

## **Supplemental material\_2**

The added files include resources used in the ACTIV training programme, and resources the physiotherapists used to deliver ACTIV.

The Exercise Charts were used by the physiotherapists to record prescribed exercises including dose and parameters.

The 'LL' and 'UL' files are two examples of exercise instructions which could be added to participant's workbooks.

The workbooks were in clear files and left with each participant.



## Physiotherapist Training Schedule

### Day 1:

#### Tea/Coffee

#### 10.30-12 noon

Introduction to the staff

Housekeeping, health and safety requirements.

#### Rationale:

Theoretical basis – reference to underpinning literature

- Conceptual - Cott
  - o Transition from hospital to home after stroke
  - o Importance of environment & community context for participation
  - o Client Centred – issues of meaningfulness and choice
- Efficacy of Home Programmes - Novac
- Goal setting - Playford
- Recovery & self management after stroke – Jones
- Translation into home set up
- ICF model

#### Outline of study:

- Aims/questions of study and background
- Inclusion criteria (physical ability, range of participants)
- Recruitment areas & outcomes
- ACTIV programme(brief overview)
- Physio contact points (brief introduction to txt message & WebSMS usage)

#### Physio Protocol:

- Go through entire protocol
- Introducing different aspects ie Dropbox & ACTIV register, Web SMS for text messages etc
  - o All aspects to be gone over in depth later
- Importance of sending forms back to AUT
- Note taking and recording appropriately for research
- Consistency and following research ethos / protocols
- Privacy and confidentiality and professional responsibility

#### 12 – 12.45pm Lunch

## 12.45pm – 2.30pm

### Assessment:

- Working through Assessment form
- Goal identification – focus on ‘what participant wants to do’
  - o Focusing on abilities and successes
  - o Achievable steps – using the exercises provided
- Simulation of chosen activity
  - o The best you can do
  
- Problem list
  - o Prescribe exercises
  - o What is point of the exercises?
  - o Tailored to individual needs – “what they want to do most”

### Treatment Programme: exercise charts

- Intensity, repetitions and effectiveness vs. achievability and sense of purpose
  - o Negotiation of timetable for completing exercises
- Work through Exercise Charts – UL / LL
  - o Altering complexity of exercises

## 2.30pm – Tea/Coffee

- Role playing/ Case scenarios
- Recap of day
- Outline for Day 2

## Day 2:

**9.30 -10am-** Meet expert physiotherapist to discuss the support for the physios, where and when to contact her, reasons to contact her. Discuss PI’s blinded status.

**Follow Up Assessments** (reference physio time line)

Home:

- Work through F/U assessment form (following physio procedure)
- Discuss adverse events

## 10.30am – Tea/Coffee

## 11 – 1pm In computer lab

**Messaging:**

Web SMS Training – look at system

- Text message protocol – content and idea behind/ examples
- E-mailing or telephone calls (participant preference)
- Reference physio contact points (timeline for contacts)

**Participant Mobiles**

- Training (look at phones) participants to use and receive messages
- Practise use of phones and setting them up so they are easy to use for the participants
- Ordering if needing more
- Top Ups for participants
- Protocol if participants have own phones.
- 

**Dropbox Training:**

- Installing Dropbox on computer
- Importance for having it installed properly so files update
- Individual folders to access
- Whom to contact if needing help?

**1pm - Lunch****1.45pm- Follow up contact**

Telephone:

Work through telephone follow-up form

- Ideas behind telephone contact
- Get idea of participant success/ challenges
- Areas to focus on
- No new exercises to be given over phone

Focus on final visit

- Physio procedure
- Sending forms back to AUT
- Exercise philosophy

### **Case scenario examples: for use during physiotherapy training day**

1. 65-year-old woman previously fit and well and very independent.

She is frustrated that she is now unable to go shopping to her local shops and wants to go out with her grandchildren.

**Most wants** to go to the shops to get bread, milk and essentials AND wants to be able to care for her active 2-year-old granddaughter

2. 75-year-old man used to do many jobs round the home, lives with his very fit wife who is now extremely helpful and caters to him. He is very clumsy with tools now and has poor sensation in his hand

**Most wants** to be able to use a hammer and a screwdriver

3. 80-year-old woman has regained some function after a mild stroke, but complains of being very slow and unsteady on stairs or rough ground. She walks very slowly even on flat ground and has a daughter who thinks her mum needs to go in a rest home

**Most wants** to walk a bit faster and more safely to prove to her daughter that she is fine at home.

4. 50-year-old Maori man with supportive family. He wants to go on to his Marae but will only go if he can get on the floor and sleep overnight. He can only walk about 10m unaided

**Most wants** to be able to walk the 200m to get on to the Marae and then get on and off the floor with minimal help.

5. 74-year-old man who has come home for a trial, but is finding it very hard to get out of his chair and do anything for himself. He has good arm function but poor leg function. He has an elderly wife who uses a walking frame and is not able to help him physically

**Most wants** to be able to get out of his chair more easily and do more to help himself, for example get a drink, help with meal preparation or clear the mailbox.

6. 56-year-old woman has been having occasional TIA's for several years and ignoring them, now has a moderately severe stroke and some neglect and difficulty walking.

**Most wants** to do the Tongariro crossing next year with her 15-year-old son.



## Physiotherapist Procedure

- Enter participant details on the Physio register (dropbox) as you receive it from (research assistant)
- Phone participant to make an appointment for the start of the intervention (this is to be scheduled within one week of receiving information)
- E-mail (named expert physio) with participant name, ID, DOB and planned date of first visit.
- Phone participant a week before all subsequent visits to arrange a suitable day and time and get participant to write it in on page 3 of their workbook



### Initial Home Visit:

1. Complete the ACTIV programme - assessment form (**do not leave blanks**)
2. Write on appropriate exercise chart (UL/LL or both) what the participant "wants to do most"
3. Get participant to write what they want to do on page 4 in their participant workbook
4. Decide & prescribe the exercises (3-4 maximum) that best fit what they want to do most, & fill in all corresponding white boxes on the applicable exercise chart
5. Select individual exercise sheets from physio pack and fill in all boxes (engage participant in the process)
6. Fill in visit number above exercise boxes and explain to participant that they will fill in the phone call boxes over the phone with you
7. Observe participant doing all selected exercises and encourage their comment on success
8. Put the exercise sheets in the participant workbook to leave with them
9. Schedule a convenient day to ring the participant for the follow up telephone call and write in the participant workbook on page 3
10. Send the top copy of assessment form to (named expert physio) at AUT (within 1 week of assessment)
11. **Once initial home visit completed – enter all relevant information on Physio register (dropbox)**

### Subsequent Home Visits:

1. Check how participant is managing all exercises
2. Perform and complete ACTIV follow up assessment form with participant
3. Start a new exercise chart (UL/LL or both) for each face-to-face interaction with the participant and number accordingly (NB there are 2 phone calls between each visit except between the first and second visit when there is only 1)
4. Increase/change level of difficulty for existing exercises if appropriate
5. Select other exercises if these are now indicated (still no more than 4 in total)
6. Observe participant doing all selected exercises and encourage their comment on success

7. Remove all exercise sheets that are not being prescribed for this time period, so only current exercise sheets are in the participant's workbook
8. Send top copy of the ACTIV follow up assessment form to (named expert physio) at AUT (within 1 week of follow up assessment)
9. **Once subsequent home visits completed – enter accordingly on Physio register (dropbox)**

#### Telephone Follow Up Interaction:

1. Go through / complete the telephone follow up form and gain participant feedback on exercises
2. No new exercises are to be prescribed by phone
3. Increase/change level of difficulty for existing exercises if appropriate and record on phone call portion of exercise chart
4. Get participant to record exercise changes on their individual exercise sheet in appropriate area
5. If you are unable to contact a participant for longer than 4 days, contact nominated alternative contact person
6. Send top copy of the telephone follow up form to (named expert physio) at AUT with exercise charts.
7. Send top copy of all appropriate exercise charts being used (UL/LL or both) to (named expert physio) at AUT once second telephone follow up has been completed. (NB there is 1 phone call after initial visit only)
8. **Once any telephone follow up interaction completed – enter on Physio register (dropbox)**

#### Text Messages:

1. Follow Message media – SMS procedure / tips for how to log into message software online
2. For weeks 1- 10 twice weekly messages need to be sent, with an emphasis on goal attainment and encouragement about their ability to achieve this goal
3. For weeks 11-26 weekly text messages need to be sent as above
4. **Once any text or e-mail message completed - enter on Physio register (dropbox)**
5. If you have any queries or problems regarding the message media software please contact:

**Research Assistant**

**E-mail:**

#### Withdrawal from the study:

**If at any stage the participant wishes to withdraw from the study, fill in a 'Withdrawal from the study' form and send to Suzie Mudge by e-mail, record the date of withdrawal on the physio register.**

If you have any queries or concerns or need any professional support/advice regarding the ACTIV intervention please contact:

- **Expert physiotherapist**  
**Mobile:**  
**E-mail:**

Date:     /     /

Physio Initials:

Participant ID:	Mobile phone:   Y <input type="checkbox"/> N <input type="checkbox"/>
DOB:     /     / 19	Mobile No:
Age:	Email address:
Sex: M <input type="checkbox"/> / F <input type="checkbox"/>	

The **ACTIV** Programme – Initial Assessment Form

Medical History (Stroke)	Relevant Other Medical History:
	Hypertension <input type="checkbox"/>
	Diabetes <input type="checkbox"/>
	Cardiac condition <input type="checkbox"/>
	Respiratory condition <input type="checkbox"/>
	Osteoarthritis <input type="checkbox"/>
	Joint replacement <input type="checkbox"/>
	Other <input type="checkbox"/>

Medication:	Relevant Social History:

What do you want to do most? *(get participant to write in workbook)*

Participants perceived reason for difficulty:

Simulation of chosen activity: *(observe and analyse participant while conducting chosen activity)*

Functional Problem list:	Exercises chosen: <span style="float: right;"><i>(3-4 maximum)</i></span>






## Follow Up Assessment Form

Date: \_\_\_\_\_

Assessment Number: \_\_\_\_\_

Participant ID:	Physio Initials:
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Are you able to do the activity we discussed?

--

Have you noticed any improvements/changes?

--

What do you want to do most? *(this may or may not have changed since last visit)*

--

Simulation of chosen activity: *(observe and analyse participant while attempting activity)*

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Functional Problem list:	Exercises chosen: <i>(3-4 maximum)</i>
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# Lower Limb Exercise Chart

Participant ID No: \_\_\_\_\_

Physio Initials: \_\_\_\_\_



What they want to do most: \_\_\_\_\_  
 \_\_\_\_\_

Activity	Visit No:					Date:					Ph Call No:					Date:				
	Time:	Reps:	Sets:	Speed:	BOS:	Time	Reps	Sets:	Speed:	BOS:	Time:	Reps:	Sets:	Speed:	BOS:	Time:	Reps:	Sets:	Speed:	BOS:
A. 2 Leg Stand																				
B. Sit - Stand																				
C. Stepping Task																				
D. Step Up																				
E. Moving Objects																				
F. Walking																				
G. Turning																				
H. Heel Raises																				
I. Stair Climb																				
J. 1 Leg Stand																				



**Examples of altering complexity:**

- Eyes closed
- Accuracy
- Holding an object
- Distance
- Change surface

Not a recommended parameter, however use if required.

# Upper Limb Exercise Chart

Participant ID No: \_\_\_\_\_

Physio Initials: \_\_\_\_\_

What you want to do most: \_\_\_\_\_  
 \_\_\_\_\_



Activity	Visit No:					Date:					Ph Call No:					Date:				
	Time:	Reps:	Sets:	Speed:	Object:	Time:	Reps:	Sets:	Speed:	Object:	Time:	Reps:	Sets:	Speed:	Object:	Time:	Reps:	Sets:	Speed:	Object:
A. Arm Lift																				
B. Grasp (isolated)																				
C. Reach to Touch																				
D. Reach to Grasp																				
E. Independent finger movement																				
F. In-hand Manipulation																				
G. Steriognosis																				
H. Bi-manual Task																				



**Examples of altering complexity:**

- Force grading
- Weight
- Secondary Task
- Symmetry
- Accuracy
- Speed

Not a recommended parameter, however use if required.

**Lower Limb Exercise Sheet**

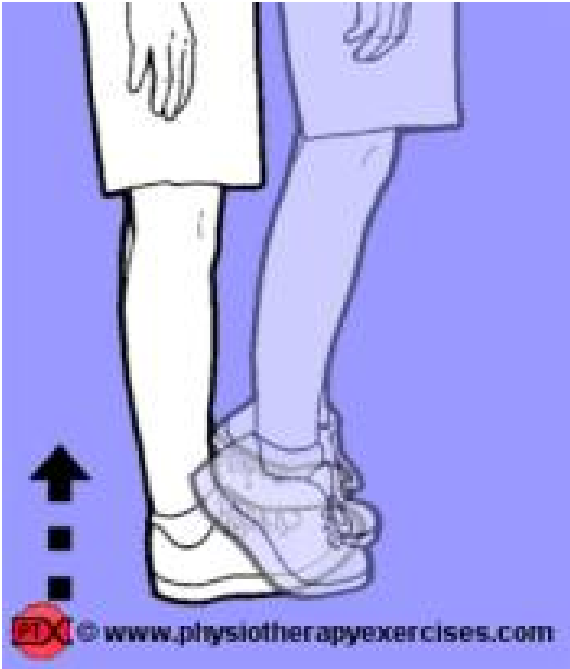
**Exercise H      HEEL RAISES**

Physio: \_\_\_\_\_

Phone No: \_\_\_\_\_

This exercise works on: \_\_\_\_\_

And helps you improve your: \_\_\_\_\_



	Visit No:	Phone Call:	Phone Call:
How long:			
How many:			
How often:			
How fast:			
How much support:			

Comments: \_\_\_\_\_

\_\_\_\_\_

**IMPORTANT:**

- Ensure the area around you is clear of unwanted objects
- Always have bare feet or shoes that fit firmly

**STOP if you are in pain!**

**Upper Limb Exercise Sheet**

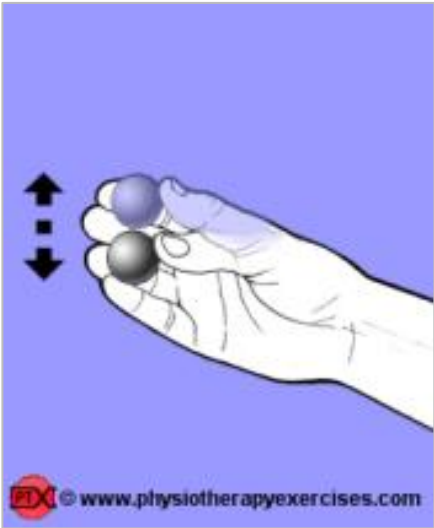
**Exercise F IN-HAND MANIPULATION**

Physio: \_\_\_\_\_

Phone No: \_\_\_\_\_

This exercise works on: \_\_\_\_\_

And helps you improve your: \_\_\_\_\_



	Visit No:	Phone Call:	Phone Call:
How long:			
How many:			
How often:			
How fast:			
Object:			

Comments: \_\_\_\_\_

\_\_\_\_\_

**IMPORTANT:**

- Ensure the area around you is clear of unwanted objects
- Always have bare feet or shoes that fit firmly

**STOP if you are in pain!**



**Augmented Community Telerehabilitation Intervention**

© Participant Workbook

## 🕒 **Welcome to the programme**

This study investigates if easily accessible technology (like a mobile phone) can be used as part of a low cost programme to encourage you to continue with exercises following a stroke. The aim of the ACTIV programme is to improve your independence as you move from hospital-based rehabilitation to living back at home.

### 🕒 **How has it come about?**

- You probably made good progress in hospital and increased the number of things you could do
- Many people have told us that once they got home things seemed a lot harder than they did in hospital
- Increased difficulty with normal activity may have reduced your confidence
- You may have felt a sense of isolation after being discharged from hospital, especially if you have limited support or access to things you use to enjoy

### 🕒 **What does this mean?**

You (with the help of your physio) will work out what activity you would like to work on and which exercises will help you achieve this. Over 6 months you will receive regular home visits, phone calls and text messages from your physio, to support and encourage you to achieve your target.

⦿ **Visit and phone call schedule while on the  programme:**

- Over the next 26 weeks (6 months) you will have the following visits and phone calls with your physio
- An assessment at 6 months and the final assessment 12 months after starting the programme

Your Physiotherapist is \_\_\_\_\_ and you can contact them on \_\_\_\_\_.

Contact:	Date:	Time:	With:
<b>Visit 1</b> (week 1)			Physio
<b>Phone call 1</b> (week 2)			Physio
<b>Visit 2</b> (week 3)			Physio
<b>Phone call 2</b> (week 5)			Physio
<b>Phone call 3</b> (week 9)			Physio
<b>Visit 3</b> (week 13)			Physio
<b>Phone call 4</b> (week 16)			Physio
<b>Phone call 5</b> (week 20)			Physio
<b>Visit 4 – Final</b> (week 26)			Physio
<b>6 month Assessment</b> (week 27)			Assessor
<b>12 month Assessment</b> (week 52)			Assessor





Programmes key goal: "Helping you get back to what you want to do"

## So..... What do you want to do?

Write here:

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### ⊙ Steps to your target.....

It may be helpful to write down some steps you will take towards your target and the dates of your achievement:

Date Achieved:

- ❖ Step 1: \_\_\_\_\_  \_\_\_\_\_
- ❖ Step 2: \_\_\_\_\_  \_\_\_\_\_
- ❖ Step 3: \_\_\_\_\_  \_\_\_\_\_
- ❖ Step 4: \_\_\_\_\_  \_\_\_\_\_

## ⦿ Safety when exercising at home:

- Ensure the area around you is clear of unwanted objects
- Always have bare feet or shoes that fit firmly
- When standing – exercise next to a stable surface for balance e.g. kitchen bench, kitchen table, wall, firm chair
- **STOP if you are in pain**

**You and your physio have decided on some specific exercises to work toward your target**

### **Remember...**

- There may be days you find it harder than others to do your exercises
- Don't be discouraged as this is completely normal, the important thing is to keep active!
- Reflect on your progress and achievements so far (no matter how small they may seem)
- Acknowledge all possible emotions but try not to let them stop you achieving – eg frightened, unsettled, frustrated

**“Good progress can still be made if you continue to work at it...”**

## ⊙ Response to exercise:

- The following are some normal responses to exercise which you may experience:
  - Stiffness
  - Sore muscles / body
  - Increased tiredness / sense of fatigue after exercising

**These should pass in 2-3 days and are a healthy sign you are challenging your body**

- There is a very small possibility that you might experience more than just these responses so:
  - Once a month you will receive a brief phone call to see if you have experienced any problem that is more than the normal response to exercise. This may or may not be related to the programme.
  - If you experience any of the following, you should stop the programme immediately and seek medical advice:
    - Pain in the chest
    - Sharp, burning muscle pain which lasts longer than 2-3 days
    - An increase in any joint pain

***Progress after stroke can be quite rapid especially in the first few weeks. Later on, improvements are usually subtle and progress may seem to slow down.***

**“It is your own efforts that will sustain your progress.....”**

**◎ Keeping Active:**

**‘Active’** doesn’t necessarily mean exercise. It also means simply doing **‘whatever you want to do’**. This includes every-day activities like making a cup of tea or polishing the furniture.

- By keeping active and trying to challenge yourself, your progress after stroke will improve
- People have found that the best way to keep active after stroke is to:
  - Set specific targets
  - Use regular exercise to work towards your target and
  - Reward yourself when you achieve

**◎ Planning for your future.....**

After stroke, having **‘hope for the future’** can be helpful in motivating you when progress seems slow. For most people, progress often is just getting on with the things they did before their stroke and returning to a normal life as soon as possible.



## ⦿ Acknowledgements:

- This booklet contains some information and content which has been utilised from the 'Bridges Stroke Self-Management' workbook. Thank you to Dr Fiona Jones from St George's, University of London and Kingston University for willingly sharing both experience and resources.
- The pictures found on all exercise sheets in the ACTIV programme are generated from the PTX website ([physiotherapyexercises.com](http://physiotherapyexercises.com)). Thank you to Associate Professor Lisa Harvey from the Rehabilitation studies unit at the University of Sydney for allowing free use of the exercises.
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- **Team members:**  
Associate Professor Denise Taylor, Nicola Saywell, Associate Professor Alain Vandal, Associate Professor Leigh Hale, Dr Carl Hanger, Associate Professor Stephen Milosavljevic, Dr Suzie Mudge, Professor Paul Brown, Professor Valery Feigin