



## Mirror Therapy Appears To Reduce Post –Phantom Limb Pain

### KEYWORDS

amputation, mirror, neurons, phantom limb pain.

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**ABSTRACT** *The Phantom limb is a painful sensation that is perceived in a body part that no longer persist To control this pain, many methods have been used such as medication, physical treatment, nerve block, neuromodulation, surgical treatment and mirror therapy. However, until now, there effects have been uncertain. We report the successful reduction of phantom limb pain using mirror therapy when other treatments initially failed to control the pain.*

### Introduction:

A technique called Mirror Therapy can help reduce phantom pain in soldiers, who have had Limb amputated. **Rizzolatti** used a mirror neuron to explain the fundamentals of a mirror therapy At first mirror neuron was found in monkey premotor cortex and later, **Rossi** discovered that human also have similar neuron system. A both the person acts and when a person observes the same action performed by another.

### Phantom pain

A common problem after amputations is pain that's Perceived to be in missing Limb. The pain pathways in the spinal cord and brain remember the "Painful Injury Because of this memory the missing arm (or) leg continues to ache. Sometimes severely so long after the Limb has been amputated.

The Study author **Dr. Steven R.** Handling of the Naval Medical Centre in **san Diego**, said in the new release he and his colleagues found that mirror therapy significantly reduced phantom pain in four soldiers who had suffered severe leg injuries that lead to amputation. This made it possible for them to fully participate in their post operation physical therapy program.

### IMMEDIATE AND LONG TERM PHANTOM PAIN:-

There are various types of sensation that may be felt, Sensation related to the phantom limbs posture, length, volume Eg: feeling that the phantom limbs be having just like a normal limb like sitting with the knee bent (or) feeling that the phantom limb is heavy as the other limb

### SINGS AND SYMPTOMS:-

Phantom pain involves the sensation of pain in a part of the body that has been removed. Mechanisms are often separated into peripheral, spinal and central mechanisms.

### PERIPHERAL MECHANISMS:-

Neuromas formed from injured nerve ending at the stump site are able to fire abnormal activity potentials and were historically thought to be the main cause of phantom limb pain. Physical stimulation of neuroma can increase c.fibre activity, they increasing phantom pain, but still persists once the neuroma have ceased firing activity potentials.

### SPINAL MECHANISMS:-

The hyperexcitability of the spinal cord, which usually occurs only in the presence of noxious stimulation. Because patients with complete spinal cord injury have experienced phantom pains, there must be an underlying central mechanisms responsible for the generation of phantom pain.

### CENTRAL MECHANISMS AND CoRTICAL REMAPPING:-

The majority of motor reorganisation has occurred as a down ward shift of the hand area of the cortex on to the area of face representation. Especially the lips, sometimes there is a side shift of the hand motor cortex to the ipsilateral cortex. In patients with phantom limb pain, the reorganization was great enough to cause a change in cortical lip representation in to the hand area only during lip movement.

### VARIOUS METHODS USED TO TREAT PHANTOM PAIN:-

I have used Physical method such as light massage, electrical stimulation and hot and cold therapy .

### RECENT ADVANCE THERAPY IS FPR REDUCTION OF PAIN:-

Mirror Box Therapy:- It allows for Illusions of movement and touch in a phantom limb by inducing somato sensory and motor pathway coupling between the phantom and real limb, [Ramachandran and Roferris 1996].

Pharmacological Treat:- Pharmacological techniques are often continued with other treatment options, opioids ketamine and calcitonin.

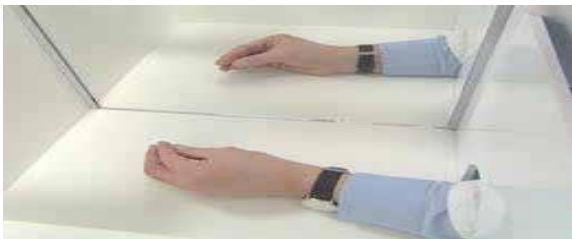
Deep Brain Stimulation:- Deep brain stimulation is a surgical technique used to alleviate patients from phantom limb pain.

### RECENT ADVANCE THERAPY IS FOR REDUCED PHANTOM PAIN IS MIRROR THERAPY:-

### WHAT IS MIRROR THERAPY?

The Mirror therapy is a pioneering non invasive treatment for the management of chronic pain. As the term i have implies the primary tool of this therapy is an mirror from which the patient receives visual feedback in order to train the brain to configure a new "Body Map". This so called is Map is simple the hard wired Mental representation that allows a person to be aware of where each component as

the body is at all times, even in complete darkness. This built in diagram also permits one to move in complex ways without having to consciously focus on each step to perform.



#### GOAL OF MIRROR THERAPY? :-

To correct misrepresentation in the body Map that develop when an Injury (or) Loss of limb occurs.

#### HOW EFFECTIVE IS MIRROR THERAPY? :-

A 2007 study of Mirror therapy at Walter Reed Army Medical Centre in Washington D.C.. Included 18 war veterans who lost limbs in conflict long mirror were placed along side the remaining limbs in one group of study participants patients were asked to move the limb while watching their actions in the mirror, A second group studied used covered mirrors while a third group used visualization to Imagine Missing Limbs, These results came after four weeks of using mirror therapy for 15 minutes a day five days a week.

#### THE MIRROR CURE FOR PHANTOM PAIN:-

##### The Mirror Neuron:-

In 1994, Ramachandran provided the theory by mapping the brain activity of a group of amputees using a magnetic scanner. He showed that neuron activity was indeed migrating from the hand area to the face. It was a ground breaking study.

**CONCLUSION:** The mirror therapy resulted in dramatic pain relief for a patient with phantom limb pain when other treatment such as medications, physical therapies, nerve blocks, nerve transformations did not work. so mirror therapy is expected to be widely used for the treatment of phantom limb pain its easy to use at both home and in out-patient departments

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