Emergency: call 6666 Mobile 0312 290 6666 If unreachable: 112

UMRAM 3 T MRI emergency guide

For trained staff and authorised users. Find what is happening and turn to that page.

The magnet is always on, whether or not a scan is taking place.
Emergency Shutdown does not remove the magnetic field. Only quenching (Magnet Stop) does. Quench only when the magnetic field puts a life at immediate risk or prevents rescue. If a life is at risk, do not hesitate.

Danger to life



Person pinned by a metal object — Someone is trapped or impaled between an object and the magnet — Magnet Stop — Page 2



Fire, smoke or electrical hazard — Smoke, flames, burning smell or sparking from the MR system or in the scanner room — Emergency Shutdown — Page 3



Medical emergency — Cardiac arrest, seizure, unresponsive, breathing difficulty, severe allergic reaction, collapse — Get them out, do not quench — Page 4

Urgent



Object pulled into the magnet, no one trapped — A metal object is stuck to the scanner and nobody is caught between it and the magnet — Do not quench — Page 5



Quench or helium release — Loud bang or hissing, white fog, very cold gas, or Magnet Stop has been pressed — Get out, stay out — Page 6



Caught or hurt by table movement — A hand, hair, clothing, cable or body part is caught while the table moves — Table Stop — Page 7



Heating or burn — Participant reports burning or heat; redness or blistering on the skin — Stop the scan — Page 8



Unscreened implant or metal discovered — Pacemaker, implant, metal fragment, patch or object found after entering the scanner room — Stop the scan — Page 9

Less urgent



Panic, claustrophobia or alarm ball — Participant squeezes the alarm ball, panics or asks to stop — Stop the scan — Page 10



Power failure — The building or the scanner loses power — Magnet still on — Page 11

Reference

The first 60 seconds — Page 12

Which control does what — Page 13

Contacts and location — Page 14

Emergency: call 6666 Mobile 0312 290 6666 If unreachable: 112

Person pinned by a metal object

Someone is trapped or impaled between an object and the magnet



DO NOT QUENCH UNLESS YOUR LIFE OR SOMEONE ELSE'S LIFE IS IN DANGER. This is the situation Magnet Stop exists for. If two people are present, one presses Magnet Stop while the other calls 6666.

Control to use

MAGNET STOP

Removes the magnetic field. Use only when the field puts a life at risk.



Do this, in order

1. **Press MAGNET STOP**
   This removes the magnetic field. Expect a loud noise and possibly white fog as the magnet quenches.
2. **Call 6666**
   Use the landline on the console desk. Say: "This is an MRI safety emergency. I am [your name], calling from UMRAM, Aysel Sabuncu Brain Research Center, Bilkent University." Then say what happened (person pinned by the magnet), who is hurt and whether they are breathing, and warn them: the MRI magnet is always on, so no metal equipment, oxygen cylinders or stretchers in the scanner room. Someone will meet them at the entrance; if you are alone, tell them the MRI is on the 0th floor. Before you hang up, repeat: "MRI safety emergency."
3. **Do not pull while the field is on**
   Pulling the object or the person against the magnet can make the injury worse.
4. **Free the person once the field has dropped**
   Wait for the magnetic field to drop completely, or until the object comes away with little force, before pulling the person out. Do not remove an object that has impaled them; leave that to medical staff.
5. **Move them out of the scanner room and give first aid**
   Control bleeding. Start CPR if they are not breathing normally. Resuscitation equipment stays outside Zone IV (MR / Magnet Room).
6. **Keep treating the room as hazardous**
   Until field decay is confirmed, nobody brings unchecked metal, tools or equipment in.
7. **Call UMRAM staff**
   Once the emergency is settled, or as soon as you get a chance.

If fog or cold gas enters the room

- Get everyone out, staying low, and follow the quench / helium release (page 6) guide.

Never

- Never pull the object or the person while the magnet is at field.
- Never send rescuers in with metal tools, oxygen cylinders or stretchers before field decay is confirmed.
- Never try to restart the magnet.

Afterwards

- Restrict access to the scanner room. Do not assume it is safe for ordinary emergency equipment.
- Do not try to restart or re-energise the magnet.

See also: Quench or helium release (page 6); Medical emergency (page 4)

Emergency: call 6666 Mobile 0312 290 6666 If unreachable: 112

Fire, smoke or electrical hazard

Smoke, flames, burning smell or sparking from the MR system or in the scanner room



Use this procedure only if the fire is caused by the scanner or puts the scanner at risk.

Control to use

EMERGENCY SHUTDOWN

Cuts electrical power to the MR system. The magnet stays at field.



Do this, in order

1. **Stop the scan and get the person out**
   Remove the participant from the scanner room if it can be done safely.
2. **Press EMERGENCY SHUTDOWN**
   For a fire or electrical hazard involving the MR system. This removes electrical power only.
3. **Call 6666**
   Use the landline on the console desk. Say: “This is an MRI safety emergency. I am [your name], calling from UMRAM, Aysel Sabuncu Brain Research Center, Bilkent University.” Then say what happened (fire at the MRI), who is hurt and whether they are breathing, and warn them: the MRI magnet is always on, so no metal equipment, oxygen cylinders or stretchers in the scanner room. Someone will meet them at the entrance; if you are alone, tell them the MRI is on the 0th floor. Before you hang up, repeat: “MRI safety emergency.” Raise the building fire alarm.
4. **Evacuate and close the scanner-room door**
   Close it only once you are sure no one is left inside.
5. **Meet the fire brigade outside Zone IV (MR / Magnet Room)**
   Tell them the magnet is ON. Steel extinguishers, air tanks, axes and tools will be pulled into the magnet.
6. **Use MAGNET STOP only if it is needed**
   QUENCH ONLY IF THE MAGNETIC FIELD PREVENTS RESCUE OR FIREFIGHTING. After it, treat the room as hazardous until field decay is confirmed.
7. **Call UMRAM staff**
   Once the emergency is settled, or as soon as you get a chance.

Never

- Never take an ordinary (steel) fire extinguisher into the scanner room. Use the MRI compatible fire extinguisher kept in the console room.
- Never let firefighters or their equipment into Zone IV (MR / Magnet Room) while the magnet is at field.
- Never assume Emergency Shutdown has made the room safe for metal.

Afterwards

- If Magnet Stop was used: Restrict access to the scanner room. Do not assume it is safe for ordinary emergency equipment.
- Do not power the system up again until UMRAM staff have checked it.

See also: Quench or helium release (page 6); Medical emergency (page 4)

Medical emergency

Cardiac arrest, seizure, unresponsive, breathing difficulty, severe allergic reaction, collapse



Control to use

None

No emergency control is needed. Getting the person out of the scanner room is the priority. DO NOT QUENCH if they can be moved out safely.

Do this, in order

1. **Stop the scan and go in**
   Ask a colleague to stay at the door to stop anyone bringing equipment in.

2. **Bring the table out and remove the person from the scanner room**
   Move them out of Zone IV (MR / Magnet Room) as quickly as is safe, with as many helpers as needed. Use only an MR Safe / MR Conditional trolley or wheelchair inside the room.

3. **Call 6666**
   Use the landline on the console desk. Say: “This is an MRI safety emergency. I am [your name], calling from UMRAM, Aysel Sabuncu Brain Research Center, Bilkent University.” Then say what happened (medical emergency), who is hurt and whether they are breathing, and warn them: the MRI magnet is always on, so no metal equipment, oxygen cylinders or stretchers in the scanner room. Someone will meet them at the entrance; if you are alone, tell them the MRI is on the 0th floor. Before you hang up, repeat: “MRI safety emergency.” Tell them the patient will be outside the magnet room.

4. **Start CPR / AED outside the scanner room**
   Defibrillator, oxygen cylinder and emergency kit are used outside Zone IV (MR / Magnet Room) only.

5. **Meet responders at the Zone IV (MR / Magnet Room) door**
   Tell them the magnet is always on. They must not enter the scanner room with their equipment.

6. **Call UMRAM staff**
   Once the emergency is settled, or as soon as you get a chance.

Seizure inside the scanner

- Stop the scan and slide the table out of the bore.
- Protect the head from hitting the coil or bore. Do not restrain them or put anything in their mouth.
- Time the seizure. Move them out of the room as soon as it can be done safely.
- When movements stop, place them in the recovery position. Call 6666 for a first seizure, one lasting over 5 minutes, repeated seizures, injury, or breathing problems.

Never

- Never bring the defibrillator, oxygen cylinder, crash cart or monitoring equipment into the scanner room.
- DO NOT QUENCH (Magnet Stop) if they can be moved out safely.
- Never leave the scanner-room door unattended while responders are arriving.

See also: Person pinned by a metal object (page 2); Panic, claustrophobia or alarm ball (page 10)

Object pulled into the magnet, no one trapped



A metal object is stuck to the scanner and nobody is caught between it and the magnet

Control to use

None

No emergency control. DO NOT QUENCH (do not press Magnet Stop) just to free an object.

Do this, in order

1. **Check that no one is trapped**
   If anyone is caught between the object and the scanner, go to **Person pinned** (page 2) now.
2. **Stop the scan and bring the participant out**
   Only if this can be done without touching or reaching past the object. Check them for injuries; anyone hurt → call 6666.
3. **Leave the object where it is**
   Do not touch the object, it may snap back. The force is very large and can crush hands.
4. **Clear the room and close the door**
   Restrict access and put a warning notice on the door.
5. **Call UMRAM staff**
   Once the emergency is settled, or as soon as you get a chance. Trained staff remove the object, usually with a controlled ramp-down rather than a quench.

Never

- Never touch the object or try to pull it off the magnet.
- Never use Magnet Stop only to remove an object. The object will be removed by trained staff; it is not your job to remove it.
- Quenching causes costly damage and a long scanner downtime. It is never justified to free an object.
- Never resume scanning until the scanner has been checked.

Afterwards

- Record what the object was and how it got into the room.

See also: Person pinned by a metal object (page 2); Medical emergency (page 4)

Quench or helium release

Loud bang or hissing, white fog, very cold gas, or Magnet Stop has been pressed



Control to use

None

No control to press. Leave the room and keep others out.

Do this, in order

1 Get everyone out of the scanner room

If it can be done safely. In fog, stay low while exiting and avoid cold surfaces and pipes.

2 Call 6666

Use the landline on the console desk. Say: “This is an MRI safety emergency. I am [your name], calling from UMRAM, Aysel Sabuncu Brain Research Center, Bilkent University.” Then say what happened (quench / helium release), who is hurt and whether they are breathing, and warn them: the MRI magnet is always on, so no metal equipment, oxygen cylinders or stretchers in the scanner room. Someone will meet them at the entrance; if you are alone, tell them the MRI is on the 0th floor. Before you hang up, repeat: “MRI safety emergency.”

3 Keep everyone away from the area

Watch anyone who was exposed for dizziness, confusion or breathlessness; move them to fresh air and get medical help.

4 Do not re-enter

Wait until UMRAM staff clear the area. The magnet may still be partly at field.

5 Call UMRAM staff

Once the emergency is settled, or as soon as you get a chance.

Never

- Never touch frosted pipes or surfaces; extremely cold gas causes cold burns.
- Never re-enter before the area has been cleared.
- Never assume the field is gone.

Afterwards

- Restrict access to the scanner room. Do not assume it is safe for ordinary emergency equipment.
- Do not try to restart or re-energise the magnet.

See also: Person pinned by a metal object (page 2); Fire, smoke or electrical hazard (page 3)

Caught or hurt by table movement

A hand, hair, clothing, cable or body part is caught while the table moves

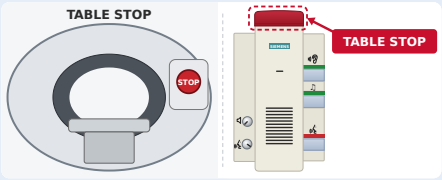


Stay calm and assess the situation.

Control to use

TABLE STOP

Stops motorised table movement only. The magnet stays on.



Do this, in order

1. **Press TABLE STOP**
   Stops motorised table movement only. The magnet stays on.
2. **Free the person carefully**
   If the table must be moved to release them, follow the operator manual for moving it by hand.
3. **Check for injury**
   Call 6666 for anything beyond a minor injury.
4. **Give first aid outside the scanner room**
   Bring them out of Zone IV (MR / Magnet Room) first.
5. **Call UMRAM staff**
   Once the emergency is settled, or as soon as you get a chance.

Never

- Never use Magnet Stop or Emergency Shutdown for a table entrapment.
- Never restart table movement until the cause is found and cleared.

Afterwards

- Check coil, cable and cushion positions before the next scan.

See also: Medical emergency (page 4); Heating or burn (page 8)

Heating or burn

Participant reports burning or heat; redness or blistering on the skin



Control to use

None

No emergency control. Stop the scan immediately, even if they only report warmth.

Do this, in order

1. **Stop the scan**
   Do this as soon as they report heat or burning.
2. **Bring them out and check the skin**
   Look where skin touched coils, cables, electrodes or monitoring leads, and where skin touched skin (hands, thighs, arms).
3. **Cool any burn under cool running water for 20 minutes**
   Outside the scanner room. Do not use ice.
4. **Get medical help for blistering, large or facial burns**
   Call 6666 or the Bilkent Health Center emergency line.
5. **Record the setup before you change it**
   Positioning, coils, cables, padding and the sequence that was running.
6. **Call UMRAM staff**
   Once the emergency is settled, or as soon as you get a chance.

Never

- Never continue scanning after a heating complaint until the cause is found.
- Never put ice directly on a burn.

See also: Medical emergency (page 4); Unscreened implant or metal discovered (page 9)

Unscreened implant or metal discovered



Pacemaker, implant, metal fragment, patch or object found after entering the scanner room

Control to use

None

No emergency control. Stop the scan and remove the person from the field.

Do this, in order

1. **Stop the scan**
2. **Bring them out slowly**
   Move the table out and walk them out of the room without rushing; fast movement through the field increases the forces involved.
3. **Ask about symptoms**
   Pain, heat, palpitations, dizziness or a pulling sensation. A pacemaker / ICD patient with any symptoms → call 6666.
4. **Do not scan again until they are re-screened**
   No further scanning until UMRAM staff have been informed.
5. **Call UMRAM staff**
   Once the emergency is settled, or as soon as you get a chance.

Never

- Never continue the session “just to finish”.
- Never try to remove a medication patch or object while the person is in the bore; bring them out first.

Afterwards

- Record how the screening missed it.

See also: Heating or burn (page 8); Medical emergency (page 4)

Panic, claustrophobia or alarm ball

Participant squeezes the alarm ball, panics or asks to stop



Control to use

None

No emergency control. Stop the scan and respond straight away.

Do this, in order

1. **Stop the scan and talk to them over the intercom**
   Tell them you are coming in.
2. **Bring the table out**
   Reassure them; remove headphones or the coil if needed.
3. **Take them out if they want to stop**
   Never pressure them to continue.
4. **Watch for a medical problem**
   Chest pain, difficulty breathing, fainting or confusion → go to **Medical emergency** (page 4).
5. **Call UMRAM staff**
   Once the emergency is settled, or as soon as you get a chance.

Never

- Never ignore an alarm-ball press, even if it looks accidental.

Afterwards

- Note the event in the session log.

See also: Medical emergency (page 4)

Power failure

The building or the scanner loses power



The magnet stays ON without power. All Zone IV (MR / Magnet Room) rules still apply.

Control to use

None

No emergency control.

Do this, in order

1. **Get the participant out**
   If the table will not move, follow the operator manual for moving it by hand.
2. **Keep Zone IV (MR / Magnet Room) restrictions in place**
   The magnetic field is unaffected by the power cut. Control the door and screen everyone.
3. **Leave restarting to authorised staff**
   Do not power the system back up yourself. The magnet cooling system is also without power.
4. **Call UMRAM staff**
   Once the emergency is settled, or as soon as you get a chance. Tell them the magnet cooling system is without power.

Never

- Never assume a dark, silent scanner is switched off.

See also: Quench or helium release (page 6); Fire, smoke or electrical hazard (page 3)

The first 60 seconds

For any emergency, before you know exactly what you are dealing with.

1. **Stop the scan**
   Press TABLE STOP if table movement is causing harm or entrapment.

2. **Remove the person**
   Take the participant out of the scanner room if this can be done safely.

3. **Call 6666**
   Send someone to meet responders and warn them this is an MRI magnetic-field hazard.

4. **Control the door**
   Keep the scanner room, Zone IV (MR / Magnet Room), closed. No unchecked metal equipment goes in.

5. **Use the correct control**
   Emergency Shutdown and Magnet Stop are not the same thing. See **which control does what** (page 13).

Which control does what

The three controls do very different things.

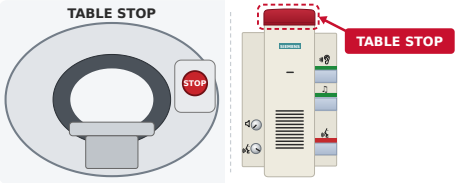
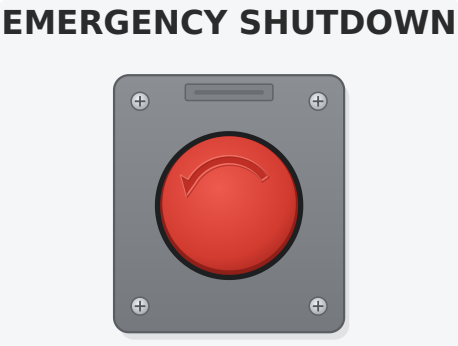


TABLE STOP

Stops motorised table movement only. The magnet stays on.

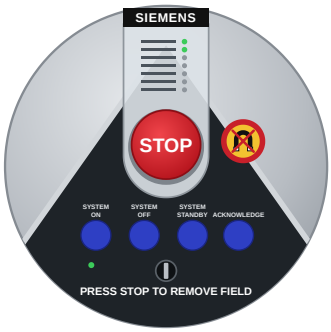
Use for: table-motion injury or entrapment.



EMERGENCY SHUTDOWN

Cuts electrical power to the MR system. The magnet stays at field.

Use for: fire, smoke or electrical hazard involving the MR system.



MAGNET STOP

Removes the magnetic field. Use only when the field puts a life at risk.

Treat the room as hazardous until field decay is confirmed.

Table Stop stops motion. Emergency Shutdown removes electrical power. Magnet Stop removes the magnetic field.

Contacts and location

Phone numbers, what to say, and the address to give responders.

When you call 6666

Use the landline on the console desk. Say: “This is an MRI safety emergency. I am [your name], calling from UMRAM, Aysel Sabuncu Brain Research Center, Bilkent University.” Then say what happened (what is happening), who is hurt and whether they are breathing, and warn them: the MRI magnet is always on, so no metal equipment, oxygen cylinders or stretchers in the scanner room. Someone will meet them at the entrance; if you are alone, tell them the MRI is on the 0th floor. Before you hang up, repeat: “MRI safety emergency.”

Bilkent emergency (campus phone)	**6666**
Bilkent emergency (mobile / off campus)	**0312 290 6666**
If unreachable	**112**
Bilkent Health Center emergency, direct	**0312 266 4050** **0312 266 4051**
UMRAM main	**0312 290 1154**
UMRAM staff Call once the emergency is settled, or as soon as you get a chance.	Name _____ Mobile _____ Name _____ Mobile _____
Address	Aysel Sabuncu Brain Research Center (UMRAM), Bilkent University, 1606. Cadde No: 7, 06800 Çankaya / Ankara