



## Re-opening the Critical Period for Recovery after Stroke (ReCAPS) Research Project

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[Watch the talk](#)

### Talk Transcript

Hi, I'm **Carys Evans**, a post-doctoral researcher in the **ARM lab** at UCL in London.

In this video I want to introduce you to **ReCAPS** – a **research study** currently taking place at UCL.

The **ReCAPS study** is being conducted to find ways to **improve recovery after stroke**. It is also a study you may want to be a part of.

### What is the ReCAPS study?

ReCAPS explores how **brain activity changes** after someone has had a stroke that has affected **movement** in their **arm** or **hand**.

ReCAPS also looks at whether **non-invasive brain stimulation** can be used to **alter brain activity** after a stroke.

## What do we mean by brain activity?

Brain activity refers to the communication of brain cells via electrical impulses.

**After a stroke, this brain activity can change – brain cells can become more or less active.**

We refer to this as the “**excitability**” of the brain.

Scientists believe that **increased excitability** may promote a good environment for learning and reorganisation to take place – a process called **neuroplasticity**.

In the **first weeks after a stroke**, the **brain** is often **more active than normal** – which is also when we tend to see the **most recovery**.  
Over time - **activity returns to normal** levels and **recovery** often **slows** down.

In the **ReCAPS** study, we are **comparing brain activity** in people who had a **stroke very recently** to people whose **stroke occurred further in the past**.

We also want to see whether **brain stimulation** can be used **mimic** - or even **prolong** - **excitability levels** believed to **help recovery**.

### How do you measure brain activity?

In the **ReCAPS** study, we **record brain activity** by **measuring the signals** traveling between the **brain** and the **hand**.

This is done using a technique called **Transcranial Magnetic Stimulation** – or **TMS**.

The **strength of the signal** travelling from the brain to the hand - **measured** by the size of a **muscle twitch** - is a good **indicator of brain activity levels**.

### How can we alter brain activity?

**Brain activity** can be **temporarily altered** using the non-invasive brain stimulation technique **transcranial direct current stimulation** – or **tDCS**.

During tDCS, **two small electrodes** are placed on the **head** and a **weak current** flows between them.

This **current** causes **changes** in the **signal** between the **brain** and the **hand**.

These **changes cannot be detected** by the **person** receiving tDCS, but can be seen as **slight changes** in the **size** of the **muscle twitch** in the hand.

If you want to find out more about how brain stimulation works, you can also **watch** our other [video](#) about **non-invasive brain stimulation**.

## Why is the ReCAPS study important?

Research shows that **tDCS** can **increase brain activity** for a **prolonged** amount of **time**, suggesting it may be a useful tool to promote recovery.

However, it is still unclear whether it is best to apply tDCS to patients early or late after their stroke.

In the **ReCAPS study**, we may see one of **two results**:

1. If we see a **greater change** in the muscle twitch in **people** who had a **stroke recently**, this would suggest brain stimulation is more effective when applied early after a stroke.
2. If we see a **greater change** in the muscle twitch in **people** who had a **stroke further in the past**, this would suggest brain stimulation is more effective when applied later after stroke.

Whilst **ReCAPS is not a treatment study**, our results will determine when it is best to apply tDCS to get the best results.

We hope that one day alternative techniques like brain stimulation may help maximise recovery after stroke.

If you would like to know more about the ReCAPS study, you can find further information by visiting the link below, or by sending us an email.

## Glossary

**Neuroplasticity**: the ability of the brain to learn and reorganise connections

**Non-invasive brain stimulation**: a set of **techniques** and **technologies** that have the ability to **change brain activity** without any invasive or surgical procedures

**ReCAPS research study**: Re-opening the Critical Period for Recovery after Stroke research study

**Transcranial direct current stimulation (tDCS)**: A **non-invasive brain stimulation** technique where **two small electrodes** are placed on the **head** and a **weak current** flows between them.

**Transcranial Magnetic Stimulation (TMS)**: a technique used to **indicate brain activity** levels – the **strength** of the **signal** travelling from the **brain** to the **hand** is measured by the **size** of a **muscle twitch**.



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<https://recapsstudy.wixsite.com/research>

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