# Mirror Visual Feedback in CRPS related Upper Limb Dystonia: A pilot study of the influences on motor function and pain.

Published: 14-09-2010 Last updated: 28-09-2024

To investigate the influences of MVF on pain and motor function in CRPS related dystonia and to investigate the feasibility of an MVF intervention in patients with CRPS related dystonia and the suitability of several outcome measures to determine...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Movement disorders (incl parkinsonism)
Study type	Interventional

# Summary

### ID

NL-OMON34340

**Source** ToetsingOnline

**Brief title** MVF in upper limb CRPS related dystonia.

### Condition

• Movement disorders (incl parkinsonism)

#### **Synonym** muscle tone regulation disorder., Post traumatic dystrophy

### **Research involving**

Human

### **Sponsors and support**

**Primary sponsor:** Leids Universitair Medisch Centrum **Source(s) of monetary or material Support:** ministerie van economische zaken (BSIK03016).

1 - Mirror Visual Feedback in CRPS related Upper Limb Dystonia: A pilot study of the ... 13-05-2025

### Intervention

**Keyword:** Complex Regional Pain Syndrome., Dystonia., Mirror visual feedback.

### **Outcome measures**

#### **Primary outcome**

Pain will be assessed twice a day using a Visual Analogue Scale (VAS) before and after the first and last MVF session. The Burk Fahn Marsden scale will be used to assess the severity of dystonia. Range of Motion will be assessed using a goniometer and a rapid finger movement task is performed to test the velocity and fluency of movements (bradykinesia). Two self-administered questionnaires will be completed to assess the level of disability (Radboud Skills Questionniare) and the neglect-like syndrome (Neuro Behavioral Questionnaire).

#### Secondary outcome

# **Study description**

#### **Background summary**

Dystonia is the most common type of movement disorder that may arise in Complex Regional Pain Syndrome (CRPS). One of the main concepts behind the development of CRPS and dystonia is that it is caused by neuroplastic changes in the central nervous system. It is thought that pain and motor symptoms in CRPS are caused by incongruence between motor commands and sensory feedback in the motor and somatosensory cortices. One strategy to alter the incongruence between motor commands and sensory feedback is Mirror Visual Feedback (MVF). By activating the cortical networks that serve the affected limb, symptomatic and functional improvements can be attained. Several studies with amputees who suffered from phantom limb pain (PLP) and phantom spasmsshowed successfull treatment of pain and motor impairments using MVF. PLP and CRPS are both considered pathological pain syndromes with comparable pathophysiology and motor impairments. The comparable pathophysiology and motor impairments suggest that MVF might be effective to improve motor impairments in CRPS related dystonia. So far, this has never been studied, and therefore the aim of this pilot study is to investigate the influences of MVF on pain and motor function in CRPS related dystonia.

#### Study objective

To investigate the influences of MVF on pain and motor function in CRPS related dystonia and to investigate the feasibility of an MVF intervention in patients with CRPS related dystonia and the suitability of several outcome measures to determine the influences (effects) of MVF.

### Study design

The proposed pilot study will be conducted as an open clinical trial.

### Intervention

Patients will undergo a six week treatment protocol. The first two weeks of are part of a Graded Motor Imagery program as a preparation for the MVF. In the first week, photographs of hands in different positions and angles are shown to each patient. Subjects are asked to push a left or right the button according to whether the picture shows a left or a right hand. In the second week patients are asked to imagine adopting the posture shown with a smooth and pain-free movement.

From the third week patients will receive MVF. The affected hand is concealed behind the mirror and subjects watch the reflection of the unaffected hand in the mirror. During the four weeks of MVF patients are asked to perform exercises of increasing difficulty while watching in the mirror. Exercise will be performed five times a day.

### Study burden and risks

Some patients may experience some nausea, dizziness or a temporary increase of pain during or directly after exercising with a mirror. Increasing pain is mainly experienced during active movement of the affected limb in chronic CRPS patients. Pain disappears after rest. Nausea and dizziness is only experienced while looking in the mirror. The exact numbers of patients experiencing these side affects in MVF are unknown. Most studies involving MVF in CRPS do not report any side affects. If nausea or increasing pain occurs, patients are advised to stop exercising immediately and continue at a later time. If patients experience nausea or pain continuously during mirror exercises, they are advised to contact the researcher. Patients fill out the pain scores twice a day before and after the first and last therapy session. These scores are safety checks and will be checked each time the patient visits the hospital for the measurements and during telephone consults.

# Contacts

**Public** Leids Universitair Medisch Centrum

albinusdreef 2 2300 RC Leiden NL **Scientific** Leids Universitair Medisch Centrum

albinusdreef 2 2300 RC Leiden NL

# **Trial sites**

## **Listed location countries**

Netherlands

# **Eligibility criteria**

#### Age

Adults (18-64 years) Elderly (65 years and older)

### **Inclusion criteria**

Subjects fulfill the CRPS criteria of the International Association for the Study of Pain (IASP). Subjects score at least 2 points on the upper limb item of the Burke Fahn Marsden scale (BFM).

Subjects have an unaffected contralateral limb.

Subjects are at least 18 years or older.

Subjects are familiar with written and spoken Dutch language.

Subjects who are on stable medication and do not expect any changes in medication or treatment over the course of the study. (3 months)

### **Exclusion criteria**

Subjects with an internal medication pump. Recent use (<12 wks) of Ketamine, Magnesium or Botuline Toxin treatments. Lesions or disease of central nervous system that are associated with pain and/or motor impairment other than caused by CRPS or dystonia. Psychiatric history.

# Study design

### Design

Study type:	Interventional
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Treatment

### Recruitment

М

Recruitment status:	Recruitment stopped
Start date (anticipated):	14-09-2010
Enrollment:	10
Туре:	Actual

# **Ethics review**

Approved WMO	
Date:	14-09-2010
Application type:	Amendment
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)
Approved WMO	
Date:	14-09-2010
Application type:	First submission

5 - Mirror Visual Feedback in CRPS related Upper Limb Dystonia: A pilot study of the ... 13-05-2025

# **Study registrations**

### Followed up by the following (possibly more current) registration

No registrations found.

### Other (possibly less up-to-date) registrations in this register

No registrations found.

### In other registers

**Register** CCMO ID NL33004.058.10