[TRANSCRANIAL DC STIMULATION]

[PROTOCOL GUIDE]

For use with the Oasis Pro

WARNING / WAIVER

Transcranial DC stimulation is very powerful and if applied improperly, may cause mental impairments and behavioral dysfunction. The tDCS sessions are to be used only by qualified clinicians who have a thorough understanding of tDCS and the clinical ability to recognize and treat any adverse reactions resulting from usage of tDCS. Mind Alive Inc., and its employees will not be responsible for any undesirable side effects that may be caused by the use of this device. We recommend that all clients sign a waiver before use. It is the responsibility of the clinician to determine proper electrode placement and appropriate and safe current usage. Mind Alive Inc. does not claim any medical benefits from the use of tDCS nor claim to have any expertise in the use of tDCS. The use of the Oasis Pro as a tDCS device is solely the responsibility of the user.

If you would like more information about our products and research on AVE and CES, visit our website at www.mindalive.com. If you require additional assistance, please call us toll free at 1-800-661-MIND(6463). Outside Canada and the U.S., please call (780)465-6463.

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WHAT IS tDCS

When a DC current is applied over the scalp with the intention of altering neuronal activity, it is known as transcranial DC Stimulation. tDCS is effective in modulating spontaneous neuronal firing. Applying tDCS at intensities of 1 milliamp for roughly 20 minutes has been shown to either excite or inhibit the sensori-motor cortex, with the effects typically lasting a few hours. However, effects from repeated use may be permanent.

Anodal stimulation has also been shown to increase both beta and gamma activity in the visual cortex, while cathodal stimulation has decreased beta and gamma activity. Stimulation is generated by putting a wet cloth, cotton ball or sponge on the scalp over the brain regions to be affected and/or a sponge or cotton ball on the shoulder or the face.

Neuronal excitation of 30 to 40% is achieved by anodal (+) stimulation, while inhibition of 20 to 30% is achieved by cathodal (-) stimulation.

The tDCS sessions deliver a maximum intensity of 2.2 milliamps. To determine electrode placement and intensity to use, you will need to consult research. See **Dave's tDCS article**:
http://mindalive.com/default/assets/File/tDCS%20Neuroconnections%20article.pdf.

The effectiveness and comfort of the Oasis Pro tDCS is based on a current density of 50 $\mu a/cm^2$ for the small active electrode, and less than 20$\mu A/cm^2$ for the large reference electrode. The active electrode/sponge contact area is approximately 20 cm^2. A current of 1mA/20 cm^2 = 50$\mu A/cm^2$. The reference electrode/sponge contact area is approximately 60 cm^2. A current of 1ma/60 cm^2 = 17$\mu A/cm^2$.

Therefore, we recommend using the 1mA session with the electrodes provided with this kit. Using currents higher than 1mA with the electrodes provided may cause discomfort with no clinical gains.

tDCS SESSIONS

STARTING A SESSION

The tDCS sessions on the Oasis Pro have their own session group to distinguish them from CES/MET sessions.

Tap ⏻ until the tDCS light comes on. Use the INT ▲ or ▼ to highlight a tDCS session and press ✔ to start the session.

There are six (6) tDCS sessions: 0.25mA, 0.50mA, 0.75mA, 1.00mA, 1.50mA, and 2.00mA. Each of these sessions is 20 minutes long. Additionally, two slots are available to store custom tDCS sessions (⊕1 and ⊕2).

tDCS
⊕2
⊕1
2.00
1.50
1.00
0.75
0.50
0.25

SUGGESTED PLACEMENTS

For use with the 1mA session, using the provided carbon electrodes

Application	Anode	Cathode
Anxiety/Depression	F3	F4 or Right Shoulder
Cingulate Issues - OCD	FZ & CZ , CZ &PZ (long thin electrode)	Base of Neck or under Chin
Prefrontal Lobe - Cognition/Alertness	FP1 FP2	Right shoulder Left Shoulder
Boost Attention	FP1 & FP2 (long thin electrode)	Base of the Neck
Math	P4	P3

Brodmann Area brain charts can be used as a reference for electrode placement.
(Available online
https://en.wikipedia.org/wiki/Brodmann_area

USING tDCS

CONNECTION TEST

When a tDCS session first starts, the OASIS Pro checks the electrical connection by entering test mode just as it does for the CES sessions. The graph will display one of the following codes to indicate the status of the connection. **The tDCS session will begin automatically only when a good connection is detected.**

Open/Bad Connection (blinking)	Good Connection (solid)
8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1

*tDCS will only run with a **good** connection rating.*

If a bad connection is detected, please adjust the electrodes, re-wet the sponges, or add salt to the water to achieve a better connection.

While the Oasis Pro is resetting the ⊰L⊱ and ⊰R⊱ lights may turn on. This is to reduce the reset time. No stimulus is being generated.

If an open connection is detected during a session, the Oasis Pro will pause the output and wait for the electrodes to be reconnected. The open connection error (red) will display for a couple of seconds. The graph may scroll up and down indicating that the unit is returning the voltage to a safe testing level; this may take up to 20 seconds. If a connection is not made within two (2) minutes, the Oasis Pro will shut off.

USING tDCS

IMPORTANT

If at any time the client has an adverse reaction, disconnect one or both electrodes or unplug the cable to pause the session. You may also press the power button ⏻ to end the session. Unlike CES, the intensity cannot be manually adjusted and preferences cannot be set for tDCS sessions.

ELECTRODE PLACEMENT AND SETUP

In order to perform tDCS, you must always connect two electrodes to the body in order to have a complete circuit. Your tDCS kit includes a high quality cable with pin connectors. There are also four carbon electrodes: two small, one large and one long thin. Place a small electrode over the specific site to be treated. Use long thin electrode for treating two sites simultaneously such as FP1 and FP2 (for ADHD) or FZ and CZ, then CZ and PZ (for OCD). Use the large electrode as the receiver to complete the circuit.

Red pin is anodal (+), which enhances neuronal activity.

Soak the sponges in tap water or an appropriate saline solution, and place the small sponge on the area of the head being treated. Put the small electrode inside the sponge pouch. Place the large electrode inside the large sponge pouch on the opposite side of the body (eg. opposite side of the head, face or opposite shoulder). Use the headband to secure the sponges and electrodes to the head.

Black pin is cathodal (-), which inhibits neuronal activity.

Appropriate saline solutions include contact lens saline solution, or a mixture of salt and tap water (½tsp / 500ml).

HARDWARE SETUP

ACCESSORIES INCLUDED

- ✓ Stimulus Cable with Pin Connectors
- ✓ 1 Large Reference Electrode/Sponge Pouch (60 cm^2)
- ✓ 2 Small Square Stimulation Electrodes/Sponge Pouches (20 cm^2)
- ✓ 1 Long Thin Stimulation Electrode/Sponge Pouch (20 cm^2)
- ✓ 2 Headbands
- ✓ tDCS Protocol Guide for Oasis Pro
- ✓ CD with tDCS sessions
- ✓ 3.5mm Stereo Patch Cord

INSTALLING TDCS SESSIONS

The CD containing the tDCS sessions can either be played on a CD player (as an audio CD) or read using a computer. When used with a computer, both DAVID Session Editor files and audio (.WAV) files are available.

The CD and patch cord are not included if the tDCS kit is purchased at the same time as the Oasis Pro. The sessions will be installed at the factory.

Download the sessions to the Oasis Pro using the audio files (or a CD player).

- Connect the audio in jack (⊛) on the Oasis Pro to the headphone jack of the CD player or computer.
- Turn the Oasis Pro on. Set the volume to a comfortable listening level (approx. 15-20% on a computer).
- Play the "Oasis Pro tDCS Session Set.wav" file on the computer (or start the CD player). After a few seconds the number LEDs will scroll up and down, and then a tDCS session number will flash. Each of the sessions will take 8-10 seconds to program.
- Check the Oasis Pro to ensure that all 6 sessions are available in the tDCS session group.

If the sessions have not downloaded correctly, adjust the volume and try again.