

# **Transcranial Direct Current Stimulation: A novel technology for upper limb rehabilitation in stroke patients – a pilot program**



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# What is tDCS?

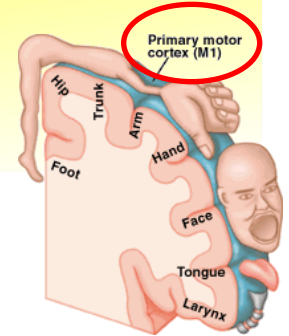
➤ tDCS – Transcranial Direct Current Stimulation

➤ Induction of relatively weak constant current flow to the motor cortex via the scalp  
**• No known risk** of tDCS up to recent studies

• Precaution to people susceptible to epilepsy  
Mechanisms:

1. Modulate the cortical excitability by shifting the polarity of resting membrane potential
2. PET scan: increases cerebral blood flow
3. ↑ activity of NMDA receptors

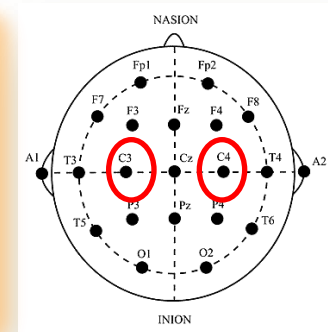
# Program design



Patients diagnosed with CVA were recruited

Anodal stimulation to the hand area of **primary motor cortex** through **C3/C4**

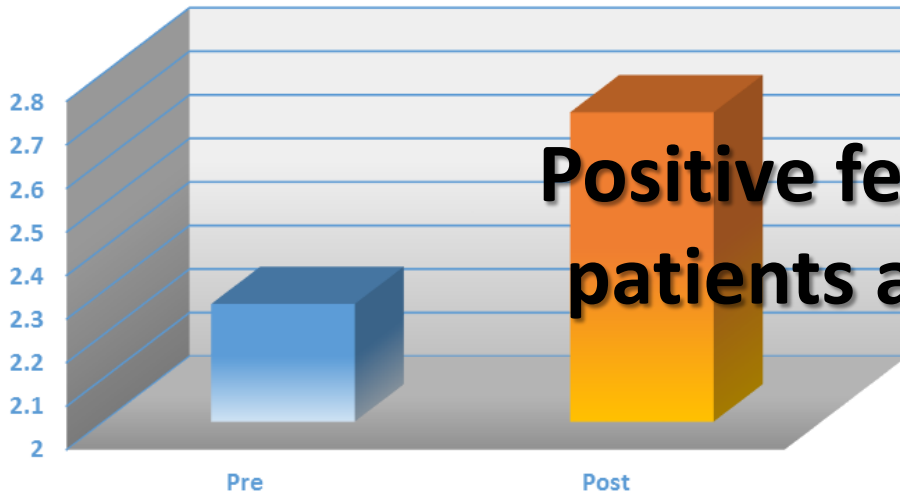
**1mA tDCS for 20 minutes.** 5 consecutive sessions of tDCS together with intensive **physiotherapy upper limb training**



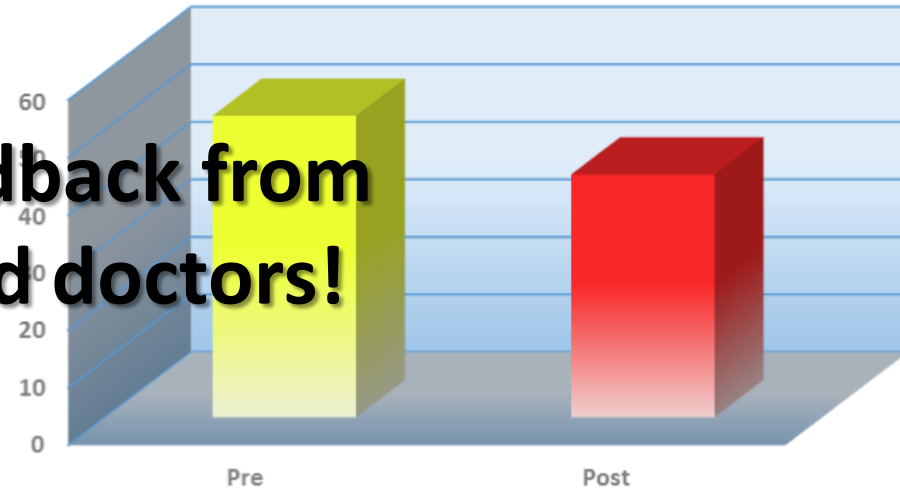
Outcome measure: Wolf Motor Function Test

# Results

Mean score of WMFT



Mean time for task completion of WMFT



**Positive feedback from patients and doctors!**

**The mean score of WMFT and mean time for task completion of WMFT were significantly improved after 5 treatment sessions.**

	session	sessions		
mean time for task completion of WMFT	52.4 ± 47.1	42.2 ± 38.0	0.018	- 2.366

# Conclusion

- Positive findings form a basis for future randomized sham-controlled trials
- Safe, non-expensive and easily applicable  
➡ further research and utilization

**Future development: As a routine adjuvant treatment to conventional physiotherapy?**

