

# Laboratory protocol

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## Abstract

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## Document

*Translated to English*

## Protocol motor imagery

General instruction

### Mirror therapy

- Explain what mirror therapy is and what the aim of the treatment is.
- The participant has to take off all jewellery, pull up his sleeves and wear the prosthesis simulator on the training side.
- The participant has to sit down straight in front of the table at a reasonable distance.
- The mirror is placed in the saggitale plane in front of the participant. The side with the mirror is placed towards the training hand.
- The hand without the prosthesis simulator is put behind the mirror on the non-reflecting side. The hand is placed in the same position as the other hand and is laying in relaxed position on the table.
- Both hands are covered in such a way that they are invisible for the participant.
- The participant is asked to just look at the reflection of the hand in the mirror.
- Than the instructions below are given to the participant.

### Motor imagery

- Take care of a quiet surrounding, (no other people, telephones switched off etc)
- The participant has to sit down straight in front of the table at a reasonable distance.
- The participant has to put his hands right in front of him at the table, elbows slightly flexed.
- The eyes are closed
- And the participant is asked to imagine the movements as lively as possible. (Mention the weight of the prosthesis, the prosthesis tight fixed around the arm, the length of the prosthesis etc). How the task is exactly imagined is up to the participant.

Instruction per session

### Session 1

#### *Mirror therapy (10 min)*

1. Look at the reflection of the training hand in the mirror (1 min)
2. Lift the arm of the table and put it down again (3 times)
3. Move the arm from left to right and back (3 times)
4. Open and close the hand (6 times)
5. Imagine that the reflection in the mirror is the test hand (1 min)

6. Lift the arm of the table and put it down again (3 times)
7. Move the arm from left to right and back (3 times)
8. Open and close the hand (6 times)

#### *Motor imagery (5 min)*

The participant is asked to imagine:

1. To wear a prosthesis simulator on the training hand (1 min)
2. Lift the training hand and put it down again (2 times)
3. Open and close the training hand (4 times)
4. That a prosthesis simulator is worn on the test hand (1 min)
5. Lift the test hand and put it down again (2 times)
6. Open and close the test hand (4 times)

### Session 2

#### *Mirror therapy (10 min)*

1. Look at the reflection of the training hand (1 min)
2. Lift the arm of the table and put it down again (3 times)
3. Move the arm from left to right and back (3 times)
4. Open and close the hand (6 times)
5. Imagine that the reflection in the mirror is the test hand (1 min)
6. Lift the arm of the table and put it down again (3 times)
7. Move the arm from left to right and back (3 times)
8. Open and close the hand (6 times)
9. Pick up a jar and hold it (2 times; the jar is put in front of the hand by the assessor)

#### *Motor imagery (5 min)*

The participant is asked to imagine:

1. To wear a prosthesis simulator on the training hand (1 min)
2. Lift the training hand and put it down again (2 times)
3. Open and close the training hand (3 times)
4. Pick up a jar that is in front of the participant with the training hand and turn of the lid with the test hand (3 times)
5. That a prosthesis simulator is worn on the test hand (1 min)
6. Lift the test hand and put it down again (2 times)
7. Open and close the test hand (3 times)
8. Pick up a jar that is in front of the participant with the test hand and turn of the lid with the training hand (3 times)

### Session 3

#### *Mirror therapy (10 min)*

1. Look at the reflection of the training hand (1 min)
2. Lift the arm of the table and put it down again (3 times)
3. Move the arm from left to right and back (3 times)
4. Open and close the hand (3 times)
5. Imagine that the reflection in the mirror is the test hand (1 min)

6. Lift the arm of the table and put it down again (3 times)
7. Move the arm from left to right and back (3 times)
8. Open and close the hand (3 times)
9. Pick up a pot (2 times)
10. Pick up a sponge and squeeze it (2 times)

#### *Motor imagery (5 min)*

The participant is asked to imagine:

1. To wear a prosthesis simulator on the training hand (1 min)
2. Lift the training hand and put it down again (2 times)
3. Open and close the training hand (3 times)
4. Pick up a jar that is in front of the participant with the test hand and turn of the lid with the training hand (3 times)
5. Fixate a lineal with the training hand and draw a line with the training hand (3 times)
6. Squeeze a plastic cup with the training hand (3 times)
7. That a prosthesis simulator is worn on the test hand (1 min)
8. Lift the test hand and put it down again (2 times)
9. Open and close the test hand (3 times)
10. Pick up a jar that is in front of the participant with the training hand and turn of the lid with the test hand (3 times)
11. Fixate a lineal with the test hand and draw a line with the training hand (3 times)
12. Squeeze a plastic cup with the test hand (3 times)

#### Session 4

##### *Mirror therapy (10 min)*

1. Look at the reflection of the training hand (1 min)
2. Lift the arm of the table and put it down again (3 times)
3. Move the arm from left to right and back (3 times)
4. Open and close the hand (3 times)
5. Imagine that the reflection in the mirror is the test hand (1 min)
6. Lift the arm of the table and put it down again (3 times)
7. Move the arm from left to right and back (3 times)
8. Open and close the hand (3 times)
9. Pick up a pot (2 times)
10. Pick up a sponge and try not to squeeze it (2 times)

##### *Mental imagery (5 min)*

The participant is asked to imagine:

1. To wear a prosthesis simulator on the training hand (1 min)
2. Lift the training hand and put it down again (2 times)
3. Open and close the training hand (3 times)
4. Fixate a lineal with the training hand and draw a line with the training hand (3 times)
5. Fold an A4 paper three times with the simulator on the training hand (3 times)
6. Pick up an plastic cup and pour it out with the training hand (3 times)
7. That a prosthesis simulator is worn on the test hand (1 min)

8. Lift the test hand and put it down again (2 times)
9. Open and close the test hand (3 times)
10. Fixate a lineal with the test hand and draw a line with the training hand (3 times)
11. Squeeze a plastic cup with the test hand (3 times)
12. Fixate a lineal with the test hand and draw a line with the training hand (3 times)
13. Fold an A4 paper three times with the simulator on the test hand (3 times)
14. Pick up a plastic cup and pour it out with the test hand (3 times)

## Session 5

### *Mirror therapy (10 min)*

1. Look at the reflection of the training hand (1 min)
2. Lift the arm of the table and put it down again (3 times)
3. Move the arm from left to right and back (3 times)
4. Open and close the hand (3 times)
5. Imagine that the reflection in the mirror is the test hand (1 min)
6. Lift the arm of the table and put it down again (3 times)
7. Move the arm from left to right and back (3 times)
8. Open and close the hand (3 times)
9. Pick up a pot (2 times)
10. Pick up a plastic cup (2 times)
11. Pick up a sponge and try not to squeeze it (2 times)

### *Mental imagery (5 min)*

The participant is asked to imagine:

1. To wear a prosthesis simulator on the training hand (1 min)
2. Lift the training hand and put it down again (2 times)
3. Open and close the training hand (3 times)
4. Fold an A4 paper three times with the simulator on the training hand (3 times)
5. Pick up a letter from the table with the training hand and put it in an envelope (3 times)
6. Open a small carton box with the training hand and look what is in it (3 times)
7. That a prosthesis simulator is worn on the test hand (1 min)
8. Lift the test hand and put it down again (2 times)
9. Open and close the test hand (3 times)
10. Fold an A4 paper three times with the simulator on the test hand (3 times)
11. Pick up a plastic cup and pour it out with the test hand (3 times)
12. Pick up a letter from the table with the training hand and put it in an envelope (3 times)
13. Open a small carton box with the training hand and look what is in it (3 times)