

# Magnetic Resonance Imaging (MRI)

Patient  
Guidelines



CANCER  
TREATMENT



PROTON  
THERAPY  
CENTER

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TREATMENT

Dear Madam/Sir,

Based on a clinical finding, your physician has recommended magnetic resonance imaging (MRI) for you. It is a state of the art examination method that is currently capable of examining most human organs. In order to spare you any concerns you may have about the examination, this information material will answer some of the questions you might possibly have. Should you have any other questions, please contact our doctors or send an e-mail to [info@ptc.cz](mailto:info@ptc.cz).



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*Patient Guidelines*

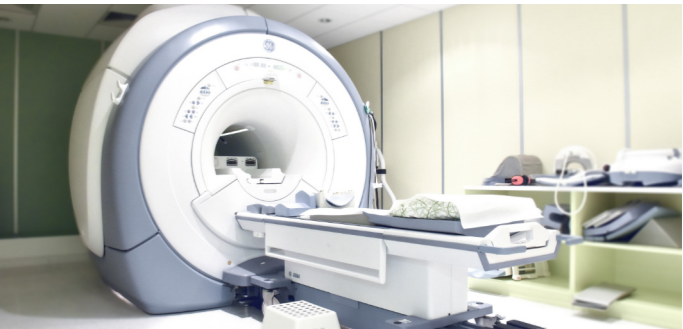
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## 1. What Is MRI?

Magnetic resonance imaging (MRI) enables detailed imaging of individual anatomical regions of the human body. It significantly contributes to the establishment of a diagnosis and clarification of the health problem in the examined area which can have a major impact on the further course of treatment. The examination is conducted in a strong magnetic field and is painless. So far, no harmful biological effects have been proven for the electromagnetic energy used for MRI. The examination is accompanied by noise caused by the instrument’s components.

For some types of MRI, your doctor will need you to have a contrast medium injected intravenously. The contrast medium serves for even better evaluation of the given body structures, and in some situations, is necessary for conducting an accurate examination.



The examination can be performed even in young children. In most cases, the examination is performed under sedation (calming) or general anesthesia due to possible restlessness of the child leading to poor image acquisition. The examination would then be difficult to evaluate or could even not be evaluated at all. In such cases, preparation for examination is subject to instructions from an anesthetist (a specialist in anesthesia) whom we will provide to you and your child.



## 2. Who Is Not Allowed to Undergo MRI

If you have an implanted pacemaker or defibrillator, any electronic device in your body, a cochlear implant or a metal shaving in your eye **you MUST NOT undergo MRI!!!**

### Exception:

**You can undergo MRI if you have a written statement from the implant manufacturer confirming its full MRI compatibility and, at the same time, if you have written consent to your MRI examination issued by the surgeon who implanted such device.**

**You must not undergo MRI** if you have metal heart valves, joint replacements, metal clamps after surgery, clips after brain surgery, an IVC filter, stents, vessel reinforcements, or other metals implanted in the body for less than 6 weeks.

### Exception:

**You can undergo MRI if you have a written statement from the implant manufacturer confirming its full MRI compatibility and, at the same time, if you have written consent to your MRI examination issued by the surgeon who implanted such device.**  
**Last but not least, it is necessary for a period of at least 6 weeks to have elapsed since implantation** (this period is essential for the correct "settling" of the implant).

If you have an **allergy to the contrast medium** the MRI can be performed in the so-called NATIVE manner, i.e. without the administration of a contrast medium. If you have any **other forms of allergies**, please inform the attending personnel and doctor.



MRI is also not performed in the first trimester of **pregnancy**. During the remaining time of pregnancy, it is possible to perform MRI, however, without the administration of a contrast medium. Breast-feeding women are advised to express their breast milk, and then after examination, if a contrast medium has been applied, they are recommended to stop breast-feeding for 24 hours until the contrast medium is eliminated from the body through the kidneys.

### 3. How MRI Is Performed

Upon entering the changing cubicle you will be asked to take off your outer clothing items. This is to exclude the presence of any metal object on your person near the device, which generates a strong magnetic field. This protects not only your valuables but also our device.

We will further also ask you to remove your dentures, contact lenses, prosthetic aids, bra, belt, wig, hairpins, hair clips, pins, metal coins, keys, watch, credit cards, glasses, mobile phone, rings, and jewelry, if you have them.

After removing all the mentioned items, you will be taken to the examination room, where there is already a strong magnetic field present.

It is possible, in exceptional cases and with the consent of the chief physician, to come and undergo MRI with a person accompanying you. The person accompanying you must meet all the

conditions for entering the magnetic field, see Chapter 2 *Who is not allowed to undergo MRI*.

The radiology assistant will position you comfortably on the examination table. Each type of examination requires a different examination position and the use of correct examination aids, so-called coils, which we place on the examined area.



These coils are used for the examination itself and are therefore essential for its performance and for the correct display of the examined area. Having adjusted your body to the examination position, the radiology assistant will provide you either with earplugs or headphones, thus protecting you against the noise of the MRI device.

You must lie still and breathe regularly throughout the examination, which lasts approximately 25-90 minutes. Any movement may affect the image quality. Before entering the gantry, also called tunnel, you will be given a signaling device in the palm of your hand, a small rubber balloon, which you can press in case of any problems. This will inform the attending staff of something happening and they will come to you immediately.



During the entire examination, we monitor you in the MRI control room both directly and on the monitor, and we can communicate with you via a microphone-speaker system.

## 4. MRI Preparation

For most MRI examinations, preparation is not necessary; in the case of examinations with the application of a contrast medium, we recommend not eating, chewing gum or smoking 4 hours prior to the examination. You can drink a small amount of still water (max. up to 150 ml) in sips.

The examination itself is painless. However, lying motionless on the examination table can cause mild discomfort for some patients.

If the digestive tract is to be examined (MRI enterography), it is necessary to empty the intestines as instructed by your doctor. Before examining the abdomen and pelvis, you will usually have to sip a contrast medium (the amount depends on the type of examination, approximately 500-1,500 ml).

For the administration of a contrast medium, if the MRI examination requires it, a cannula (silicone or plastic tube) will be inserted into your vein. You can

decline to undergo contrast testing, but the diagnostic yield of tests without the contrast medium is lower.



## 5. MRI Complications

Staying in a cramped space can provoke a panic reaction in sensitive people, or cause fear of an enclosed space, anxiety, distress, or restlessness. If you have never encountered anything like this and this fear overcomes you during the examination, we will be ready to immediately take you out of the gantry within a few seconds.

Application of a contrast medium may lead to an allergic reaction, but reactions following administration of an MRI contrast medium are very rare. Therefore, if you suffer from other allergies, it is necessary for you to inform us in detail about all your allergies. Recognition and treatment depend on the severity of the allergic reaction, and the MRI staff will be ready to respond.



## 6. Points to Pay Special Attention to After MRI

If a cannula has been inserted into your vein and a contrast medium has been administered, you will still be monitored for approximately ½ hour after the examination due to the risk of an allergic reaction.

If you have been given a contrast medium that is excreted in the urine, it is important that after the examination you drink at least 2 liters of fluid during the day.

If you have not been given any sedatives or medicines that affect your attention, you can leave the Proton Therapy Center and drive a motor vehicle immediately after the examination. If you have received such medicines, it is necessary to wait until their effect subsides, or to leave the PTC accompanied by an informed person. You will be notified by your doctor when it is safe for you to leave the facility.

You will be notified by your doctor of any additional restrictions in case of further medication during the examination.



# 7. Additional Information

- After the examination, the radiologists from our Department will prepare an exam outcome description on the basis of your scans, which will then be sent to your referring doctor by registered mail. The delivery of the description material usually takes around 5-7 working days.
- The staff of the Department of Diagnostic Radiology will be happy to provide you with further necessary information and answer any of your enquiries. However, please do not expect to be immediately informed of your outcome and necessary treatment based on a single examination. For this type of information, you must contact your attending doctor, who will comprehensively assess your illness and recommend further treatment.
- If you are interested or in need (or your referring doctor so requires), we may copy the entire file containing the examination results (individual

images) onto a CD-ROM. The fee for this service is CZK 200, which can be paid in cash or by payment card at the PTC MRI reception on the 5th floor. Creating a CD takes approximately 20 minutes. Upon request, we can also send a description of the examination results to your e-mail address. We offer this service to patients free of charge.

- You can make an appointment for MRI via e-mail at [zadanky@ptc.cz](mailto:zadanky@ptc.cz) to which you will attach a scan or a photograph of your referral form. Please also include your telephone contact in the e-mail message body. The MRI receptionist will call you regarding the date and other details concerning your appointment. If you cannot e-mail the referral form, please contact the MRI reception desk on +420 222 999 070, and they will advise you on how to proceed.

**Bring the original, completed MRI referral form with the healthcare facility stamp signed by your doctor to your appointment.**

- Please arrive 30 minutes prior to the examination.
- We kindly ask all patients **to give us as much advance notice as possible** in case they are unable to come at the scheduled time, thus allowing other patients to be treated in their stead earlier.

## CD Information - Frequently Asked Questions

### 1. Why is one of the most modern diagnostic centers not able to send test results to their clients on demand by electronic means?

Any data and information regarding the patient's health, including images from radio-diagnostic and other examinations are considered a special category of personal data. Therefore, handling them must be particularly careful. By default, we send these images (image data) to the doctors who have referred the patients for the relevant examinations. In such case, we send them electronically via a secured portal, ePACS. We cannot send these results electronically to an e-mail address even if you agreed with it, because we are limited in the amount of data we can send due to security measures here at PTC.

Since the size of MRI data is usually around 300–700 MB (but can be even more), the data cannot be e-mailed.

## **2. Is it possible to send the data by a public data transfer service?**

Sending results on demand via a public data transfer service (which is technically a data box) is also not possible because it is also limited by the file size, namely 20 MB. Moreover, it is not common that patients as natural entities have a data box so we do not even ask about it.

## **3. Higher data volumes may be sent via uschovna.cz or wetransfer.com**

Results cannot be sent from the PTC network via internet storage portals (uschovna, wetransfer) – not even on demand. We cannot upload any data to private storage portals where it is not clear who

administers the portal, how your data will be handled, and/or for what purposes they will be used.

## **4. Why does PTC use a completely outdated and long-unused medium like CD?**

Saving results on demand on external memory media like CDs or DVDs is a completely standard method performed directly by the diagnostic instrument, in your case MRI, PET/CT scanners. It takes approximately 8–10 minutes to burn the image documentation and it is not possible to perform another patient's scanning for that time.

We understand that the price of CZK 200 for the CD/DVD seems high to you. As per the Decree on Medical Documentation, it is strictly speaking an extract from medical records. Unfortunately, the health insurance company does not take this healthcare procedure or the relevant data medium

into account in any way and does not reimburse the associated expenses, thus making this procedure subject to a fee.

CD/DVD media are used because the data recorded on them can no longer be erased so you can be sure that there are only your images that you cannot accidentally delete. By contrast, a USB flash drive, which might also be used to record images, is a medium where you can erase or overwrite anything. In addition, USB flash drives can be a data carrier posing a significant risk to PC systems.

## **5. Do patients need to come to collect the CD personally? What about patients who are immobile, wheelchair bound, etc.?**

Upon request, we can send patients the CD by registered mail via Czech Post. We have many patients who come from far away or have some

health problems. To avoid lengthy wait times, having to mail the CD, or the need to collect it personally later on, making the decision before the examination whether or not the patient will want a CD containing images is recommended. However, most patients do not ask for the CD when told that the data will be automatically sent to their attending doctor.

## **6. Cloud storage**

Creating a cloud storage file could be an option, but it would mean that someone from the MRI staff would have to create a patient-specific storage site, manually upload image data there, and send the



## Notes

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**Should you have any further questions,  
please reach out to us at any time.**

**Do not hesitate to contact us,  
we are here to help you.**

## The PTC Team



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