

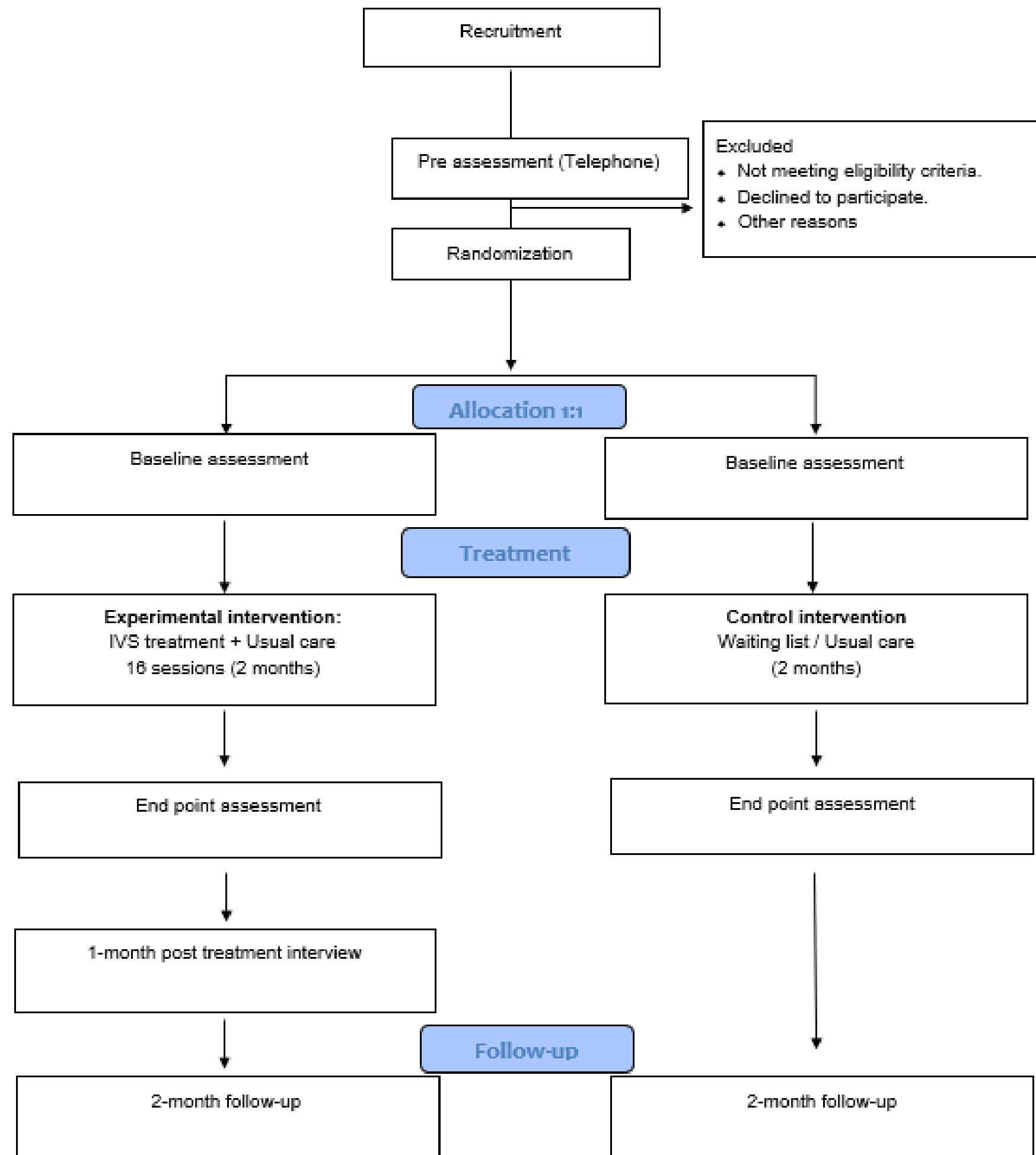
Intensive Visual Simulation as Treatment of Chronic Phantom Limb Pain in Persons with upper-or lower limb amputation

A Randomized Controlled Trial – **Ongoing: 2024 –June 2026**

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Physiotherapist.**

Design and Progress

- Single centre – RCT
- Stratified randomisation (external)
- External data handling and statistics
- Power calculation: **38** people (39 included, 30 LL and 9 UL)
- Individualized treatment plan – up to 16 sessions (2 a week)
- 10 – 20 minutes intensive treatment.
- All control participants are offered IVS treatment after the study period (2 months) + follow-up (2 months).



Intensive Visual Simulation (IVS)

IVS3 for Upper Limbs



IVS4 for Lower Limbs



Target population

- Persons with lower or upper limb amputation (both unilateral and double) of both sexes.
- No significantly impaired eyesight (i.e., blindness).
- Aged over 18 years, with no upper age limit.
- Experiencing phantom limb pain for more than 6 months, i.e., chronic PLP.
- At least 12 months post-amputation.
- Phantom pain intensity greater than 3 on the VAS scale.
- Adequate Norwegian language skills.
- Able to understand treatment instructions, i.e., no significant cognitive impairment.

Primary outcome

- **Phantom Limb pain intensity–14-day diary**
- Phantom pain intensity is assessed using a 14-day pain diary with 0-10 cm Visual Analog Scales (VAS).
- Participants will be provided with a paper form containing 14 VAS scales, one for each day, at three different timepoints: 14 days before the start of the intervention, immediately after the intervention ends, and at the 2-month follow-up.
- Each day, participants will indicate their level of phantom pain within the last 24 hours on the VAS scale. The average pain level over the 14 days will be calculated and used as the measure of the participant's **phantom pain intensity**.

Secondary outcomes

European Quality of Life –5 dimensions (EQ-5D-5L)

Short-Form McGill Pain Questionnaire (SF-MPQ)

OPUS Upper/Lower Extremity Functional Scale questionnaire.

Functional Near infrared Spectroscopy (fNIRS) of brain cortical activity

Phantom pain intensity before and after treatment sessions.

RAND 36-Item short form health survey (SF-36) questionnaire.

Adverse events

Use of Analgesics

Amputation specific variables (level of amp., etiology, time since amp. etc).

OSLOMET

Observations



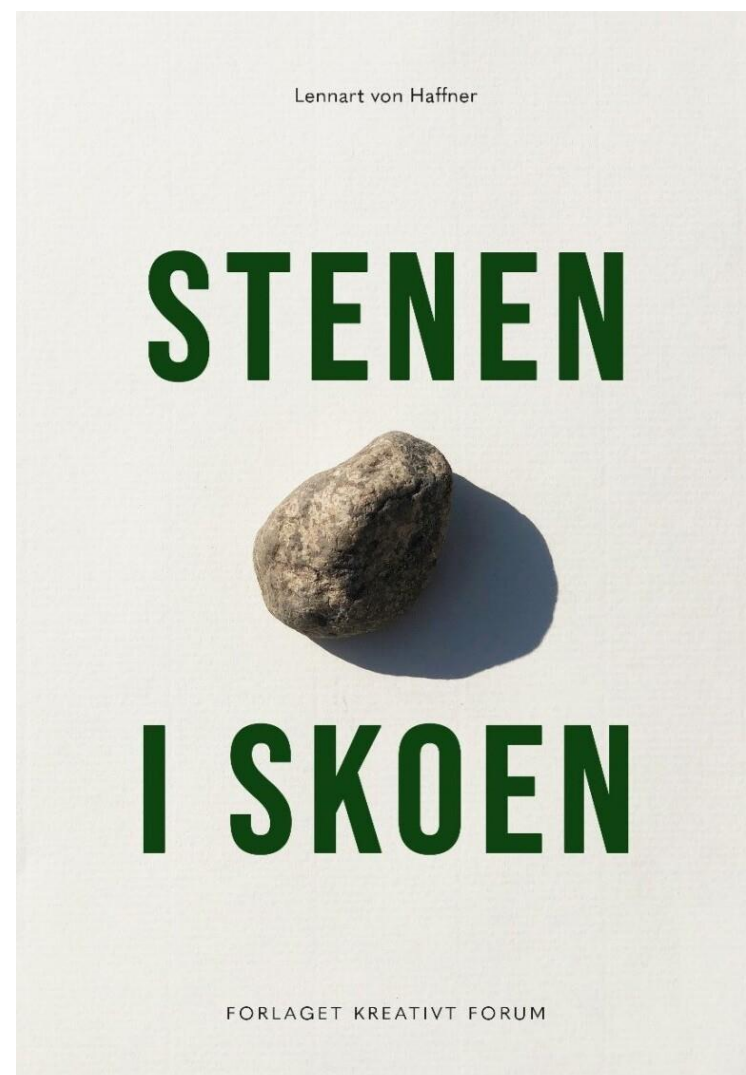
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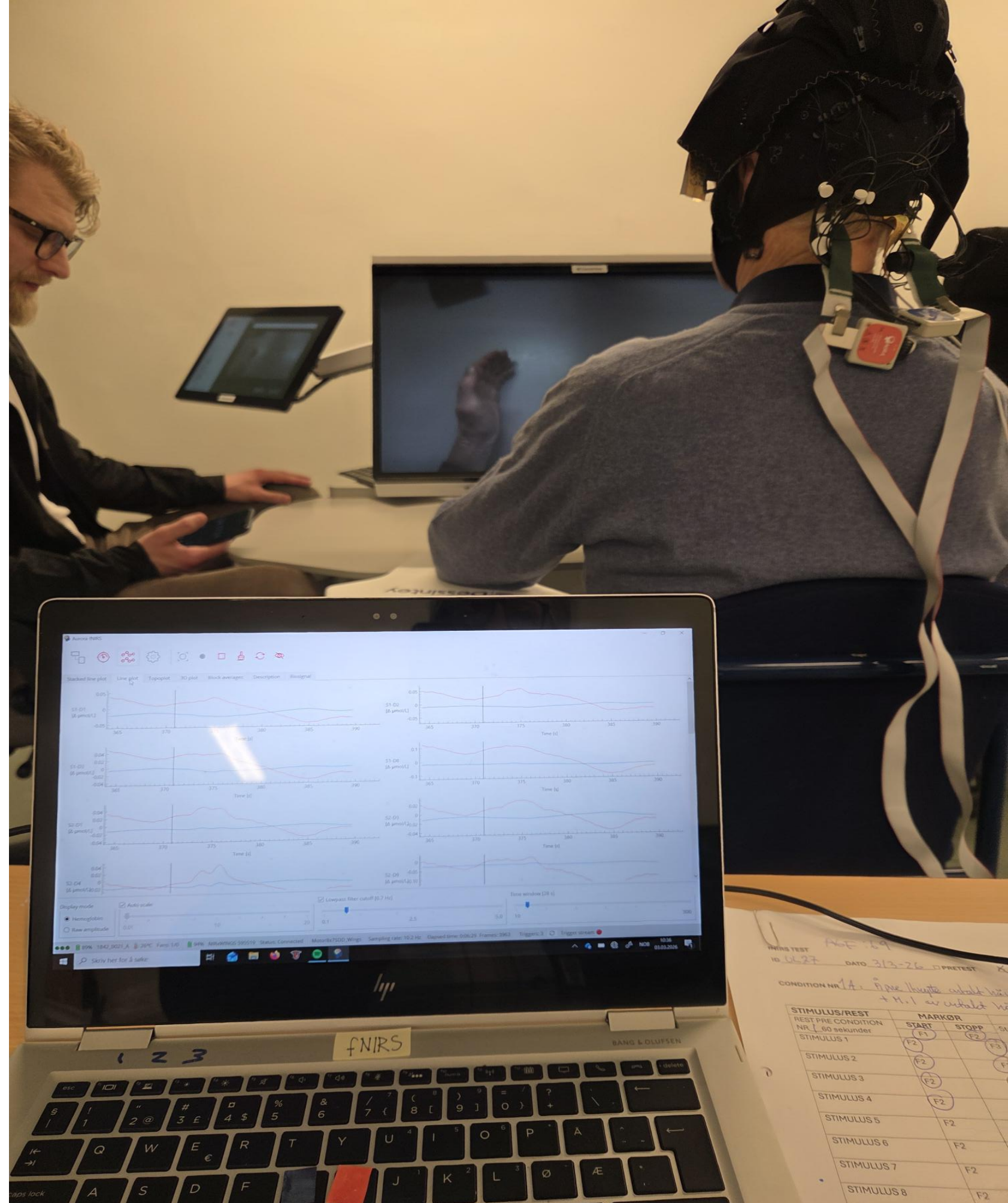


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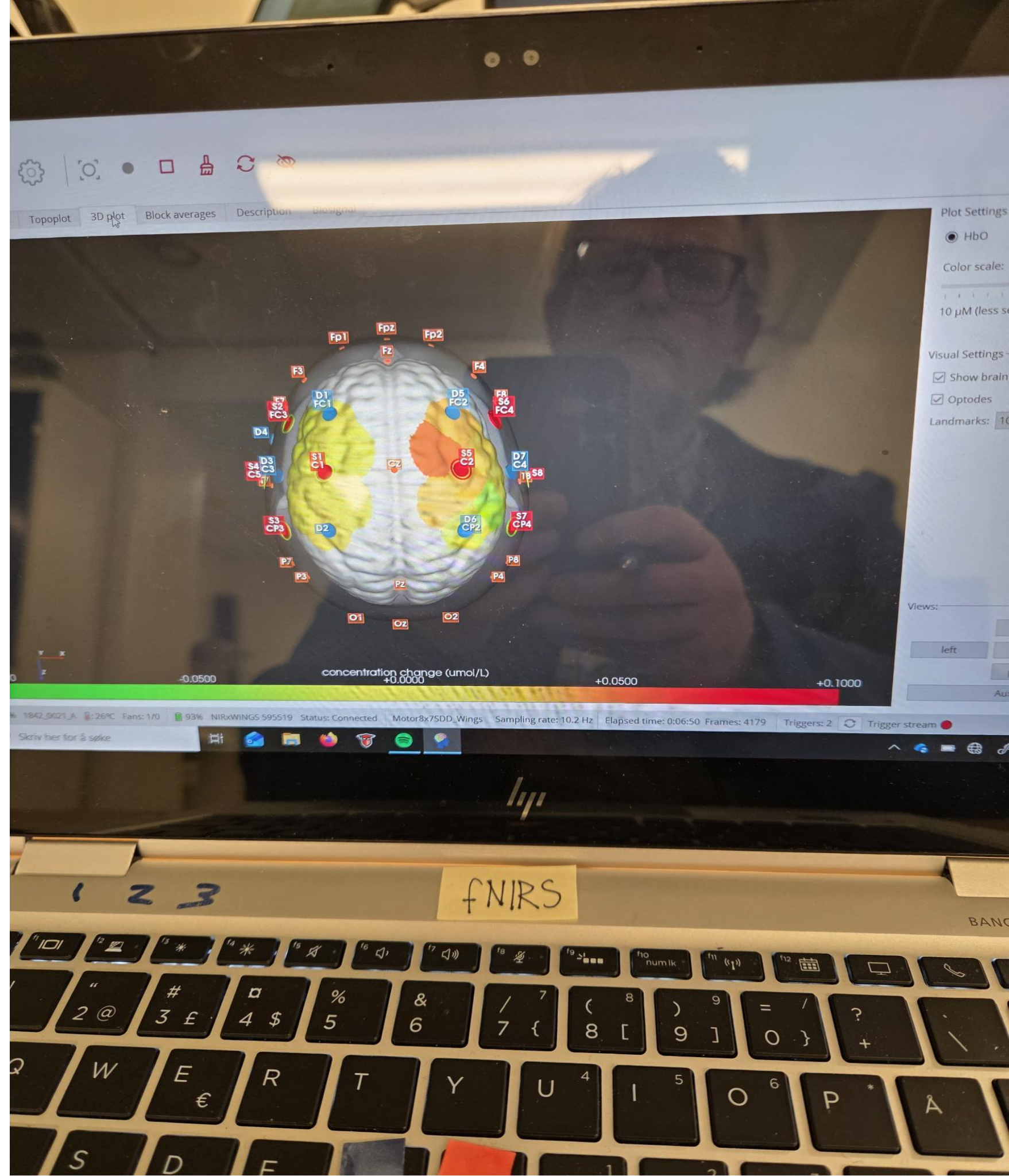
fNIRS Setup

- Only for persons with upper limb amputation.
- Scanning of motor cortex activity.
- Measurements pre- and post intervention



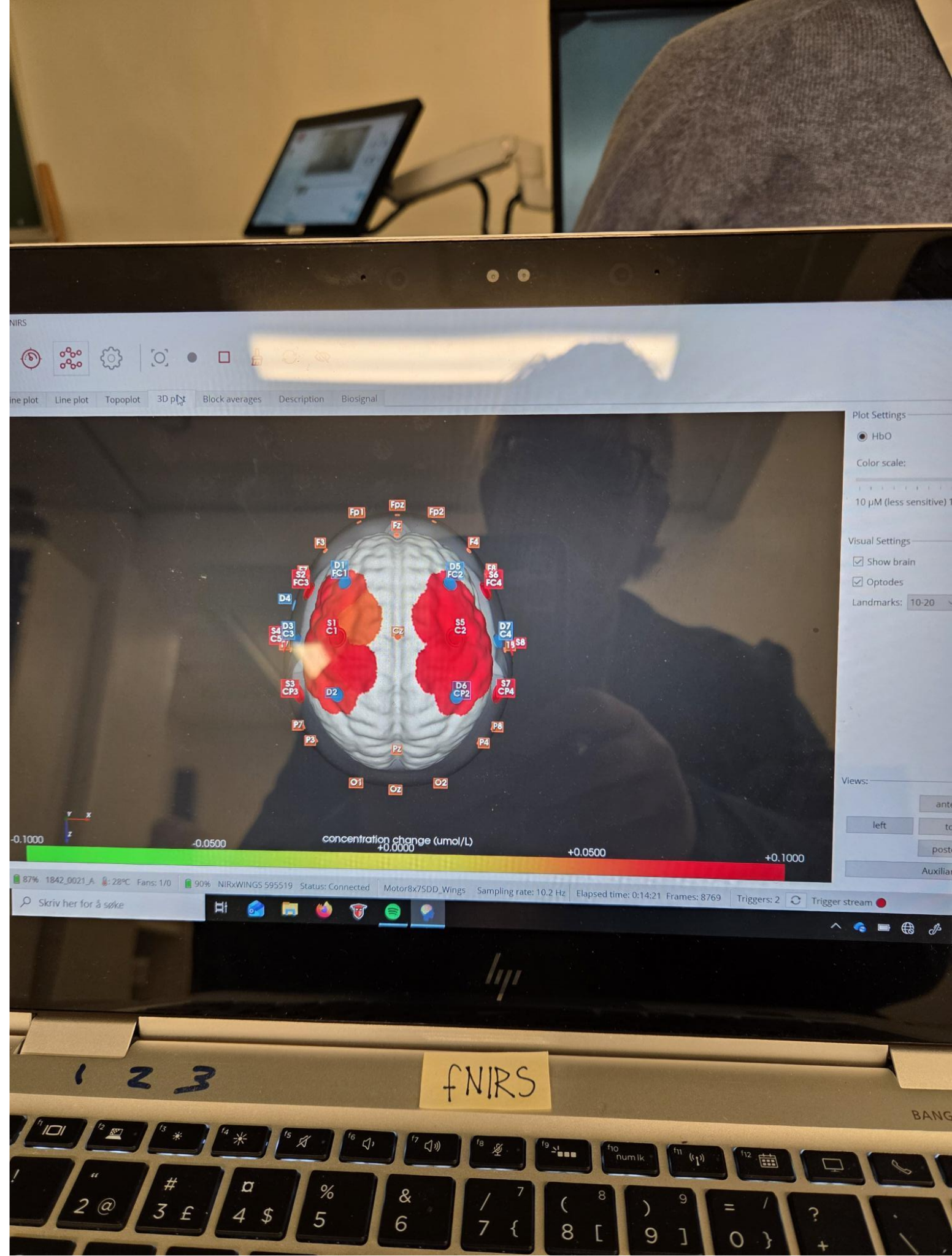
Intact hand

- Snapshot – No data is analysed yet.



Phantom Limb

- Snapshot - No data is analysed yet.



Perspective

- Use for non-pharmacological treatments (with few side effects) if successful: IVS is a non-invasive form of treatment that can potentially solve/reduce a big problem for many persons
- Knowledge of the brain's adaptation during training = New and important knowledge about cortical activation and neural adaptation in connection with the treatment of phantom pain.
- To the best of our knowledge: First RCT-study of IVS-therapy in the world!

Contact Info



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