EGI EEG-fMRI setup cheat sheet

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The day before, see if amp is charged by unplugging power cable and see if light flashes

To charge the amp: plug in the power, and turn the main switch on, check that the charge light is on

Before the subject arrives, move the EGI cart into the scan room and begin prep for the EEG and set-up the BIOPAC-physio computer

EEG setup

* Turn on monitor computer, password is: geodesic [lowercase]
* Open firefox, type in ’10.10.10.51’ to check signal on amp
* Plug in data cable [with white tip] + sys clck from the wall to the tan box
* prep solution & cap – see EGI instructionswhile the cap is soaking [with sensors facing in], go to the computer and open app
* hook up egi computer
  + check in-room cable connections:
  + Black box : orange data cable to amp
    - Ethernet cable to laptop, right port
    - check on black box for the ports to light up
  + Amp – is on physically (switch back of amp)
    - by software, launch firefox (10.10.10.51)

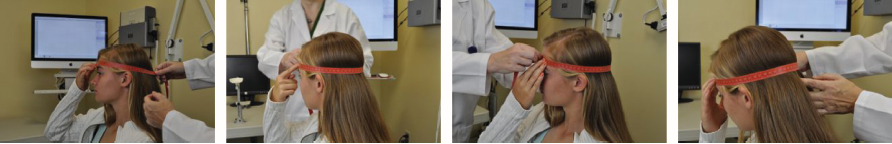
BIOPAC-physio setup

* Sign on to the computer with password: **AcqKnowledge**
* Open Acknowledge 4.2 (on desktop)
* Start new recording 🡪 recent graph template 🡪 Belt B (usually the first option)
* Click **Start** in the upper left corner to test the recording. Right-click the green recording (respiration) and select Autoscale waveforms
* Hit **Stop** when you are satisfied
* Go to MP150 and setup triggering 🡪 turn triggering on 🡪 select **CH8** from the drop-down list
* Go to MP150 and setup acquisition 🡪 change seconds to minutes (45) 🡪 click File and save as “date\_subjectinitials” 🡪 select incrementing number

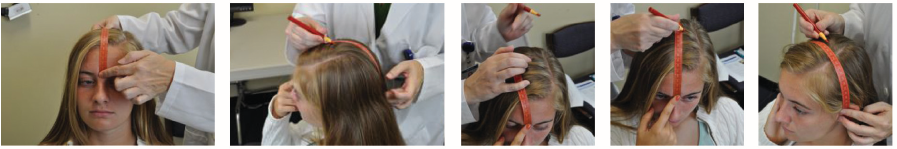
When subject arrives, ensure they have completed an MRI safety screening form and that they are completely demetaled. Provide subject with earplugs before placing EEG cap.

Capping (see EGI instructions for further detail)

* Prepare the electrolyte (1 liter warm water, 1 scoop potassium chloride, 1 tsp baby shampoo)
* Measure subject head circumference using measuring tape



* Begin soaking cap, ensure that cable sleeve does not touch electrolyte (soak cap for 5 minutes)
* Locate and mark the vertex for net placement with grease pencil



* Locate and mark the vertex for net placement with grease pencil
* Apply ECG sensors on subject’s back below each scapula
* Apply the cap
  + get hands as wide as possible in the cap, then have your hands facing the ground to adjust, thumbs should be between 8, 14 and 21, 25 sensors



* Hook up cap – plug into amp, twist the knob shut, click on top left of the Net system to turn ON
  + look at impedances at Ohm tab, fix ones that look bad [if in rush, a few (~4) can be yellow, but never any red]
* Adjust sensors to improve net conductance and alignment (apply additional electrolyte with eyedropper if needed)
* Apply spandage and ensure subject’s comfort

Move subject into scanner

* move cap/subject, amp, to scan room
  + stop measuring close to Ohm impendence, turn off app
  + turn off amp (otherwise will have to restart software), unplug all cords to amp
  + make sure 20ch base is on scan bed
  + move chair to right side of bed, put amp on it
    - connect clock synch and eeg data cable to amp in scan room
    - connect subject leads, should come out beside the subject or by shoulder
    - make sure amp no closer to machine than the divot on the base of the bed
* move subject into scan room, direct subject to stand on stool and sit on bed
* gently guide subject to lie down, ensuring head does not bump ch base
* provide subject a leg rest and blanket
* attach respiratory belt and physio on left index finger
* give subject button box
* give subject emergency squeeze ball
* check physio recording
* make sure amp no closer to machine than the divot on the base of the bed
* move subject into scanner
  + raise the bed and align the subject
  + to align the subject, turn on cross hair + button, then move the subject until the crosshair is between their eyebrows
  + landmark the subject by pressing the round dial once
  + send the person into the scanner by pressing the round dial a second time (long press)
  + turn the amp back on before leaving the room
  + close 3T door
* Back in the console room:
  + plug in EGI data cable into the black box and clock sync fiber optic from the waveguide and bnc [clock cable 2], tr trigger
  + the tr trigger is the brown cable and gets plugged into the + OUT on trigger interface under counter
  + check firefox again to see if amp has warmed up
  + check impedances to make sure they haven’t changed

Start scans

* Register subject on MRI console
  + Check both 1st gradient boxes
  + EEG-fMRI
  + ETPB Repeat Dose
  + Brain
* rest scans, click the record red button on NET before start sequence on MRI console

Remove patient from the scanner:

* Press HOME button to auto move table out
* Unplug the EEG cap from the amp
* Remove top half of coil and the physio attachments from the subject
* Have patient sit up and get off the bed
* Unplug amp and cords connections to it
* remove cap and disinfect [see EGI instructions]
* move amp back to cart
* unplug EGI data cable from hole in the wall, and OUT cable, and clock signal
* move amp back to cart
* unplug EGI data cable from hole in the wall, and OUT cable, and clock signal
* remember to plug amp back in and make sure that it is charging

TROUBLESHOOTING:

* If need to quit NET on the monitor, force quit the app
* To see if person is awake and using the button box, look at the top of the recording screen for selection on monitor
* Plug laptop into the projector
* Confirm the projector is on with the ON/OFF switch on the white box under the counter—press and hold until light comes up
* Laptop with tasks needs tr trigger which is white USB cable from below counter, with “button box” sticker; tab to the instruction screen; THEN scan should trigger both computers
* Autoconfig, then BGYRT letters setting. Use the dial to scroll and click in to select
* Subject prep room pswd is the room # and \*