

Introduction

SlicePick is a QCT PRO utility that allows a subset of CT images to be isolated from a larger CT data set for subsequent analysis in QCT PRO. The primary application is the isolation of a set of spine images from a whole-body CT data set for spine BMD analysis.

SlicePick works by synthesizing AP and lateral localizer images from a set of axial CT images. A box is used to enclose the images of interest on the SlicePick localizers. The selected range of images can then be saved and analyzed using QCT PRO spine and/or hip analysis modules.

SlicePick Basics

1. Start SlicePick and load a translated image file.

2. Define an image subset.

2 or 3 vertebrae can be selected for analysis, typically L1-L2 or L1-L3.

Adjust the red box to enclose the desired range.

- **To resize the box** Move your cursor near the top or bottom border of the box, and while holding down the left mouse button, drag it in the desired direction.
- **To move the box while maintaining its size** Hold down the right mouse button and move the box.

3. Save the image subset.

After the desired image range has been defined click on "Save."

A new file will be created with the original file name followed by the beginning and end slice numbers for the range chosen, for example, DOE_JANE_35_65.QCT (new file consists of images 35 to 65). A notification box will appear when that file has been created.



- The original image set remains unaltered.
- After the selected range is saved, additional image sets may be isolated from the displayed image if desired.

4. Close SlicePick and analyze the new file.

Image Controls

Orientation (A)

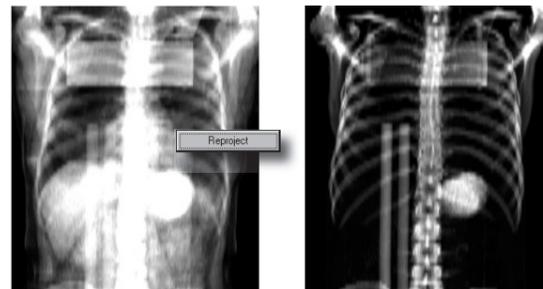
Toggles between AP and lateral projections.



Threshold (B)

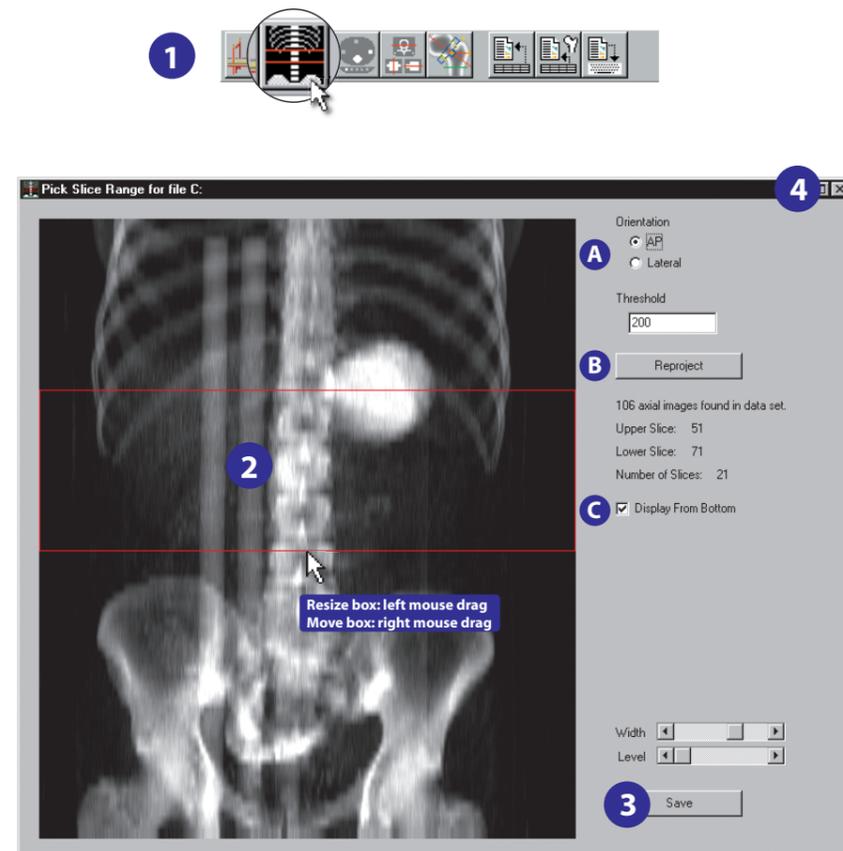
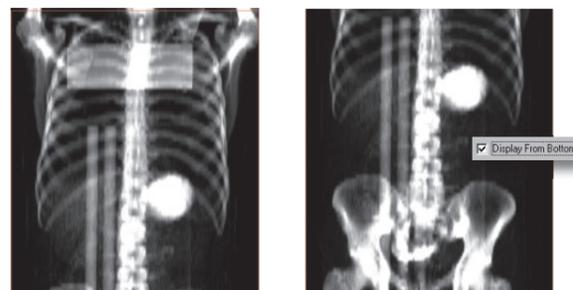
Alters the appearance of the SlicePick image. Lowering the threshold will include more soft tissue structures in the projected image. Raising the threshold will exclude more soft tissue.

You must click on "Reproject" to display the image at a new setting.



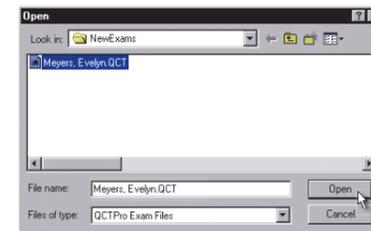
Display From Bottom (C)

If the size of the SlicePick localizer exceeds the SlicePick window, the image will be displayed truncated. By default, the projections will be truncated from the bottom. Selecting "Display from Bottom" will display the projection images from the bottom up, truncating the top projection images.

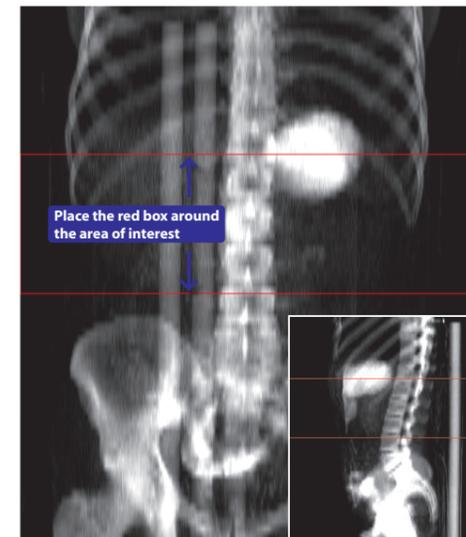


SlicePick Steps

1 Start SlicePick and load a file

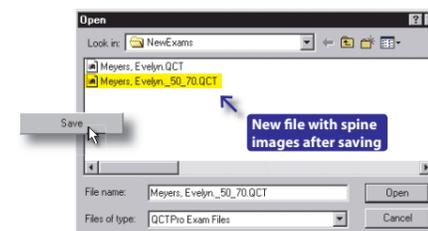


2 Define an image subset



3 Save a file

After saving, you will have a new QCT file in addition to the original whole body data set.



Whole Body Considerations

BMD measurements can be obtained directly from CT whole body, abdomen/pelvis, or virtual colonoscopy studies. A BMD series through the upper lumbar spine is also easily added to coronary artery calcium scoring or lung screening studies. Depending on the study type and site protocols, the integration of BMD may require some or no modifications to the normal scan procedures.

Setup

Table Height All BMD studies should be done at the same table height. If BMD studies are to be done in conjunction with screening studies, then the standard, fixed, table height for BMD studies should match the table height used for screening exams.

Contrast Oral contrast will not interfere with a BMD measurement unless it causes streaks in the spine or the calibration phantom. IV contrast, however, will shift BMD results; BMD measurements should not be attempted if IV contrast has been administered.

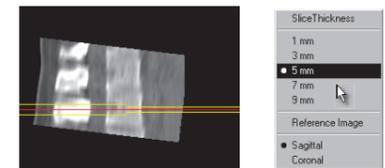
Patient Knees Some screening procedures call for legs extended instead of the raised knees normally employed for spinal BMD. BMD analysis may be done on images acquired with legs extended.

Whole Body Exams

Coronary Artery or Lung Screening Add a 3 mm contiguous scan series encompassing the vertebrae to be analyzed.

Abdomen Screening exams are normally obtained at 5-7 mm intervals. While a 3 mm interval is recommended for BMD exams, satisfactory results can be obtained with up to 6 mm scan intervals.

For 5-6 mm intervals, during ROI placement, change the slice thickness from the default 9 mm to 5 mm.



Slice spacings or thicknesses exceeding 7 mm are not recommended for BMD exams. If the spacing or thickness exceeds 7 mm, a separate BMD series with 3 mm contiguous scans is recommended.

Virtual Colonoscopy Virtual colonoscopy exams are normally done at a 3 mm spacing with a contiguous series through the abdomen and normally include images of the lumbar spine. These images can be translated and analyzed as a normal BMD exam providing there are no streak artifacts through the spine or the CT Calibration Phantom from air in the colon.

EBT (Electron Beam Tomography)

- The standard table height should be chosen as a compromise between table travel and patient size considerations. Typical table heights for the C-150 are between 170 and 190; for the C-300, between 230 and 250.
- Replacement of the EBT table pad with the QCT cutout pad is recommended for BMD studies.
- Do not use the cone-beam algorithm for images to be analyzed for BMD.