

General

During information processing in the brain, additional oxygenated blood flows to the brain area's which are active for a specific task. The oxygenation level of blood in a certain brain area can be measured using (near)infrared light. NIRS makes use of this type of light. Small lamps are mounted to various spots on the head. A small part of the used light is reflected by the brain and can be measured by means of detectors. Whether a brain area is involved in the task at hand, can be deduced based on measured changes over time in the intensity of this reflected light. The NIRS measurement takes place in a separate room. Depending on the research goal, the duration of the NIRS measurement varies from about 30 minutes up to 2 hours.

Preparation at home

To make the NIRS-measurement run more smoothly, you can run through the following steps:

- Wash and dry your hair beforehand;
- Do not use gel, hairspray, etc.;
- Do not use face cream or make-up;
- If needed, bring a comb or hair brush;
- Always bring (reading)glasses. Also if you're a contact lens user.



Preparation at the DCCN

A cap (sort of bathing cap) will be put on to your head. In this cap a large amount of tiny lights and light detectors will be attached. To obtain good signals it is important that the lights and detectors are close to the skin. If necessary, the experimenter will move some of your hairs a bit to obtain good signal quality.

The experiment

After this preparation you can enter the measurement room. You will get instructed about what you have to do during the experiment.

It may be that you have to look at a computer screen, listen to sounds (possibly through headphones), carry out a reaction-time task, make certain movements, or just sit and be relaxed. During the measurement the door of the shielded room is closed, but not locked. The experimenter can see you by use of a video camera and talk to you by means of an intercom. The measurement itself will not be noticeable for you. Sometimes the experiment will be video and/or -audio recorded for strict scientific purposes. The experimenter will inform you about this in timely fashion prior to the experiment. When enough data are obtained, the measurement is completed. The experimenter will enter the room again and will remove the cap with the light sources and detectors. If you want, you can redo your hair. For hygienic reasons it is practical if you bring your own comb.

Additional information

The risk associated with participation can be considered as negligible risk and minimal burden. No invasive procedures are involved.

You can **NOT** participate in a NIRS-experiment if one of the following applies:

- 1) You have had head/brain surgery.
- 2) You suffer from epilepsy.
- 3) You suffer from claustrophobia.
- 4) You are pregnant or you think you are.
- 5) You are younger than 16 years of age.

If one of the above is applicable, please contact the researcher prior to the experiment.