

## What Else is Involved?

- For your PET, you will be injected with a *radiopharmaceutical* — a special form of glucose that is labeled with radioactivity. We take extensive precautions to ensure the safety of radiopharmaceutical compounds.
- The PET scanner creates images by detecting the compound in your system.
- Different radiopharmaceuticals examine different brain functions. For your scan, we may use **FDG** (fluorodeoxyglucose), **PIB** (Pittsburgh Compound B), or both.
- Radiopharmaceuticals are freshly made for each scan. For this reason, we need **3 days notice** (minimum) if you need to cancel or reschedule your appointment.

### What Does PET Look Like?

In FDG-PET images, normal brain activity is shown by **red, orange** or **yellow**.

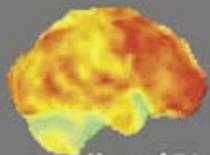
Decreased activity appears as **green, blue** and **violet**.



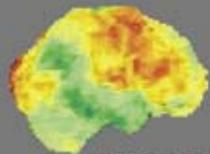
The top image is an example of normal brain activity.

The mildly impaired brain (middle) has more green areas, where activity has begun to decrease.

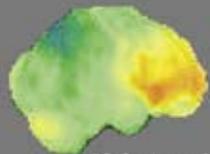
The Alzheimer's brain shows a widespread, severe reduction in cell activity.



Normal 74  
Year Old



Mild Cognitive  
Impairment



Alzheimer's  
Disease

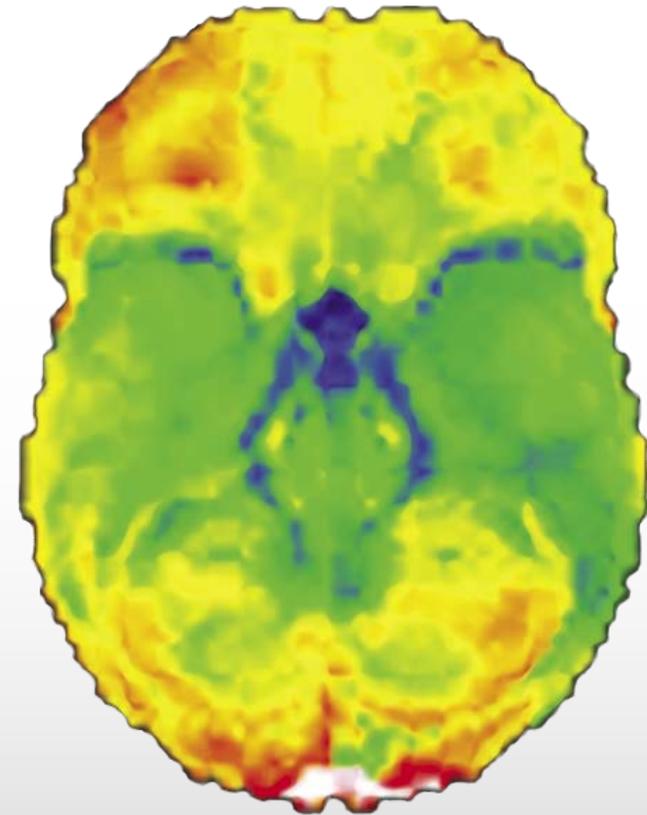
You have been referred for a **PET scan**. This pamphlet will give you a better understanding of **PET imaging**, how to prepare, and what to expect during your scan.

After your scan is scheduled, you will receive additional guidelines and information from the **Huntsman Cancer Hospital** at the University of Utah, where your **PET** will be performed.

On the day of your visit, the **PET scan** will be carefully explained to you, and any questions you have will be answered.

If your **PET** is being done as part of a research study, you will receive additional information when you give your consent for the study.

# PET Imaging



An FDG-PET scan of the brain (viewed from below), after being processed by an image analyst



**The University of Utah**

Center for Alzheimer's Care, Imaging & Research

## Information for Patients & Volunteers

# What to Expect

## What is PET Imaging?

- PET stands for **Positron Emission Tomography**, a powerful diagnostic tool that creates detailed pictures of different processes in your body.
- PET provides information that cannot be obtained through any other procedure.
- PET imaging is very sensitive. It can detect very small changes in the brain, including age-related changes and changes that are early markers of diseases like Alzheimer's.

## How Does PET Work?

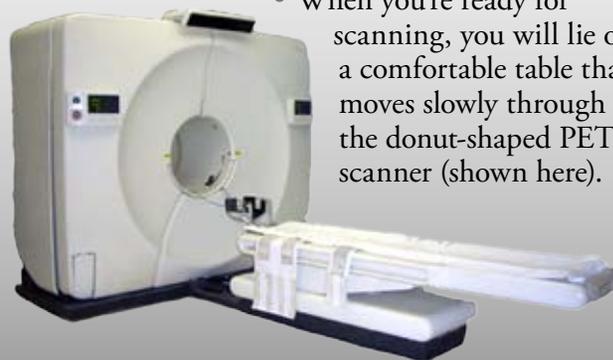
- Most people are familiar with x-rays, CT scans and MRI images, which show the body's structure or anatomy. PET, on the other hand, shows the functioning of individual cells in your body.
- We use different types of PET to measure cellular activity in your brain:
  - » **FDG-PET** measures how brain cells use glucose, or sugar, to produce energy — a process known as metabolism.
  - » **PIB-PET** measures amyloid in the brain.
- Alzheimer's and similar diseases affect brain cells in specific, abnormal patterns. Recognizing these patterns in a PET scan can help doctors pinpoint the cause of symptoms.

## Before Your Scan

- Please fast for **six hours** before your PET scan (no food or liquids, except water). Please do not smoke for **two hours** before your scan.
- Take all of your regular medications the day of your appointment, with water only.
- If you are diabetic, you will receive special instructions before your scan.
- Drink several glasses of water the day of your scan, emptying your bladder as normal.

## During Your Scan

- Use the restroom just before your appointment.
- After you check in, a technician will inject the radiopharmaceutical into your arm with a small needle.
- It takes approximately 30-90 minutes for your body to absorb the compound. During this time, we will ask that you rest quietly and avoid significant movement or talking, which can affect how it is absorbed.
- When you're ready for scanning, you will lie on a comfortable table that moves slowly through the donut-shaped PET scanner (shown here).



**PET scan procedures vary. You will receive detailed instructions prior to your appointment, or in your study consent materials.**

- You will be asked to lie very still during your scan, because movement can interfere with the results.
- It is important to stay relaxed, breathe normally, and avoid any head movements or talking.
- The PET scanner does not make any noise. For most people, it is not confining or claustrophobic.
- The technician will leave the room when your scan begins, but will remain in constant contact with you throughout the procedure.
- The total time of your appointment will be about three hours, including approximately one hour in the PET scanner.

## After Your Scan

- Unless you've received special instructions, you can eat and drink immediately and resume your normal activities.
- Drinking lots of fluids will help remove any of the radiopharmaceutical that is still in your system.
- A copy of your PET scan results will be sent to your physician, who will tell you what has been learned.

**Learn more.** [www.utahmemory.org](http://www.utahmemory.org)