



DEMMI

de Morton Mobility Index
Instructional Handbook



de Morton Mobility Index (DEMMI)

0	1	2
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Bed	0	1	2
1. Bridge	<input type="checkbox"/> unable	<input type="checkbox"/> able	
2. Roll onto side	<input type="checkbox"/> unable	<input type="checkbox"/> able	
3. Lying to sitting	<input type="checkbox"/> unable	<input type="checkbox"/> min assist <input type="checkbox"/> supervision	<input type="checkbox"/> independent

Chair	0	1	2
4. Sit unsupported in chair	<input type="checkbox"/> unable	<input type="checkbox"/> 10 sec	
5. Sit to stand from chair	<input type="checkbox"/> unable	<input type="checkbox"/> min assist <input type="checkbox"/> supervision	<input type="checkbox"/> independent
6. Sit to stand without using arms	<input type="checkbox"/> unable	<input type="checkbox"/> able	

Static balance (no gait aid)	0	1	2
7. Stand unsupported	<input type="checkbox"/> unable	<input type="checkbox"/> 10 sec	
8. Stand feet together	<input type="checkbox"/> unable	<input type="checkbox"/> 10 sec	
9. Stand on toes	<input type="checkbox"/> unable	<input type="checkbox"/> 10 sec	
10. Tandem stand with eyes closed	<input type="checkbox"/> unable	<input type="checkbox"/> 10 sec	

Walking	0	1	2
11. Walking distance +/- gait aid Gait aid (circle): nil/frame/stick/other	<input type="checkbox"/> unable <input type="checkbox"/> 5m	<input type="checkbox"/> 10m <input type="checkbox"/> 20m	<input type="checkbox"/> 50m
12. Walking independence	<input type="checkbox"/> unable <input type="checkbox"/> min assist <input type="checkbox"/> supervision	<input type="checkbox"/> independent with gait aid	<input type="checkbox"/> independent without gait aid

Dynamic balance (no gait aid)	0	1	2
13. Pick up pen from floor	<input type="checkbox"/> unable	<input type="checkbox"/> able	
14. Walks 4 steps backwards	<input type="checkbox"/> unable	<input type="checkbox"/> able	
15. Jump	<input type="checkbox"/> unable	<input type="checkbox"/> able	

COLUMN TOTAL SCORE:	<input type="text"/>	<input type="text"/>	<input type="text"/>
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RAW SCORE TOTAL
(sum of column total scores) /19

DEMMI SCORE
(MDC₉₀ = 9 points; MCID = 10 points) /100

Raw-DEMMI Score Conversion Table

Raw Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DEMMI score	0	8	15	20	24	27	30	33	36	39	41	44	48	53	57	62	67	74	85	100



Comments:

Signature: _____

Date: _____

The DEMMI, de Morton Mobility Index, is an advanced instrument for accurately measuring and monitoring changes in mobility for all older adults.

Mobility is an important indicator of the health status of older adults. Poor mobility is associated with loss of independence in activities of daily living and increased risk of falls, carer burden, mortality and healthcare costs. Just as a blood pressure cuff is required for measuring blood pressure, an accurate mobility test, the DEMMI, has been developed to accurately measure the important construct of mobility for all older people. It is the first instrument that can accurately measure the mobility of all older adults across clinical settings.

The DEMMI was developed based on the Rasch model and overcomes the limitations of existing mobility instruments. The DEMMI is administered by clinician observation of performance on 15 hierarchical mobility challenges. Some of the features of the DEMMI are that it:

- is administered by observation of physical performance
- can be administered at the person's bedside
- is only one page (front and back, for insertion in the medical history)
- has minimal equipment requirements (bed or plinth, pen, chair, stop watch)
- has a simple protocol and scoring system
- is scored based on the persons first attempt of each item
- has a score range from 0 to 100
- provides interval level data
- is quick to administer
- has no floor or ceiling effects
- has predictive utility for important health outcomes such as falls
- can be administered by a range of healthcare professionals
- can be applied in community and hospital healthcare settings

The Minimal Detectable Change (MDC_{90}) and Minimally Clinically Important Difference (MCID) are:

- $MDC_{90} = 9$ points
- $MCID = 10$ points

The DEMMI is freely available. For further DEMMI information and updates, please visit: www.demmi.org.au

Given the ageing population and the importance of maintaining physical independence in older age, there has never been a greater need for the DEMMI.

BED

1. Bridging

Person is lying supine and is asked to bend their knees and lift their bottom clear of the bed.



2. Roll

Person is lying supine and is asked to roll onto one side without external assistance.



Definitions

Minimal assistance = "hands on" physical but minimal assistance, primarily to guide movement.

Supervision = another person monitors the activity without providing hands on assistance. May include verbal prompting.

Independent = the presence of another person is not considered necessary for safe mobility.

Equipment: bed or plinth

3. Lie to sit

Person is lying supine and is asked to sit up over the edge of the bed.



Example of a person requiring minimal assistance for lie to sit



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	0	1	2
Bed			
1. Bridge	<input type="checkbox"/> unable	<input type="checkbox"/> able	
2. Roll onto side	<input type="checkbox"/> unable	<input type="checkbox"/> able	
3. Lying to sitting	<input type="checkbox"/> unable	<input type="checkbox"/> min assist <input type="checkbox"/> supervision	<input type="checkbox"/> independent

CHAIR

4. Sit unsupported

Person is asked to maintain sitting balance for 10 seconds while seated on the chair, without holding arm rests, slumping or swaying. Knees and feet are placed together and feet can be resting on the floor.



Back and arms must not be touching the chair for the sitting unsupported item



Definitions

Minimal assistance = "hands on" physical but minimal assistance, primarily to guide movement.

Supervision = another person monitors the activity without providing hands on assistance. May include verbal prompting.

Independent = the presence of another person is not considered necessary for safe mobility.

Equipment: chair (45cm height)
with arms and stop watch

5. Sit to stand

Person is asked to rise from sitting to standing using the arm rests of the chair.



6. Sit to stand no arms

Person is asked to stand with their arms crossed over their chest.



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Chair			
4. Sit unsupported in chair	<input type="checkbox"/> unable	<input type="checkbox"/> 10 sec	
5. Sit to stand from chair	<input type="checkbox"/> unable	<input type="checkbox"/> min assist <input type="checkbox"/> supervision	<input type="checkbox"/> independent
6. Sit to stand without using arms	<input type="checkbox"/> unable	<input type="checkbox"/> able	

STATIC BALANCE

7. Stand unsupported

The person is asked if they can stand for 10 seconds without external support.



8. Stand feet together

The person is asked if, for 10 seconds, they can stand with their feet together.



Equipment: stop watch

Other: no gait aid, remove shoes and socks

9. Stand on toes

The person is asked if they can stand on their toes for 10 seconds.



10. Tandem standing eyes closed

The person is asked to place the heel of one foot directly in front of the other with their eyes closed for 10 seconds.



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Static balance (no gait aid)

7. Stand unsupported	<input type="checkbox"/> unable	<input type="checkbox"/> 10 sec	
8. Stand feet together	<input type="checkbox"/> unable	<input type="checkbox"/> 10 sec	
9. Stand on toes	<input type="checkbox"/> unable	<input type="checkbox"/> 10 sec	
10. Tandem stand with eyes closed	<input type="checkbox"/> unable	<input type="checkbox"/> 10 sec	

WALKING

11. Walking distance

Persons will be asked to walk with their current gait aid to where they can without a rest. Testing ceases if the person stops to rest. The person uses the gait aid that is currently most appropriate for them. If either of two gait aids could be used, the aid that provides the person with the highest level of independence should be used. Testing ceases once the person reaches 50 meters.



Equipment: nil
Other: gait aid if required

12. Walking independence

Independence is assessed over the person's maximum walking distance up to 50m (from item 11).



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Walking

11. Walking distance +/- gait aid Gait aid (circle): nil/frame/stick/other	<input type="checkbox"/> unable <input type="checkbox"/> 5m	<input type="checkbox"/> 10m <input type="checkbox"/> 20m	<input type="checkbox"/> 50m
12. Walking independence	<input type="checkbox"/> unable <input type="checkbox"/> min assist <input type="checkbox"/> supervision	<input type="checkbox"/> independent with gait aid	<input type="checkbox"/> independent without gait aid

DYNAMIC BALANCE

13. Pick up pen from floor

A pen is placed 5 cm in front of the person's feet in standing. The person is asked if they can pick the pen up off the floor.



Equipment: pen

Other: no gait aid, remove shoes and socks

14. 4 steps backwards

Walks backwards 4 steps.
Person remains steady throughout.



15. Jump

Person can jump. Both feet clear the ground.
Person remains steady throughout.



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Dynamic balance (no gait aid)

13. Pick up pen from floor	<input type="checkbox"/> unable	<input type="checkbox"/> able	
14. Walks 4 steps backwards	<input type="checkbox"/> unable	<input type="checkbox"/> able	
15. Jump	<input type="checkbox"/> unable	<input type="checkbox"/> able	

PROTOCOL FOR ADMINISTRATION OF THE DEMMI

1. Testing should be performed at the person's bedside.
2. Testing should be performed when the person has adequate medication eg. at least half an hour after pain or Parkinson's Disease medication.
3. The test should be administered in the sequence described in sections A-E: bed transfers, chair transfers, static balance, walking and dynamic balance.
4. Each item should be explained and, if necessary, demonstrated to the person.
5. Items should be ticked to indicate item success or failure. Reasons for not testing items should be recorded.
6. Items should not be tested if either the test administrator or the person performing the test are reluctant to attempt the item.
7. Persons should be scored based on their first attempt.
8. If an item is not appropriate given a person's medical condition, the item should not be tested and the reason recorded.
9. Persons can be encouraged but feedback should not be provided regarding performance.
10. Three equipment items are required: chair with 45cm seat height with arm rests, a hospital bed or plinth and a pen.
11. The person administering the test manipulates person medical equipment during testing (eg. portable oxygen, drips, drains etc) unless the person requires minimal assistance to perform the test and then a 2nd person will be required to assist with medical equipment.

12. For persons that require a rest after each item due to shortness of breath, a 10 minute rest should be provided half way through testing i.e. after completing the chair transfers section.
13. For person's who have low level mobility and require a hoist to transfer in/out of bed or chair, the chair section can be administered before the bed section for these persons.
14. Bed transfers: the bed height should be appropriate for the individual person. A standardised hospital bed or plinth should be used for testing. The person cannot use an external device such as the monkey bar, bed rail, edge of bed or a bed pole. Additional pillows may be provided for persons who are unable to lie flat in supine.
15. Chair transfers: A standardised chair height of 45cm is required. A firm chair with arms should be used.
16. Balance: Shoes cannot be worn for balance testing. The person cannot use external support to successfully complete any balance items. For sitting balance, neither the arm rests or the back of the chair can be used for external support. Standing balance tests should be performed with the person positioned between an elevated bed on one side and the test administrator on the other side. If a person displays unsteadiness or significant sway during testing, testing of that item should cease.
17. Walking: Appropriate shoes can be worn for walking tests. The same shoes must be worn for repeat testing.
18. Scoring: Using the conversion table provided, the raw score total must be converted to a DEMMI SCORE.

PRODUCED BY



For further DEMMI information and updates,
please visit: www.demmi.org.au



Northern Health

