PREdicting Performance of sensorimotor brain-computer interface control

No registrations found.

Ethical review	Not applicable
Status	Pending
Health condition type	-
Study type	Observational non invasive

Summary

ID

NL-OMON29406

Source
Nationaal Trial Register

Brief title
PREP

Health condition

NA

Sponsors and support

Primary sponsor: UMCU
Source(s) of monetary or material Support: Internationalization Committee UMC Utrecht

Intervention

Outcome measures

Primary outcome

The main study parameter will be the presence and the consistency of the brain signal components used for BCI control

Secondary outcome

NA

Study description

Background summary

Diseases such as amyotrophic lateral sclerosis may cause severe paralysis and leave people effectively locked in their body: completely unable to move or speak, yet cognitively unaffected (locked-in syndrome). Brain-computer interfaces (BCIs) are being developed to restore communication abilities that were lost due to such severe paralysis. However, BCIs do not work equally efficient in every patient. For eventual wide clinical application of BCIs based on implanted brain-surface electrodes, it will be important to predict whether or not a certain individual has a high chance of achieving accurate control over the BCI before deciding to perform surgery to implant the BCI. This needs to be accomplished using non-invasive means. Measurements from the scalp could provide a rapid and easy approach to determine the quality of the neural signal changes prior to BCI implantation.The primary goal of this study is to assess whether or not measurements from the scalp can be used to predict control performance of (to-be) implanted BCIs. Specifically, we will determine if scalp recordings can be used to detect anomalies in the neural activity of individuals with severe motor-impairment.

Study objective

The hypothesis is that measurements from the scalp can be used to predict control performance of (to-be) implanted BCIs.

Study design

A single EEG measurement session, typically at the day of informed consent.

Contacts

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Eligibility criteria

Inclusion criteria

- Age 18-70 years old
- Right-handed
- Normal or corrected-to-normal vision

Exclusion criteria

- Current or recent diagnosis with, or receiving treatment for, neurological or psychological or psychiatric illness or condition
- Use of medication (except contraceptive medication)
- Injury or other condition affecting the right hand
- Pregnancy

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non controlled trial

Control: N/A , unknown

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-10-2020
Enrollment:	20
Type:	Anticipated

IPD sharing statement

Plan to share IPD: Yes

Plan description
IPD (EEG data + associated metadata such as age, gender) will be shared with KU Leuven (collaborating partner on this project) for analyses on frequency band power characteristics of the EEG sigal. Data will be shared with SURFfilesender.

Ethics review

Not applicable
Application type: Not applicable

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL8848
Other	METC Utrecht : 20-522

Study results