



# UW Medicine



## 氟去氧葡萄糖腦部 PET/CT 掃描

### 正電子發射斷層攝影

本手冊解釋腦部 PET/CT 掃描、如何讓為此項掃描做準備、此項掃描的工作原理、掃描過程中的預期步驟，以及如何獲取你的檢查結果。

正電子發射斷層 (PET)/電腦斷層 (CT) 掃描是一種拍攝身體細胞圖像的方法。它讓受過專門訓練的醫生 (放射科醫生) 能夠檢查細胞中的改變。

腦部 PET/CT 掃描拍攝腦部活動時的圖像。它經常用來檢查和診斷腫瘤，以及找出記憶出現問題的原因。

要獲得最佳效果，我們將注射一種放射性示蹤劑，稱為 18 FDG。FDG，代表 2-去氧-2-[<sup>18</sup>F]氟-D-葡萄糖。示蹤劑是在進行 PET 掃描前注射的，以便讓我們看到你的細胞如何吸收示蹤劑的圖像。



個 PET/CT 圖像給出腦部某個部位的視圖。

PET/CT 攝影機將拍攝 2 組腦部的圖像：

- PET 掃描顯示放射性示蹤劑聚集在哪里。
- CT 掃描提供腦部組織和結構的詳細圖像。

PET 和 CT 掃描一起使用時，可為醫生提供全面評估腦部所需的圖像。

### 腦部 PET/CT 掃描有何用途？

腦部的 PET/CT 掃描可以用來找出有些人記憶力喪失、患有癲癇或腦部腫瘤的原因。此項掃描可讓醫生看見腦部中的疾病或損傷。

### 如何為腦部 PET/CT 掃描做準備？

#### 掃描前 72 小時

- 切勿在約診前 72 小時使用大麻。

#### 掃描前 48 小時

- 確保你的約診時間方便你。

- 如果你有以下情況，請致電為你安排掃描時間的部門（見第 3 頁上的電話號碼）的醫護人員，已獲得更詳細的指示：
  - 患有糖尿病
  - 正在服用任何粒細胞集落刺激因子 (G-CSF) 藥物（例如 Neupogen 或 Neulasta）

### 掃描前一天

- 保持身體的水份。掃描前一天喝 6 至 8 杯白開水，掃描當天喝幾杯白開水。

### 掃描前 6 小時

- 切勿吃喝任何東西，白開水除外。喝幾杯白開水來保持身體的水份。
- 切勿服用任何三磷酸吡啶核苷酸 (TPN) 或靜脈注射葡萄糖藥物。
- 如果你可以空腹服用其他處方藥（止咳糖漿和咀嚼片劑除外），你可以服用這些藥。如果醫生告訴你不要服用你的藥物，切勿服用。
- 切勿嚼口香糖、薄荷糖、吃糖果，或服食維生素。

### 掃描當天

- 如有可能，帶上你最近的造影膠片。這些造影包括 PET、CT 或 MRI 掃描。它們可以在膠片上或在光碟上。我們的醫生要將它們與你新的 PET/CT 掃描進行比較。
- 請在約診時間前 15 分鐘來到造影服務部。此項掃描的時間準確性十分重要。
- 切勿在衣服上穿戴首飾或金屬物件。
- 如果你在密封的空間裏感到侷促不安，你可能需要一種掃描時用的輕度肌肉鬆弛劑。如果你使用此藥來幫助鬆弛，你必須有一個成年人負責開車送你回家。
- 切勿攜帶兒童或孕婦，因為需要為你注射放射性物質。
- 為了讓你感到舒適：
  - 穿上暖和寬鬆的衣服。有些掃描室可能會比較冷。
  - 我們將提供溫暖的毯子。

### 抵達後的預期步驟？

- 一位核子醫學科放射師或護士，或他們兩人同時幫助你為掃描造準備。
- 首先將一根靜脈 (IV) 導管（一根用來給你注入藥物和液體的細長導管）插入你的靜脈中。

- 將檢查你的血糖。
- 放射師將透過靜脈導管注入 FDG（氟去氧葡萄糖）放射性示蹤劑。
- 當放射性示蹤劑在你的血管內循環時，你可以有約 45 分鐘的時間放鬆。
- 然後，你被帶到 PET/CT 掃描室。
- 放射師會叫你平躺在掃描台上。
- 你的醫生可能已經請求在你做完 PET 掃描後，用 PET/CT 攝影機及靜脈造影劑為你做電腦斷層 (CT) 掃描。
  - 要瞭解更多此項掃描，請點擊以下“放射和造影服務部”網址上的“頭部 CT 掃描” (Head CT Scan):  
<http://uwmedicine.washington.edu/Patient-Care/Our-Services/Medical-Services/Radiology-Imaging-Services/Pages/ArticleView.aspx?subID=320>

如果你沒有上網，請索取這份資料的列印件。
- 大多數掃描需時約 20 分鐘。要完成整個 PET/CT 掃描，估計要在“造影服務部”停留 3 至 5 個小時，這取決於醫生將要檢查什麼。
- 如果醫生要檢查腦部腫瘤，在注入示蹤劑後 3 至 4 小時內需要拍攝更多的腦部圖像。拍攝這些圖像將要多加 20 分鐘。你需要繼續禁食，直到拍攝完這些圖像為止。

### 在檢查過程中我會有什麼感覺？

- 插入 IV 導管時，你可能會感到有些不適。
- 在 PET/CT 掃描過程中，你必須放鬆，不能移動。
- 你將感覺不到你體內有放射性示蹤劑。放射性物質會在一天內消失。
- 掃描完成後，醫生不會給你特別指示，但會叫你喝大量的液體。這有助於將剩餘的放射性示蹤劑排出你的體外。

### 有問題嗎？

你的問題很重要。如果你有任何問題或疑慮，請致電你的醫生或保健服務提供者。

- University of Washington Medical Center  
 造影服務部：  
 206-598-6200  
 核子醫學部：  
 206-598-4240
- 西雅圖癌症照護聯盟：206-288-7200
- Harborview 醫療中心 PET 掃描科：  
 206-744-0113

### 誰負責解釋 PET/CT 掃描，以及我怎樣獲取掃描結果？

你的 PET/CT 掃描將由一名放射科醫生或核子醫學醫生審閱和解釋。該醫生還將檢查你帶來的過去做的掃描結果。你自己的醫生負責將你的 PET/CT 掃描結果給你。你的醫生應該在 3 天內收到放射科醫生或核子醫學醫生寄來的掃描結果。

UW Medicine



## **PET/CT FDG Brain Scan**

### *Positron emission tomography*

*This handout explains the PET/CT brain scan, how to prepare for it, how it works, what to expect during the scan, and how to get your results.*

A *positron emission tomography* (PET)/CT scan is a way to take pictures of your body's cells. It allows a specially trained doctor (a *radiologist*) to check for changes in your cells.

A PET/CT brain scan takes pictures of your brain in action. It is often used to check for tumors and to find the reason for memory problems.

To do the test, we will inject a *radioactive tracer* called *18 FDG*. FDG stands for *2-Deoxy-2-[<sup>18</sup>F] fluoro-D-Glucose*. It is injected before the PET scan and allows us to see images of how your cells take up the tracer.



*This PET/CT image gives a view of one part of the brain.*

The PET/CT camera will take 2 types of pictures of your brain:

- The PET scan shows where the radioactive tracer has collected.
- The CT scan provides detailed pictures of tissues and structures.

The PET and CT scans together will provide the images your doctor needs to fully assess your brain.

### **What is a PET/CT brain scan used for?**

A PET/CT scan of the brain can be used to find out why someone has memory loss, seizures, or brain tumors. The scan will let your doctors see disease or injury in your brain.

### **How do I prepare for a PET/CT brain scan?**

#### **72 Hours Before**

- Do **not** use marijuana for 72 hours before your appointment.

#### **48 Hours Before**

- Make sure that your appointment time is convenient for you.

- Please call staff where your scan is scheduled (see phone numbers on page 3) for more instructions if you:
  - Have diabetes
  - Are taking any *granulocyte colony-stimulating factor* (G-CSF) medicines (such as Neupogen or Neulasta)

### **The Day Before**

- Stay hydrated. Drink 6 to 8 glasses of plain water the day before your scan and several on the day of your scan.

### **6 Hours Before**

- **Do not eat or drink anything except plain water.** Drink several glasses of water to stay hydrated.
- Do **not** take any TPN or IV dextrose medicines.
- You may take your other prescribed medicines (except cough syrup or chewable tablets) if you can take them on an empty stomach. If you are told not to take your medicines, do not take them.
- Do **not** chew gum, mints, eat candy, or take vitamins.

### **On the Day of Your Scan**

- If possible, bring your most recent imaging films. These include PET, CT, or MRI scans. They may be on films or CD-ROM. Our doctors will compare them to your new PET/CT scan.
- Arrive 15 minutes before your scheduled time. The exact timing of this scan is very important.
- Do **not** wear jewelry or metal on your clothes.
- If you feel uneasy in enclosed spaces, you may need a mild muscle relaxant for your scan. If you receive this medicine to help you relax, you must have a responsible adult with you who will drive you home.
- Do not bring children or pregnant women with you, due to the radioactive material that will be injected.
- For your comfort:
  - Wear warm, loose-fitting clothes. Some scanner rooms may be cold.
  - We will provide warm blankets.

### **What should I expect when I arrive?**

- A nuclear medicine technologist, nurse, or both, will help you get ready for your scan.
- An *intravenous* (IV) line (a thin tube used to give you medicine and fluids) will be inserted into a vein.

- Your blood sugar will be checked.
- The technologist will inject the FDG radioactive tracer, also called a *radiotracer*, through the IV.
- You will relax for about 45 minutes while the radiotracer circulates.
- You will then be taken to the PET/CT scan area.
- You will be asked to lie on your back on the scanner table.
- Your doctor may have requested a computed tomography (CT) scan with IV contrast to be done on the PET/CT camera after your PET scan.
  - To learn more about this scan, click on “Head CT Scan” on the Radiology and Imaging Services website:

*<http://uwmedicine.washington.edu/Patient-Care/Our-Services/Medical-Services/Radiology-Imaging-Services/Pages/ArticleView.aspx?subID=320>*

If you do not have access to the Internet, please ask for a printed copy of this information.

- Most scans take about 20 minutes. You can expect to be in the Imaging Services Department for 3 to 5 hours for your entire PET/CT scan, depending on what your doctor is looking for.
- If your doctor is looking for a tumor in your brain, you will need to have more brain images taken 3 to 4 hours after the radiotracer is injected. These pictures will take another 20 minutes. You will need to keep fasting until these images are done.

## Questions?

Your questions are important. Call your doctor or health care provider if you have questions or concerns.

- University of Washington Medical Center  
Imaging Services: 206-598-6200  
Nuclear Medicine: 206-598-4240
- Seattle Cancer Care Alliance: 206-288-7200
- Harborview Medical Center PET: 206-744-0113

## What will I feel during the test?

- You may feel some discomfort when the IV line is placed.
- During the PET/CT scan you must relax and not move.
- You will not feel anything from the radiotracer being in your body. The radioactivity is gone within a day.
- After the scan, there are no special instructions except to drink plenty of fluids. This will help flush the remaining radiotracer out of your system.

## Who reads the PET/CT scan and how will I get the results?

Your PET/CT scan will be read by a radiologist or nuclear medicine doctor. This doctor will also review past scans you may have brought with you. Your own doctor will give you your PET/CT scan results. Your doctor should receive the results from the radiologist or nuclear medicine doctor within 3 days.