

Upper Limb Treatment Schedule Booklet:  
to accompany the Upper Limb Treatment Recording Form

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## **Background**

There is strong evidence that stroke unit care improves outcomes for patients but many still report an “enormous problem” in using their weaker arm and hand. Some small studies have been carried out which have looked at different types of physiotherapy. To date, however, the use of research findings in stroke rehabilitation has been hampered by a lack of description of conventional physiotherapy and by a lack of research conducted with sufficient subjects to be confident in the results. This form has been produced as a way of recording the content of physiotherapy treatment for patients presenting with upper limb impairment after stroke. This information may then be incorporated into research projects investigating different types of physiotherapy intervention.

Audiotaped interviews with senior neuro physiotherapists were carried out to produce a treatment list. This was comprised of: aims of treatment, gross positions of the patient, equipment used, setting for treatment, and actual treatment activities provided. A treatment recording form was produced from this which has been piloted in clinical practice. The recording form and this accompanying booklet constitute, ‘the upper limb treatment schedule’.

## **Introduction**

This upper limb treatment schedule has been produced for patients, undergoing treatment by a qualified physiotherapist, following a stroke. It has been produced after interviews and extensive discussion with Senior Neuro-physiotherapists in and around the South London area. The aim of the form is to represent conventional physiotherapy practice for the upper limb after stroke but it is appreciated that not every treatment may have been included. Feedback would be welcomed should this be the case.

Please note that this form has not been developed for those who present with neglect or inattention. We hope that you will find this a user-friendly and concise tool, but if you have any queries or experience any difficulty, please do not hesitate to contact:  
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## Instructions for completion of Upper Limb Treatment Recording Form

Please note that this treatment schedule is not suitable for patients demonstrating neglect.

1. ONE FORM FOR EACH TREATMENT SESSION  
Please complete one form for each patient contact with subjects in the Functional Strength Training Upper Limb Clinical Trial. If the treatment session has not involved the upper limb, a '0' should be placed in the 'Est duration of upper limb Rx' section.
2. TO COMPLETE THE AIMS SECTION  
Please place a tick in the box that best describes the aims relevant to the particular treatment session being recorded. Unless stated otherwise, it is assumed that the aim is to 'Improve/Optimise' in each case.
3. TO COMPLETE THE GROSS POSITION SECTION  
Place a tick in the box for every gross position used to deliver physiotherapy treatment during treatment sessions being recorded. Forward lean sitting should be documented as 'supported sitting'.
4. TO COMPLETE THE EQUIPMENT SECTION  
Please write the name of any equipment used during the particular treatment session being recorded. Please refer below (*page 5*) for further details of equipment.
5. TO COMPLETE THE SECTION "TREATMENT ACTIVITIES"  
Please place a tick in the boxes which best describe the treatment that was given to the patient during the particular treatment session being recorded.
6. FOR FURTHER DESCRIPTION OF ITEMS ON RECORDING FORM:  
Please refer to *page 6* for Examples of Specific Treatment Activities
7. COMPLETED FORMS GIVEN TO RESEARCH TEAM  
Completed forms will be collected weekly by Catherine Donaldson (Researcher conducting the FST clinical trial)

### Examples of equipment used

Air inflated supports	Pens/ pencils
Ball	Pillows
Balloon	Plinth
Beads,	Sandbag
Bed	Sensory box
Chairs	Small ball
Coins	Table / high table
Comb / hairbrush	Tennis ball, football
Games: (Jenga, dominos, chess, draughts, cards, jigsaw puzzles)	Theraband
Gymball	Toothpaste, deodorant
Jug	Towels
Multigym	Upper limb bike
Parallel bars	Wedge

## Examples of Specific Treatment Activities

### 1. *Soft tissue mobilisation* \*

\* see References page 11

#### 1.1 **Stroking**

- For example: the therapist places the whole of their hands in contact with the skin and maintains a gentle but firm pressure and draws the hands towards them. The strokes overlap each other

#### 1.2 **Effleurage**

- For example: rhythmical, sweeping, strokes moving distally to proximally over the treatment area

#### 1.3 **Lymph drainage techniques**

- For example: short, light rhythmical strokes, which are non-gliding in the direction of lymphatic flow

#### 1.4 **Petrissage (kneading/wringing/ picking-up/ rolling)**

- For example: compression of superficial tissue, muscles or ligaments where the tissue is compressed, then lifted, squeezed or rolled, and taken to the tissue end-feel.

#### 1.5 **Specific compression (trigger points)**

- For example localised pressure to relieve muscle spasm for example over subscapularis, and upper trapezius

#### 1.6 **Myofascial release**

- Non-gliding traction and stretch to produce a sustained tensional force on the muscle and its associated fascia, which results in viscoelastic lengthening of the fascia

#### 1.7 **Frictions**

- For example: the therapist places the tip of their thumb or finger over the structure to be treated and performs small rotary movements whilst maintaining a constant pressure. There is no glide on the skin and the superficial tissues are moved on the underlying structures.

### 2. *Joint mobilisation*

#### 2.1 **Accessory movements**

For example:

- Therapist's hands cupping the scapula and mobilising the scapula into protraction/ retraction with upper limb de-weighted.
- Distraction/ compression to the gleno/humeral joint with therapist stabilising scapula/ shoulder girdle with one hand, whilst the other hand supports the head of humerus.
- Antero-posterior / postero-anterior mobilisations to the radial head to increase supination

#### 2.2 **Passive movements**

For example:

- Patient sits on plinth with therapist behind on gymball. The patient's arms in abduction and Elbow Flexion over the therapists knees. The therapist moves on the gymball to increase mobility at the shoulder girdle and trunk
- Graded small displacement activity to shoulder girdle, gleno/humeral joint, elbow, wrist, hand

#### 2.3 **Active movements**

For example:

- Pendulum exercises in prone standing using targets on the floor (e.g. cones)

### 3. *Facilitation of muscle activity/ movement*

#### 3.1 **Mental imagery**

- for example encouraging the patient to visualise movement when doing a task

#### 3.2 **Patient generated cueing**

- for example patient is encouraged to talk to their hand when doing a task

#### 3.3 **Therapist generated cueing**

- for example, therapist counts whilst patients initiates and completes activity

#### 3.4 **Hands-on' to induce a desired motor response**

for example:

Therapists hands over triceps muscle to facilitate Elbow Extension (patient may be in sitting or in supine)

Weight bearing through upper limb with elbow, wrist and fingers in extension. Therapist may be facilitating around humerus, triceps or at wrist.

Wrist flexion/ extension combined with finger flexion/ extension (i.e. grip/ release). Therapist may facilitate by placing their hand over the dorsal surface of the patient's hand.

### 3.5 **Active assisted**

For example:

- flexion/ extension at the gleno/humeral joint assisted by either the patient (using non-paretic upper limb) or therapist.
- Scapula protraction/ retraction whilst maintaining extended arm which is de-weighted by gym ball. Therapist either guiding ball or facilitating at scapula
- Patient walks fingers up and down the wall into varying degrees of flexion at the gleno humeral joint. The therapist may facilitate as required for example by de-weighting the arm
- electrical stimulation using FES to encourage wrist extension

### 3.6 **Facilitate Arm/ Hand activity from another body part**

- for example, head, trunk, non-paretic limb, lower limbs

### 3.7 **Restricted use of non-paretic limb**

- for example applying a constraint to the non-paretic upper limb whilst encouraging activities with the paretic upper limb

## 4. **Positioning\*\***

\*\* see References *page 11*

### 4.1 **Side lying hemiplegic side**

- For example with external rotation of the glenohumeral joint, scapular protraction and the head in neutral

### 4.2 **Side lying non-hemiplegic side**

- For example, with the arm supported on a pillow, scapular protraction and patient's head in neutral

### 4.3 **Supine lying**

- For example, with the arm supported on a pillow, scapular protraction and the head supported on a pillow

### 4.4 **Half lying**

- For example, with the arm supported on a pillow with scapular protraction. Head in midline, and trunk symmetrical, supported by pillows.

### 4.5 **Sitting in armchair**

- For example, equal weight bearing left and right buttocks with spine in extension and head directly above pelvis. Chair or pillows may support arm

### 4.6 **Forwards lean sitting**

- For example, equal weight bearing left and right buttocks, trunk symmetrical with hips flexed >90°. Scapular protraction and forearms may be weight-bearing on table

### 4.6 **Sitting in wheelchair**

- For example, equal weight bearing left and right buttocks with spine in extension and head directly above pelvis. Upper limbs may be supported using a Bexhill armrest or pillows

## 5. **Specific sensory input**

### 5.1 **Tactile stimulation**

- For example different textures, temperatures, vibration, stroking

### 5.2 **Proprioceptive stimulation**

- For example, joint distraction/ compression (for example to MCP joints in lumbrical grip)
- For example, stereognosis exercises (feeling objects and describing what they are)

### 5.3 **Electrical stimulation**

- For example, TENs

## **6. *Splinting techniques***

### **6.1 Shoulder support**

- For example using tape across rhomboids, serratus anterior, upper trapezius muscles
- For example, using collar and cuffs / sling

### **6.2 Elbow support**

- Soft/scotch or inflatable splint enclosing elbow

### **6.3 Wrist/ Hand support**

- For example using a soft/ scotch cast dynamic splint

#### **Splinting materials used**

For example:

- Tape
- Soft/ scotch cast
- Thermoplastic splints
- collar and cuffs, slings, neoprene brace
- Air-inflated splints

## **7. *Exercise to increase strength***

### **7.1 Resistance from the therapist**

- For example Proprioceptive Neuromuscular Facilitation patterns of movement

### **7.2 Resistance from body weight**

For example:

- Upper limb movement against gravity
- Press-ups against the wall
- Crawling with or without gymball under trunk for support

### **7.3 Resistance from equipment**

For example:

- free weights/ gym ball
- Upper limb exercise bike
- Grip and release using putty/ theraband and grip strengtheners

### **7.4 Gravity neutral repetitive movement**

For example:

- Patient uses a duster on a table for initial muscle strength training
- Repetitive movement using a sliding/ re-education board

## **8. *Balance and mobility incorporating upper limb activity***

### **8.1 In, or from, lying**

For example:

- From supine to side-lying (to both paretic and non-paretic side)
- Patient weight-bearing through paretic side to push up from side-lying to sitting

### **8.2 In, or from, kneeling**

For example:

- for example from 4-point kneeling with upper limbs in extension and reaching out to each side with affected and unaffected limb
- From four-point-kneeling to side-sitting, by bringing the bottom down to each side, using the upper limbs for control and balance
- Patient moved forwards or to side without warning to elicit automatic saving reactions

### **8.3 In, or from, sitting**

For example:

- Chair to chair transfers, by reaching across with paretic hand to other chair (chairs at 90°)
- In sit to stand when pushing down on arm of chair into Elbow Extension

### **8.4 In, or from, standing**

- For example, eccentric triceps activity during stand to sit transfers

### **8.5 In walking**

- For example use of walking aids/ parallel bars to incorporate upper limb into walking

## ***9. Upper limb functional Tasks***

### **9.1 Bilateral functional activities**

For example:

- unscrewing the top of containers
- lifting a large object
- Throwing and catching a ball

### **9.2 Unilateral reaching activities which are object directed**

For example:

- picking up a cup. Therapist may stabilise around wrist joint and have hand over the carpals and thenar eminence. Grip and release are then facilitated from palmar surface. Intertwining of fingers may also be used to facilitate movement.
- reaching to the floor to pick up an object/ put socks on

### **9.3 Unilateral reaching activities which are spatially directed**

For example:

- taking hand in and out of pocket
- patient reaches out of base of support to touch the therapist's strategically positioned hand

### **9.4 Dexterity exercises (including all grasp and manipulation activities)**

for example:

- writing
- picking up small objects such as pins/ marbles

## ***10. Education for Patient and/or Carer***

### **10.1 To encourage self- monitoring of upper limb with awareness of positioning and alignment**

For example:

- Using individual positioning charts
- Self-rating from a patient during and after a task

### **10.2 Transfers training**

### **10.3 Limb handling and positioning skills**

### **10.4 Written/ visual/ photo exercise programme**

Incorporating the upper limb into daily activities, should be included in this section

## ***11. Other interventions / techniques***

### **11.1 Acupuncture**

### **11.2 Ultrasound**

### **11.3 Compression**

## Glossary of terms used in the Recording Form

Effleurage	A gliding manipulation performed with light centripetal pressure that deforms subcutaneous tissue down to the investing layer of the deep fascia ***
Facilitation	The application of an appropriate mode and dose (frequency, duration and intensity) of sensory stimulus provided by the therapist to access a desired active response from the patient ****
Friction	A repetitive, specific, nongliding technique that produces movement between the fibres of connective tissue, increasing tissue extensibility, and promoting ordered alignment of collagen within the tissues. ***
Lymph drainage techniques	A nongliding technique performed in the direction of lymphatic flow, using short, rhythmical strokes with minimal to light pressure, which deforms subcutaneous tissue without engaging muscle ***
Mental Imagery	Mental rehearsal of a motor act that occurs in the absence of overt motor output
Myofascial Release	A technique that combines a nongliding fascial traction with varying amounts of orthopaedic stretch to produce a moderate, sustained tensional force on the muscle and its associated fascia, which results in palpable viscoelastic lengthening and plastic deformation of the fascia ***
Petrissage	A group of related techniques that repetitively compress, shear, and release muscle tissue with varying amounts of drag, lift, and glide ***
Physiotherapist	Person with professional Physiotherapy qualification
Rx	Treatment
Specific compression	A non-gliding technique that is applied with a specific contact surface to muscle, tendon, or connective tissue; the compression and release is applied in a direction that is perpendicular to the target tissue, and the compression is often sustained ***
Stroking	Gliding over the patient's skin (unidirectionally) with minimal deformation of subcutaneous tissues.***
Rehabilitation Assistant	Person assisting the physiotherapist but who is not a qualified physiotherapist

## References:

- \* The Soft Tissue Mobilisations section (1) was based on work by:  
Holey E, Cook E. Evidenced-based Therapeutic Massage, A practical guide for Therapists. Second Edition, Churchill Livingstone 2003, and  
Andrade C-K, Clifford P. Outcome-Based Massage. Lippencott Williams and Wilkins, London 2001.
- \*\* Chatterton H J, Pomeroy V M, Gratton J. Positioning for stroke patients: a survey of physiotherapists' aims and practices. Disability and Rehabilitation, 2001; 23 (10): 413-421
- \*\*\* Andrade C-K, Clifford P. Outcome-Based Massage. Lippencott Williams and Wilkins, London 2001.
- \*\*\*\* Hunter S M, Crome P, Sim J, Pomeroy V M. Formulation of a schedule of 'mobilization and tactile stimulation' for the upper limb after stroke: a precursor to evaluation. *In press* July 2006.