

## **Rivermead Motor Assessment: Guidelines**

### **General rules**

- The Rivermead Motor Assessment consists of 3 sections.
- Three tries are allowed for each item. The best performance is scored.
- For the gross function and arm sections stop after three consecutive failures. All the items of the leg and trunk section should be performed.
- In the gross function section the 'quality of movement' is not evaluated. The end position must be reached and must be safe but, the way the exercise is performed does not matter unless otherwise stated.
- If a patient refuses to perform the item (e.g. anxiety), score '0'.

### **Order of items**

#### **Gross function:**

The gross function section can be assessed by asking the patient and/or therapist. Only in case of doubt, the items should be evaluated

If you assess the patient, you start at the estimated level of the item the patient is able to perform.

*E.g. If the patient walks in with an aid without stand by help=> item 6 (GF): 1 Go back 3 items: item 5, 4 and 3. If the patient scores '1' on all 3 items (item 3, 4 and 5), you can assume that item he/she will also score '1' on item 1 and 2. If the patient fails on one of these three items, you have to go back further until you get three consecutive '1' scores.*

#### **Leg and Trunk and Arm section**

First perform all items in lying position, then all items in sitting position and at the end all items in standing positions.

The following order can be used as a guide:

##### Lying position

Leg and Trunk: Item 1, 2, 3, 5, 8 and 9.

Arm: Item 1, 2 and 3.

##### Sitting position

Arm: Item 4, 5, 6, 7, 8, 9, 11, 12 and 14.

##### Standing position

Leg and Trunk: Item 4, 6, 7 and 10.

Arm: Item 10, 13 and 15.

## **Rivermead Motor Assessment: extra explanation**

### **Materials needed:**

- a block of 20 cm height
- a pencil
- a volley ball
- a tennis ball
- a piece of paper
- a fork and knife
- a plate and a container (use box of putty as a container)
- a bean bag
- a cord
- putty
- a watch with chronometer
- a non-slip mat

### **A. Section: Gross Function**

#### Item 1/2

- 'Bed' can also be a 'plinth' depending on circumstances.
- Any method is allowed but patient must perform the item independently. No help from therapist is allowed.
- The patient may choose over which side he/she comes to the sitting position.

#### Item 3

- The height of bed or plinth must be so that the feet are flat on the ground and there is approximately 110 degrees of knee flexion.
- 'With an aid, if necessary': no help from therapist is allowed.

#### Item 4 and 5

##### -Item 4:

- the patient uses a wheel chair: transfer from wheelchair to chair (without arm rests) towards the unaffected side.
- if the patient can walk, check whether he/she can transfer towards the unaffected side from chair to chair (both without armrests).

##### - Item 5:

- the patient uses a wheel chair: transfer from chair to wheelchair towards affected side.
- if the patient can walk, check whether he/she can transfer towards the affected side.
- Wheelchair and chair must be positioned perpendicular (90°) to each other.
- The researcher may put on the breaks and remove the footrests. The armrests may not be removed by the researcher.
- If the transfer is not safe, stop the exercise.
- The end position requires sitting on both buttocks and must be safe.
- If the patient usually uses a frame to transfer from wheelchair to chair, he/she can also use it in this test. Even if the patient uses a frame to perform the transfers, he can still score a '1'.

*(The usual principle of the gross function section is that provided they can do the task independently then how they do it doesn't matter. Provided they are independent and need no external help it is acceptable. On that basis using a frame , or sliding board would be acceptable.)*

#### Item 6

- 'No stand-by help': this means that the patient can walk safely without the therapist to catch patient when he/she falls.
- If the testing situation (e.g. home visits) does not allow a 10 meter walk in a straight line, the patient may change direction.
- Intake assessment: patient has not yet a walking aid. Patient can choose him/herself any walking aid to perform the test.

#### Item 7

- 'A full flight of stairs' means 8 to 12 steps.
- Patient may use the banister on the left side by climbing up the stairs, and on the right side by going down the stairs or vice versa.

#### Item 8

- 'No stand-by help': this means that the patient can walk safely.

#### Item 9

- 'No stand-by help': this means that the patient can walk safely.
- Patients must walk 10 m towards the beanbag and return 10 m (total: 20 m).
- Patients may use any strategy.

#### Item 10

- 'No stand-by help': this means that the patient can walk safely
- This item should not be performed. Ask the family or therapist.

#### Item 11

- Patient may walk down the 4 steps backwards.
- If the stairs are too narrow or if no stairs are available (E.g. patients home), the researcher may assess this item by asking whether he/she uses stairs in public buildings. If the patient does not know the answer or answers that he/she never uses stairs, he scores '0' on this item.

#### Item 13

- "on the spot" means a circle with a diameter of approximately 50 centimetres.

### **B. Section: Leg and trunk**

#### Item 1, 2

- The end position must be stable: the patient may not to fall either forwards or backward.
- The patient is not allowed to pull with hands or feet on side of bed, but may use them to push.
- Always make sure that the patient can roll in a safe way (e.g. enough free space left on plinth)

#### Item 3

- 'Half-crook lying': the knee on the affected side is flexed; the leg on the unaffected side is extended.
- Start in an optimal position (middle position).
- 'Lift hip on affected side': when the patient can put some weight through affected leg, he/she scores '1'. Check by putting one hand under affected heel.
- You may not help the patient by holding the affected knee during the exercise.

#### Item 4

- Patient is not allowed to use the arms to push off.
- It is difficult to judge if equal weight is put through both feet, but both feet should be flat on the ground. If the affected foot is not flat on the ground, the patient scores '0'.

#### Item 5

- Judge the 'control' of lifting the affected leg over side to bed and returning the leg to bed.
- If patient compensates e.g. trunk rotation, external rotation affected leg, he scores '0'.
- 'Must keep affected knee flexed throughout movement': knee must **not** be flexed 90 degrees, may be less than 90 degrees.

#### Item 6

- Use a solid block of about 20-cm.
- Note: If the patient performs this test very quickly (e.g. because of a lack on balance), he/she still gets a score of '1' on this item.

#### Item 7

- 'Tap ground lightly': between each tap, foot must come fully off the ground.
- May tap ground only with foot tip, not with the whole foot.
- Make sure that the unaffected side is not bearing any weight!

#### Item 8, 9

- Perform the exercise without shoes.
- Demonstrate and perform first at the unaffected side. This allows you to check whether the patient understands the exercise and also to observe the range of motion (ROM) on the unaffected side.

#### Item 8

- The foot is on the bed/plinth. The patient must lift the foot up from the bed/plinth to do a dorsal flexion.
- The researcher can help to keep the affected knee in the central position.

#### Item 10

- Ask the patient to stand on the unaffected leg and to flex the knee with the hip maintained in neutral position on the affected side.

### **C. Section: Arm**

### Item 1

- Start position: arm in 90 degrees of ante flexion.
- 'Protraction of shoulder girdle': the therapist puts one hand on medial border of the scapula to feel the protraction movement.
- If only a contraction is felt, score '0', if protraction (even minimal movement), score '1'.

### Item 2

- Start position: arm in 90 degrees of ante flexion.
- Do not allow internal rotation and pronation.

### Item 3

- Flexion/extension of the elbow should be performed with the shoulder in 90 ° of ante flexion (cfr. item 2).
- The elbow may not be supported.
- The palm of the hand must touch the face.
- The position of the hand is not important.

### Item 4

Elbow should be kept against the trunk.

### Item 5

- 'Ball should be on table so far in front of patient that he has to extend arms fully to reach it'. The patient should only extend arms and not reach forward with the trunk.
- The patient must reach forward with both arms without any support (no support of bench, no support of non-affected side,...)
- Both hands must be on lateral side of the ball (one hand left side of the ball, one hand right side)

### Item 6

- 'Release on affected side': patient must release ball next to the affected thigh by removing the hand of the ball.
- The quality of the movement as described should be taken into account and scored accordingly for 'reaching', not for 'releasing'.
- You only score '1', if patients perform the exercise **5 times after one another** correct.

### Item 7

- Patient should use the pulpa of the fingers and thumb to grip. Do not allow palmar grip (palm of hand) or lateral pinch (pencil kept between thumb and lateral side of index).

### Item 8

- The paper should be picked up and released on the same spot.
- You only score '1', if patients perform the exercise **5 times** correct.
- Patient may not pick up paper by wrinkling it.

### Item 9

- Patient must pick up fork or knife with affected hand. The non-affected hand may not help to put fork or knife in the affected hand.

- Patient may choose the hand he/she uses to handle knife and fork.
- Patient must use both hands at the same time; the activity of item 9 must be performed bimanual.
- Put the container on the affected side, next to the plate.
- the patient must cut at least 3 pieces of the putty

#### Item 10

- Patient may try first with the unaffected side.

#### Item 11

- Visual control is allowed.

#### Item 12

- the full palm and the full dorsum of the hand (not only the ulnar side of the hand) must touch palm of good hand; not only the ulnar side of the hand.

#### Item 14

- The patient really has to tie a bow, not a knot!
- Some neck flexion is allowed, but the trunk must remain extended.
- The bow must not be made in the middle of the head, can be asymmetric (E.g. due to restricted shoulder movement). The aim of item 14 is to test fine motor control without visual input. However do not allow extreme neck flexion.

#### Item 15

- Suggestion: 1) patient and researcher face to face  
2) patient against the wall

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