold answer was scored as 1; the depression score was calculated as the sum of the scores (range 0–5); depressive symptoms: ≥ 2

Supplemental Appendix 6: EQ-5D-3L

EQ-5D (UK English version)

By placing a tick in one box in each group below, please indicate which statements best describe your own health state today.

Mobility

- I have no problems in walking about
- I have some problems in walking about
- I am confined to bed

Self-Care

- I have no problems with self-care
- I have some problems washing or dressing myself
- I am unable to wash or dress myself

Usual Activities (e.g. work, study, housework, family or leisure activities)

- I have no problems with performing my usual activities
- I have some problems with performing my usual activities
- I am unable to perform my usual activities

Pain/Discomfort

- I have no pain or discomfort
- I have moderate pain or discomfort
- I have extreme pain or discomfort

Anxiety/Depression

- I am not anxious or depressed
- I am moderately anxious or depressed
- I am extremely anxious or depressed

Supplemental Appendix 7: EQ-VAS

To help people say how good or bad a health state is, we have drawn a scale (rather like a thermometer) on which the best state you can imagine is marked 100 and the worst state you can imagine is marked 0.

We would like you to indicate on this scale how good or bad your own health is today, in your opinion. Please do this by drawing a line from the box below to whichever point on the scale indicates how good or bad your health state is today.

**Your own
health state
today**

Best
imaginable
health state

100

95

90

85

80

75

70

65

60

55

50

45

40

35

30

25

20

15

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Worst
imaginable
health state

Supplemental Table 1: Change in frailty status

Baseline Characteristics	Improved n= 5 Mean ± SD; Median (IQR); n (%)	Worsened n=7 Mean ± SD; Median (IQR); n (%)	
Age (years)	56.6 ± 12.5	64.7 ± 12.4	p=0.16
< 65 years	3 (60.0%)	4 (57.1%)	
≥ 65 years	2 (40.0%)	3 (42.9%)	
Gender (female)	1 (20.0%)	3 (42.9%)	p=0.58
Ethnicity			
Caucasian	3 (60.0%)	6 (85.7%)	p=0.15
Aboriginal	-	1 (14.3%)	
Asian	2 (40.0%)	-	
Education			
≤12 years of education	3 (60.0%)	2 (28.6%)	p=0.56
>12 years of education	2 (40.0%)	5 (71.4%)	
Weight (kg)	90.9 ± 26.8	81.7 ± 24.4	p=0.68
Height (cm)	168.9 ± 9.4	169.2 ± 8.9	p=0.46
BMI (kg/m ²)	29.3 ± 7.26	29.5 ± 7.5	p=0.94
Systolic Blood Pressure (mmHg)	135.3 ± 25.1	136.1 ± 29.4	p=0.37
Diastolic Blood Pressure (mmHg)	73.0 ± 13.6	72.3 ± 17.0	P=0.81
Comorbidities			
Diabetes I or II	3 (60.0%)	4 (57.1%)	p=1.00
Peripheral Vascular Diseases	1 (20.0%)	0 (0.0%)	p=0.42
Hypertension	5 (100.0%)	6 (85.7%)	p=1.00
Dyslipidemia	0 (0%)	0 (0%)	-
Vintage of Dialysis (months)	9.0 (4–20)	68 (37.5–135.5)	p=0.01
Components of Frailty			
Slowness	5 (100.0%)	6 (85.7%)	p=1.00
Weakness	4 (80.0%)	5 (71.4%)	p=1.00
Weight Loss ≥ 4.5kg	1 (20.0%)	1 (14.3%)	p=1.00
Low Physical Activity	3 (60.0%)	4 (57.1%)	p=1.00
Exhaustion	3 (60.0%)	4 (57.1%)	p=1.00

IQR: Interquartile Range; SD: Standard Deviation. Baseline characteristics were compared between the two groups using Mann-Whitney U test for continuous variables and Fisher's Exact test for categorical variables.

Supplemental Table 2: Comparison of baseline characteristics between frail and not-frail groups

Baseline Characteristics	Frail Mean \pm SD; Median (IQR); n (%)	Not- Frail Mean \pm SD; Median (IQR); n (%)	P value
Age (years)	64.8 \pm 13.9	59.4 \pm 17.3	p=0.15
Gender (female)	33 (50.0%)	9 (29.0%)	p=0.08
Ethnicity			p=0.66
Caucasian	47 (71.2%)	25 (80.6%)	
Aboriginal	15 (22.7%)	4 (12.9%)	
Asian	4 (6.1%)	2 (6.5%)	
Education			p=0.01
\leq 12 years of education	18 (27.3%)	17 (54.8%)	
$>$ 12 years of education	48 (72.7%)	14 (45.2%)	
Weight (kg)	82.0 \pm 24.1	86.7 \pm 22.4	p=0.19
Height (cm)	168.0 \pm 9.0	169.2 \pm 9.5	p=0.53
BMI (kg/m ²)	28.9 \pm 7.0	30.4 \pm 8.1	p=0.40
Systolic Blood Pressure (mmHg)	134.1 \pm 26.9	138.7 \pm 21.9	P=0.39
Diastolic Blood Pressure (mmHg)	71.8 \pm 14.4	76.1 \pm 11.3	p=0.14
Comorbidities			
Diabetes I or II	31 (47.0%)	11 (35.5%)	p=0.22
Peripheral Vascular Diseases	5 (7.6%)	2 (6.5%)	p=0.73
Hypertension	45 (68.2%)	21 (67.7%)	p=0.48
Dyslipidemia	7 (10.6%)	8 (25.8%)	p=0.15
Vintage of Dialysis (months)	37.0 (16–75.75)	29 (9.5–58.5)	p=0.40

IQR: Interquartile Range; SD: Standard Deviation. Baseline characteristics were compared between the two groups using Mann-Whitney U test for continuous variables and Fisher’s Exact test for categorical variables.

Supplemental Table 3: Comparison of characteristics between baseline and 1– year follow–up

IQR: Interquartile Range; MoCA: Montreal Cognitive Assessment; GDS: Geriatric Depression Scale; EQ-5D-3L: EuroQoL-5 Dimensions-3 Levels; EQ-VAS: EuroQoL Visual Analog Scale.

	Baseline	1-Year Follow-Up	
Characteristics	Median (IQR); n (%)		P value for Paired Differences
Frail	42 (64.6%)	44 (67.7%)	p=0.774; n=65
Fried Frailty Domains			
Slowness	43 (66.2%)	39 (60%)	p=0.481; n=65
Weakness	45 (69.2%)	50 (76.9%)	p=0.18; n=65
Weight Loss	9 (13.8%)	12 (18.5%)	p=0.549; n=65
Low Physical Activity	52 (80%)	44 (67.7%)	p=0.115; n=65
Exhaustion	26 (40%)	34 (52.3%)	p=0.152; n=65
Cognitive Impaired	38 (61.3%)	40 (64.5%)	p=0.832; n=62
MoCA Score (≤ 24)	23 (18–26)	24 (20.75–25.25)	p=0.159; n=62
Depressive Symptoms	33 (52.4%)	30 (47.6%)	p=0.629; n=63
GDS Score (≥ 2)	2 (1–4)	1 (0–3)	p=0.039; n=63
EQ-5D-3L Dimensions			
Mobility Problems	44 (67.7%)	54 (83.1%)	p=0.02; n=65
Self-Care Problems	4 (6.2%)	12 (18.5%)	p=0.02; n=65
Daily Activities Problems	35 (53.8%)	38 (58.5%)	p=0.70 ; n=65
Pain/ Discomfort Problems	41 (63.1%)	41 (63.1%)	p>0.999; n=65
Anxiety/ Depression Problems	20 (30.8%)	24 (36.9%)	p=0.52; n=65
EQ-5D Utility Score	0.81(0.7–0.85)	0.77(0.69–0.84)	p=0.037; n=65
EQ-VAS	60 (50–80)	50(45–80)	p=0.772; n=63
Level of Dependence			n=65
Independent	53 (81.5%)	41 (63.1%)	
Independent with Support	11 (16.9%)	20 (30.8%)	
Home Care	1 (1.5%)	2 (3.1%)	
Long Term Care Home	0 (0%)	2 (3.1%)	

Frailty was measured using 5-Item Fried Frailty Criteria, frail: ≥ 3 criteria present, non-frail: < 3 , non-frail was considered the combination of robust and pre-frail. Cognitive function was measured using the MoCA: the highest possible score is 30, cognitive impaired: MoCA score ≤ 24 . Depressive symptoms were identified using 5-Item GDS questionnaire: the worst possible score is 5, depressed: GDS score ≥ 2 ; Quality of life was measured using EQ-5D; problems in each dimension was considered the

combination of moderate and extreme problems. EQ-5D utility score: 0 means death, and 1 is the best health state; EQ-VAS: 0 is the worst imaginable health state, and 100 is the best imaginable health state.