

**Table S1** Comparison of quantitative image quality metrics (mean  $\pm$  standard deviation) calculated between partial volume corrected full-dose (FD + PVC) predicted by the U-Net models and the ground truth FD + PVC positron emission tomography (PET) images for the entire head region when the input data were low-dose (LD) PET images

Validation dataset	GTM	IY	RBV	MTC	RL	RVC
PSNR	15.06 $\pm$ 2.23	17.50 $\pm$ 2.40	17.10 $\pm$ 2.53	12.34 $\pm$ 3.21	11.21 $\pm$ 2.24	22.61 $\pm$ 2.20
RMSE (SUV)	1.62 $\pm$ 0.70	1.48 $\pm$ 1.12	1.54 $\pm$ 0.67	2.53 $\pm$ 1.68	3.89 $\pm$ 2.73	0.90 $\pm$ 0.35
SSIM	0.61 $\pm$ 0.06	0.66 $\pm$ 0.05	0.60 $\pm$ 0.05	0.62 $\pm$ 0.05	0.36 $\pm$ 0.05	0.92 $\pm$ 0.05

**Table S2** The mean and standard deviation of quantitative metrics for image quality were compared between full-dose PET images with partial volume correction (FD + PVC) predicted by U-Net models and ground truth FD + PVC PET images for the entire head region, using FD PET images as input data

Validation dataset	GTM	IY	RBV	MTC	RL	RVC
PSNR	15.22 $\pm$ 2.11	18.05 $\pm$ 2.10	17.41 $\pm$ 2.53	14.34 $\pm$ 2.73	12.67 $\pm$ 3.42	27.63 $\pm$ 4.58
RMSE (SUV)	1.60 $\pm$ 0.71	1.42 $\pm$ 0.53	1.50 $\pm$ 0.50	2.40 $\pm$ 1.45	3.10 $\pm$ 1.20	0.86 $\pm$ 0.05
SSIM	0.49 $\pm$ 0.07	0.68 $\pm$ 0.05	0.67 $\pm$ 0.05	0.60 $\pm$ 0.06	0.40 $\pm$ 0.05	0.95 $\pm$ 0.05

**Table S3** Quantitative image quality metrics were compared between partial volume corrected full-dose (FD + PVC) predicted by the U-Net models and the ground truth FD + PVC positron emission tomography (PET) images for the entire head region. This comparison was performed when the input data were low-dose (LD) PET images. The results were reported in terms of mean and standard deviation values

Training dataset	GTM	IY	RBV	MTC	RL	RVC
PSNR	17.34 $\pm$ 2.14	18.92 $\pm$ 2.32	17.54 $\pm$ 1.82	14.12 $\pm$ 3.05	11.22 $\pm$ 1.81	26.34 $\pm$ 1.72
RMSE (SUV)	1.80 $\pm$ 0.82	1.72 $\pm$ 0.73	1.67 $\pm$ 0.60	2.96 $\pm$ 1.93	5.46 $\pm$ 2.84	1.12 $\pm$ 0.88
SSIM	0.70 $\pm$ 0.08	0.72 $\pm$ 0.06	0.64 $\pm$ 0.09	0.69 $\pm$ 0.07	0.41 $\pm$ 0.08	0.92 $\pm$ 0.06

**Table S4** A comparison was made for the entire head region between partial volume corrected full-dose (FD + PVC) predicted by the U-Net models and the ground truth FD + PVC positron emission tomography (PET) images. Mean  $\pm$  standard deviation quantitative image quality metrics were calculated for this purpose. The input data used for the comparison was FD PET images

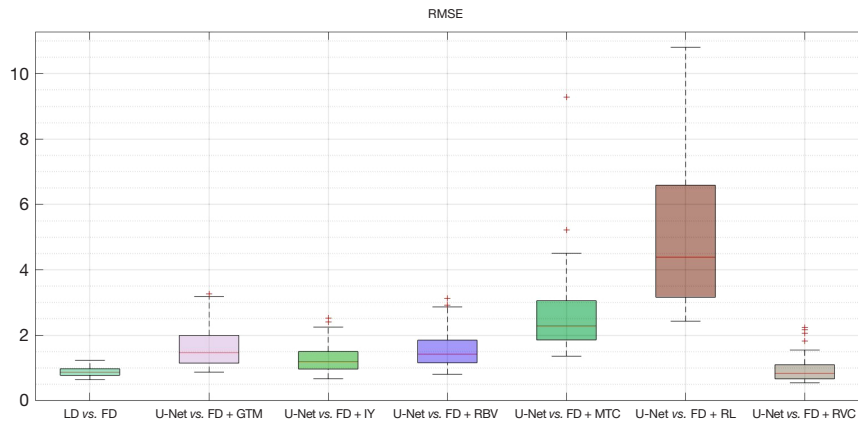
Training dataset	GTM	IY	RBV	MTC	RL	RVC
PSNR	17.15 $\pm$ 2.75	18.62 $\pm$ 2.50	17.85 $\pm$ 1.71	15.89 $\pm$ 3.41	14.61 $\pm$ 3.74	30.27 $\pm$ 4.07
RMSE (SUV)	1.76 $\pm$ 0.71	1.70 $\pm$ 0.76	1.58 $\pm$ 0.87	2.51 $\pm$ 1.83	3.00 $\pm$ 1.90	0.90 $\pm$ 0.81
SSIM	0.67 $\pm$ 0.07	0.73 $\pm$ 0.07	0.70 $\pm$ 0.09	0.68 $\pm$ 0.07	0.50 $\pm$ 0.08	0.97 $\pm$ 0.06

**Table S5** Comparison of quantitative image quality metrics (mean  $\pm$  standard deviation) calculated between full-dose (FD) and partial volume correction (PVC) positron emission tomography (PET) images for the entire head region when the reference data were PVC PET images. The differences between low-dose (LD) and FD PET images are also presented

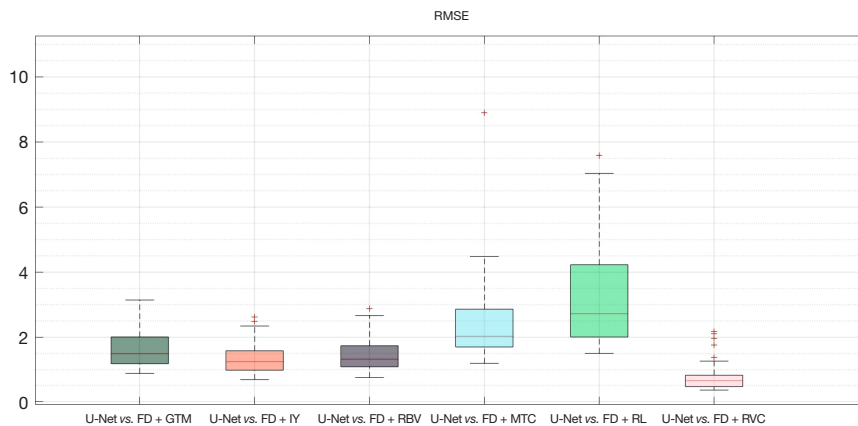
Test dataset	LD vs. FD	FD vs. GTM	FD vs. IY	FD vs. RBV	FD vs. MTC	FD vs. RL	FD vs. RVC
PSNR	22.04 $\pm$ 0.09	11.18 $\pm$ 2.14	13.31 $\pm$ 2.49	12.64 $\pm$ 2.22	11.81 $\pm$ 2.17	6.11 $\pm$ 2.84	18.87 $\pm$ 2.21
RMSE (SUV)	0.89 $\pm$ 0.16	4.90 $\pm$ 0.66	4.29 $\pm$ 1.47	5.10 $\pm$ 0.61	5.85 $\pm$ 1.30	9.96 $\pm$ 2.83	2.87 $\pm$ 0.75
SSIM	0.54 $\pm$ 0.09	0.35 $\pm$ 0.05	0.36 $\pm$ 0.05	0.33 $\pm$ 0.06	0.30 $\pm$ 0.05	0.28 $\pm$ 0.06	0.43 $\pm$ 0.05

**Table S6** Comparison of quantitative image quality metrics (mean  $\pm$  standard deviation) calculated between low-dose (LD) and the partial volume correction (PVC) positron emission tomography (PET) images for the entire head region when the reference data were PVC PET images

Test dataset	LD vs. GTM	LD vs. IY	LD vs. RBV	LD vs. MTC	LD vs. RL	LD vs. RVC
PSNR	11.23 $\pm$ 2.10	12.82 $\pm$ 2.44	11.58 $\pm$ 2.37	10.19 $\pm$ 3.08	13.92 $\pm$ 3.11	17.13 $\pm$ 2.37
RMSE (SUV)	4.92 $\pm$ 0.64	4.79 $\pm$ 1.30	5.37 $\pm$ 0.60	5.92 $\pm$ 1.32	10.19 $\pm$ 2.41	2.93 $\pm$ 0.70
SSIM	0.30 $\pm$ 0.05	0.35 $\pm$ 0.05	0.31 $\pm$ 0.05	0.32 $\pm$ 0.05	0.23 $\pm$ 0.05	0.40 $\pm$ 0.05



**Figure S1** Boxplots of root mean squared error (RMSEs) for different partial volume correction (PVC) methods predicted by the U-Net models from low-dose (LD) positron emission tomography (PET) input data. RMSEs between LD and full-dose (FD) PET images are also plotted.



**Figure S2** Boxplots of root mean squared error (RMSEs) for different partial volume correction (PVC) methods predicted by the U-Net models from full-dose (FD) Positron Emission Tomography (PET) input data.