

Iterative reconstruction of CT data in PET/CT imaging – pros and cons

In PET/CT imaging a low dose CT scan is used for the purpose of anatomical guidance and for attenuation correction of PET data. It is essential to always keep the dose contribution to the patient, from both PET and CT, as low as possible and at the same time maintain the diagnostic value of the images. Due to technological developments in both hardware and software of the systems, dose optimisation is a continuous work in most medical imaging facilities.

Recent advances in reconstruction algorithms include the possibility of iterative reconstruction of CT image data (instead of filtered back projection (FBP)). It is suggested in several studies that the CT dose can be reduced with preserved image quality when using iterative CT reconstructions instead of FBP.

This project will include evaluation of PET and CT patient images from Siemens Biograph mCT (PET/CT), when reconstructed with both FBP and iterative algorithms. Could iterative reconstruction be an option in low dose CT scans for PET/CT imaging? What are the advantages/disadvantages?

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