

 SELECT RADIOLOGY SOLUTIONS A Division of Radiology Imaging Associates	PET CT Brain FDG		
	Approval: K. Shamlou, MD	rev:2	7/15/2026

PET CT Brain FDG

Radiopharmaceutical: 18F-Fluorodeoxyglucose (FDG)

T ½: 110 min

Dose: 12 mCi

Energy: 511 keV

CPT: 78608

HCPCS: A9552

Indications

Clinical indications for PET/CT scan for brain metabolism include, but are not limited to:

1. Evaluation of cerebral glucose metabolism for Alzheimer's disease, dementia, memory loss, and head injury.

Patient Instructions

- Patient should be NPO for 6 hours.
- Total time at facility is 2 to 2 ½ hrs.
- Upon scheduling, if the patient has any pertinent studies, please instruct either the patient or the ordering physician's office to make them available for correlation.
- Explain patient preparation in detail, emphasizing:

No sugar, artificial sweeteners, caffeine or carbohydrates for 24 hrs. prior to exam.

Keep body well hydrated with water only for 24 hrs. prior to exam

Equipment

- Philips Gemini TF 64 PET/CT Scanner.
- Philips Vereos PET/CT

Procedure

- Patient history and initial IV placement to be performed prior to being placed in secluded room.
- Obtain blood glucose level prior to injection.
- Ensure patient stays in a quiet, darkened environment with no distractions in order to eliminate excessive brain uptake.
- Patient should be in the quiet room for 15-20 minutes prior to FDG injection and for the 45-60 minute uptake period.
- After a waiting period of 45-60 minutes post injection of FDG, obtain head scan ensuring that the entire brain is included within scan parameters.
- When moving patient from quiet room to scan room turn off as many lights as possible in the surrounding area, remaining as quiet as possible.

Acquisition Protocol

Scan Type:

- Position patient supine and head first on scan table and move patient into scanner until innermost positioning laser is below the chin. Ensure vertical, horizontal and rotational aspects of the head are properly aligned. Bed should be at a height of 200.
- Enter patient data on acquisition computer.
- Select PET/CT Brain protocol:

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Brain = 10 min per bed position for a total of 1 bed position

- Again, ensure vertical, horizontal and rotational aspects of the head are properly aligned.
- Perform dual plain CT Surview at 90° and 180° (Scout views).
- Set parameters for CT and PET.
- Perform Low Dose CT Scan for attenuation correction and follow prompts to move patient into PET gantry to perform PET scan
- When scanning is complete follow prompts to 'End Study'.

CT Parameters

- Scout:

Brain

Length 350 mm

kV 120

mA 30

- Low Dose CT scan:

Brain

Slice Thickness 3 mm

Increment 3 mm

kV 120

mAs/slice (mA) 400 (358)

Collimation 64 x 0.625

Pitch 0.671

Matrix 512

Filter Brain Standard (UB)

FOV 600 mm

Processing

1. From Directory screen on PET/CT Host, highlight the patient's name you wish to begin processing.
2. Highlight the following image sets:
 - BR_CTAC PET
 - BR_NAC PET
 - Low Dose Sharp
3. Left click on the FUSION VIEWER button in the upper left corner of the Directory screen. This will take a few moments to open the images.
4. Ensure that all image sets are open on the proper image layout:

AXIAL AC, AXIAL C,T FUSED AXIAL, AXIAL NOAC

COR AC, COR CT, FUSED COR COR, NOAC

SAG AC, SAG CT, FUSED SAG, COR ROT VOL

5. Left click on STOP button on MOVIE box below COR ROT VOL, and then left click on the X to remove this box.
6. Adjust the intensity of the COR ROT VOL image by holding down the scroll button in the middle of mouse and dragging down to brighten and push up to decrease intensity.

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7. Right click on FUSED COR image and select ALPHA BLEND from menu.
8. Hold left mouse button down and move right until you see "Alpha: 60%."
9. Right click again on FUSED COR image and select SCROLL.
10. Scroll through the AXIAL AC image until beyond brain activity. Write down the slice numbers from each end.
11. Scroll through COR AC until beyond brain activity on each end and write the slice numbers down. Do the same for the SAG AC images.
12. Left click on the arrow next to the blue box and select ALL ANNOTATION OFF.
13. Left click on the triangulation tool on the left side of screen to turn OFF triangulation.
14. Click in FUSED AXIAL image maximize image to fit screen by left-clicking on maximize icon in top right corner of that image. Right click in image and move pointer over SELECT OVERLAY COLORMAP, and then left click on 10BAND.
15. Press on middle scroll button and adjust image intensity so that there is a sufficient amount of white in the putamen.
16. Minimize image back to original size.
17. Left click on COR ROT VOL, then left click on the SAVE IMAGES AS icon (pencil writing on a disk).
18. In the description box type COR ROT VOL. Set Start Offset to 1, and End Offset to 30.
19. Left click on OK.
20. Left click on AXIAL AC image, and then SAVE IMAGES AS.
21. In the Description box type AXIAL AC, and set Start Offset to smaller number for axial images and End Offset to larger number. ACTIVITY CONCENTRATION box will not be available to select on BRAIN AC data sets.
22. Left click on OK.
23. Do the same for COR AC, SAG AC, AXIAL CT, COR CT, and SAG CT images.
24. Left click on SAVE IMAGES AS, and in the Description box type AXIAL 10BAND. Change DATA in top right corner to SECONDARY CAPTURE (SF), and then set Start Offset to smaller number, and End Offset to larger number.
25. Left click on OK.
26. Right click on AXIAL 10BAND image. Put pointer over SELECT OVERLAY COLORMAP, and then left click on SUV1.
27. Left click on SAVE IMAGES AS, and in the Description box type AXIAL SUV1. Change DATA in top right corner to SECONDARY CAPTURE (SF), and then set Start Offset to smaller number, and End Offset to larger number.
28. Do the same for the COR SUV1 and SAG SUV1 images.
29. Left click on the FUSED AXIAL images, and then maximize image to fit screen by left-clicking on maximize icon in top right corner of that image.
30. Left click on SAVE IMAGES AS.
31. In the Description box type FUSED AXIAL SUV1. Change DATA in top right drop-down box to SECONDARY CAPTURE (SF). Set Start Offset to smaller number, and the End Offset to the larger one.
32. Left click on OK.
33. Once all of the images are saved, return to the DIRECTORY page, and left click on the REFRESH button at the top right of the screen. Verify that the AXIAL AC, AXIAL CT, AXIAL SUV1, AXIAL 10BAND, and FUSED AXIAL SUV1 saved images have the same number of images by looking at the # IMAGES column.
34. Do the same for the COR AC, COR CT, and COR SUV1 images.
35. Do the same for the SAG AC, SAG CT, and SAG SUV1 images.

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36. Next, select the AXIAL AC, AXIAL SUV1, AXIAL 10BAND, COR AC, COR SUV1, COR ROT VOL, SAG AC and SAG SUV1 images and the left click on COPY TO button at the upper left corner of screen. This will open a new window.

37. Highlight FUJIPACS at the right of the screen. Ensure that no other icons are highlighted. Left click on OK.

38. Do the same for the AXIAL CT, COR CT, SAG CT, CT SCOUT, DOSE INFO, and FUSED AXIAL SUV1 images.

39. Ensure all pertinent patient history is typed under ‘technologist notes’ being sure to include:

- Dose (of FDG)
- Fasting time
- Blood glucose level
- Scan time post injection
- Height and weight
- Note the 10 minutes per bed position
- Diagnosis
- History and symptoms
- Any pertinent medications that are taken (i.e. Aricept® or Namenda®)
- Dates of any radiation therapy
- Dates of any chemotherapy
- Surgical history
- Any prior studies pertinent to this examination.

40. Ensure that all image sets match in number of slices (i.e. axial images all have same number of slices).

41. Ensure that the COR ROT VOL has 30 images.

42. Verify that all image sets are complete with no slices missing.

43. Place online for Radiologists’ interpretation.