

# PET/CT

## Patient Guidelines



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TREATMENT

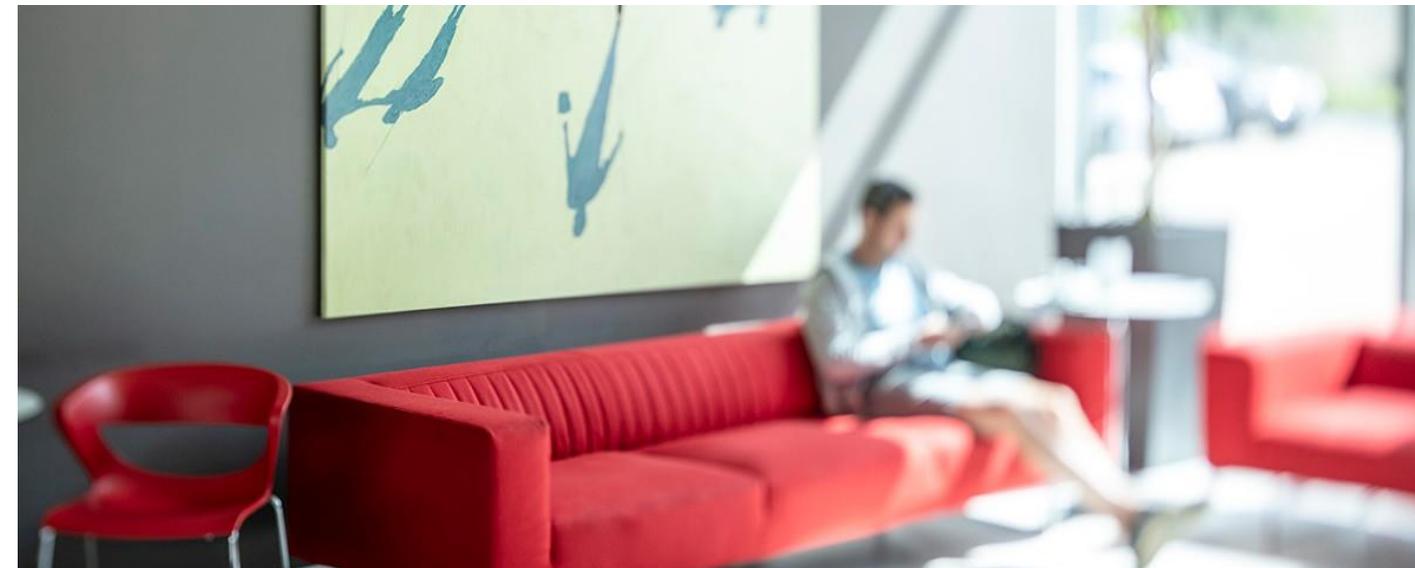


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Dear Madam/Sir,

Based on a clinical finding, your indicating doctor has recommended a PET/CT scan 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 might have about the examination, this information material will answer some of your possible questions. Should you have any other questions, please contact our doctors or send an e-mail to [info@ptc.cz](mailto:info@ptc.cz).



*Patient Guidelines*

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## 1. What is PET/CT Scanning?

PET/CT scanning is a non-invasive diagnostic imaging method. It combines the advantages of PET (positron emission tomography) metabolic imaging and CT (computed tomography) in one device. Administration of a radioactive substance (for PET) and possible administration of an iodine contrast medium (for morphological CT) are fundamental prerequisites of the scanning. You will be exposed to ionising radiation during scanning, but you will not feel it in any way. The source of ionising radiation is the scanner and the intravenously applied radioactive substance (radiopharmaceutical).

The simultaneous use of both the methods and their merging (so-called hybrid imaging) enables us to specify the exact anatomical location of the pathological finding apparent from the metabolic image.

The result of PET/CT scanning helps to establish the correct diagnosis, to clarify the medical condition, or allows for optimisation of therapeutic or other diagnostic procedures.

The scanning can be performed even in young children with body weight of at least 10 kg. In most cases, the scan is performed in children under sedation (calming) or general anaesthesia due to possible restlessness of the child, which leads to poor image acquisition. The examination would then be difficult to evaluate or could not be evaluated at all. In such cases, preparation for examination is subject to instructions from an anaesthetist (a specialist in anaesthesia) provided to you and your child.

## 2. Who Can Undergo PET/CT Scanning

In case you have an allergy to the iodine contrast medium that is applied during CT scanning for even more accurate imaging, please inform the attending personnel and the doctor. A CT scan can be done with a lower amount of the contrast medium or completely without it (NATIVE method). The same procedure applies to renal insufficiency.

PET/CT is also not recommended during pregnancy. In case of actual or suspected pregnancy, please inform the PET/CT staff before the test substance (radiopharmaceutical) is injected. The next procedure will be selected individually.

Breast-feeding women are recommended to express their breast milk before the scan. After the scan, if contrast medium has been administered, it is recommended that breast-feeding be interrupted for 24 hours until the contrast medium is eliminated from the body through the kidneys.



## 3. How to Prepare for a PET/CT Scan (General Information)

- Please keep your mobile phone on (you will be contacted for confirmation of the appointment date, provision of information on preparation for the examination, or even on cancellation of the examination, a change in the examination date, etc. This may be due to non-delivery of the contrast medium, device defect, etc.).
- Come to the examination on time, preferably half an hour before. The contrast medium (radiopharmaceutical) is not only expensive but is subject in particular to rapid radioactive decay. If you come late for your examination, we may no longer have enough medium for you to perform the examination correctly, and we will have to reschedule your appointment.
- Wear comfortable and warm clothes without jewellery and metal accessories (zips, buttons, no underwired bras with hooks). We recommend wearing tracksuit trousers, a long-sleeved top, shawl or scarf, warm socks.

The examination room must be air-conditioned because of the technical equipment and it is important to keep the body warm. If you shake or try to warm up the body, images from the scanning may be distorted.

- Be aware of the fact that scanning is time consuming. You will spend about 2–3 hours in the Department of Nuclear Medicine (DNM) so take something with you to read, listen to, entertain yourself with. Also, take a snack with you that you can eat after the examination. Bring with you an original request form signed and stamped by the referring doctor, your ID card, your health insurance card, and medical reports from other institutions to help our describing doctors better understand your condition.
- As soon as you arrive at Proton Therapy Center (PTC), please report to the main reception desk. The receptionist will report your arrival to the DNM, which will send an authorised staff member to pick you up (DNM receptionist).

- Please report to the DNM personnel if you are at risk of falling, especially if you have recently experienced problems with falling, you feel dizzy, or you use compensatory aids (crutches, walking frame, wheelchair, hearing aid, etc.).
- If you have been implanted with a PORT, please take the relevant card with you for us to record its handling.
- The DNM receptionist will take you to the Department, where you will obtain an informed consent form for the examination. If you have any questions or concerns, a doctor will be called to answer all your queries.
- If you travel to PTC by ambulance, you must have an issued “transport order” for such transport to PTC from your indicating doctor.
- If you go home also by ambulance, you must have a “transport order” issued by your doctor for your return journey as well.

Please inform the DNM receptionist that you will be going home by ambulance so that they can call an ambulance for you one hour after completion of the examination and you will not have to wait for a long time.



## 4. Patient Instructions Before PET/CT Scanning

- Please avoid hard physical activity (all sports activities, hard physical work, etc.) two to three days before the examination. On the examination day, avoid all physical activity.
- Eat only light, low-calorie food (lean meat and vegetable meals are suitable, oily meals and foods containing sugar are not recommended) on the day before the examination.
- On the day of the examination, come with an empty stomach (at least 6 hours without eating, chewing gums and candies are also prohibited).
- You must drink enough fluids before the examination – at least one litre over a period of two hours. Plain water without sweeteners or unsweetened tea are suitable types of drink.
- On the contrary, any sweet, carbonated, high-calorie and dairy drinks are prohibited. Drinking black coffee is possible, but only without sugar or milk.
- If you have diabetes, this must be communicated to our staff beforehand. Diabetic patients on insulin

therapy are given preference and are invited for the morning hours.

If you are a diabetic patient on a diet, the preparation for the examination (see above) is the same.

If you take PADs (oral antidiabetic drugs), these medicines must be discontinued 24 hours before the examination.

If you are on insulin therapy, inject insulin on the day before the examination according to your doctor’s recommendations. On the examination day, neither have breakfast nor take your morning dose of insulin.

Bring your medicines, incl. insulin, and a snack with you.

## 5. Examination Process

When you come to the DNM, the radiology assistant will take you to a room where you will be asked to take off your outer clothing items and personal belongings.

After you have taken off these items, you will be taken into a room where the radiology assistant will insert a silicone or plastic tube, called a cannula, into your vein. Your blood sugar level (glycaemia) will be measured from a drop of your blood collected by pricking your finger. If the blood glucose level is normal, you will be given a radiopharmaceutical into your vein.

After administration of the radiopharmaceutical, you will be taken back to the first room, where you will wait for about 60–90 minutes until the radiopharmaceutical uptake into your body cells occurs.

While waiting for the examination, you will drink about one litre of water. During the accumulation of the radiopharmaceutical, you can go to the toilet on the DNM premises, but you must not leave DNM.

The examination (scanning) as such lasts about 15–45 minutes depending on the type of examination you have been invited for. You will lie on your back with your hands behind your head and go through the PET/CT camera detection system (tunnel). Please inform us of any mobility restrictions that you may have, and we will try to ensure a comfortable position for you. During the examination, it is essential to lie still and avoid any unnecessary movements during scanning. For most types of examination, you will be given iodine contrast medium intravenously at the beginning of scanning as it improves the quality of the CT images.

In contrast to the administration of the radiopharmaceutical, when you did not feel anything, a hot flush and/or urinary discomfort may occur upon administration of the contrast medium; nevertheless, these are common side effects that will disappear within a short period of time.

It is possible, in exceptional cases and with the consent of the chief physician, to come and undergo PET/CT with a person accompanying you. The person accompanying you must consent to and sign a guidance form regarding entering the controlled zone (where there is ionising radiation).

Throughout the entire scanning, we monitor you with a camera system (we can see you, we can hear you), and you can communicate with the attending personnel via a microphone.



## 6. PET/CT 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.

The application of iodine contrast medium for CT may result in an allergic reaction. If you have already had an allergic reaction to iodine contrast medium in the past or if you have other allergies, you must inform us in detail of all your allergies. However, the administration of modern, non-ionic, iodine contrast media only rarely results in serious complications. Recognition and treatment depend on the severity of the allergic reaction, and the DNM staff will be ready to respond.

The patient's exposure to ionising radiation is unavoidable in this examination, but the CT part of the examination is optimised so as to minimise the exposure.



## 7. Points to Pay Special Attention to After PET/CT Scan

If you have been given both radioactive and iodine contrast media, which are excreted from the body through the kidneys (in the urine), it is important that after the examination you drink at least 2 litres of fluid during the day.

If you have been administered a contrast medium, you will still be monitored for approximately ½ hour after the examination due to the risk of an allergic reaction.

Ionising radiation (radioactivity) after administration of the radiopharmaceutical is completely eliminated from the body by the next day (the major part is eliminated in 12 hours, almost all of it in 24 hours). This radiation cannot endanger anyone in your proximity, even if in close contact with you. Nonetheless, we still recommend you avoid approaching or staying in close proximity to pregnant women or small children until the next day. You can return to work unless you work with children.

If you are breast-feeding, you will be informed for how long you must discontinue breast-feeding and express and discard your milk in order to prevent any undesirable exposure of the breast-fed baby to radiation.

If you plan to travel by aeroplane on the same day you undergo your scanning, we will issue a certificate on demand in order to avoid any misunderstanding at the airport when your security screening is carried out.

If you have not been given any sedatives or medicines that affect your attention, you can leave the 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 informed by your indicating doctor. You will be notified by your doctor of any additional restrictions in case of further medication during the examination.

## 8. Additional Information

- After the examination, the physicians from our DNM will prepare an exam outcome description on the basis of your scans, which will then be sent to the referring doctor.
- The DNM staff 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.

- Make an appointment for PET/CT (or ask for more information) by contacting us at the following address: **Proton Therapy Center Czech, Budínova 2437/1a, Prague 8, Postal Code 180 00**, or at the DNM reception desk, telephone number: **+420 222 999 046** or at the e-mail address: **info@ptc.cz**
- 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. PET/CT scanning is very expensive due to the radioactive agent used, and the quantity of ordered radioactive agent is calculated on a patient-by-patient basis. By cancelling in time, you will enable other patients to be scanned instead of you at an earlier date.

## CD Information – Frequently Asked Questions

### 1. Why is one of the most modern diagnostic centres 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 patient login data by text message, instructions for downloading by e-mail, etc. This process is time consuming and not feasible within our standard operation.







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