York MRI Facility

MRI Simulator Usage and Booking Policy

1. Introduction

1.1. The MRI simulator is a valuable shared resource at the York MRI Facility. It is located in Sherman Health Science Research Centre Room 1036.

1.2. The MRI simulator was purchased from Psychology Software Tools. More information can be found on their website https://pstnet.com/products/mri-simulator/.

1.3. The MRI simulator allows the researcher to simulate the MR environment to prepare participants in advance of MRI data acquisition, without incurring safety risks and expenses. The bore diameter of the MRI simulator matches that of the MRI scanner. The button boxes available in the simulator also match those used in the MRI suite.

2. Scheduling the MRI Simulator

2.1. Use of the MRI simulator must be scheduled on the online google calendar. Please contact the MRI Technologist at the York MRI Facility for access to the google calendar.

2.2. If a simulator session is no longer needed, the researcher must remove the booking from the google calendar.

2.3. Simulator sessions are generally scheduled on a first come first served basis.

2.4. If there are multiple groups interested in booking the same time on the MRI Simulator, the group with the most imminent MRI session should have priority.

3. Access to the MRI Simulator

3.1. Use of the MRI simulator is limited to researchers conducting MRI studies.

3.2. Access to the MRI simulator is at the discretion of the Director or MRI Technologist of the York MRI Facility.

3.3. The key to the MRI simulator room, Sherman 1036, is contained in the lockbox mounted beside the door.

3.4. The code to the lockbox can be obtained by contacting either the Director or the MRI Technologist of the York MRI Facility.

3.5. Training sessions for proper use of the MRI simulator are available upon request. Please contact the MRI Technologist to book a training session.

4. Startup procedure for the MRI Simulator and Accessory Components

4.1. Please display the sign stating "In Use Please Do NOT Disturb" on the door to avoid interruptions during your simulator session.

4.2. Turn on the computer and allow it to fully boot.

4.3. Turn on the projector.

4.4. Turn on the simulator.

4.5. Turn on the MoTrak console.

4.6. Open the MoTrak software.

4.7. Allow 5 minutes for the system to warm up.

4.8. Open SimFX software and select the appropriate sound files.

5. Preparing the MRI Simulator and Participant

5.1. The researcher is responsible for ensuring the health and safety of the participant during the simulator session.

5.2. Place a clean sheet on the MRI simulator bed.

5.3. Fasten the MoTrak headband on the participant, ensuring it is secure and comfortable.

5.4. Position the participant on the MRI simulator bed with their head in the head coil.

5.5. Place the anterior portion of the head coil over the participant with the mirror in place, and confirm that the participant can see behind them, into the bore.

5.6. When the participant is comfortable and ready, press the "Table" button to advance the bed into the bore of the simulator.

5.7. Adjust the simulator lights and fan as needed.

5.8. Confirm that the participant is comfortable in the bore and is not experiencing claustrophobia.

6. Motion Tracking

6.1. With the computer fully booted and MoTrak software started

6.1.1. Press "Run" to start the MoTrak session
6.1.2. Press "Centre" to move the crosshairs to the centre of the bullseye. Re-centre crosshairs as needed throughout the session.
6.1.3. The MoTrak sensor on the headband must be in close proximity to the transmitter to ensure reliable tracking (i.e. inside the bore).

6.2. Adjust the size of the bullseye on the screen, so it is clearly visible by the participant.

6.3. Inform the participant that the crosshairs indicate their head position.

6.4. Ask the participant to perform any of the following while watching the crosshairs for motion.

    6.4.1. Wiggle toes.
    6.4.2. Take a deep breath.
    6.4.3. Touch their nose.
    6.4.4. Move their ankles.
    6.4.5. Any other movement deemed appropriate.

6.5. Re-centre the crosshairs and ask the participant to practice laying still.

6.6. Play selected scanner sounds for desired length of time.

6.7. The researcher may also allow the participant to practice the task in the MRI simulator.

7. Completing the MRI Simulator Session

7.1. When the MRI Simulator Session is complete, and the participant is ready to come out, press the "Table" button to move the bed out of the bore.

7.2. Remove the anterior portion of the head coil and the MoTrak headband.

7.3.   The participant may now step down off the bed. Please use the step stool or step stool with handle as necessary, based on the participant's needs and ability.

7.4. The researcher should now take some time to discuss the session with the participant as any feedback will assist with the setup in the MRI scanner.

7.5. Place dirty linens in the laundry hamper.

7.6. Return all other equipment to its respective place for the next user.

7.7. Remove the sign from the door of the MRI Simulator room.

8. Shutdown of the MRI Simulator

8.1. On the computer, save any necessary session information.

8.2. Close the MoTrak software.

8.3. Close the SimFX software.

8.4. Switch off the MoTrak console.

8.5. Switch off the Simulator.

8.6. Turn off the projector (Press power button twice).

8.7. Shutdown the computer.