

Computed Tomography: Adult Abdomen and Pelvis

Image quality in the multicenter setting can be greatly influenced by variances in acquisition protocols. These variances may be related not only to equipment manufacturer and model, but also technique.

The study may permit imaging per institutional standard-of-care. However, aligning image acquisition to established standards is essential for robust quality data.

The table, below, is provided as a guideline and overview for routine head CT exams. Please refer to your site's specific CT manufacturer's imaging protocols and physicist recommendations for the optimal scanning protocol.

The Abdomen/Pelvis CT examination should contain, at a minimum, the following series:

1. Localization scan
2. Helically acquired 5 mm contiguous axial plane series in:
 - a. standard algorithm

Exam and Patient Preparation

Scan Type	Helical / Spiral	
SFOV	Body / Large or as appropriate to body habitus	300–500 mm
DFOV	To match SFOV	
Patient Position	<ul style="list-style-type: none"> Supine, feet first with arms above the head Patient centered within the gantry 	Lateral iso-centering is critical for proper Automatic Exposure Control
IV Contrast Injection	<ul style="list-style-type: none"> Dose and rate per institutional standard Dual head power injector recommended Venous phase: 60 second fixed scan delay from start of injection is typical Saline flush recommended 	Insert an intravenous catheter per institutional guidelines prior to the start of imaging.
Oral Contrast	<ul style="list-style-type: none"> Preferred Dose per institutional standard 	<ul style="list-style-type: none"> Positive contrast agent, such as dilute barium or a water-soluble iodinated solution A neutral contrast agent, such as water or a non-absorbable agent with similar x-ray attenuation as water A negative agent, such as air or carbon dioxide

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Image Acquisition

Localization Scan	<ul style="list-style-type: none"> • AP or PA depending on scanner manufacturer for optimal AEC • Lateral • Superior to Inferior 	Above the dome of the diaphragm through the symphysis pubis.
Scan Direction	Craniocaudal	
Scan Range	<ul style="list-style-type: none"> • In general, a CT examination of the abdomen includes trans-axial images from just above the dome of the diaphragm to the upper margin of the sacroiliac joints with a 5-mm or less slice thickness. • A CT of the pelvis extends from the iliac crest through just below the ischial tuberosities with a 5-mm or less slice thickness. 	
Technical \ Scanning Parameters	<ul style="list-style-type: none"> • Automatic Exposure Control (AEC) should be used whenever possible • Iterative reconstruction and similar noise reduction techniques should be utilized if available • Adjust kVp and mAs per slice or range (minimum and maximum mAs for multidetector CT) per body habitus and manufacturer recommendations <p>Slice thickness = 5 mm contiguous</p>	<p>Please refer to manufacturer recommendations.</p> <p>Thin slice series (≤ 1 mm) in standard algorithm recommended for sagittal/coronal reformatted images.</p>
Reformats	Not required	Sagittal and coronal reformats recommended from thin slice reconstructed images.
Radiation Dose	Per ALARA	Use iterative reconstruction technique if possible.
Respiration	Suspended inspiration	Patient should be instructed to hold breath at the end of inspiration during scan acquisition.

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1. ACR–SPR Practice Parameter for the Performance of Computed Tomography (CT) of the Abdomen and Computed Tomography (CT) of the Pelvis, Res. 22 - 2016. <https://www.acr.org/-/media/ACR/Files/Practice-Parameters/CT-Abd-Pel.pdf>, accessed December 16, 2020.