

## **Transcranial Direct Current Stimulation (tDCS) Clinical Neurophysiology**

### **Purpose of the treatment**

Transcranial Direct Current Stimulation or tDCS is a non-invasive and painless method to increase or decrease the activity of the cortical neurons and their network activity. The method utilizes stimulation of the central nervous system with a low electric current (1-2 mA). The treatment restores disease related functional disturbances and improves brain network activity. tDCS can be used to treat for example depression, neuropathic pain, and treatment resistant tinnitus.

### **Preparing for the treatment**

- If your tDCS treatment is for pain or tinnitus, you will receive a symptom diary with the instructions. Fill in the diary your observations and sensations for a week before the examination. Fill out also the initial information form. Take both forms with you to your first treatment session at the hospital.
- You should have clean and dry hair when arriving to the treatment. Do not use any skin lotion when you come to the treatment for the first time.
- You should continue your regular medication normally during the tDCS treatment period. Please bring along information about your medications.

### **Treatment Process**

At the beginning of the treatment, the technician will place a cap with two electrodes on your head. The electrodes conduct a low electric current to your scalp. The exact location of the electrodes depends on the disease or symptoms under treatment. The electric current might feel slightly itching or tingling on the skin.

If you have an inner ear prosthesis, an infusion pump, a pacemaker, or a prosthetic valve in your heart, or any intracranial metallic parts (e.g. surgical clips, metallic fragments) that are impossible to remove, the therapy might not be suitable for you. Eczema in the head area might also prevent performing the therapy. Amalgam fillings, dental implants or braces do not prevent the therapy.

If you are pregnant or if you have experienced epileptic seizures, please inform the physician before treatment. There will be an interview about possible contraindications to the treatment during your first visit to the department of Clinical Neurophysiology.

The treatment session will take 1 hour 15 minutes. The treatment itself takes 20 - 30 minutes. Multiple locations may be treated during the same session, and the therapy duration will increase accordingly.

The first treatments are given at the department of Clinical Neurophysiology on one or two consecutive days (1-2 times) in the beginning of the treatment period during which you are taught to use the device yourself. After that, you continue the treatments at home. Usually the treatment period begins with an intensive 4-week period with daily treatments from Monday to Friday.

The treatment requires commitment from your side: you should monitor the treatment response during home therapy by answering technician's regular phone calls. The technician will give you more information about the treatment response monitoring at the beginning of the treatment. At the end of the 4-week intensive period you will visit the department of Clinical Neurophysiology again, where the physician will evaluate the treatment efficacy and decide if the treatment will continue at home as a long-term maintenance therapy.

If the treatment continues as a maintenance therapy at home, the frequency of treatments will be individually adjusted, and they may decrease in frequency. Along with maintenance therapy, the frequency of technician's calls and appointments will decrease too. During maintenance therapy, you will come to the department of Clinical Neurophysiology every three months for equipment check-up and maintenance, as well as for interviews by the physician and technician of clinical neurophysiology.

The physician at the department of Clinical Neurophysiology will regularly report on the efficacy and possible adverse effects of the tDCS therapy. The reports are sent to your referring doctor at the outpatient clinic or ward, who is also responsible for any necessary follow-up examinations, your medication, and comprehensive care.