

# TDCS **V1**

TRANSCRANIAL DIRECT CURRENT STIMULATION DEVICE

NEURO REHAB

We're making *connections* every day.



**NORCAT**

Transcranial direct current stimulation (tDCS) is a form of non-invasive neurostimulation which uses constant, low current delivery in a focalized direction to specific localized brain regions and nuclei via small electrodes. tDCS devices are currently being used in numerous medical and educational facilities, performing a wide variety of functions from enhancing cognitive capabilities to methods of treatment for psychological ailments.

tDCS has been utilized to enhance language and mathematical abilities, attention span and focus, multi processing problem solving skills, memory and coordination.

While also demonstrating significant results in the treatment of individuals with Major Depressive Disorders, Bipolar Disorders, Schizophrenic disorders, Nociceptive (Pain) pathway disfunctions, parkinsons, among many more.

We aim to develop a packaged easy to use consumer tool that will become a standard for every day personal usage to allow for safe and consistent experimentation of tDCS.

# TDCS **V1**

TRANSCRANIAL DIRECT CURRENT STIMULATION DEVICE

3/9



# TDCS **v1**

TRANSCRANIAL DIRECT CURRENT STIMULATION DEVICE

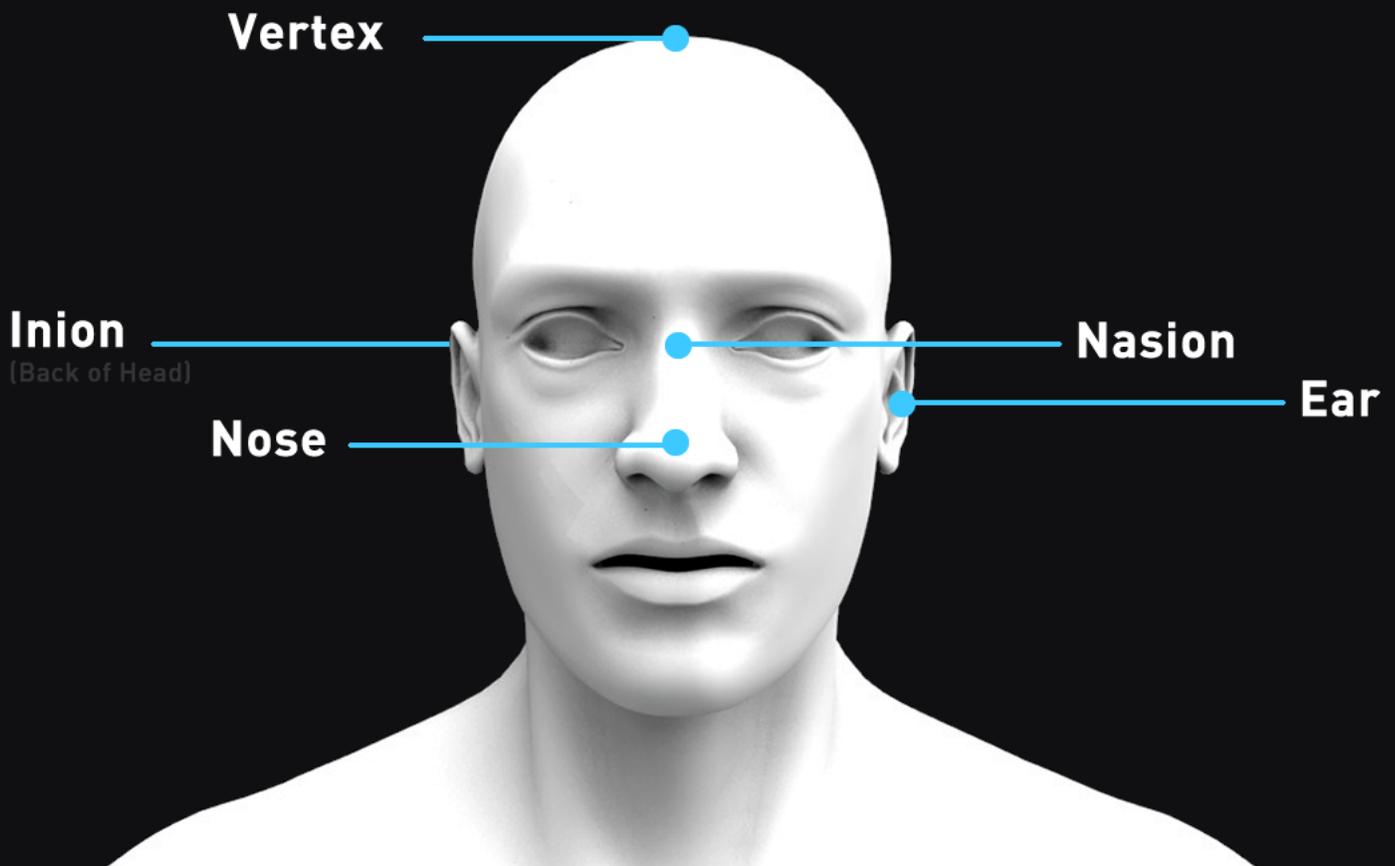
4/9



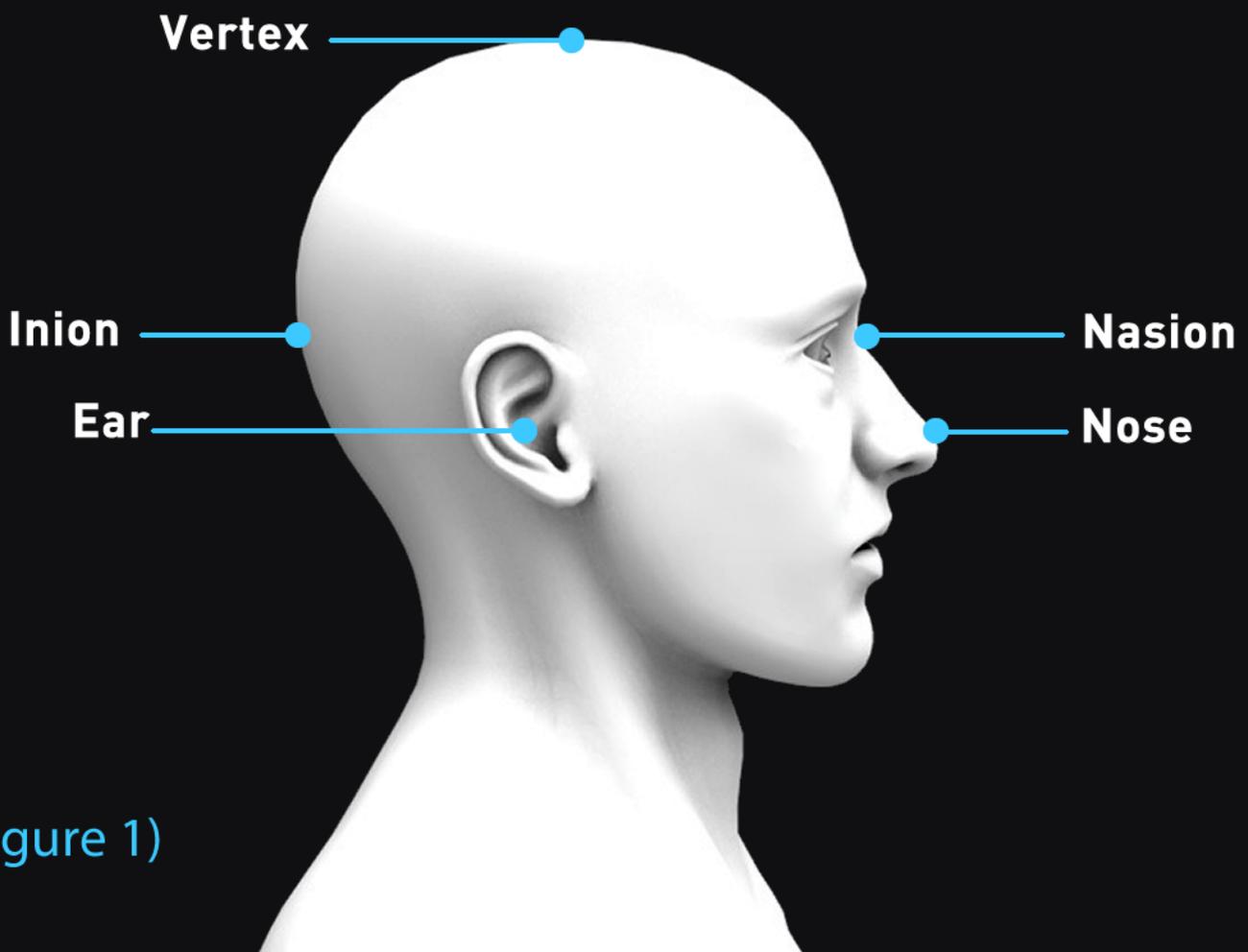
The administration of tDCS is relatively straight forward and easy to use. Once proper scalp measurements are taken and electrodes are fixated in appropriate postions for specific stimulation, the subject can begin implementation of treatment or cognitive enhancements (dependent on electrode placement). A typical tDCS session usually last a duration of aproxiemtly 10-20 minutes and only has a maximum amperage of ~2milliamp output.

In order to ensure proper electrode placements, measurements must be taken of the subjects head using the conventional 10-20 system

*A further detailed instruction manual will be provided.*

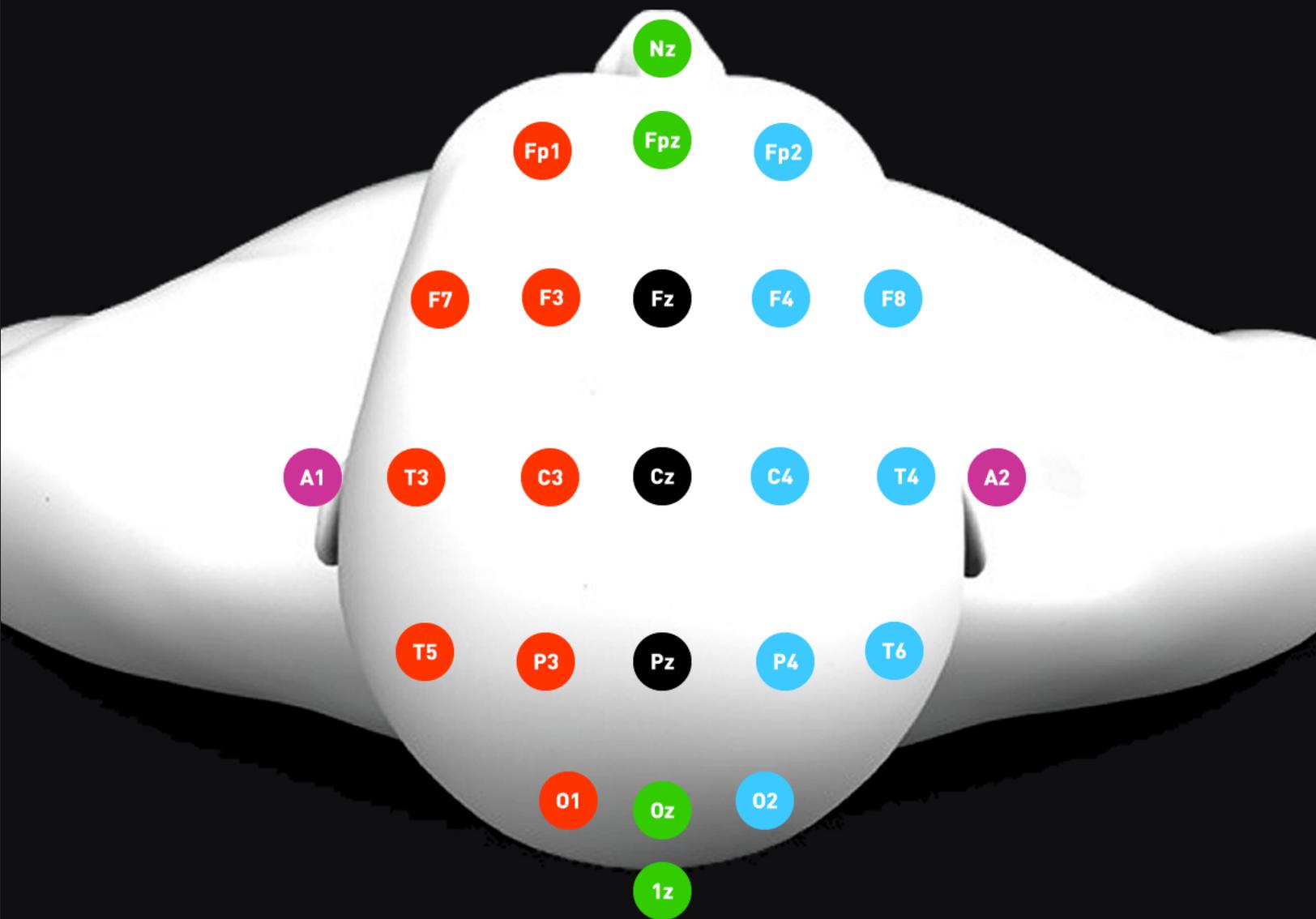


Measure the distance of *nasion* to *inion* and mark halfway. *Nasion*, point between the forehead and nose, at the junction of the nasal bones (Figure 1). *Inion* is the most prominent point of the occipital bone. Measure the distance between the pre-auricular points and mark halfway. Mark both halfway spots to find the Vertex.



(Figure 1)

*(Figure 2). Shows the appropriate locations of the brain co-ordinates when a proper 10/20 measurement is taken.*



A	Ear Lobes	F	Frontal	Fp	Frontal Polar	N	Nasion
C	Central	I	Inion	P	Parietal	O	Occipital

**(Figure 2)**

## References

Merrill DR, Bikson M, Jefferys JG. Electrical stimulation of excitable tissue: design of efficacious and safe protocols. *J Neurosci Methods*. 2005;141(2):171–171.

Fregni F, Boggio PS, Nitsche MA, Marcolin MA, Rigonatti SP, Pascual-Leone A. Treatment of major depression with transcranial direct current stimulation. *Bipolar Disorders*. 2006b;8:203–204.

Fregni F, Boggio PS, Nitsche M, Berman F, Antal A, Feredoes E, Marcolin MA, Rigonatti SP, Silva MT, Paulus W, Pascual-Leone A. Anodal transcranial direct current stimulation of prefrontal cortex enhances working memory. *Exp Brain Res*. 2005;166(1):23–23.

Boggio PS, Rigonatti SP, Ribeiro RB, Myczkowski ML, Nitsche MA, Pascual-Leone A, Fregni F. A randomized, double-blind clinical trial on the efficacy of cortical direct current stimulation for the treatment of major depression. *Int J Neuropsychopharmacol*. 2008;11(2):249–249.

DaSilva AF, Volz MS, Bikson M, Fregni F. Electrode positioning and montage in transcranial direct current stimulation. *Journal of Visualized Experiments*. 2011;51:1–9.

Yoon K. J., Oh B. M., Kim D. Y. (2012). Functional improvement and neuroplastic effects of anodal transcranial direct current stimulation (tDCS) delivered 1 day vs. 1 week after cerebral ischemia in rats. *Brain Res*. 1452, 61–72. doi: 10.1016/j.brainres.2012.02.062.

Zaghi S., Heine N., Fregni F. (2009). Brain stimulation for the treatment of pain: a review of costs, clinical effects, and mechanisms of treatment for three different central neuromodulatory approaches. *J. Pain Manag.* 2, 339–352.

# TDCS **v1**

TRANSCRANIAL DIRECT CURRENT STIMULATION DEVICE

**Thanks for looking into tDCS.**

*There are more benefits for usage of this product everyday.*

[www.nrehab.ca](http://www.nrehab.ca)

NEURO REHAB

*We're making **connections** every day.*



**NORCAT**