Mirror therapy guidelines for use with nerve injuries

Why mirror therapy?

The recovery of hand function after nerve injuries is often not optimal. Recent research shows that the brain adapts very quickly to the lost nerve function in such a way that the hand representation in the brain (see picture) vanishes after some time. It has always been assumed that this representation can only be brought back when the connection between the hand and the brain, as provided by the nerve, is restored. The hypothesis of mirror therapy is that providing the brain with the illusion of a ‘normal’ hand will slow down the process of losing the representation of the hand and may help in regaining the lost function when the function of the peripheral nerve recovers.
What should you do?

Mirror therapy can be performed at home after instructions by your therapist. It is important that it becomes part of your planned daily exercise programme in addition to the other therapy you have and exercises that you need to perform.

Follow the instructions below 4-5 times a day or as directed by your therapist. It is sufficient to use the mirror for periods of about 10 minutes or until you feel you are no longer able to concentrate. Like any new technique, it will need practice and may need several trials before you are used to it.

- Find a quiet room with a table where you will be able to concentrate and not be interrupted.
- Ensure that you are seated comfortably.
- Position the mirror so that the reflective surface is facing your unaffected hand and your affected (the one with the nerve lesion) hand is hidden behind the mirror and is projected over the affected hand. (Figures 1 & 2).
- Your unaffected hand should be covered with the white shield.

What exercises will I perform?

- Simply look at this reflection without moving either your affected or unaffected hand. Concentrate on the mirror reflection for about one minute. You can name your fingers and part of your hand while you watch the mirror image.
- Once you are comfortable with this, slowly start to move your unaffected hand while you watch the mirror image. You should do this for a few minutes.
- Move your hand according to the specific exercises corresponding to your type of injury (see next page).
- Move both hands in exactly the same way whilst still looking at the reflection in the mirror.
- Play a game while watching the hand in the mirror
  - Try to make a square with match sticks
  - put the matches back into the box
  - stack a small pile of checkers
  - move the checkers on the board
  - put cards in the right order
What are the exercises for an ulnar nerve lesion?

1. Spreading of fingers
2. Closing fingers
3. From fully extended fingers flex knuckles
4. Pinch grip
5. Put your hand flat on the table and flex the knuckles
6. From a fist position; only extend your fingers joints, not the knuckles
7. Make a cup of your hand
8. Extend fingers without hyperextending the knuckles
9. Move your fingers as if playing the piano

What are the exercises for a median nerve lesion:

1. Move your thumb away from the palm
2. Make a circle with your thumb
3. Move your thumb towards the index fingertip
4. Same to your little finger
5. Move thumb along the index finger to the tip
6. Move your thumb as if touching the space of a keyboard
7. Move a marble between tips on index and thumb

Are there any side effects with this treatment?

Occasionally, people feel unusual sensations in the hand that is hidden from their view when using the mirror. For example: heavier or lighter, warmer or colder, a reduced sensation, a feeling that the hand is 'floating', or even that you have an additional hand.

All of these sensations are much less common when both hands are moving in the same manner and should last no more than a few seconds or minutes after you have stopped using the mirror.

If at any time you find a sensation uncomfortable or disturbing then simply stop the particular exercise and view both hands without the mirror and the sensation should quickly pass.

What should I record?

Please note the number of times you use the mirror per day and estimate the duration in minutes of mirror use.