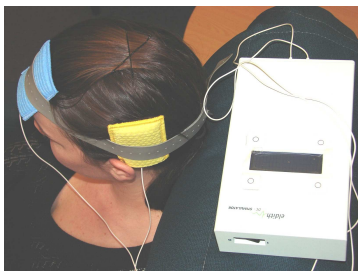


## What happens in a tDCS treatment?

- During treatment, slightly damp pads holding the electrodes are placed on your head. A soft band is placed around your head to hold them in place.
- You may feel a tingling or itching sensation as the current is applied; everyone experiences tDCS slightly differently
- You remain fully awake and aware during tDCS, and may go about your normal daily activities after a treatment.
- Treatment occurs daily, Monday to Friday over a number of weeks. Each session takes about 20 minutes to complete.

Research indicates tDCS is very safe<sup>2</sup>. The only potential side effects associated with the treatment are

- a mild headache
- itchiness/irritation under the pads.



## Where to get more info

Trials of TMS for people with depression, and tDCS for people with schizophrenia or schizoaffective disorder are currently being conducted at the Alfred Psychiatry Research Centre. If you would like further information, please contact

Susan McQueen, Sally Herring or Kate Hoy

Ph: (03) 9076 6595

Fax (03) 9076 6588

Email: [s.mcqueen@alfred.org.au](mailto:s.mcqueen@alfred.org.au)

### Chief Investigator

Professor Paul Fitzgerald

Alfred Psychiatry Research Centre

1st Floor Old Baker Building

Alfred Hospital, Commercial Road

Prahran 3181



**ALFRED PSYCHIATRY  
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Medicine, Nursing and Health Sciences



<sup>1</sup> Fitzgerald, P. (2006). A review of developments in brain stimulation and the treatment of psychiatric disorders. *Current Psychiatry Review*, 2, 199-205.

<sup>2</sup> Nitsche, M.A., & Fregni, F. (2007). Transcranial direct current stimulation—an adjuvant tool for the treatment of neuropsychiatric diseases? *Current Psychiatry Review*, 3, 222-232.

## TMS & tDCS: experimental treatments for depression and schizophrenia

**APRC  
Brain  
Stimulation  
Research**

**Ph. (03) 90766595**

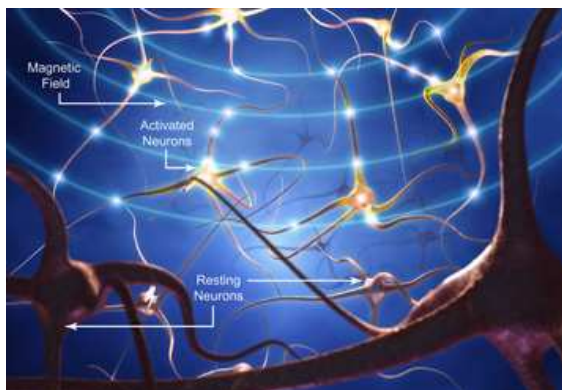


## What are TMS and tDCS?

TMS (Transcranial Magnetic Stimulation) and tDCS (Transcranial Direct Current Stimulation) are forms of non-invasive brain stimulation. They are currently being investigated as potential treatments for depression, and for schizophrenia and schizoaffective disorder. As experimental treatments, TMS and tDCS are presently only available through research. Trials are currently being conducted at the Alfred Psychiatry Research Centre.

### TMS

Transcranial Magnetic Stimulation (TMS) uses a very focused magnetic field to stimulate specific areas of the brain. Magnetic pulses are applied to the head and pass freely into the brain, activating the cells. Over the last 14 years, over 40 studies have been undertaken to test the use of TMS as a treatment for depression, with promising results. Current studies are attempting to improve the efficacy of rTMS, and determine the best type and duration of stimulation.



Magnetic field activating neurons (brain cells)

## What happens with rTMS treatment?

- Previous research suggests people with depression may have an imbalance in the activity level of cells in certain areas of the brain.
- Repeatedly applying a TMS field (repetitive TMS or rTMS) appears to work by changing how excitable these cells are, which may help or alleviate depressive symptoms.
- During treatment, a TMS coil is rested on your head, you hear a clicking noise as the magnetic field is generated and may feel a tapping sensation as the pulses are applied; everyone experiences TMS slightly differently.
- You remain fully awake and aware during the TMS treatment. No anaesthesia or medication is required, and you may go about your normal daily activities following TMS.
- Treatment occurs daily, Monday to Friday over a number of weeks. Each session takes about 45 minutes to complete.
- Studies have shown rTMS to be a safe and potentially effective treatment, with no major adverse effects<sup>1</sup>. Possible minor side effects include:
  - a mild headache
  - some discomfort on the head during treatment
  - a low seizure risk



## tDCS

Transcranial Direct Current Stimulation (tDCS) is a relatively newly developed brain stimulation technique that is able to change the activity of a number of brain areas simultaneously, using a very gentle electrical current (1-2 mA). The current is too gentle to cause a brain cell to fire, instead changing their readiness to do so.

tDCS has been used to treat chronic pain, epilepsy, stroke, Parkinson's disease and depression. Currently, it is being investigated as a treatment for schizophrenia and schizoaffective disorder, as previous research has linked symptoms of these illnesses with atypical activity in several areas of the brain.

- tDCS can target multiple brain areas, allowing the treatment of both the positive and negative symptoms of schizophrenia.
- tDCS is not electroconvulsive therapy (ECT). The current is approximately 1000 times weaker than that used for ECT, no anaesthesia is required, no seizure is induced and there are no memory side effects.
- Research has found tDCS to be safe, and potentially useful in the treatment of neuropsychiatric illness<sup>2</sup>

