

Appendix D – Pre-Screening Sample Questions

MRI Pre-Screening

The following is an example set of questions for pre-screening participants to scan at the BRIDGE Center. The approach to screening for safety critical questions such as implants or metal in the body is to ask the question multiple times in different forms. This approach decreases the risk that a critical contraindication for MRI might be missed.

Questions can be divided into four categories:

1. **Demographic Information:** Questions including name, birthdate, weight, and contact information. Some of this information is for contact purposes, other information is related to safety (weight), and other is related to IRB protocol compliance (participant is within age range).
2. **MRI Safety Screening:** Questions for ensuring that the participant has no contraindications for the MR environment and that they are safe to scan. *Pre-screening should definitely include these questions.*
3. **Data Quality Screening:** These questions are regarding things that do not pose a safety risk for being scanned in an MRI, but could indicate poor data quality or other problems from a research perspective. *These questions are highly recommended to be included.*
4. **Research Exclusion Questions:** These questions are specific to a particular experiment and are given as examples of things that might exclude someone from participation. *These questions are optional but recommended.*

Below is a set of example questions along with the reasoning for the question provided in italics. The pre-screening questions can be conducted via in person interview, on paper, phone interview, or secure online survey (e.g. Qualtrics). The questions are presented in no particular order. The pre-screening questionnaire should be IRB approved and might require consent or assent before questions are asked depending on IRB requirements.

Demographic Information

- Name, Email, Phone Number?

Contact information for the participant.

- Male or Female?

To confirm if questions specific to female participants have been completed.

- Age?

The age of the participant must be within the IRB approved age range for the study.

- Weight & Height?

The correct weight must be entered into the MRI console to properly calculate SAR restrictions. In addition, this information can be used to verify if the participant can comfortably fit in the Verio MRI.

MRI Safety Screening

- Have you had a prior surgery or operation? If yes, please describe in next question.

The first of a number of questions to confirm if the participant has any implants or items in their body that are not MRI compatible.

- Do you have non-removable electronic, mechanical or magnetic implants anywhere in your body (metal screws, etc.)? If yes, please describe the metal implants below.

Another question to confirm the participant does not have a pacemaker, stent, or other object not compatible with MRI in their body.

- Have you ever been injured by a metallic object or foreign body (e.g. BB, bullet, shrapnel, etc.)? If yes, please describe the injury below.

Another question to confirm the participant does not have ferrous metal in their body.

- Do you have any intravascular stents, filters, aneurism clips, or shunts?

This question is technically covered by the above questions, but is re-asking the question as a confirmation that the participant does not have the most dangerous MRI contraindications.

- Do you have a cardiac pacemaker?

This question is technically covered by the above questions, but is re-asking the question as a confirmation that the participant does not have the most dangerous MRI contraindications.

- Do you have a cochlear implant?

This question is technically covered by the above questions, but is re-asking the question as a confirmation that the participant does not have the most dangerous MRI contraindications.

- Do you have any non-removable body piercings?

All piercings (even non-ferrous) must be removed before scanning due to risk of the metal heating and causing burns.

- Do you have an IUD? If so, indicate which one.
 - No, I do not have an IUD.
 - Mirena
 - Paragard (copper)
 - Skyla
 - Liletta
 - Kyleena
 - Lippy Loop
 - I have an IUD but I don't recall/don't know which one.

Only three IUDs are 3T MRI compatible without restriction: Mirena, Liletta, Lippy Loop. All other IUDs FDA approved in the United States have a metal component (copper for Paragard, silver rings in Skyla and Kyleena), and are thus not 3T MR Safe and will not be scanned at the BRIDGE Center.

- Do you have any large tattoos?

Most tattoos are fine for MRI scanning. However, the MRI Technologist may ask for details about very large tattoos, tattoos on the head, and old tattoos. The ink in some tattoos (especially older) can contain iron and thus cause irritation.

- Have you ever done any welding, grinding, or cutting of metal in your lifetime? If so, please describe how much, whether or not you wore eye protection, and if you ever had an injury while working with metal.

The primary concern with this question is if the participant has had an injury to the eye with metal. A metal shard in the eye could potentially move as the participant enters the MRI and cause eye or nerve damage.

- Females: are you pregnant, or suspicious you may be pregnant?

As per the BRIDGE Center pregnancy policy, pregnant women are not to be scanned unless the study meets the specific exception criteria.

- Do you have a medical history of developing seizures?

There is a possibility that the RF pulsing and changing gradients might induce seizures. Thus individuals with a history of seizures should discuss their condition with the MRI Technologist

- Do you have a history of claustrophobia or discomfort with confined spaces?

Individuals known to be claustrophobic should not be scanned.

- Are you able to tolerate loud noises for sustained periods of time?

Even with earplugs, the MRI scanner is loud and individuals with sensitive hearing should not be scanned.

- Have you experienced any problem related to a previous MRI examination or MR procedure? If yes, please describe the problem in next question.

This question is a check for any unusual or unexpected problems that the participant might have experienced in a previous MRI scan.

- Do you currently have an ear infection or any ear pain?

It is possible that the loud noise of the MRI scanner and vibrations could aggravate an existing ear infection. An ear infection or ear congestion can also make it difficult to determine if earplugs are properly inserted. Therefore the BRIDGE Center does not scan participants with an active ear infection or ear pain.

Data Quality Screening

- Do you currently have braces?

Braces are safe in the MR environment, but they will cause large artifacts in MRI scans and make data essentially useless. Thus participants with braces should not be scanned.

- Do you have a permanent retainer?

- No
- Yes - top retainer
- Yes - bottom retainer

Permanent retainers are also MR safe but can cause data artifacts. Bottom retainers will cause dropout in the mouth region on MPRAGE anatomical scans but generally do not

interfere with fMRI data quality or MPAGE quality in the actual brain. Top retainers however usually cause artifacts in the frontal lobe of anatomical and fMRI scans and are thus not recommended to scan.

- If you wear glasses, do you also have contact lenses available?

Contact lenses are typically easier for MRI scanning than glasses for those who do not have normal vision. However one risk of contact lenses is eyes drying out while in the scanner which can cause excessive blinking and discomfort.

- If you wear glasses, what is your prescription?

The BRIDGE Center has two sets of MRI compatible glasses. However there is a limited prescription range so it is best to know the prescription of your participant ahead of time. Knowing your participant's prescription also allows for a faster setup time since lenses do not have to be tried out.

- Are you able to hold still for over an hour?

It is usually a good idea to ask participants if they can hold still for a long period of time. Excessive motion will make the scan data unusable. If a participant knows they are fidgety they might not be suitable to participate in MRI.

- Do you currently have a cold, or allergies that result in sneezing or coughing?

Any sneezing or coughing during the MRI scan will cause excessive motion and most likely make the data unusable.

Research Exclusion Questions

Research exclusions questions are highly dependent on the study criteria. These criteria should be carefully considered and participants should be screened for anything that might exclude them before they are scheduled for an MRI study session.

Common criteria include:

- Handedness
- Color blindness
- Native language
- If the participant is taking psychoactive medication
- Etc.