MRI SIMULATOR™

SIMULATE THE MRI ENVIRONMENT
SIMULATOR USE CASES

Acclimation

Introduces participants to an authentic scanning environment, eliminating failed scans caused by claustrophobia and anxiety. Participant can be habituated to the MRI environment reducing participant dropout to <5%.

Research

Allows researchers to conduct pilot studies and train participants outside of the magnet. Using the MoTrak system, researchers can train participants to minimize head and body motion, increasing data quality.

Staff & Student Training

Used to quickly train academic, research, or hospital personnel on best practices in the MRI environment in an inexpensive, safe, and controlled setting.

BENEFITS OF MRI SIMULATION

Simulation of the MRI environment before scanning has been shown to reduce motion in the scanner and significantly improve the quality of imaging.

- Increased Data Quality
- Reduced Participant Dropout Rate
- Reduced Participant Anxiety

Use of the mock scanning techniques before fMRI scans can significantly reduce participant anxiety, ensuring that data quality is not affected.

Reduction in participant dropout rate with the introduction of patient comfort programs highlighted by the use of the MRI simulator is proven to be extremely effective.
SIMULATOR OVERVIEW

- removable/foldable side panels
- remote for table control and self-piloting
- dual cooling fans
- diffused lighting
- 60cm bore
- built-in 21 audio system

- easy to use control panel for table, lights, & fans
- various mock head coil/mirror options available
- emergency safety release
- low table clearance and inset rollers to limit pinch hazards
- motorized table with speed & safety controls
- locking casters for easy movement

www.pstnet.com  sales@pstnet.com  412.449.0078
## Technical Specifications

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>134 ¾” x 79 ½” x 81 ¾”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. sizing</td>
<td></td>
</tr>
<tr>
<td>Max. size</td>
<td></td>
</tr>
<tr>
<td>Min. sizing</td>
<td>134 ¾” x 48” x 81 ¾”</td>
</tr>
<tr>
<td>Min. size</td>
<td>– side panels removed or folded back</td>
</tr>
<tr>
<td>Simulator Weight</td>
<td>450 lbs.</td>
</tr>
<tr>
<td>Bore Diameter</td>
<td>60cm</td>
</tr>
<tr>
<td>Shipping Dimensions</td>
<td>88” x 48” x 55” wooden crate; 825 lbs.</td>
</tr>
</tbody>
</table>

### Audio
- Internal audio system: 24W subwoofer / two 8W satellite speakers
- Input connector: 3.5mm Stereo Audio Jack

### Power
- Power Requirements: 120 VAC, 60Hz, 4A
- 230 VAC, 50Hz, 2A, CE Compliant

### Regulatory
- CE Compliant

### Materials
- Bore Façade, Entry, Tube, & Extension Panels: White Plastic
- Participant Table, Pedestals, & Table Base: White Laminated wood

### Weight Limits
- Table Max. Weight: 275 lbs.

### Controls
- Front Control Panel: Participant table movement, Lighting (on/off), Fan (on/off)
- Remote Control*: Controls Participant table movement
- Side Control Panel: Side-located; switch controls power to table, lights, fans, audio system

### Included Components
- Large Components: Bore, Façade, Participant Table, Participant Table Base, Two (2) Extension Panels
- Assembly Components: Two (2) front panel attachment bolts and wing nuts, two (2) locking table alignment knobs
- Power/Audio/Control/Comfort: 2.5m (+/- 0.2m) power cable, 3m (+/- 0.2m) M to M audio cable, battery-powered remote control*, pad for participant table

* = For Domestic U.S. Models only
What kind of space is required?

The MRI Simulator is designed to fit in a standard office space without any structural modifications. All components included with the MRI Simulator can easily fit through a standard 3’x7’ office door. Standard power input options (120V or 220V where required) mean that the system does not require special power considerations.

How is the simulator shipped and assembled?

The MRI Simulator is typically shipped in a single crate, and can be completely unpacked and assembled by a single person. The system is shipped as 6 main components, and once unpacked, can be easily moved into position and assembled without tools. In most cases, the entire simulator can be assembled and ready to use within 45 minutes. Technicians from PST are also available for on-site installation and training.

Can the simulator be moved?

Moving the MRI Simulator in the case of maintenance, storage, or relocation can easily be done as the system does not require any tools for disassembly and can fit through a regular office door. The entire system is mounted on lockable casters and can be moved around the room as necessary.
COMPONENTS

MOCK HEAD COILS

GE-Style Mock Head Coil
Siemens-Style Mock Head Coil
32-Channel Siemens-Style Mock Head Coil
32-Channel Siemens-Style Mock Head Coil with rear-facing mirror

MoTrak
MoTrak is a head-mounted motion tracking system capable of monitoring head motion and angular rotation along the X, Y, and Z axes. With this data, the MoTrak system can modulate audio and/or video output, allowing the researcher to provide positive and/or negative feedback to train participants to remain still - increasing MRI imaging data quality.

SimFx
SimFx™ software simulates the ambient scanner sound and the active scanning noise of the MRI environment. Using high-quality fiber-optic microphones, a variety of ambient and active scanner sounds from both GE and Siemens scanners were recorded and are available to use with the SimFx Sound Simulation System.
ADDITIONAL ENHANCEMENTS

VISUAL PRESENTATION PRODUCTS
- Premium LCD Display System with
- Rear-Projection Display System

AUDIO PRESENTATION PRODUCTS
- Avotec Silent Scan 3300 Patient Communication System
- OptoAcoustics FOMRI-III Fiber Optic Microphone for fMRI

STIMULUS RESPONSE
- Celeritas Fiber Optic Response System

ON-SITE INSTALLATION & TRAINING
- PST Technicians will perform on-site installation and training, reducing setup time and ensuring staff are knowledgeable about the system.

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REFERENCE SITES

Below are just a few of the sites where our MRI Simulators are in current use:

- Alberta Children’s Hospital
- Brown University
- Children’s Hospital of Philadelphia
- Children’s Hospital of Pittsburgh
- Duke University
- Durham University
- East China Normal University
- Harvard University
- Linkoping University
- Monash University
- Nationwide Children’s Hospital
- Shenzhen University
- New York University
- NIH/NIMH
- Ohio State University
- Pennsylvania State University
- Princeton University
- San Diego State University
- Stanford University
- University of California - Davis, Irvine
- University of Michigan - Ann Arbor
- University of Sydney
- Washington University - St. Louis
- Yale University

PUBLICATIONS

Several studies demonstrating MRI Simulator efficacy for participant acclimation:


Greene, D. J., Black, K. J., & Schlaggar, B. L. (2016). Considerations for MRI study design and implementation in pediatric and clinical populations. Developmental cognitive neuroscience, 18, 101-112.
RESOURCES

To request a quotation for the MRI Simulator or any other PST products, please visit our website (www.pstnet.com) and submit a quote request. A member of our solutions team will be in touch within 24 hours with pricing information and to answer any additional questions you might have.

Alternatively, our Solutions team can be reached by contacting PST via phone (412.449.0078), fax (412.449.0079), or email (sales@pstnet.com). To provide a quotation, our team will need the following information:

- Name
- Institution
- E-mail Address
- Shipping Address
- Phone Number
- Product(s) of Interest

For international customers, purchases may also be made through the PST Global Re-seller Network.

Please visit our website to find a re-seller near you.

Or stop by our booth at one of the following conferences!

- SfN
- ISMRM
- OHBM
- CNS
- Psychonomics
- MPA
MORE ABOUT US

Psychology Software Tools, Inc. was founded with the vision of creating innovative and affordable technologies and solutions which improve the efficacy of human behavioral research, assessment, and education. Our goal is to consistently provide products and services to our customers which increase their productivity, effectiveness, and confidence in addressing the challenges they face in these diverse disciplines.

OTHER PST PRODUCTS

E-Prime
Stimulus Presentation Software

EefMRI
E-Prime Extensions for fMRI

Chronos
Response and Stimulus Device

Hyperion
MRI Digital Projection System