# Functional anatomy and impact of cognitive training on chunking within working memory in early Alzheimer's disease

Submission date	Recruitment status	Prospectively registered
10/12/2010	No longer recruiting	☐ Protocol
Registration date	Overall study status	Statistical analysis plan
07/02/2011	Completed	[X] Results
Last Edited	Condition category	Individual participant data
24/10/2016	Nervous System Diseases	

# Plain English summary of protocol

Not provided at time of registration

# Contact information

## Type(s)

Scientific

#### Contact name

Dr Jonathan Huntley

#### Contact details

Institute of Psychiatry De Crespigny Park London United Kingdom SE5 8AZ

# Additional identifiers

**EudraCT/CTIS** number

**IRAS** number

ClinicalTrials.gov number

# Secondary identifying numbers

Version 1 (13.7.10); G0901982

# Study information

#### Scientific Title

Functional anatomy and impact of cognitive training on chunking within working memory in early Alzheimer's disease: a randomised controlled trial

#### Study objectives

- 1. Training individuals with early Alzheimer's disease (AD) in the use of chunking strategies will improve their working memory (WM) capacity
- 2. Use of chunking strategies in early AD will correlate with significantly increased activity in the prefrontal cortex (PFC) and posterior parietal cortex (PPC)
- 3. Following training in chunking, improvement in WM capacity will generalise across different modalities of WM tasks and measures of general cognitive functioning
- 4. Improvements in WM following cognitive training will be associated with structural and functional re-organisation of brain activity

#### Ethics approval required

Old ethics approval format

#### Ethics approval(s)

Cambridgeshire 1 Research Ethics Committee, 21/10/2010, ref: 10/H0304/68

#### Study design

Randomised controlled trial

#### Primary study design

Interventional

#### Secondary study design

Randomised controlled trial

#### Study setting(s)

Hospital

#### Study type(s)

Quality of life

#### Participant information sheet

Not available in web format, please use the contact details below to request a patient information sheet

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

Early Alzheimer's disease

#### **Interventions**

Subjects will be randomly allocated to either a cognitive training group or control group. The cognitive training group will undergo 18 days of training over 6 weeks for approximately 45 minutes/day. Each training session will consist of 30 trials of structured span tasks. The length of span will be adjusted after each trial depending on whether it is correctly recalled. Each subject will therefore be continually tested at their span limit, which can adjust both within and across

sessions. The control group will perform 30 trials of a 2 span unstructured task over the same time period. After 6 weeks of training, subjects will be reassessed using the baseline battery of tasks, and re-imaged with functional magnetic resonance imaging (fMRI) performing the same verbal chunking task protocol.

#### Intervention Type

Other

#### Phase

Not Applicable

#### Primary outcome measure

- 1. Scores on verbal working memory task
- 2. Cerebral blood flow in the prefrontal and parietal cortices as measured using fMRI Measured at baseline and after 8 weeks (following the 6 week cognitive training intervention).

#### Secondary outcome measures

Scores on:

- 1. Spatial working memory task
- 2. Sustained attention, reasoning and episodic memory tasks
- 3. Artificial grammar task
- 4. Instrumental activities of daily living (ADL) task

Measured at baseline and after 8 weeks (following the 6 week cognitive training intervention).

#### Overall study start date

20/12/2010

#### Completion date

05/08/2014

# Eligibility

#### Key inclusion criteria

- 1. Aged greater than 60 years, either sex
- 2. Diagnosis of probable Alzheimer's disease according to National Institute of Neurological and Communicative Disorders and Stroke and the Alzheimer's Disease and Related Disorders Association (NINCDS-ADRDA) criteria
- 3. Mini-Mental State Examination (MMSE) score greater than 23/30
- 4. All subjects will be required to provide informed consent to participate in the study

#### Participant type(s)

Patient

#### Age group

Senior

#### Sex

Both

## Target number of participants

#### Key exclusion criteria

- 1. Co-existent neurological or psychiatric disease
- 2. Substance misuse
- 3. Significant auditory or visual impairment

#### Date of first enrolment

20/12/2010

#### Date of final enrolment

05/08/2014

# Locations

#### Countries of recruitment

England

**United Kingdom** 

# Study participating centre Institute of Psychiatry

London United Kingdom SE5 8AZ

# Sponsor information

#### Organisation

Institute of Psychiatry (UK)

#### Sponsor details

c/o Professor Robert Howard Kings College London De Crespigny Park London England United Kingdom SE5 8AF

#### Sponsor type

University/education

#### Website

http://www.iop.kcl.ac.uk/

#### **ROR**

https://ror.org/0220mzb33

# Funder(s)

#### Funder type

Research council

#### **Funder Name**

Medical Research Council (MRC) (UK) (ref: G0901982/ID 93849)

#### Alternative Name(s)

Medical Research Council (United Kingdom), UK Medical Research Council, MRC

#### **Funding Body Type**

Government organisation

#### **Funding Body Subtype**

National government

#### Location

**United Kingdom** 

# **Results and Publications**

#### Publication and dissemination plan

Not provided at time of registration

Intention to publish date

Individual participant data (IPD) sharing plan

#### IPD sharing plan summary

Not provided at time of registration

#### **Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/01/2017		Yes	No