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Pre-SCAN SESSION

fMRI/EEG SCAN SESSION

Screening Procedures

Before Scheduling CABI Appointment:

1. Basic screening for the study and MRI will be conducted over the phone during recruitment phone call and the following forms need to be completed:
    a. CABI Contraindications form
        i. On contraindication form, if they say yes to something like IUD.. then ask follow up questions like how long, are they MRI compatible if they know..
        ii. Permanent tooth retainer on bottom jaw is okay.. top jaw may mess up the scans..
        iii. Someone might think they could take off nose rings but couldn't take off on the day of MRI.. use follow up questions..
        iv. If we are unsure about anything, check with Vish..
    b. Screen them for requirements of SYM study also – like alcohol, smoking etc.
    c. If you think they qualify, create URSI on COINS for the participant and fill participant details (COINS URSI is required to send the contraindications form to be approved by MRI technician).
    d. It is better to schedule our scans near the end of the day etc. so we will have more time to setup/dismantle connections etc. that take a lot of time.
        i. Tell subjects they have a right to drop from study at any time, but if they do this in last two days or so, we will lose scanner time. As ours is a pilot, we only have limited time, so ask them to make their best effort not to inform us last minute.
    e. Update calender with: Subject URSI, ROOMS BOOKED, TIMINGS, SCANNER TIME
2. Lists: Maintain both these lists .. important for NIH grants etc.. to tell how many people were screened, how many qualified etc. These lists should be password protected.. as they have identifiable information
    a. Prospective list – all people we contacted and screened etc. – and if disqualified, why so.. have in the excel sheet..
    b. Subject list – list of people actually eligible.. excel sheet.. people who have an URSI
3. Assessments, consents etc. are not uploaded to COINS currently.. scan log is uploaded.. But all documents are scanned (whole folder) and uploaded to password protected onedrive/Dropbox folder..
4. Remind them about the appointment a few days before and confirm. Tell them where to arrive on the day of the scan and give them parking location (Once they enter the gate, parking spots on the immediate left with the labels 'Research participant').

Before reaching CABI:

1. Carry encrypted drive, SYM participant folder with printed documents (Subject documents + SYM manual + study protocol), subject reimbursement cash, pens, writing pads
2. Plan to arrive at CABI 30 minutes prior to participant's scheduled arrival time.

Preparing for Participant Arrival

1. Arrive at CABI 30 minutes prior to participant's scheduled arrival time.
2. Ensure all instruments have been wiped clean prior to participant use
3. Prepare MRI Prep Room with necessary testing materials:
4. Prepare mock scanner (see mock scanner instructions)
5. Have participant's SYM folder prepared (Keep them in the following order; Staple each document together; And use a black clip for all documents together):
    a. CABI Contraindications form
    b. SYM Informed Consent Form
    c. CABI MRI screening form
    d. CABI Health screening form
    e. SYM Demographic information survey
    f. CABI MRI requisition form
    g. CABI EEG requisition form
    h. SYM_MRI_ScanLog
    i. SYM Adverse Events questionnaire
    j. SYM Adverse events researcher survey
    k. SYM Post scan questionnaire
    l. SYM Compensation receipts (2 copies) – one identifiable, another deidentifiable
    m. Compensation in GSU envelope with participant's name
6. Wait in front area 10 minutes prior to participant's scheduled arrival time.

Participant Arrival

1. Greet participant at door upon arrival, ensure they parked in designated parking spot (not immediately in front of the building).
2. Consenting done in private room.
    a. Go over each aspect of consent form including risks, benefits, compensation, and participant's right to withdraw at any time. Explain this paragraph on page1:
        i. The risks of being in this study include mild discomfort, claustrophobia, and boredom while in the MRI scanner.
        ii. You may be upset or disturbed by some of the pictures shown during the MRI task.
        iii. The EEG cap used may be mildly uncomfortable or cause scalp discomfort.
    b. Answer any questions and ensure participant fully understands all aspects of study.
    c. Read each of the following questions to the participant and prompt answer.
        i. Do you understand everything that has been presented in this consent form and by the study persons, including that your participation is voluntary and may be withdrawn at any time for any reason?
        ii. Do you have any additional questions?
        iii. Do you need any additional time to think about your participation in the voluntary research study?
    d. ***Should the individual's answer to any of these questions indicate that they are unclear or unaware that the study is voluntary, and that they can withdraw at any time, then additional discussion and information should be provided.* ***Any questions from study participant must be answered before written consent is obtained.***
    e. ***Participant must sign consent before continuing.***
        i. Participant signs and dates form
        ii. Person obtaining consent signs and dates form
3. **Have participant complete additional forms.**
    a. CABI MRI screening form
    b. CABI Health screening form
    c. SYM Demographic information survey
4. **Have researcher complete the following forms**
    a. CABI MRI requisition form
    b. CABI EEG requisition form
5. Review forms as they fill them out, talk to Krishna Pusuluri/Sunitha Basodi if there are any unanswered health concerns
6. Keep track of time taken to sign all these documents – plan to spend about 30 minutes

fMRI
Practice Tasks

Practice Room Procedures

1. Weigh subject when first entering the practice room
2. Show subject MRI procedure video if they have not previously seen it. Discuss MRI procedures and answer any questions
3. Give *general directions:* Explain to the participant that they will do several types of "pictures" while in the scanner. In the scanner, for a particular type of picture they will get to watch a fixation cross or a video on Youtube (ask what they would like to watch during this time and make a note of their response) and then they will also complete six different tasks while in the MRI scanner.
    a. Structural scan (with fixation cross or Youtube video)
        i. If using Youtube, make sure no Ads.
    b. Resting state 1 (Eyes closed and think about whatever you like)
    c. Aversive visual stimuli task (watch some set of aversive or non-aversive photos on the screen, and empathize with the photos as you look at them).
        i. You may be upset or disturbed by some of the pictures shown during the MRI task.
        ii. *We're going to have you watch some set of photos on the screen. Each set consists of 3 photos, either all aversive or non-aversive. Please empathize with the photos as you look at them on the screen*
    d. Resting state 2 (Eyes closed and think about whatever you like)
    e. Slow breathing task (guided video)
    f. Eyes closed meditation task with attention on the top of the head (near the fontanelle bone area)
    g. Tell them during any of these scans if they hear dinging noise every two seconds to let us know.

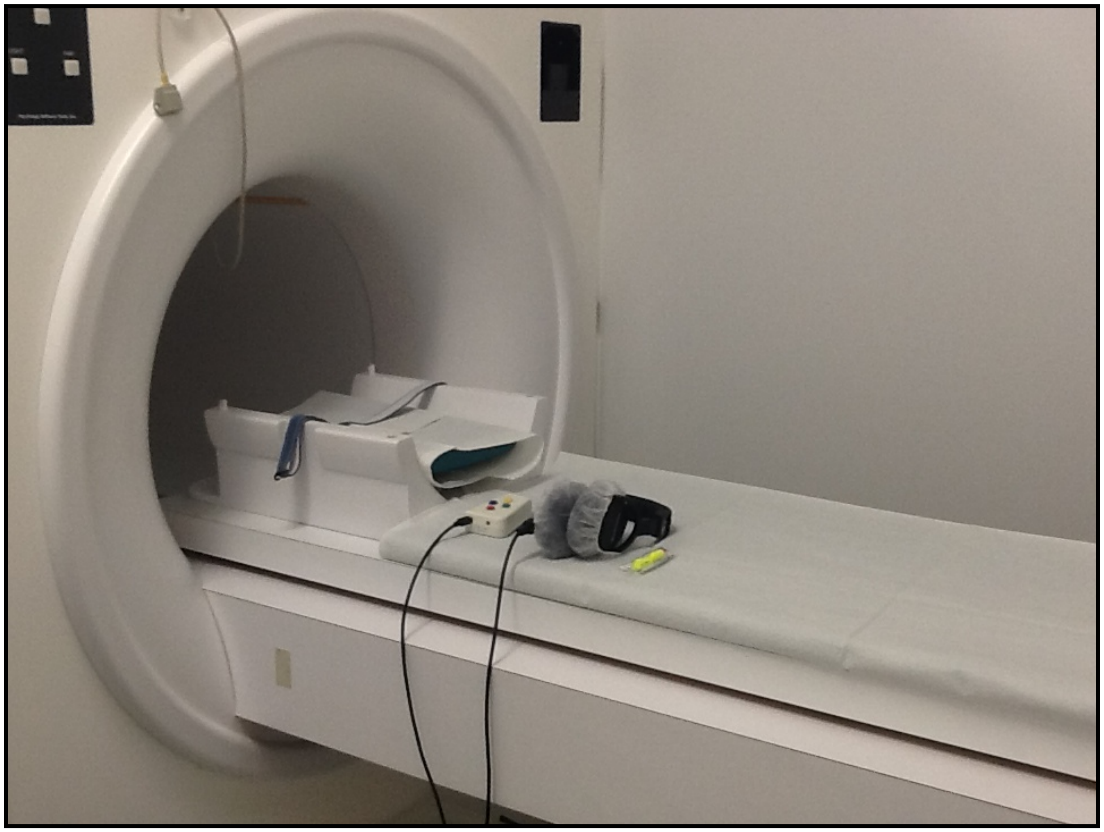
    Let them know they can practice them ahead of time so they are prepared during the actual scan. Help the participant as much as they need to understand.
4. Ensure participant doesn't have any other questions about the tasks before migrating to the Mock Scanner room (optional).

Mock Scanner

Room/Equipment Set Up (prepare ahead of time):

1. Mock Table

- Make sure there is paper on the table and over the head rest
- Make sure there are white protectors on the headphones
- Make sure the diamond button box is available
- Place step stool at end of table (likely not needed for adults)

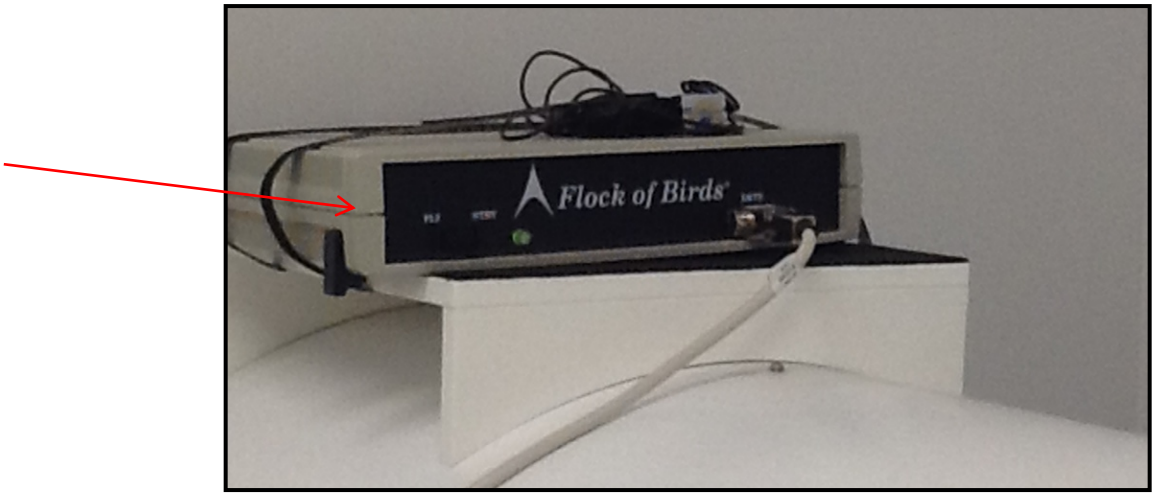


2. Audio

- CD player is on. Use our CD with MRI sounds. (CD is kept in drawer in practice room.)

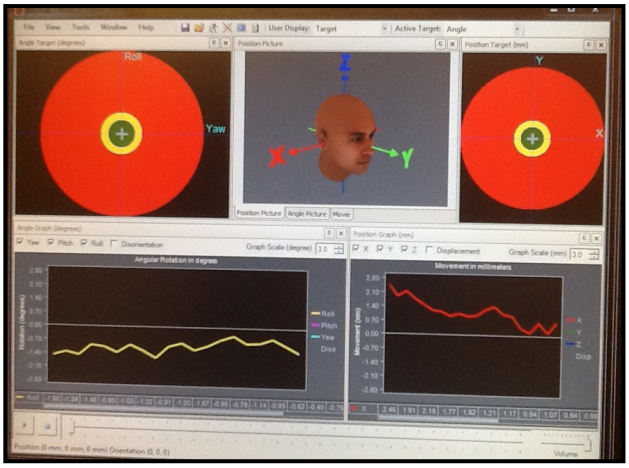
3. Flock of Birds (on top of Mock):

- Should be set to “FLY”



4. Computer

- Log on to computer using “MRI” log on (might already be logged on), there is no password.
  - Get with Nikki or current RA about computer login information.
- Open Motrak
  - Should not have any errors when it opens
  - Make sure USER DISPLAY is set to MOVIE



Participant Set up

1. Have the participant sit on the Mock Scanning table (use step stool if necessary)
2. Explain the purpose of the Mock Scanner

"The purpose of the mock scanner is to show you what the real scanner will look, feel and sound like. Because you won't be able to move while the real scanner is taking your pictures, we are going to use the mock scanner to practice staying as still as possible."

"While you are in the mock scanner we will practice one of the tasks we just went over. If you move too much, the task will stop. I will also play a cd of some sounds you will hear during the MRI. The MRI makes a lot of noise when it's taking your pictures, but at no point is anything going to touch or hurt you. When the noises stop that means we are done taking pictures for a minute and that is when I will check in with you. Remember it is very important that you stay as still as possible".

3. Allow the participant to lie back on the table
4. Place sensor over forehead. Make sure the sensor is on the CENTER of his/her forehead.

"This sensor is going to help tell us how much your head is moving. We will only use this sensor in the mock scanner, you won't have it on in the real scanner."

5. Give the participant the button box for practice. Show them with their fingers which is the yes and no button. Encourage them not to look.
6. Place headphones over the participant's ears. Place the coil over their head.

"This is the coil. It will go over your face and head but will not touch you. This will allow us to take close up pictures of your brain. There is a mirror on the coil that allows you to see the screen. Let me know if you can't see it."

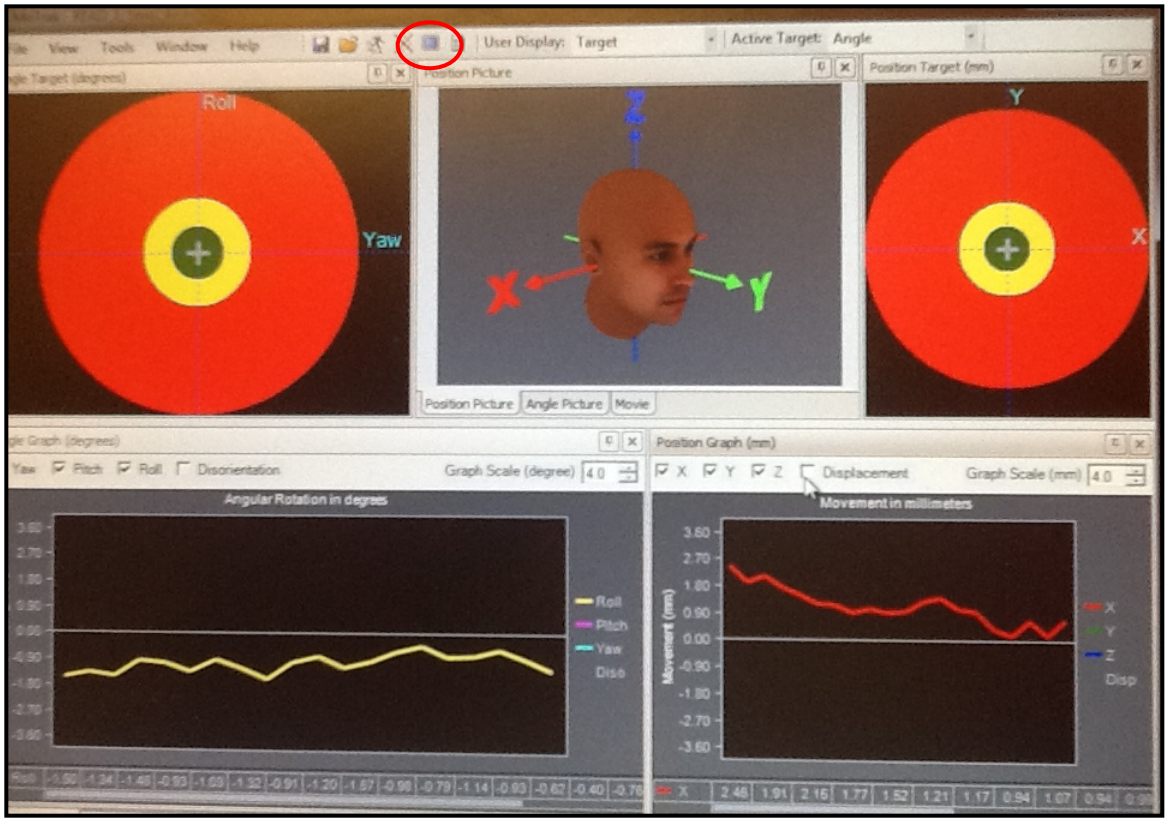
7. Adjust the mirror as necessary so they can see the screen.
8. Answer any questions and if they are OK, retract the table into the tube.

"Remember to stay very still when you hear the noises and we are practicing the tasks. Are you doing OK?
OK, great! So just like in the real scanner, I am going to step off to the side so that you can't see me but you can still hear me and I can see and hear you. How are you doing?
"

START the Mock Scanner, TRIAL 1: READ_1_5min_4mm

Once you have the participant in the mock scanner, you are ready to run the program.

1. Click the purple running man at the top of the screen:



2. A screen will appear and it will ask you if you want to write the data to a file:
   - Click **NO**
   - The program will now be running

3. Click play on the CD player for the MRI sound (adjust volume as necessary)

4. Click play at the bottom of the Motrak screen to start the movie

***** When the trial is over (or you need to stop) *****

- Stop the CD player
- Click stop at the bottom of the Motrak screen to stop the movie
- Click the stop sign at the top of the Motrak screen (where the running man was) to stop the program.
- Get the participant out of the mock scanner
- Recommend a break before they move on o the next step, TMS.

fMRI/EEG Scan Procedures

Preparing for EEG

Participant should change to scrubs (available in the bathroom) before the next step. Ask them to use restroom if needed. They can keep their stuff in a locker if they like.

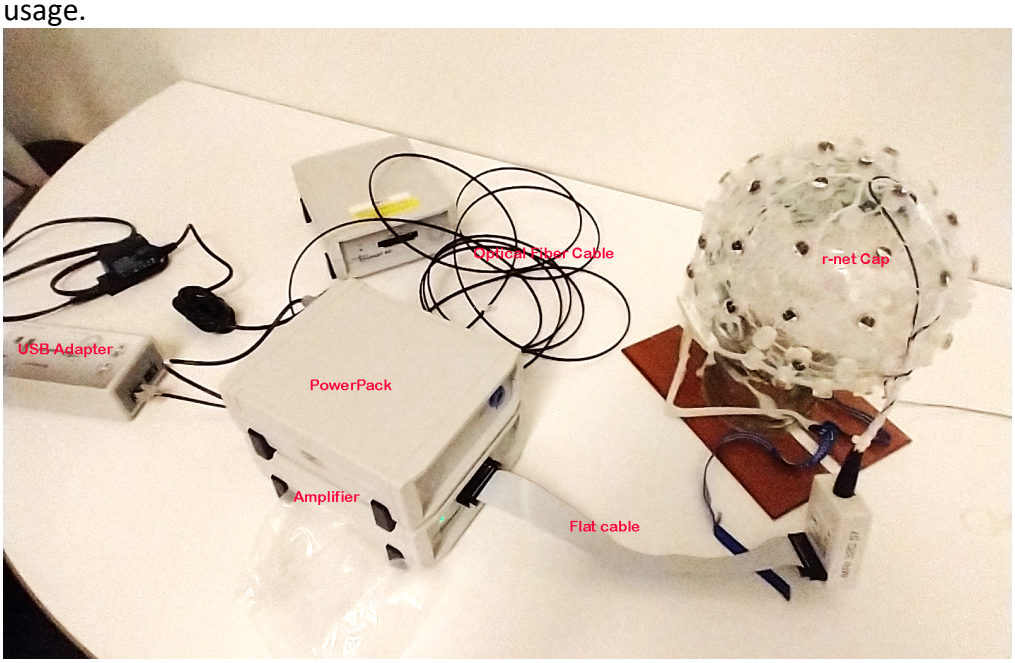
See CREST concurrent EEG/fMRI manual for more details. We are using 64 channel BrainCap with gel instead of 32 channel R-net

Prepare EEG Equipment

The basic assembly of EEG is indicated as below, with USB cable connected to the EEG recorder PC via adapter on the left. When testing/prep, using long flat cable and short optical fiber cable, and use short flat cable and long optical fiber cable inside the MR scanner.

Before EEG-MRI recording, only the 'USB adapter' shown here is outside at the control room and all other devices should be ready inside the scanner room.

Important: use SHORT flat cable ONLY inside scanner! Recharge the PowerPack after every single usage.



When connecting the Amplifier with PowerPack, make sure both devices are working properly. The switch on the amplifier should be turned 'on' and all LED lights are on. The black arrows on both ends of PowerPack cable are facing upwards. Both ends of optical fiber cable are plugged in properly and connect amplifier 1 into fiber optic 1 (2 into 2, not used for R-Net 32 cap).

Note: if this part is not working properly, try plug/unplug the charger, reconnect all the cables, swap amplifier and/or cables. Once the LED and amplifier are on, do NOT switch off the amplifier till the experiment ends.

Preparing for MRI

Make two copies of last signed page of consent – (one for MR tech. and the other for participant who gets whole consent form).

Give EEG/MRI requisition forms, Informed consent last page to MRI Tech., and MRI Screening form (they will return it back to us).

Heartrate and Respiration sensors, Motiontracking also need to be connected. Don't stack amplifiers so screen/subtitles are not blocked.

'White cable' for triggers has loose connection. Make sure it's fixed properly/replaced to receive triggers.

Prepare Computer & Control Room

1) Completed by the MRI tech: Set up control room: button box, trigger box, headphones (new plugs), & a clean sheet (at foot of the bed), heartrate, respiration sensors.
2) Confirm the projector is turned on, and screen is flipped correctly.
3) Login under the account: **Krishna** (no password)
4) Use latest Github code for SYMeditation from TReNDS Center github page and copy to Desktop: https://github.com/trendscenter/SYM_CABI_MeditationStudy
5) Open **Desktop/SYM_CABI_MeditationStudy/PsychopiScanSequences** folder
6) Open Youtube in **Firefox** (shortcut on desktop)
7) Keep volume at 90 on Psychopi PC. Scanner computer music volume headphones to max in room settings.
8) To avoid dinging noise constantly from the scanner trigger, connect second display and move mouse control to that display so scanner triggers ('5' keys) go there instead of main monitor mirrored to participant.
9) Make sure button box receiver is set to 1x4 and HID KEY 12345
    a) To change:
        i) Press knob and turn knob to select YES
        ii) Turn knob to select auto-configure
        iii) Turn knob to select HID KEY 12345
10) Open **SCREEN test Smiley** Folder and launch the program.

***** Have the show ready, vitamin E ready, & double check that the scanner is ready BEFORE the participant enters the room*****

Prepare Participant in Control Room

1. Ask them to use the restroom if needed
2. Take off all metal items/belt/keys and place in basket/locker
3. If participant is wearing glasses, make sure they remove and keep with belongings

- Give participants corrected MRI safe lenses
- Make note of eye prescription on Scan Log

4. Confirm Youtube choice with participant
5. Place Vitamin E on ***LEFT*** side of the forehead (not needed with EEG cap)
6. Have participant take off shoes and place near lockers in the control room

Move into MRI Room

1. The following is completed by MRI Tech: Enter MRI room first and allow the participant to follow making sure there is no metal on their body
2. Have participant lay on the scanning table with shoulders touching head coil
3. Give emergency squeeze ball
    - Tell them to squeeze this in *an emergency situation only*
4. ~~Give the diamond button box and show buttons~~
    - ~~They should be familiar with this from the practice~~
    - Button box connected but not given to participant
5. Allow MRI Tech to put on headphones, pads, and coil around participant's face
6. **Allow MRI Tech to put on sensors for breathing, heartbeat and motion tracking**
7. Make sure participant is comfortable and OK after MRI tech has left the room
8. Cover with sheet, if desired

****Immediately after MRI door closes, turn up the volume on the intercom and talk to the participant, also check breathing video volume is good for participant****

Be sure to reiterate importance of being still.

Use updated Git Psychopi code from:
https://github.com/trendscenter/SYM_CABI_MeditationStudy
See SYM_CABI_MeditationStudy/PsychopiScanSequences/CodeNotes.txt for how to run

Later: EEG Output names not consistent across tasks, keep them similar. Multiple runs of an EEG task (if there is some issue) using same name and overwriting previous runs even if we give a new 'run' number. Use a new filename each time using 'sub'+'run' both.

MRI Data Acquisition

Quality Rating Assessment Criteria

0 = All data collected/Minimal motion

- Structural (T1 & Bo) [Symbol] Motion artifacts (ripples) present in less than 20% of sequence slices; assessment made after entire sequence has been collected.
- Structural (MRS) [Symbol] Motion observed (jumps) in less than 10% of sequence slices; assessment made in scanner viewer as sequence is being collected.
- Functional (PID & Olson) [Symbol] Less than 5 large spikes in red zone; assessment made on motion monitor as sequence is being collected

1= All data collected/moderate motion

- Structural (T1 & Bo) [Symbol] Motion artifacts (ripples) present in less than 50% of sequence slices; assessment made after entire sequence has been collected.
- Structural (MRS) [Symbol] Motion observed (jumps) in less than 25% of sequence slices; assessment made in scanner viewer as sequence is being collected.
- Functional (PID & Olson) [Symbol] Between 6 and 10 large spikes in the red zone; assessment made on motion monitor as sequence is being collected

2= All data collected/excessive motion

- Structural (T1 & Bo) [Symbol] Motion artifacts (ripples) present in more than 50% of sequence slices; assessment made after entire sequence has been collected.
- Structural (MRS) [Symbol] Motion observed (jumps) in more than 25% of sequence slices; assessment made in scanner viewer as sequence is being collected.
- Functional (PID & Olson) [Symbol] More than 10 large spikes in red zone or motion capture stops before sequence is complete; assessment made on motion monitor as sequence is being collected.

3= Incomplete data/aborted -- Sequence is stopped for any reason, before completion

Sequence Abort/Restart Protocol

- Structural (T1, MRS, [Symbol] If sequence is rated as a 2 or 3 then sequence should be rerun
- Structural (DTI)[Symbol] If sequence is rated as a 2 or 3 with less than 1:30 minutes of sequence completed then the sequence should be restarted/rerun
- Functional (PID) [Symbol] If sequence is rated as 2 or 3 before first stimulus picture set has been completed (approx. 1:30 minutes) then the sequence should be restarted/rerun
- Functional (Olson) [Symbol] If sequence is rated as 2 or 3 before first stimulus picture set has been completed (approx. 1:30 minutes) then the sequence should be restarted/rerun

Scan Abort/Pull out Protocol

- When proceeding with a scan abort/pull out protocols, consideration should always be given to length of time subject has been in scanner. Scan time should run no longer than 1 hour 15 minutes (including the pullout break)
- Each sequence may be repeated/restarted once with a focus on getting at least once “0” run of each scan type.
- If *two sequences* in a row are rated 2 or 3 then ask if there is anything that can be done to improve the comfort level of the subject.
- If *three sequences* in a row are rated 2 or 3, offer the subject a short break. **Be sure to reiterate importance of being still.**
- Time should also be focused on making sure the participant is comfortable in the scanner and asking if there is anything that can be done to improve comfort level.
- After pull out break, if participant cannot remain still during functional tasks but appears to do ok during Youtube breaks, focus should be on acquiring “0” rated structural data.
- Should scan time reach 1 hour and or quality ratings have not improved (at least a “1”) after pull out break, then remainder of the scan should be aborted.

Scan Sequences Overview

MRI Scan Sequence	Approximate Scan duration (minutes: seconds)	Activity on display
B0map	1:00	
T-1 weighted MPRAGE	8:00	Fixation Cross/Video of their choice
Resting state fMRI (1) (eyes closed)	8:03	Eyes closed
Aversive visual stimuli task fMRI	8:20	Task
Resting state fMRI (2) (eyes closed)	8:03	Eyes closed
Slow breathing SYM task fMRI (video)	7:20	Task
Meditative (thoughtless) state fMRI (eyes closed)	8:03	Task
Total Scan Time:	~50	

Later: Change workspace file to use a different directory on EEG machine than CREST (not done yet)

Keep scan log sheet ready and update the timings, EEG cap size, electrode impedence details, and other details as we keep scanning.

Screen and Sound Test: Button Box, Corners, Sound (not doing this)

1. Run the **Screen_Testwithsmiley** (Purple running man)

"Ok _____, we are going to get started. Can you hear me ok?"

2. **Button Box Test**
    a. Have participant test buttons (1 & 3)

"The first thing we are going to do is test the buttons. I want you to keep pressing the yes and no buttons back and forth until you see smiley faces."

    b. Check for appropriate lights on response screen in control room

3. **Corners Test**
    a. Confirm participant can view all corners of the screen.

"This screen has smiley faces in all 4 corners. Can you see all of the smiley faces?"

    b. Adjust mirror if necessary.

4. **Sound Test**
    a. Confirm participant can hear all sounds through the headphones.

"I'm going to play some sounds, and I want you to tell me if the volume is OK."

    b. Press the **spacebar** repeatedly to play sounds.
    c. Adjust volume as necessary. (Make sure computer volume is not on mute)
    d. If they can't hear sounds -- troubleshoot
        i. Make sure SOURCE on mic is set to A

T-1 weighted MPRAGE

"Okay _____, we are going to get started. Can you hear me ok?
Great. Now we're ready to start our first set of images.
We just need you to relax and look at the (plus sign/Youtube video). Think about whatever you would like. Remember to stay very still. I'll check back with you in about 8 minutes."

1. **Show only psychopy output on participant screen, not any psychopy commands etc.**
2. Change Audio to **Source A**.
3. Turn up volume and talk to participant:
4. Change Audio back to **Source B**.
5. To avoid dinging noise constantly from the scanner trigger, connect second display and move mouse control to that display so scanner triggers ('5' keys) go there instead of main monitor mirrored to participant.
6. Check 'X' scanner trigger and other task triggers are showing correctly on EEG PC RecView during the scan and '5's show up on notepad on the second monitor of Psychopi PC
7. Open the fixation cross (from **Desktop/SYM_CABI_MeditationStudy/PsychopiScanSequences/images /fixation_cross.png) or youtube video** on the screen and inform MRI technician to start the scan
8. Order – Show fixation cross -> Start Scanner -> End scanner after 8min -> Close fixation cross
9. Once sequence is complete, close the fixation cross or youtube video.
10. Check in with participant again

Resting state fMRI (1) (Eyes closed)

"Great job! How are you doing? Just like before, we just need you to relax and please keep your eyes closed and think about whatever you would like. Remember to stay very still and try not to fall asleep. I'll check back with you in about 8 minutes."

1. **Show only psychopy output on participant screen, not any psychopy commands etc.**
2. Change Audio to **Source A**.
3. Turn up volume and talk to participant:
4. Change Audio back to **Source B**.
5. To avoid dinging noise constantly from the scanner trigger, connect second display and move mouse control to that display so scanner triggers ('5' keys) go there instead of main monitor mirrored to participant.
6. Check 'X' scanner trigger and other task triggers are showing correctly on EEG PC RecView during the scan and '5's show up on notepad on the second monitor of Psychopi PC
7. Run the psychopy python script : "**3_RestingState1.py**" and inform MRI technician to start the scan, within 10 seconds after recording starts on EEG machine. Once sequence is complete, press ESC key.
8. Order - StartPsychopy -> Start scanner within 10s of recording start on EEG machine -> End scanner after 8min -> PressEscToEndPsychopy
9. Check in with participant again

Aversive visual stimuli task fMRI

OK _____, *you are doing a great job! Now we're going to have you watch some set of photos on the screen. Each set consists of 3 photos, either all aversive or non-aversive. Please empathize with the photos as you look at them on the screen. Just like before, remember to stay very still.* Are you ready? Here we go. *I'll check back with you in about 8 minutes."*

Make scanner time for this task 8:20 instead of 8:10

1. **Show only psychopy output on participant screen, not any psychopy commands etc.**
2. Change Audio to **Source A**.
3. Turn up volume and talk to participant:
4. Change Audio back to **Source B**.
5. To avoid dinging noise constantly from the scanner trigger, connect second display and move mouse control to that display so scanner triggers ('5' keys) go there instead of main monitor mirrored to participant.
6. Check 'X' scanner trigger and other task triggers are showing correctly on EEG PC RecView during the scan and '5's show up on notepad on the second monitor of Psychopi PC
7. Run the psychopy python script: "**4_AversiveVisualStimuliTask.py**" and inform MRI technician to start the scan, within 10 seconds after recording starts on EEG machine. Once sequence is complete, press ESC key.
8. **Order - StartPsychopy -> Within 10s start Scanner -> End scanner after task images end and blank screen shows up -> PressEscToEndPsychopy**
9. Check in with participant again

Resting state fMRI (2) (Eyes closed)

"*Great job! How are you doing? You're about halfway done*. Now, we just need you to relax and just like before, please keep your eyes closed and think about whatever you would like. Remember to stay very still and try not to fall asleep. I'll check back with you in about 8 minutes."

1. **Show only psychopy output on participant screen, not any psychopy commands etc.**
2. Change Audio to **Source A**.
3. Turn up volume and talk to participant:
4. Change Audio back to **Source B**.
5. To avoid dinging noise constantly from the scanner trigger, connect second display and move mouse control to that display so scanner triggers ('5' keys) go there instead of main monitor mirrored to participant.
6. Check 'X' scanner trigger and other task triggers are showing correctly on EEG PC RecView during the scan and '5's show up on notepad on the second monitor of Psychopi PC
7. Run the psychopy python script : "**5_RestingState2.py**" and inform MRI technician to start the scan, within 10 seconds after recording starts on EEG machine. Once sequence is complete, press ESC key.
8. Order - StartPsychopy -> Start scanner within 10s of recording start on EEG machine -> End scanner after 8min -> PressEscToEndPsychopy
9. Check in with participant again

Slow breathing SYM task fMRI (video)

"OK _____, you did great! ***Now we're going to have you watch a slow breathing exercise video we talked about. While watching the video, please practice the slow breathing exercise as guided in the video, with eyes open. Please continue to perform these slow breathing exercises even after the video finishes, while keeping your eyes open.*** **Are you ready?** ***Remember to stay very still. I'll check back with you in about 7 minutes."***

Make scanner time for this task 7:20 instead of 7:10

10. **Show only psychopy output on participant screen, not any psychopy commands etc.**
11. Change Audio to **Source A**.
12. Turn up volume and talk to participant:
13. Change Audio back to **Source B**.
14. To avoid dinging noise constantly from the scanner trigger, connect second display and move mouse control to that display so scanner triggers ('5' keys) go there instead of main monitor mirrored to participant.
15. Check 'X' scanner trigger and other task triggers are showing correctly on EEG PC RecView during the scan and '5's show up on notepad on the second monitor of Psychopi PC
16. Run the psychopy python script: "**6_SlowBreathingSYMTask.py**" and inform MRI technician to start the scan, within 10 seconds after recording starts on EEG machine. Once sequence is complete, press ESC key.
17. Order - StartPsychopy -> Within 10s start Scanner -> Scanner task ends and blank screen shows up -> PressEscToEndPsychopy
18. Check in with participant again

Meditative (thoughtless) state fMRI (eyes closed)

"Okay _____, we're almost done. Now, we just need you to keep your eyes closed and focus your attention on top of your head near the fontanel bone region and remain in a meditative/thoughtless state to the extent possible. After this, you will be done, and we'll get you out. Remember, we're still taking pictures of your brain, so please close your eyes and be very still. **Are you ready?** ***Here we go."***

1. **Show only psychopy output on participant screen, not any psychopy commands etc.**
2. Change Audio to **Source A**.
3. Turn up volume and talk to participant
4. Change Audio back to **Source B**.
5. To avoid dinging noise constantly from the scanner trigger, connect second display and move mouse control to that display so scanner triggers ('5' keys) go there instead of main monitor mirrored to participant.
6. Check 'X' scanner trigger and other task triggers are showing correctly on EEG PC RecView during the scan and '5's show up on notepad on the second monitor of Psychopi PC.
7. Run the psychopy python script: "**7_MeditativeThoughtlessEyesClosedState.py**" and inform MRI technician to start the scan, within 10 seconds after recording starts on EEG machine. Once sequence is complete, press ESC key.
8. Order - StartPsychopy -> Within 10s start Scanner -> Scanner ends after 8 minutes -> PressEscToEndPsychopy
9. Check in with participant again

Keep scan log sheet ready and update the timings, quality, EEG cap size and other details as we keep scanning

Post-Scan

1. **Copy updated scanner script**
2. **Copy EEG Data to Desktop/SYM/Subject folder/**
3. **Copy EEG Data, Psychopi output data, MRI scan data into encrypted drive**

Subject: Remove EEG cap, and subject can change back from scrubs (may also wash their hair in the bathroom or kitchen sink, or go home and shower).

Post Scan Procedures (Subject)

1. Immediately assist the participant out of the scanner and allow them to take a break (restroom, water, etc.)
2. Provide them their belongings and walk with them to the practice room
3. Complete the following forms (post scan survey, Adverse Effects surveys):
    a. SYM Post Scan Questionnaire
    b. SYM AdverseEvents researcher survey
    c. SYM AdverseEvents Questionnaire
4. Provide compensation: $15 for screening and pre-scan surveys, $30 for EEG cap setup and MRI/EEG scan, and $15 for post-scan surveys (a total of $60), sign compensation receipt(s)
5. Thank them for their participation and walk them out.

Post Scan Procedures (Data)

6. Copy EEG Data to Desktop/SYM/Subject folder. Copy EEG Data, Psychopy output data, MRI scan data into encrypted drive with PID and date
    a. Copy subject folder to the shared drive
    b. Participant Scan Log sheet
        i. Complete the log sheet for the participant- add comments to the bottom if necessary
7. Make sure you safely carry/store the participant folder and harddisk.
8. Clean the EEG Cap, charge EEG battery
    a. While cleaning the cap, count the electrodes one by one up to 64 and make sure each is cleaned. And then turn around the cap and clean once more (can't count now as there would be no more gel).
9. Scan the participant log sheet on the HP scanner in the control room
        i. Place face down in scanner
        ii. On the MRI stimulus computer, click on the HP Scanner icon on desktop
        iii. Choose the #2 scanner option
        iv. Click to save it as a PDF
    b. After the log sheet is scanned, save it in the appropriate participant folder on the drive: **CDXXX/ CDXXX_Day2_MM.DD.YYYY/ CDXXX MRI Scanlog MM.DD.YYYY**
10. Make sure all data is in appropriate file and log off computer
11. Upload EEG data, Psychopi data to COINS. Check MRI, motion tracking, heartrate, respiration data is uploaded to COINS.
12. Scan all participant documents and keep identifiable and deidentified data in separate subfolders for the subject. Password protected.