New NatMEG laboratory safety procedure 2020
Why?
Overview

Reduce potential risk of contamination

• Person to person
• Contact with equipment and surfaces
• Arial transmission
Update to lab procedures
<table>
<thead>
<tr>
<th>LEADER A</th>
<th>LEADER B</th>
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<tbody>
<tr>
<td>• Meet the participant in the waiting room.</td>
<td>• Prepare participant (electrodes, hpi, digitization). <em>(require physical contact)</em></td>
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<tr>
<td>• Shows the participant the participant changing room.</td>
<td>• Show the participant in to the MSR</td>
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<tr>
<td>• Collect informed consent, info, etc.</td>
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<tr>
<td>• Prepare for recording and do empty room</td>
<td>• Connect electrodes, hpi, etc. <em>(require physical contact)</em></td>
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<tr>
<td>• Can stand at 2 m distance and help give the participant information pertaining to the exam</td>
<td>• Stand ready to enter MSR when needed.</td>
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<tr>
<td>• Run experiment</td>
<td>• Detach participant and show back to changing area</td>
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<tr>
<td>• Clean equipment and lab areas</td>
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</tbody>
</table>
Working in the lab

a) Leaders should wear a mask, and maintain good hand hygiene. When able maintain a safe distance (2 meters) from participant.

b) Leaders should put on gloves/use hand sanitizer and visor when unable to maintain safe distance from participant.

c) Any person entering the lab while participant is present is also subject to guidelines (a) and (b).
Update to lab preparations
When arriving in the lab

1) Clean premises before starting each experiment:
   - MEG Lab
   - Lab changing room
   - Waiting room
   - Participant changing room

2) Both research leaders should take temperatures with forehead thermometer to confirm that temps are less than 38 C.

3) Change clothes and put on protective gear.
Items: personal protective equipment
Items: person protective gear

- Person protective gear:
  - Scrubs
  - Protective mask
  - Face shield

- Physical contact:
  - 2 m
  - <2 m (Physical contact)
0.0 EXTRASAFETY
PREPARATION

1.0 PREPARING
EQUIPMENT

2.0 PREPARING
SUBJECTS

3.0 PREPARING
MEASUREMENTS

4.0 DOING
MEASUREMENTS

5.0 AFTER
MEASUREMENTS

ACTIVITIES

0.1 Change clothes and put on PPE

1.1 Check or adjust MEG gantry position

2.1 Welcome subject

3.1 Create / or load project and acquisition settings. Load preparation.

4.1 Begin recordings

5.1 Move subject out of MEG helmet

0.2 Take temperature

1.2 Verify safe gantry position

2.2 Inform subject about the experiment

3.2 Seat subject comfortably and in optimal position inside MEG helmet

4.2 Initiate stimulus procedure / protocol

5.2 Detach electrodes + HPIs

1.3 Connect and switch on stimulus equipment

2.3 Collect & sign written consent

3.3 Connect electrodes and HPIs

4.3 Make lab notes

5.3 Debrief subject

1.4 Verify that stimulation settings and intensities are correct

2.4 Subject changes clothes

3.4 Check subject comfort

4.4 Monitor subject comfort

5.4 Subject changes back clothes

1.5 Check MEG sensors, heat if needed.

2.5 Add subject to database

3.5 Check bubble, 2-way communication & camera

4.5 Monitor and assess subject sleepiness

5.5 Thanks and goodbye to subject

1.6 Check experiment triggers

2.6 Attach electrodes and check electrode impedance

3.6 Check HPI measurements

4.6 Monitor signal integrity

5.6 Clean HPIs

1.7 Create or check project and acquisition settings.

2.7 Attach HPI coils

3.7 Check MEG sensors, heat if needed

4.7 Monitor stimulus procedure / protocol progress

5.7 Clean up MEG and MSR

2.8 Digitize HPI coils and head shape. Save preparation.

2.9 Instruct subject

3.8 Check MEG, EOG, ECG MISC, TTL, buttons, etc

4.8 Save data with your initials

5.8 Clean up MEG lab

2.10 Give subject safety instructions

2.11 Make sure subject’s head is in best position for recordings

3.9 Check for artefacts

4.9 Complete lab notes

5.9 Clean up changing room

3.10 Make sure subject’s head is in best position for recordings

3.11 MaxFilter MEG data and upload filtered data, if applicable.

5.10 Organize and upload your data, from DACQ and other

5.11 Delete your uploaded data

0.0 EXTRA SAFETY
PREPARATION

1.0 PREPARING
EQUIPMENT

2.0 PREPARING
SUBJECTS

3.0 PREPARING
MEASUREMENTS

4.0 DOING
MEASUREMENTS

5.0 AFTER
MEASUREMENTS

MAIN PROCESS

SUB PROCESSES

ACTIVITIES

0.1 Change clothes and put on PPE

1.1 Check or adjust MEG gantry position

2.1 Welcome subject

3.1 Create / or load project and acquisition settings. Load preparation.

4.1 Begin recordings

5.1 Move subject out of MEG helmet

0.2 Take temperature

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3.2 Seat subject comfortably and in optimal position inside MEG helmet

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Item: forehead thermometer

Step 1: Calibrate

• Press FACE and HOME: CAL will appear on display
• Within 10 s point at internal wall while pressing HOME
• Move until temperature is between arches
• Release HOME.
• Light will flash twice and display show READY when calibration is done.
Item: forehead thermometer

Step 2: measure temperature

• Point at target forehead
• Keep thermometer perpendicular to the center of the forehead
• Press FACE and hold down
• Move untill temperature is between arches
• Release FACE. Read temperature on display.
When arriving in the lab

Research Leader Safety Prep
Steps for putting on PPE to avoid cross-contamination

• Tie hair back
• Remove clothes and jewelry and place in locker
• Sanitize glasses, if necessary
• Sanitize hands
• Put on lab clothes
• Put on apron and visor (and if applicable mask)

ENTRANCE & LAB CHANGING ROOM

- Wipe down the following surfaces with disinfectant:
  - Locker handle, bench, and key
  - Water faucet handles
  - All door handles and keypads/buttons
When arriving in the lab

www.natmeg.se/services/labguides.html
When arriving in the lab

Research leaders should go through the safety checklist and confirm that:

• All rooms are cleaned according to the checklist
• All research leaders have taken temperatures and are healthy
• All research leaders have changed clothes and are dressed according to the safety protocol
• All PPE is stocked and easily accessible
### MEG Measurements

**Main Process**

1. **Preparing Equipment**
   - 0.1 Check or adjust MEG gantry position
   - 0.2 Verify safe gantry position
   - 0.3 Connect and switch on stimulus equipment
   - 0.4 Verify that stimulation settings and intensities are correct
   - 0.5 Check MEG sensors, heat if needed.
   - 0.6 Check experiment triggers
   - 0.7 Create or check project and acquisition settings.
   - 0.8 Make empty room recording

2. **Preparing Subjects**
   - 1.1 Welcome subject
   - 1.2 Seat subject comfortably and in optimal position inside MEG helmet
   - 1.3 Collect & sign written consent
   - 1.4 Subject changes clothes
   - 1.5 Add subject to database
   - 1.6 Give subject safety instructions

3. **Preparing Measurements**
   - 2.1 Welcome subject
   - 2.2 Seat subject comfortably and in optimal position inside MEG helmet
   - 2.3 Collect & sign written consent
   - 2.4 Subject changes clothes
   - 2.5 Attach electrodes and check electrode impedance
   - 2.6 Digitize HPI coils and head shape. Save preparation.
   - 2.7 Attach HPI coils
   - 2.8 Instruct subject
   - 2.9 Check MEG sensors, heat if needed.
   - 2.10 Give subject safety instructions

4. **Doing Measurements**
   - 3.1 Create / or load project and acquisition settings. Load preparation.
   - 3.2 Seat subject comfortably and in optimal position inside MEG helmet
   - 3.3 Connect electrodes and HPIs
   - 3.4 Check subject comfort
   - 3.5 Check bubble, 2-way communication & camera
   - 3.6 Check MEG, EOG, ECG MISC, TTL, buttons, etc
   - 3.7 Check MEG sensors, heat if needed.
   - 3.8 Check MEG, EOG, ECG MISC, TTL, buttons, etc
   - 3.9 Check for artefacts
   - 3.10 Make sure subject’s head is in best position for recordings

5. **After Measurements**
   - 4.1 Begin recordings
   - 4.2 Initiate stimulus procedure / protocol
   - 4.3 Make lab notes
   - 4.4 Monitor subject comfort
   - 4.5 Check HPI measurements
   - 4.6 Monitor signal integrity
   - 4.7 Monitor stimulus procedure / protocol progress
   - 4.8 Save data with your initials
   - 4.9 Complete lab notes
   - 4.10 Give data to subject

### Sub Processes

- **0.0 Extra Safety Preparation**
  - 0.1 Change clothes and put on PPE
  - 1.0 Set up MEG gantry and place stimulator in position
  - 1.1 Check or adjust MEG gantry position
  - 1.2 Verify safe gantry position
  - 1.3 Connect and switch on stimulus equipment
  - 1.4 Verify that stimulation settings and intensities are correct
  - 1.5 Check MEG sensors, heat if needed.
  - 1.6 Check experiment triggers
  - 1.7 Create or check project and acquisition settings.
  - 1.8 Make empty room recording

- **1.0 Preparing Equipment**
  - 1.1 Check or adjust MEG gantry position
  - 1.2 Verify safe gantry position
  - 1.3 Connect and switch on stimulus equipment
  - 1.4 Verify that stimulation settings and intensities are correct
  - 1.5 Check MEG sensors, heat if needed.
  - 1.6 Check experiment triggers
  - 1.7 Create or check project and acquisition settings.
  - 1.8 Make empty room recording

- **2.0 Preparing Subjects**
  - 2.1 Welcome subject
  - 2.2 Seat subject comfortably and in optimal position inside MEG helmet
  - 2.3 Collect & sign written consent
  - 2.4 Subject changes clothes
  - 2.5 Attach electrodes and check electrode impedance
  - 2.6 Digitize HPI coils and head shape. Save preparation.
  - 2.7 Attach HPI coils
  - 2.8 Instruct subject
  - 2.9 Check MEG sensors, heat if needed.
  - 2.10 Give subject safety instructions

- **3.0 Preparing Measurements**
  - 3.1 Welcome subject
  - 3.2 Seat subject comfortably and in optimal position inside MEG helmet
  - 3.3 Collect & sign written consent
  - 3.4 Subject changes clothes
  - 3.5 Attach electrodes and check electrode impedance
  - 3.6 Digitize HPI coils and head shape. Save preparation.
  - 3.7 Attach HPI coils
  - 3.8 Instruct subject
  - 3.9 Check MEG sensors, heat if needed.
  - 3.10 Give subject safety instructions

- **4.0 Doing Measurements**
  - 4.1 Begin recordings
  - 4.2 Initiate stimulus procedure / protocol
  - 4.3 Make lab notes
  - 4.4 Monitor subject comfort
  - 4.5 Check HPI measurements
  - 4.6 Monitor signal integrity
  - 4.7 Monitor stimulus procedure / protocol progress
  - 4.8 Save data with your initials
  - 4.9 Complete lab notes

- **5.0 After Measurements**
  - 5.1 Move subject out of MEG helmet
  - 5.2 Detach electrodes + HPIs
  - 5.3 Debrief subject
  - 5.4 Subject changes back clothes
  - 5.5 Thanks and goodbye to subject
  - 5.6 Clean premises
  - 5.7 Clean up MEG and MSR
  - 5.8 Clean up MEG lab
  - 5.9 Clean up changing room
  - 5.10 Organize and upload your data, from DACQ and other sources
  - 5.11 MaxFilter MEG data and upload filtered data, if applicable.
Item: hand sanitizer
Updates on participant recruitment

Recruitment and participant info
Recruitment guidelines

Additional safety considerations should be considered when screening participants for MEG studies.

• Asking if the participant is sick, has been sick recently, or lives with/ is in close contact with anyone who is sick.
  • Note: this refers to any type of sickness; it does not exclusively refer to confirmed or suspected cases of Coronavirus.

• Establishing if the participant belongs to a known risk-group associated with the Coronavirus.

Responsibility lies with the study leader
Participants should be informed of the following safety procedures related to the Coronavirus:

• Research leader’s use of personal protective equipment (PPE) to mitigate the spread of the virus.

• Requirement that participant’s temperature be taken using a forehead thermometer (remote) upon arrival.
  • Participants should be informed that their MEG measurement will be rebooked if their temperature is higher than 38 C.
  • Instructions to contact a research leader as soon as possible if the participant becomes sick prior to coming to the MEG lab should be given, and the research leader’s contact information should be easily accessible.

• Participant’s use of sterile clothing during measurements.
Recruitment guidelines

The participant should be informed of new safety procedures on three occasions:

• During initial contact.

• In written information pertaining to the study that the participant receives prior to participation.

• Via text message the day before participation
  • Reminder messages for MEG measurements could include a question asking them to confirm that they are not sick prior to coming to the lab.
Lab support

New procedures
Lab support

• Call for help (numbers on the wall)
• Describe issue: what and where?
• Setup remote connections
Summary

• New lab operating procedures
  • Leaders change clothes and use PPE
  • Extended cleaning before and after experiments
  • Minimize close contact
  • Use hand sanitizer

• Information to participants
  • Updated information on safety procedures
  • Information about cancellation