

**Biomedical Imaging Center
Beckman Institute for Advanced Science and
Technology**

3T RUNNING RULES for 3T Magnets

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DEFINITIONS:

A **RUN** is defined as a block of hours on any given day.

A **SESSION** is defined as an individual participant's participation in a given run on a given day.

A **SCAN** is defined as a series of collected images within a given protocol.

A **PROTOCOL** is defined as that set of parameters associated with a given study. You will name and date the protocol and use that name whenever confirming a run.

PARAMETERS include, but are not limited to, TR, TE, Flip Angle, Bold Reps, etc.

BIC REGISTRATION

All new users (i.e., faculty, post-docs, and graduate or undergraduate research assistants) must first meet the Center's registration requirements. These include completing the user registration forms AND viewing an MRI video. Contact BIC Program Coordinator, Shelly Yambert, at ryambert@illinois.edu or (217) 244-0600 to begin this process.

ORIENTATION AND TRAINING

In addition to the above registration, all new users (and users who have not been active in the Center in more than one year) are required to attend an orientation and training session with one of the MRI technologists. The session will cover the topics below. To schedule your appointment please send an email to Allegra-Scans@beckman.illinois.edu. This will be done in conjunction with BIC Registration.

- 1) General safety issues in the control room
- 2) Set up and shut down of stimulus presentation equipment
- 3) "De-metaling" procedures
- 4) How to assist the MRI technologist in positioning the participant in the scanner
- 5) 3T running rules
- 6) Mock magnet rules

Mock Magnet

The mock magnet is used to screen out participants who are claustrophobic or who might not fit in the Siemens MRI magnets. This will be covered at the same time as the 3T training. Use of the mock magnet is free.

Note: BIC may bill users for 3T scanning time that is halted due to a failure to adequately pre-screen the participant.

SCHEDULING 3T SCANNER AND MOCK MAGNET TIME

To view the calendar, go to:

<https://reservations.beckman.illinois.edu/BIC/>

- Prior to beginning the research study and data collection, users should schedule a time with a research scientist to go over their protocol. At this time, a protocol folder to store the research data, DPD (detailed protocol description) and a PDF of the research study will be created. Email requests to Allegra-Scans@beckman.illinois.edu
- Be sure to include:
 - Time and date preferences
 - Number of hours requested
 - Which lab you are scheduling for
 - An account number (CFOP) for the study
- Request for additional runs or changes to the schedule follow the same procedure. BIC will try to accommodate all run requests whenever possible.
- **ANY** time that requires access to the magnet room must be reserved. To request this time please contact Program Coordinator, Shelly Yambert with information about why this time is needed, and how much time will be required.

Mock Magnet

The mock magnet is available 24 hours a day, 7 days a week. Reservations and cancellations can be done online at: <https://reservations.beckman.illinois.edu/BIC/>. Users will first need to register.

Kindly advise any early-bird participant that the building remains locked until 7:30 am. Researchers are also expected to arrive half an hour early to set up and to greet the participant.

CANCELLATIONS

- Email cancellations to Allegra-Scans@beckman.illinois.edu or Trio-Scans@beckman.illinois.edu. **at least 48 hours before the scheduled session or run.**
- Cancellations for Monday must be submitted by noon on the previous Friday.
- Failure to do so may result in the user being billed for the reserved time.
- Kindly provide your participants with **your** contact information (and not BIC's) in case they need to cancel at the last minute.

REQUIRED FORMS

Consent Form

All users must have a stamped IRB-approved consent form on file at BIC prior to data collection (please submit it to the technologist at the scan session). During a session, the researcher must do the following:

1. Check that the consent form is current
2. Ask the participant to read, sign, and date the consent form prior to entering the magnet
3. Be available to answer any questions
4. Give the participant a copy of the consent form
5. Give the signed consent form to the technologist in charge

Note: Go to <http://bic.beckman.illinois.edu/policies> to download a copy of the consent form template.

Safety Screening Form

All potential participants should be screened using the BIC Safety Screening Form (go to <http://bic.beckman.illinois.edu/policies> for the most current IRB-approved version) prior to any sessions being scheduled. Participants will fill out the form again immediately prior to entering the magnet. BIC will keep the screening form along with the consent form in a locked location. Contact MRI technologist with any questions prior to scanning date on the website above.

Scan Confirmation

Users must confirm each session by filling out a Scan Confirmation Form (go to <http://bic.beckman.illinois.edu/policies> for the form) and submitting it to Allegra-Scans@beckman.illinois.edu at least 24 hours prior to the scan time. **Note:** Unless we have been previously notified of other billing arrangements, we cannot confirm your schedule if you do not provide us with an account number. If you do not have a protocol name, please contact one of the research scientists.

Post Scan Report (PSR)

Within 24 hours of the scan, users must check image files and send a PSR to Allegra-Scans@beckman.illinois.edu. The form is downloadable from <http://bic.beckman.illinois.edu/policies>.

RESEARCHER RESPONSIBILITIES

Each lab should assign **ONE** person per experiment to be a BIC contact person. This person will handle scheduling, cancellations, and other administrative tasks.

Researchers are expected to KNOW the following:

- The 3T running rules
- Their PI's contact information or that of a designated senior lab member who can act in their stead
- Their MRI experimental protocol name
- The parameters of their protocol

Researchers are expected to DO the following:

- Provide the participant with their **appointment information**, which should include: researcher name/s, appointment time, and appointment type (e.g., mock magnet, 3T MRI, etc.) and appointment location. The participant should be instructed to bring this appointment information to BIC.
- For each run, there should be **one researcher** at BIC if this is a single run. If running more than one participant in a row your lab must provide **two researchers**. One researcher to greet the participant in the lobby and one to set up the project.
- Arrive **half an hour before** the participant's actual start time and wait for the participant in the lobby. This applies to any type of runs

(e.g., neuropsychological testing, pre- and post-testing, mock testing, 3T runs, etc.)

Note: If the experimenter is 15 or more minutes late for the start of a participant's appointment time, BIC may send the participant home. The lab will still be charged the reserved magnet time and the participant should be remunerated for their time.

- Set up before the participant arrives.
- Provide participant **remuneration** in accordance with the IRB-approved protocol.
- Provide the MR technologist with the **signed consent form** and the **safety screening**.
- Help the MRI technologist to "de-metal" the participant.
- Ask the MR Technologist if any safety questions arise.
- Check the participant's eyesight if safety lenses are required.
- Check all stimulus presentation equipment and button boxes.
- Assist the MR Technologist in positioning the participant and getting the participant out of the scanner when the study is completed.
- Turn off and put away all equipment. Keep cables straight and untwisted as much as possible.
- Respect other labs' reservation time.
- Respect the privacy of all participants in the waiting area or the prep area.

MRI TECHNOLOGIST RESPONSIBILITIES

- Provide orientation and training to users.
- Provide general protocol development assistance to users.
- Review the safety screening form with the participant.
- "De-metal" the participant.
- Position the participant with padding where needed to reduce discomfort and motion.
- Confirm slice positioning with the researcher.
- Perform a cursory image quality check.
- Immediately inform the appropriate personnel if there are any problems related to the participant's safety.
- Immediately inform on-call research scientist if the MR unit goes down or if equipment problems occur.
- Transfer data to the server.
- Check to insure that the data were properly transferred.
- Work with the researcher to assist the participant out of the magnet after completion of the scan.

- Warn the lab if the potential for running over time occurs.

ADVERSE EVENTS

If, at any time **during the scan**, a participant complains of any type of discomfort (e.g., dizziness or nausea), the technologist and user will assess the situation with the participant. When removing the participant from the magnet, keep in mind that sudden movements (including, but not limited to, sitting up too quickly) on their part may aggravate the feeling of nausea and dizziness. The participant should not be released until one of them has spoken to the participant. The researcher, in turn, should follow their lab's emergency protocol. At the very least, they should immediately contact the most senior member of their lab and inform them of the adverse event. Finally, the event should be noted in the Post Scan Report. It is BIC's recommendation to regularly check on the participant while they are in the magnet and to avoid running anyone who is susceptible to dizziness or nausea due to medication or an illness.

FINDINGS OUTSIDE NORMAL RESEARCH LIMITS

If, at any time **during the scan**, a finding outside normal research limits is discovered, the MRI technologist will notify the BIC Director. If the researcher discovers something outside normal research limits, they should alert the primary investigator. Neither the researcher nor the technologist should discuss their findings with any additional persons such as collaborators or friends. The participant should **NOT** be alerted by the researcher or the technologist. It is **NEVER** appropriate to discuss such findings with the participant.

When findings outside normal research limits are discovered, it is best to assume that the participant's data will have to be **discarded** unless you are otherwise informed by BIC. .

Please contact BIC Director, Tracey Wszalek, if you have any questions or concerns at traceyws@illinois.edu or (217) 333-3149.

BILLING

Users are charged for time beginning when the magnet is reserved, or when the participant enters the room if you start your run early. The time ends when your last participant leaves the magnet. (Tip: To avoid over-scheduling, plan to complete any pretesting or prep work before your reserved magnet time.)

If BIC experiences equipment failure preventing the study from being completed, the lab will NOT be charged. If useable data is acquired the charge will be assessed by BIC. Remember BIC charges in 15 minute intervals. Users should present billing questions to BIC during the month in which it occurs.

Open-Book Running Rules Quiz

Where do you look for available time on the 3T Scanner?

Where do you look for available time on the Mock Magnet?

Who do you email to request time on the 3T scanner?

Who do you send a cancellation notification to?

When should the Scan Confirmation be submitted?

How does BIC charge after a completed MRI data study has been scanned successfully with no problems or issues?