

# Treating post-stroke speech difficulties by computer therapy

<b>Submission date</b> 13/05/2015	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 22/05/2015	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 25/01/2016	<b>Condition category</b> Signs and Symptoms	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Stroke and other forms of brain injury can disrupt people's thinking and behaviour in a number of ways. A common complication experienced by people following a stroke is an impairment of speech and language, called apraxia of speech (AOS). AOS results in reduced speech intelligibility, fluency and speed, and as a result an individual's ability to communicate thoughts and needs is impaired. AOS is viewed by many clinicians as a 'difficult to treat' disorder. This is because treatment to stimulate new and improved organisation in damaged parts of the brain requires intensive, well-structured stimulation tasks. However, it is often difficult to achieve the necessary levels of stimulation within the framework of standard treatment consultations. A major factor in this is the limited amount of time clinicians are able to spend with patients. Self-administered, home-based computer therapy creates the opportunity to improve rehabilitation outcomes by allowing patients to take some control over their treatment. It also helps to increase the amount of time a patient spends carrying out brain stimulation tasks. The aim of this study is to see whether a computer-based speech therapy programme for AOS improves speech clarity in post-stroke patients. It also aims to see if this type of treatment is acceptable to patients and their families. It will also assess the financial costs associated with this type of treatment.

### Who can participate?

Adults diagnosed with speech production problems following a stroke.

### What does the study involve?

All participants take part in both interventions, however the order in which they are carried out is randomised. Initially, participants are randomly allocated into one of two groups. Those in group 1 (intervention group) are given a computer software programme to use at home. The software is a speech intervention aimed at stimulation and production of whole words, and putting words into sentences. Those in group 2 (control group) are given a software programme that involves visual puzzles and is not predicted to improve speech production. Participants take part in one of the interventions for 6 weeks, and then they cross over to the other group to take part in the other intervention for a further 6 weeks. Participants are asked to complete questionnaires and take part in clinical assessments during the study period.

What are the possible benefits and risks of participating?

At the end of the study, some participants might be able to say some words more easily and clearly. The therapy is a behavioural intervention and is therefore unlikely to cause harm. However, a participant might become frustrated if unfamiliar with using a computer. There are no specific risks associated with participating in this study. It is very unlikely that speech would get worse, but it might not change at all, or there might be only very small improvements.

Where is the study run from?

University of Sheffield (UK)

When is the study starting and how long is it expected to run for?

April 2008 to March 2011

Who is funding the study?

The BUPA UK Foundation

Who is the main contact?

Prof R Varley

## Contact information

### Type(s)

Scientific

### Contact name

Dr Rosemary Varley

### ORCID ID

<https://orcid.org/0000-0002-1278-0601>

### Contact details

University College London  
Psychology & Language Sciences  
London  
United Kingdom  
WC1N 1PF

### Type(s)

Scientific

### Contact name

Dr Sandra Whiteside

### ORCID ID

<https://orcid.org/0000-0002-6672-9369>

### Contact details

University of Sheffield  
Human Communication Sciences

Sheffield  
United Kingdom  
S10 2TS

## **Additional identifiers**

### **Protocol serial number**

MAY07/16

## **Study information**

### **Scientific Title**

Self-administered behavioural intervention for communication impairments following stroke

### **Study objectives**

1. Are there changes in speech production for treated items only, or do any improvements generalise to untreated words?
2. Is the intervention acceptable to service users and is it cost effective?

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

NRES Committee Yorkshire & The Humber - Sheffield, 25/03/2008, ref: 08/H1308/14.

### **Study design**

Single centre intervention trial with a cross-over design

### **Primary study design**

Interventional

### **Study type(s)**

Treatment

### **Health condition(s) or problem(s) studied**

Post-stroke speech production impairments (apraxia of speech and aphasic word production impairment)

### **Interventions**

All participants will take part in both interventions, the order will be randomised:

1. Intervention group use a participant-administered software therapy designed specifically for this study (Sheffield Word (Sword)) that treats whole word production for six weeks
2. Control group use a sham-participant-administered software program that involves completion of visual-spatial tasks for six weeks

### **Intervention Type**

Behavioural

### **Primary outcome(s)**

Accuracy of word production in naming and repetition measured by:

1. Naming accuracy
2. Repetition accuracy
3. Word duration
4. Connected speech (narrative) samples

Control measures:

1. CAT Spoken sentence to picture matching
2. PALPA48 Written word to picture matching

### **Key secondary outcome(s)**

1. Health economic assessment (health-related quality of life, resource use & societal costs) measured by:

- 1.1. EQ-5D Health questionnaire
  - 1.2. SF-12v2. Health Status questionnaire
  - 1.3. Costs questionnaire
2. Acceptability to service users and families of self-administered computer therapy

### **Completion date**

31/03/2011

## **Eligibility**

### **Key inclusion criteria**

1. Patients experiencing unilateral left-hemisphere lesion(s)
2. Minimum 6 months post onset of stroke
3. Diagnosis of apraxia of speech

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Adult

### **Sex**

All

### **Key exclusion criteria**

1. Not pre-morbidly competent in English
2. Insufficient auditory and visual acuity to interact with a laptop computer
3. Currently receiving impairment-based speech/language therapy
4. Presence of degenerative neurocognitive impairment

### **Date of first enrolment**

15/04/2008

### **Date of final enrolment**

01/10/2010

## Locations

### Countries of recruitment

United Kingdom

England

### Study participating centre

**University of Sheffield**

Western Bank

Sheffield

United Kingdom

S10 2TN

## Sponsor information

### Organisation

University of Sheffield

### ROR

<https://ror.org/05krs5044>

## Funder(s)

### Funder type

Research organisation

### Funder Name

The BUPA UK Foundation

## Results and Publications

### Individual participant data (IPD) sharing plan

### IPD sharing plan summary

Available on request

## Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	01/03/2016		Yes	No