Test de tinetti (TT) ou Performance-Oriented Mobility Assessment (POMA)

Tinetti M.E.. (1986)

Performance – oriented assessment of mobility problems in elderly patients.

Instrument de mesure	“Tinetti test” ou “Performance-Oriented Mobility Assessment Tool”
Abréviation	TT ou POMA
Auteur	Tinetti M.E..
Thème	Evaluation du risque de chute
Objectif	mesure la démarche et l'équilibre d'un patient
Population	Adultes, personnes âgées
Utilisateurs	Non spécifié
Nombre d'items	13 items pour l’évaluation de l’équilibre + 9 paramètres pour l’évaluation de la marche
Participation du patient	OUI
Localisation de l'instrument	Cipriany-Dacko, L. M., Innerst, D., Johannsen, J., and Rude, V. 1997. "Interrater Reliability of the Tinetti Balance Scores in Novice and Experienced Physical Therapy Clinicians." Arch.Phys.Med.Rehabil. 78(10):1160-1164. Faber, M. J., Bosscher, R. J., and van Wieringen, P. C. 2006. "Clinimetric Properties of the Performance-Oriented Mobility Assessment." Phys.Ther. 86(7):944-54.

Objectif

Le test de Tinetti a été conçu pour évoquer les changements de position et les manoeuvres de marche utilisés pendant les activités quotidiennes.

Public Cible

Le test est indiqué pour les personnes âgées présentant un risque de chute ou pour les personnes qui ont des difficultés dans l’exécution des activités de la vie quotidiennes.

Description

Le test est divisée en deux parties, la première partie étant consacrée à l'évaluation de l'équilibre, la seconde partie à l'évaluation de la marche. Le test n'exige comme matériel qu'une chaise à dossier.
Dans l'évaluation de l'équilibre, huit positions et changements de position sont évaluées :

- équilibre au repos,
- équilibre se relevant d'une chaise (immédiat et différé),
- équilibre debout, résistant à un coup de coude sur le sternum,
- équilibre avec les yeux fermés,
- équilibre de rotation,
- équilibre en s'asseyant.

Pendant l'évaluation de le démarche, on observe huit composants:
déclenchement,

- longueur d'étape,
- continuité,
- symétrie,
- déviation de chemin,
- balancement de tronc,
- position de marche.

L'attribution du score de l'outil d'évaluation de Tinetti est fait sur une échelle ordinale de trois points (de 0 à 2) . Le point 0 représente la dépendance alors que le score 2 représente l'indépendance du patient pour l'item évalué. Les différents points sont alors combinés pour former trois mesures ; des points globaux d'évaluation de démarche (POMA-G), des points globaux d'évaluation d'équilibre (POMA-G), et des points totaux de démarche et d'équilibre (POMA-T).
Le score maximum possible pour le composant de démarche est de12 points et de 16 points pour le composant d'équilibre. Le score maximal total est de 28 points.
Le score seuil fixé est en général de 19, ce qui signifie que les personnes obtenant un score inférieur à 19 sont à gros risque de chutes. Les patients obtenant un score de 19 à 24 sont à risques modérés de chutes.

Fiabilité

La stabilité du test a été montrée par un bon coefficient de corrélation entre deux administrations du test (*test retest*) exprimé par un coefficient inter classe de 0.93. Dans une étude de Faber M., Bosscher R., & al (2006), le « test-retest » a été réalisé pour chacune des parties et pour l'ensemble du test. Les corrélations entre les deux administrations de test sont bonnes exprimées par un coefficient de corrélation r = 0.82 – 0.86 pour le POMA –T ; r = 0.74 – 0.78 pour le POMA-B et r= 0.72 -0.77 pour le POMA-G

Plusieurs études ont montré une bonne équivalence du test entre différents évaluateurs (*interrater reliability*) exprimée par un coefficient de corrélation bon à excellent en fonction des auteurs et la partie du test prise en considération (r= 0.75 – 1.00).

Validité

La validité des critères du test de Tinetti a été établie par la mesure de coefficient de corrélation entre le test de Tinetti et d'autres tests d'évaluation de l'équilibre (Concurrent Validity) tels que le Timed Up & Go (TUG), le Six Minutes Walk (6MW) ou d'évaluation des activités de la vie quotidienne (ADL). Les résultats obtenus pour le test total (POMA-T) sont de r= -0.68 avec le TUG, r = 0.62 avec le 6-minute walk, r=0.60 avec ADL scale. Ces résultats montrent la bonne corrélation du test avec les autres tests d'équilibre et une validité discriminante avec les activités de la vie journalière.

Convivialité

Le temps utile pour les utilisateurs afin de compléter le POMA est de 10 à 15 minutes.

Remarques

L'instrument a été modifié au fil des ans, basé sur des expériences en cours et de l'utilisation dans différentes populations. Une nouvelle version (POMA II) a été développée. Afin de garder une bonne fiabilité du test, la simplicité d'attribution de score a été maintenue et la sensibilité de l'instrument a été améliorée en ajoutant un plus grand nombre de manoeuvres avec une cotation plus large en fonction de la difficulté. Dans cette nouvelle version, la fiabilité inter juge est bonne exprimée par un coefficient de correlation *r*=0,83.

Références

Cipriany-Dacko, L. M., Innerst, D., Johannsen, J., and Rude, V. 1997. "Interrater Reliability of the Tinetti Balance Scores in Novice and Experienced Physical Therapy Clinicians." Arch.Phys.Med.Rehabil. 78(10):1160-1164.

Faber, M. J., Bosscher, R. J., and van Wieringen, P. C. 2006. "Clinimetric Properties of the Performance-Oriented Mobility Assessment." Phys.Ther. 86(7):944-54.

Harada, N., Chiu, V., mron-Rodriguez, J., Fowler, E., Siu, A., and Reuben, D. B. 1995. "Screening for Balance and Mobility Impairment in Elderly Individuals Living in Residential Care Facilities." Phys.Ther. 75(6):462-69.

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Localisation de l'instrument de mesure

Cipriany-Dacko, L. M., Innerst, D., Johannsen, J., and Rude, V. 1997. "Interrater Reliability of the Tinetti Balance Scores in Novice and Experienced Physical Therapy Clinicians." Arch.Phys.Med.Rehabil. 78(10):1160-1164.

Faber, M. J., Bosscher, R. J., and van Wieringen, P. C. 2006. "Clinimetric Properties of the Performance-Oriented Mobility Assessment." Phys.Ther. 86(7):944-54.

TINETTI TEST (TT) OU PERFORMANCE-ORIENTED MOBILITY ASSESSMENT (POMA)

TINETTI M.E.. (1986))

U.S.A. (English)

Author (year)	Setting	Sample (n)	Design	Reliability	Validity
Harada N., Chiu V., Fowler E. (1995)	Los angeles area	a convenience sample of 53 elderly individuals living in two residential care facilities for the elderly	Comparative study	S E	CrV
Faber M., Bosscher R., & al (2006)	unspecified	245 patients were lifving in either self-care or nursing care residences	Randomized control trial Validation study	S E	CrV

Reliability: Stability (S), Internal consistency (IC), Equivalence (E)
Validity: Face validity (FV), Content validity (CtV), Criterion validity (CrV), Construct validity (CsV)
Sensitivity (Sen), Specificity (Sp), Positive Predictive Value (PPV), Negative Predictive Value (NPV), Receiver Operating Curve (ROC), Likelihood Ratio (LR), Odds Ratio (OR)

Results reliability	Results validity	Commentary
(S) *Test retest* POMA –B ICC = 0.93 **(E)** *Equivalence* interrter reliability POMA-B Pearson coeffiscient correlation r= 0.76 – 0.90	**(CrV):** *Concurrent validity* With cuttoff score = 14 Sensitivity 68% Specificity78%	
(S) *Test retest* POMA –T *r* = 0.82 – 0.86 POMA –B *r* = 0.74 – 0.78 POMA –G *r* = 0.72 – 0.77 **(E)** *interrter reliability* POMA –T *r* = 0.91 – 0.93 POMA –B *r* = 0.88 – 0.90 POMA –G *r* = 0.80 – 0.89 **(E)** *interrter reliability* (n=40) POMA-T : ICC=0.88 POMA-B ICC= 0.75 POMA –G : ICC = 0.83	**(CrV):** *Concurrent validity* With Timed Up & Go POMA –T *r* = -0.68 POMA –B *r*= -0.66 POMA –G *r* = -0.56 With Groningen Activity Restriction Scale (GARS) POMA –T *r* = -0.70 POMA –B *r*= -0.68 POMA –G *r* = -0.55 With Maximum walking speed POMA –T *r* = 0.65 POMA –B *r* = 0.64 POMA –G *r* = 0.52 Sensitivity POMA –T : 64% ; POMA –B: 64% ; POMA –G : 64% Specificity POMA –T : 66,1% ; POMA –B: 66,1% ; POMA –G : 62,5%	

Reliability: Stability (S), Internal consistency (IC), Equivalence (E)
Validity: Face validity (FV), Content validity (CtV), Criterion validity (CrV), Construct validity (CsV)
Sensitivity (Sen), Specificity (Sp), Positive Predictive Value (PPV), Negative Predictive Value (NPV), Receiver Operating Curve (ROC), Likelihood Ratio (LR), Odds Ratio (OR)

TINETTI TEST (TT) OU PERFORMANCE-ORIENTED MOBILITY ASSESSMENT (POMA)

TINETTI M.E.. (1986))

U.S.A. (English)

Author (year)	Setting	Sample (n)	Design	Reliability	Validity
Tinetti, M. E. (1986)	unspecified	15 ambulatory residents of a long-term care facility	Descriptive study	E	
Cipriany-Dacko, L. M., Innerst, D., Johannsen, J., and Rude, V. (1997)	General community hospital and skilled nursing facility	One hundred sixty-seven mildly balance-impaired older adults Phase 1: 26 residents of a skilled nursing home (66 to 90 years) Phase 2: 24 hospital inpatients and five residents of a skilled nursing home (60 to 92 years)	Comparative study	E	

Reliability: Stability (S), Internal consistency (IC), Equivalence (E)
Validity: Face validity (FV), Content validity (CtV), Criterion validity (CrV), Construct validity (CsV)
Sensitivity (Sen), Specificity (Sp), Positive Predictive Value (PPV), Negative Predictive Value (NPV), Receiver Operating Curve (ROC), Likelihood Ratio (LR), Odds Ratio (OR)

Results reliability	Results validity	Commentary
(E) *Equivalence* Interrater reliability : Agreement on more than 85% of individual items. The total score never differed greater than 10%		
(E) *Equivalence* interrter reliability POMA-B Pearson coeffiscient correlation r= 0.75 – 1.00		

Reliability: Stability (S), Internal consistency (IC), Equivalence (E)
Validity: Face validity (FV), Content validity (CtV), Criterion validity (CrV), Construct validity (CsV)
Sensitivity (Sen), Specificity (Sp), Positive Predictive Value (PPV), Negative Predictive Value (NPV), Receiver Operating Curve (ROC), Likelihood Ratio (LR), Odds Ratio (OR)

TINETTI TEST (TT) OU PERFORMANCE-ORIENTED MOBILITY ASSESSMENT (POMA)

TINETTI M.E.. (1986))

U.S.A. (English)

Author (year)	Setting	Sample (n)	Design	Reliability	Validity
Verghese, J., Buschke, H., Viola, L., Katz, M., Hall, C., Kuslansky, G., and Lipton, R. (2002)	Community-based longitudinal aging study, the Einstein Aging Study.	Sixty nondemented community-living subjects, aged 65 to 98 (mean age +/- standard deviation = 79.6 +/- 6.3).	A prospective cohort study of 12-months' duration		CrV
Cho BL, Scarpce D, Alexnder NB (2004)	University-based laboratory USA	One hundred sixty-seven mildly balance-impaired older adults recruited for a balance-training and fall-reduction program (mean age 78, range 65-90).	Cross-sectional study		CrV
Lin, M. R., Hwang, H. F., Hu, M. H., Wu, H. D., Wang, Y. W., and Huang, F. C (2004)	Shin-Sher Township of Taichung County, west-central Taiwan.	Twelve hundred community-dwelling older people.	Comparative study Prospective study		CrV

Reliability: Stability (S), Internal consistency (IC), Equivalence (E)
Validity: Face validity (FV), Content validity (CtV), Criterion validity (CrV), Construct validity (CsV)
Sensitivity (Sen), Specificity (Sp), Positive Predictive Value (PPV), Negative Predictive Value (NPV), Receiver Operating Curve (ROC), Likelihood Ratio (LR), Odds Ratio (OR)

Results reliability	Results validity	Commentary
	(CrV): *Concurrent Validity* With cutt off score of 10 on POMA-B: Sensitivity: 61.5% Specificity: 69.5% Positive predictive value: 36.4%	
	(CrV): *Concurrent validity* POMA-T timed tandem stance (TS): r = 0.69 tandem walk time: r = -0.62 timed up and go (TUG): r = -0.65 6-minute walk (SMW) : r = 0.62	
	(CrV) *Discriminant Validity* with TUG (r= -0.55) ; ADL scale (r=0.60); walking speed (r=-0.54) The TB showed better discriminant, convergent, and predictive validities and responsiveness to ADL changes than the other three tests	

Reliability: Stability (S), Internal consistency (IC), Equivalence (E)
Validity: Face validity (FV), Content validity (CtV), Criterion validity (CrV), Construct validity (CsV)
Sensitivity (Sen), Specificity (Sp), Positive Predictive Value (PPV), Negative Predictive Value (NPV), Receiver Operating Curve (ROC), Likelihood Ratio (LR), Odds Ratio (OR)

Test de tinetti (TT) ou Performance-Oriented Mobility Assessment (POMA)

Tinetti M.E.. (1986)

Performance – Oriented Mobility Assessment I
Tinetti Balance and Gait Evaluation

Balance

Instructions: Subject is seated in a hard, armless chair. The following maneuvers are tested:

1. Sitting Balance
   - 0 = Leans or slides in chair
   - 1 = Steady, safe

2. Arise
   - 0 = Unable without help
   - 1 = Able, but uses arm to help
   - 2 = Able without use of arms

3. Attempts to Arise
   - 0 = Unable without help
   - 1 = Able, but requires more than one attempt
   - 2 = Able to arise with one attempt

4. Immediate Standing Balance (first 5 seconds)
   - 0 = Unsteady (staggers, moves feet, marked trunk sway)
   - 1 = Steady, but uses walker/cane or grabs other object for support
   - 2 = Steady without walker or cane or other support

5. Standing Balance
   - 0 = Unsteady
   - 1 = Steady, but wide stance (medial heels > than 4 inches apart) or uses cane/walker or other support
   - 2 = Narrow stance without support

6. Nudge (Subject at maximum position with feet as close together as possible. Examiner pushes lightly on subject's sternum with palm of hand 3 times.)
   - 0 = Begins to fall
   - 1 = Staggers, grabs, but catches self
   - 2 = Steady

7. Eyes Closed (at maximum position #6)
   - 0 = Unsteady
   - 1 = Steady

8. Turn 360º
   - 0 = Discontinuous steps
   - 1 = Continuous steps
   - 0 = Unsteady (grabs, staggers)
   - 1 = Steady

9. Sit Down
   - 0 = Unsafe (misjudged distance; falls into chair)
   - 1 = Uses arms or not a smooth motion
   - 2 = Safe, smooth motion

____/16___ BALANCE SCORE

Performance – Oriented Mobility Assessment I
Tinetti Balance and Gait Evaluation

Gait

Instructions: Subject stands with examiner. Walks down hallway or across room, first at his/her usual pace, then back at a "rapid but safe" pace (using usual walking aid such as cane/walker).

10. Initiation of Gait (immediately after told 'go')
    - 0 = Any hesitancy or multiple attempts to start
    - 1 = No hesitancy

11. Step Length and Height (Right foot swing)
    - 0 = Does not pass L. stance foot with step
    - 1 = Passes L. stance foot
    - 0 = R. foot does not clear floor completely with step
    - 1 = R. foot completely clears floor

12. Step Length and Height (Left foot swing)
    - 0 = Does not pass R. stance foot with step
    - 1 = Passes R. stance foot
    - 0 = L. foot does not clear floor completely with step
    - 1 = L. foot completely clears floor

13. Step Symmetry
    - 0 = R. and L. step length not equal (estimate)
    - 1 = R. and L. step length appear equal

14. Step Continuity
    - 0 = Stopping or discontinuity between steps
    - 1 = Steps appear continuous

15. Path (Estimated in relation to floor tiles, 12 inches wide. Observe excursion of one foot over about 10 feet of course.)
    - 0 = Marked deviation
    - 1 = Mild/moderate deviation or uses a walking aid
    - 2 = Straight without walking aid

16. Trunk
    - 0 = Marked sway or uses walking aid
    - 1 = No sway, but flexion of knees or back or spreads arms out while walking
    - 2 = No sway, no flexion, no use of arms and no walking aid

17. Walk Stance
    - 0 = Heels apart
    - 1 = Heels almost touching while walking

___/12___ GAIT SCORE

___/28___ TOTAL MOBILITY SCORE (BALANCE AND GAIT)

Performance-Oriented Mobility Assessment II (POMA II)
BALANCE

Chair: Instructions: Place a hard armless chair against the wall. The following maneuvers are tested.

1. Sitting down
    0= unable without help *or* collapses (plops) into chair *or* lands off center of chair
    1= able and does not meet criteria for 0 or 2
    2= sits in a smooth, safe motion *and* ends with buttocks against back of chair and thighs centered on chair
2. Sitting balance
    0= unable to maintain position (marked slide forward *or* leans forward *or* to side)
    1= leans in chair slightly *or* slight increased distance from buttocks to back of chair
    2= steady, safe, upright
3. Arising
    0= unable without help *or* loses balance *or* requires > three attempts
    1= able but requires three attempts
    2= able in < two attempts
4. Immediate standing balance (first 5 seconds)
    0= unsteady, marked staggering, moves feet, marked trunk sway *or* grabs object for support
    1= steady but uses walker or cane *or* mild staggering but catches self without grabbing object
    2= steady without walker or cane or other support

Stand:

5a. Side-by-side standing balance
    0= unable *or* unsteady *or* holds < 3 seconds
    1= able but uses cane, walker, or other support *or* holds for 4-9 seconds
    2= narrow stance without support for 10 seconds

5b. Timing___ ___.___seconds

6. Pull test (person at maximum position attained in #5, examiner stands behind and exerts mild pull back at waist)
    0= begins to fall
    1= takes more than two steps back
    2= fewer than two steps backward and steady

7a. Able to stand on right leg unsupported
    0= unable *or* holds onto any object *or* able for < 3 seconds
    1= able for 3 or 4 seconds
    2= able for 5 seconds

7b. Timing___ ___.___seconds

8a. Able to stand on left leg unsupported
    0= unable *or* holds onto any object *or* able for < 3 seconds
    1= able for 3 or 4 seconds
    2= able for 5 seconds

8b. Timing___ ___.___seconds

9a. Semitandem stand

0= unable to stand with one foot half in front of other with feet touching *or* begins to fall *or* holds for <3 seconds
1= able for 4 to 9 seconds
2= able to semitandem stand for 10 seconds

9b. Timing___ ___.___seconds

10a. Tandem stand

0= unable to stand with one foot in front of other *or* begins to fall *or* holds for < 3 seconds
1= able for 4 to 9 seconds
2= able to tandem stand for 10 seconds

10b. Timing___ ___.___seconds

11. Bending over (to pick up a pen off floor)

0= unable or is unsteady
1= able, but requires more than one attempt to get up
2= able and is steady

12. Toe stand

0= unable
1= able but < 3 seconds
2= able for 3 seconds

13. Heel stand

0= unable
1= able but <3 seconds
2= able for 3 seconds

Bed or Couch:

14. Stand to sit

0= unable without help *or* collapses (plops) onto bed *or* falls back on to side *or* lands close to edge of bed
1= able and does not meet criteria for 0 or 2
2= able in a smooth motion *and* ends with buttocks away from edge of bed

15. Sit to lie

0= unable without help *or* lands close to edge of bed *or* > three attempts
1= able but requires three attempts
2= able in < two attempts

16. Lie to sit

0= unable without help *or* > three attempts *or* ends close to edge
1= able but requires three attempts (falls back, or getting legs over)
2= able in < two attempts

17. Sit to stand

0= unable without help *or* loses balance *or* requires > three attempts
1= able but requires three attempts
2= able in < two attempts

Transfer was to and from_____bed____couch

GAIT

Instructions: Participant stands with examiner, walks down 10-ft walkway (measured). Ask the participant to walk down walkway, turn, and walk back. The participant should use customary walking aid. Ideally, the gait assessment should be performed both on bare floor (even surface) as well as on carpet (uneven surface). Stepping over obstacles is assessed in a separate walk on each surface.

Walk I: Bare Floor (flat, even surface)

1. Initiation of gait (immediately after told to "go")
    0= any hesitancy or multiple attempts to start
    1= no hesitancy

2. Path (estimated in relation to tape measure). Observe excursion of foot closes to tape measure over middle 8 feet of
course.
    0= marked deviation
    1= mild or moderate deviation *or* uses walking aid
    2= straight without walking aid

3. Missed step (trip or loss of balance)
    0= yes, and would have fallen *or* more than two missed steps
    1= yes, but appropriate attempts to recover *and* no more than two missed steps
    2= none

4. Turning (while walking)
    0= almost falls
    1= mild staggering, but catches self, uses walker or cane
    2= steady, without walking aid

Walk II. Bare Floor: step over obstacles

5. Step over obstacles (to be assessed in a separate walk with two shoes placed on course 4 feet apart)
    0= begins to fall at any obstacle *or* unable *or* walks around any obstacle *or* > two missed steps
    1= able to step over all obstacles, but some staggering and catches self *or* one to two missed steps
    2= able and steady at stepping over all four obstacles with no missed steps.

Walk III: Carpet (thick, uneven surface…could use grassy area if safe)

1. Initiation of gait (immediately after told to "go")
    0= any hesitancy or multiple attempts to start
    1= no hesitancy

2. Path (estimated in relation to tape measure). Observe excursion of foot closes to tape measure over middle 8 feet of course.
    0= marked deviation
    1= mild or moderate deviation *or* uses walking aid
    2= straight without walking aid

3. Missed step (trip or loss of balance)
    0= yes, and would have fallen *or* more than two missed steps
    1= yes, but appropriate attempts to recover *and* no more than two missed steps
    2= none

4. Turning (while walking)
    0= almost falls
    1= mild staggering, but catches self, uses walker or cane
    2= steady, without walking aid

Walk IV. Thick or Uneven Surface: step over obstacles

5. Step over obstacles (to be assessed in a separate walk with two shoes placed on course 4 feet apart)
    0= begins to fall at any obstacle *or* unable *or* walks around any obstacle *or* > two missed steps
    1= able to step over all obstacles, but some staggering and catches self *or* one to two missed steps
    2= able and steady at stepping over all four obstacles with no missed steps.

Total possible score for POMA II: 52

Instructions for use the PERFORMANCE-ORIENTED ASSESSMENT OF MOBILITY II

In the mobility assessment, the examiner administers and scores a series of tests on how well a subject can perform various movements and maneuvers. This assessment has been designed to be administered to community-living older persons in order to assess the effectiveness and safety of their mobility during daily activities. These tests are designed to be given in non-clinical, non-uniform settings such as a home or apartment. Therefore, standardization and consistency of instructions and observations is vital. You must administer the tests following the protocols and instructions outlined below. For each maneuver, we describe the position of the examiner, the position of the subject, instructions to be given to the subject, observations to be made by the examiner, and criteria for scoring each maneuver. For safety reasons, it is important that both examiner and subject follow instructions on positioning.
It is important for the examiner to determine whether a subject understands the instructions. This is best done by keeping the instructions simple and by first illustrating the maneuver before asking the subject to perform it. While you should encourage every subject to attempt every maneuver, stress that if the subject knows he/she cannot do a maneuver he/she should not attempt to do it. If a maneuver is not performed properly and you feel the subject has not understood instructions, re-demonstrate the maneuver and have subject try again.
SAFETY: For all of the maneuvers, you must be alert to the possibility that the subject may become unsteady. Use a gait belt as needed. Keep the stopwatch around your neck so you can drop it easily to help the subject. If the subject begins to fall, ease him/her to the floor. If you must ease the subject to the floor, help the subject up by first having him/her get on knees or all fours. Then, place a chair next to the subject and have him/her support him/herself on the chair as the examiner assists. Never try to lift the subject from the floor.
LEAD IN: The lead in to the mobility assessment is as follows: Now I'd like you to do several different movements and activities. I will first describe and show each movement to you. Then I'd like you to try to do it. Please try to do each movement. I will be right here with you for each one. However, if you feel a movement would be particularly unsafe, let me know and we will move on to the next one. Do you have any questions before we begin? O.K., let's begin.
*REFUSALS: FOR ALL MOBILITY TESTS, IF SUBJECT REFUSES TO PERFORM THE TEST FOR WHATEVER REASON, SCORE 0.
BALANCE MANEUVERS

CHAIR
Move a hard, armless chair against a wall. If such a chair is unavailable, use the following criteria for chair selection in the order given: 1) armless, rather than with arms; 2) firm rather than soft; and 3) high enough so that both feet are flat on the floor. Do not use beds, folding chairs, chairs with wheels, or chairs that swivel.
1. Sitting Down
Instruction to Subject: “Now I’d like to have you sit down in this chair” (offer no suggestions on how to do it).
Scoring: If subject is unable to sit down without your help or collapses into the chair (falls back, appears unsafe) or lands off center of chair, score 0.
If subject is able but does not meet criteria for 0 or 2, score 1.
If subject sits down in a smooth motion and ends with buttocks against back of chair and thigh centered on chair, score 2.
2. Sitting Balance
Instruction: Instruct the subject to sit down. Observe the sitting balance.
Scoring Balance: If the subject leans markedly to the side or forward or begins to slide off the chair score 0.
If the subject leans only slightly or there is a slight distance from the buttocks to the back of the chair score 1. If the subject is seated upright and is obviously steady score 2. Often, a 0 and 2 are easier to determine. Therefore, if the subject is not clearly a 0 or 2, score 1.
3. Arising
Instruction: “Now I’d like to have you stand up”
Stand next to the subject to provide assistance if needed.
Scoring: If subject is unable to get up from a chair without your help or begins to lose his/her balance, or requires more than three attempts, score 0.
If the subject is able to get up but requires three attempts, score 1.
If the subject is able to get up in one or two attempts, score 2.
4. Immediate Standing Balance
Instruction: This observation is made immediately upon subject attaining a vertical stance. Examiner is still standing next to subject as close as possible so that he/she does not need to lean forward to catch the subject.
Scoring: If the subject is unsteady as demonstrated by marked staggering, movement of the feet, marked trunkal sway, grabbing objects for support, or beginning to fall, score 0. If the subject is steady, but uses walker or cane for maneuver, or has a few foot movements but is able to catch self without grabbing an object, score 1.
If the subject looks steady without holding on to any object, score 2.
5. Side-by-Side Standing Balance
Instructions to Examiner: Stand behind the subject and help him/her into the side-by-side position.
Supply just enough support to prevent loss of balance. When the subject has his/her feet together, ask the subject if he/she is ready. Then let go and begin timing (not aloud). Say “Stop” (and stop the stopwatch) after ten seconds or when the subject steps out of position.
Instructions to Subject: “Now I would like you to stand with your feet together, side-by-side, like this (demonstrate). Do not move your feet until I say “Stop, Ready, O.K., Begin”.
Scoring: If the subject is unable or unwilling to perform the maneuver, or steps out of position before three seconds, score 0. If the subject is able to hold narrow stance for four to nine seconds, or uses a cane or walker or other support, score 1. If the subject is able to stand with heels together without support for ten seconds, score a 2.
6. Pull Test

Instructions to Examiner: Stand behind subject as close as you can. Again, help subject into position (i.e. feet together). Subject will most likely have feet at the same position as in #5. When the subject is ready, pull back once at the waist with the force you have practiced.
Instructions to Subject: “Now I’d like to have you stand with your feet together as you just did. I’m going to stand behind you and give a gentle pull at your waist”.
Scoring: If the subject begins to fall, score 0. If the subject takes more than two steps backward score a 1. If the subject takes fewer than two steps backward and is steady, score 2.
7. One Leg Stand Unsupported
Instructions to Examiner: After demonstrating, stand at side of raised leg. Do not help into position.
Begin timing when the foot is entirely off the floor. Stop timing if any part of the foot touches the floor or subject grabs onto something for support.
Instructions to Subject: “Now I would like you to stand on one leg like this (demonstrate). I will tell you when to begin and stop. Please begin with your right leg”. O.K., Begin”.
Scoring: If subject is unable to attempt, or if subject grabs any object, or if subject places foot on the floor before three seconds, score 0. If subject is able for three or four seconds, score 1. If subject is able to maintain position for five seconds, score 2.
8. Other Leg – Left Leg Stance:
Have subject attempt even if unable with right leg. Obviously, if subject has marked lower extremity weakness do not attempt.
9. Semi tandem
Instructions to Examiner: Stand behind subject and help him/her into position. Supply enough support to prevent loss of balance. Foot placement is half way between side-by-side and tandem.
(DEMONSTRATE)
When subject has his/her feet correctly placed, let go and begin timing. Say “Stop” at ten seconds or when subject has stepped out of position. Subject may select which foot goes in front.
Instructions to Subject: “Now I’d like you to stand with one foot half way in front of the other like this (demonstrate). Do not move your feet until I say Stop, Ready? OK, Begin”.
Scoring: If subject is unable to perform, begins to fall, or holds position for < three seconds, score 0. If subject is able but maintains position for four to nine seconds, score 1. If subject is able to maintain position (not moving feet) for ten seconds, score 2.
10. Tandem Stand
Instructions to Examiner: Stand behind the subject and help him/her into the tandem position. Supply just enough support to the subject’s arm to prevent loss of balance. When the subject has his/her feet in the full tandem position, ask the subject if he/she is ready. Then let go and start timing. Stop timing after ten seconds or when subject steps out of position.
Instructions to Subject: “Now I’d like you to stand with the heel of one foot in front of you touching the toes of the other foot like this (demonstrate). You may use either foot whichever is more comfortable for you. Do not move your feet. Hold this position until I say stop. Ready, OK, Begin”.
Scoring: If subject is unable to perform, begins to fall, or holds position for < three seconds, score 0. If subject is able but maintains position for four to nine seconds, score 1. If subject is able to maintain position (not moving feet) for ten seconds, score 2.
11. Bending Over
Instructions to Examiner: Ask if subject has had cataract surgery within the past six weeks. If so, do not perform this test. Place a pencil on the floor about one foot in front of the subject. Then move so that you are standing to the side and slightly in front of the subject as he/she attempts this maneuver. The subject is allowed to perform this maneuver in any way he/she

prefers (e.g. going down on knees, squatting, or pulling up on object). The examiner observes the number of attempts required to get up.
Instructions to Subject: “Now I’d like you to bend over, pick up this pencil, and get back like this (demonstrate). If you have had an operation for cataracts within the past six weeks, you should not try this movement. O.K., Begin”.
Scoring: If subject is unable or unwilling to attempt (except if recent cataract surgery), is unable to get back up without help, or requires more than a count of ten, score 0. If subject is able, but requires more than one attempt to get up (every thrust of the body or every pulling with the arms is considered an attempt) score 1. If subject is able to go down and get up in one attempt, score 2. If unable to test, mark 9 and this item will not be included in the score.
12. Toe Stand
Instructions to Examiner: Unlike the toe and heel stand used for muscle testing, the subject is not allowed to hold on to examiner or other surface for support. This is one of the more complicated maneuvers so be aware. Stand to the side and slightly in front of the subject. Once both heels are off the floor, begin timing. Stop timing when either heel touches the floor or subject grabs an object for support.
Instructions to Subject: “Now I’d like you to stand on your toes like this (demonstrate). I’d like you to do this until I say “Stop”. O.K. Begin”.
Scoring: If subject is unable or grabs object before three seconds, score 0. If subject is able and does not grab object but a heel touches floor before three seconds, score 1. If subject is able to maintain position for three seconds, score 2.
13. Heel Stand
Instructions to Examiner: Instructions are the same as for Toe Stand except stand behind the subject.
Instructions to Subject: “Now I’d like you to stand back on your heels like this (demonstrate) until I say Stop. O.K. Begin”.
Scoring: Same as for Toe Stand.

GETTING IN AND OUT OF BED (OR COUCH)
Getting in and out of bed (or on and off a couch) is an important component of mobility. The task has four components including going from standing to sitting, from sitting to lying, from lying to sitting, and sitting to standing. This task is more difficult than getting in and out of a chair for a couple of reasons. First, beds and couches typically are lower and softer than chairs. Second, the subject must get his/her feet on and off the bed or sofa. Third, the subject must center his or her whole body on the bed or couch and not just the buttocks.
The preferable location for assessing this transfer is the bed. If, however, the subject refuses or appears uncomfortable with going into the bedroom, use the couch. In order to save time, incorporate the bed or couch transfer into the postural blood pressure check. If using the bed, do not suggest which side to get on or off from. Let the subject select. Also, do not suggest how to do the transfer. The object is to observe how the subject does it. However, obviously, if the subject looks dangerous, any suggestions or help is appropriate.
Stand on the side of the bed or couch close enough to the subject so that you do not have to reach to catch him/her if he/she begins to fall. The subject may use a pillow if desired. Place a towel at foot of bed/couch so shoes do not soil bed/couch.
14. Stand to Sit
Instructions to Subject: “Now I’d like to have you sit down on the bed (couch)”.
Scoring: If the subject is unable to perform this movement without your help or collapses (plops) on to the bed or falls back on to bed or couch or to either side or lands close to the edge of bed or couch, score

0. If the subject is able to sit down on the bed or couch in a smooth safe motion and ends with his/her buttocks away from the edge of the bed or couch, score 2. If the subject is able to perform the movement without collapsing or falling or landing close to the edge of the bed, but the movement is not smooth or steady enough to warrant a score of 2, score 1.

15. Sit to Lie

Instructions to Subject: “Now I’d like to have you lie down on the bed (couch)”.

Scoring: If the subject is unable to lie down without help (including legs) or ends up close to the edge of the bed or requires more than three attempts to lie down, score 0. If the subject is able to lie down without help and does not land close to the edge of the bed but requires three attempts, score 1. If subject is able in one or two attempts and does not land on the edge of the bed or couch, score 2.

16. Lie to Sit

Instructions to Subject: “Now I’d like to have you sit up on the bed (couch)”.

Scoring: If the subject is unable to go from lying to sitting without your help or requires more than three attempts (e.g. falls back or can not get legs over) or ends close to the edge of the bed or couch such that he/she could slide off, score 0. If the subject is able to go from lying to sitting but requires three attempts (e.g. falls back or has difficulty getting legs over), score 1. If the subject is able to go from lying to sitting in one or two attempts and does not end close to the edge of the bed or couch, score 2.

17. Sit to Stand

Instructions to Subject: “Now I’d like to have you stand up”.

Scoring: Same as for Arising.

INSTRUCTIONS FOR GAIT ASSESSMENT

Instructions to Examiner: Ideally, the gait assessment should be performed both on bare (wood, linoleum, tile, or cement) floor as well as carpet. Occasionally, finding both surfaces may be difficult. If the subject lives in an apartment building, the hallway provides an excellent straight course. If the weather is nice and there are no stairs, the outdoors can be used with the sidewalk for a bare floor and the grass substituting for carpet.

Measure a 10 foot walking course using a metal tape measure. Measure and lock the tape at 10 feet so that the tape will not spring back into the container. Place the tape on the floor or rug in a straight line. Make sure the tape is to the side and out of the way of the course so that it does not distract the respondent from walking normally. Clear the walking course of all objects and make sure the pathway is unobstructed. For safety, remove throw rugs if present. If using grass, walk the course to make sure there are no stones, holes, or other defects. In some settings, a ten foot walking course may be inaccessible. Use the space available and document the number of feet used.

Begin on the bare floor. During the first assessment, you will be evaluating gait initiation, path, missteps, and turning. Stepping over objects will be assessed separately. If you have any question about any component, have subject repeat the course.

Instruct subject to stand with both feet together at the start of the walking course, walk down the course (past the measured course), turn and return. Instruct the subject to walk at his/her usual walking pace. Subject may use a walking aid. Demonstrate, providing instructions as you are walking. When subject is walking the course, walk alongside close enough to offer support if he/she should lose balance.

WALK ONE: BARE FLOOR

Instructions to Subject: “Now I would like you to walk down past the end of the tape, turn around it and come back. Please walk as you usually do. O.K. Begin”.

Scoring:

1. Initiation: Observe the time immediately after told to “begin”. If there is any hesitancy or subject requires more than one attempt to start walking, score 0. Otherwise score 1.

2. Path: (estimate in relation to tape measure)
Do not include either the first or last step. Observe the excursion of the foot closest to the tape measure over the middle of the course. If there is marked deviation, defined as two or more movements of the foot more than about 6 inches away from tape measure, score 0. If the subject walks in a straight line score 2. If subject does not meet criteria for 0 or 2, score 1.
3. Missed Steps: (trip or loss of balance)
If subject loses balance, almost falls, or has more than two missed steps or trips, score 0. If the subject has one or two missed steps, score 1. If the subject has no missed steps or trips, score 2.
4. Turning While Walking: If subject almost falls or is very unsteady, score 0. If subject is steady and safe score 2. If subject does not meet criteria for either 0 or 2, score 1.
WALK TWO: BARE FLOOR
5. Step Over Object:
Instructions to Examiner: Stepping over the objects should be assessed in a separate walk. Place a shoe at four and eight feet from the beginning of the course. Again, walk along with subject.
Instructions to Subject: “Now I would like you to walk to the end of the tape again turn around and come back. This time, I want you to step over the shoes I have placed in the path (demonstrate). O.K. Begin”.
Scoring: If subject begins to fall anytime throughout the course, or is unable to step over any of the obstacles, or walks around any of the obstacles, or has more than two missed steps as defined above, score 0. If the subject is able to step over all four obstacles, but has any signs of unsteadiness or hesitancy, or has one to two missed steps as defined above, score 1. If the subject is able to step over all four objects, without any missed steps or unsteadiness, score 2.
WALK THREE AND FOUR: CARPET OR GROUND
After testing gait on bare floor, the assessment should be repeated on carpet or other thick surface. If multiple possibilities are available, order of preference is:
1. thick carpet
2. grass (if course has no holes)
3. thin carpet

The assessment, instructions, and scoring are the same for bare floor.

Traduction: Test de tinetti (TT) ou Performance-Oriented Mobility Assessment (POMA)

Tinetti M.E.. (1986)

Instruction pour l'utilisation

Il est important pour l'examinateur de vérifier la bonne compréhension des instructions par le patient. Pour ce faire, des instructions simples et des démonstrations des mouvements attendus peuvent être réalisé.
Il est important d'encourager le sujet durant la réalisation du test. Si l'exercice demandé n'est pas exécuté correctement par manque de compréhension des instructions, l'exercice peut être recommencé

SÉCURITÉ: Pour toutes les manœuvres, il faut être attentif à la possibilité de la perte d'équilibre de la personne.

Instruction recommandée : *« Maintenant, je voudrais vous faire plusieurs mouvements et activités. Je vais d'abord vous décrire et vous montrer chaque mouvement. Ensuite, j'aimerais que vous essayez de le faire. Veuillez essayer de faire chaque mouvement. Je serai là avec vous pour chacun d'entre eux. »*

Evaluation de l'équilibre statique et dynamique lors de la marche : Epreuve de Tinetti

1. Evaluation de l'équilibre statique

	Normal = 1	Adapté = 2	Anormal = 3
- Equilibre assis	0	0	0
- Se relever d'une chaise	0	0	0
- Equilibre immédiatement après s'être relevé	0	0	0
- Equilibre debout	0	0	0
- Equilibre debout yeux fermés	0	0	0
- Equilibre après un tour complet de 360°	0	0	0
- Résistance à une poussée sternale	0	0	0
- Equilibre après rotation de la tête	0	0	0
- Equilibre en station unipodale	0	0	0
- Equilibre avec extension de la colonne cervicale	0	0	0
- Equilibre avec extension de la colonne cervicale et élévation des membres supérieurs	0	0	0
- Equilibre penché en avant	0	0	0
- Equilibre en s'asseyant	0	0	0

Score normal = 13

2- Evaluation de l'équilibre dynamique lors de la marche

	Normal = 1	Anormal = 2
- Equilibre au début de la marche	0	0
- Hauteur du pas	0	0
- Longueur du pas	0	0
- Symétrie du pas	0	0
- Continuité de la marche	0	0
- Déviation du trajet	0	0
- Stabilité du tronc	0	0
- Posture pendant la marche	0	0
- Demi-tour pendant la marche	0	0

Score normal = 9

Tinetti et al: J. Am. Geriatr. Soc. 34: 119, 1986

Qu'est-ce que BEST ?

BEST pour Belgian Screening Tools est le nom d'une étude réalisée par l'Université de Gand, service des Sciences Infirmières, à la demande du Service Public Fédéral de la Santé Publique, Sécurité Alimentaire et Environnement.

Objectif de BEST ?

Le but de ce projet est de construire une base de données contenant des instruments de mesures validés scientifiquement. Dans le but d'objectiver les diagnostics et résultats des interventions infirmières, des instruments de mesures fiables et valides doivent être disponibles pour démontrer l'efficience des soins infirmiers.

Notre attention se porte sur les instruments de mesure utilisables pour scorer les interventions infirmières du nouveau Résumé Infirmier Minimum ou DI-RHM.

Que pouvez-vous trouver dans ce rapport ?

Le rapport décrit les différents instruments de mesure. En plus, si nous en avons reçu l'autorisation des auteurs, l'instrument est mis à votre disposition. Les instruments de mesure présentant une fiabilité et une validité élevées ont également fait l'objet d'une traduction vers le néerlandais et le français.

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Daem, M., Piron, C., Lardennois, M., Gobert, M., Folens, B., Spittaels, H., Vanderwee, K., Grypdonck, M., & Defloor T. (2007). Mettre à disposition une base de données d'instruments de mesure validés: le projet BEST. Bruxelles: Service Publique Fédéral Santé Publique, Sécurité de la Chaîne alimentaire et Environnement.