

## MOTOR IMAGERY

### Information for Patients and Families

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### What is motor imagery?

Motor imagery is a form of therapy that can be used to strengthen arms, hands, feet and/or legs that may have been weakened by stroke. In motor imagery, we mentally rehearse the movement of the affected body parts, without ever actually attempting to perform the movement. In other words, you imagine doing the movement in your mind. For example, you may imagine hitting a golf ball or drinking a cup of tea. Researchers have shown that this "mental rehearsal" actually works, as it stimulates the brain areas responsible for making the weaker arm or leg move.



(Courtesy of Dr. Stephen Page and his team at Drake Center and University of Cincinnati)

## What is motor imagery used for?

Motor imagery has been used to increase hip movements and improve strength and postural control in the elderly. It has also been used to treat people who have health problems, including injury to the spinal cord, Parkinson's disease, or fibromyalgia (general muscle pain). It is especially useful for treatment of the arms, legs, and hands.

## Are there different types of motor imagery?

There are two distinct types of motor imagery:

- **Kinaesthetic motor imagery** (i.e. imagining the feeling associated with performing a movement)
- **Visual motor imagery** (i.e. imagining the movement itself)

## What can I expect from a motor imagery session?

An example of a motor imagery session for a person with a weakened arm might include:

- 5 minutes of listening to a tape recording of relaxation techniques
- 20 minutes of imagery exercises:

Week 1 – video and computer images are used to analyze the steps required to complete a task (e.g. reaching for a cup or turning a page in a book).

Week 2 – the patient identifies tasks he/she has difficulty with on a daily basis and is instructed to correct the mistakes he/she makes during these tasks using mental imagery.

Week 3 – the patient practices the corrected tasks mentally and also actually performs the tasks.

- The session concludes with time given to the individual to refocus on the room around them.

## Will it be of benefit to me?

Research has studied how motor imagery can help stroke patients':

### **Upper Extremity Function**

Motor imagery has been shown to be very useful for people who have problems moving their arms and hands after a stroke.

### **Lower Extremity Function**

Motor imagery has also been shown useful in improving leg function in people who have had a stroke.

### **Walking**

Evidence has shown that motor imagery may improve some components of walking, such as speed, in people who have had a stroke. Standing was also improved.

### **Relearning daily activities**

Motor imagery has been proven effective in promoting the relearning process of activities of daily living (such as feeding and dressing) in people who have had a stroke.

### **Awareness of neglected side**

People who have had a stroke have been shown to have increased awareness of the side affected by hemiplegia (paralysis) when they participate in motor imagery in addition to their regular therapy, instead of just regular therapy alone.

Research has also found that motor imagery may not be as effective in people who have had a stroke in some specific regions of the brain. Damage to these areas may affect the ability to mentally rehearse the movements. Additional research in the future will give us more information on just how beneficial motor imagery is after a stroke.

## When can motor imagery be used after stroke?

Motor imagery techniques can be started at any time following a stroke. However, it is believed that the treatments would be most useful in the first 6 to 18 months after a stroke, when the majority of post-stroke recovery occurs.

## Are there any risks to me?

There are no specific risks involved in participating in motor imagery. Motor imagery is actually quite easy to do at home, and many people find it a fun and relaxing way of having additional therapy.

## How do I begin?

Your rehabilitation therapist should be able to provide you with a program to meet your individual needs. She/he can guide you as to:

- how many times a week you should do motor imagery exercises
- what specific activities and movements you should do
- what activities you should not do
- how long each motor imagery session should be
- how to change activities as you improve

## How much does it cost? Do I need special equipment?

Motor imagery is inexpensive and accessible. Insurance will cover the services that you will receive in the hospital or rehabilitation centre. Once you are home you can continue this treatment on your own. No special equipment is required.

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