Chapter 10

How to perform a basic cardiac exam:

1. Place the RAPID Body coil directly on the patient table in the area between the red arrows and the end of the patient table nearest the magnet.

2. Position the patient supine on the coil, with their arms up. Center the heart at the transaxial positioning mark on the coil. If patient size permits, offset the patient to the right side within the coil, so that the heart is positioned in the center of the coil.

3. If the patient is unable to be positioned with their arms up, their arms may be placed down at their sides.


Note: if the patient does not fit using the RAPID Body coil, the Flex Body coils can be used.
ECG gating will be used for the cardiac exam, which requires that ECG electrodes be placed on the patient. Before placing the ECG electrodes on the patient, wipe the skin on the chest where the electrodes will be placed with skin preparation gel. Follow the application instructions on the bottle.

Wipe off excess skin preparation gel with clean gauze.

Peel the backing from the electrodes.
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Place the electrodes on the patient’s chest as demonstrated here, left of midline and centered approximately halfway between the sternal notch and the xiphoid process. Make sure that the center points of the electrodes are not placed directly over the patient’s ribs.

Attach the ECG leads from the induction cord to the appropriate electrodes. Each lead is labeled and color-coded for correct placement around the heart: towards the top of the diamond (RA, White), towards the right side of the diamond (RL, Green), towards the bottom of the diamond (LL, Red), and towards the left side of the diamond (LA, Black). Do not press on the electrodes, as the electrode gel may escape and adversely affect the MR signal.

Warning: Do not use ECG patches that have exceeded their expiration date or appear to be damaged. Failure to comply could result in patient injury.

For additional safety information, please refer to Chap 1, Safety in the Oasis Reference Manual.
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9 Arrange the induction cord to be as straight as possible alongside the patient’s body. Do Not allow the induction cord to form a loop or contact the patient’s skin directly.

10 Connect the induction cord to the ECG connector on the PMM module, located on the left side of the gantry.

Warning: Do not allow gating cables to come in contact with a surface coil or surface coil cable.

Prevent the EGC lead wires and cable from coming in contact with the patient’s skin. Use padding or other materials to separate the ECG lead wires and the ECG cable from the patient. Contact with wires/cables can lead to thermal injury.

For additional safety information, please refer to Chap 1, Safety, page 1-28 in the Oasis Reference Manual.
At the Oasis console, click the Waveform button on the Launcher toolbar. The WaveForm window will open.

Click on the ECG tab to activate the ECG gating. The tab highlights yellow.

Monitor the waveform for approximately one minute to ensure a strong, steady signal. The system calculates the patient’s heart rate and displays it in the WaveForm window. If the waveform is erratic or otherwise unstable, reposition the electrodes on the patient, then check the waveform again.
Connect the coil cable to the patient table connector.

Place the upper portion of the RAPID Body coil on its base. Push firmly on both sides of the coil to securely close the coil.

On the gantry control panel, turn on the LASER localizer and press and hold the IN button to advance the patient table until the transaxial midline on the RAPID Body coil is aligned with the transaxial laser localizer beam.

On the gantry control panel, press and hold the SET button to move the patient table into the magnet isocenter. The longitudinal move counter on the gantry control panel displays zero and the patient table stops moving when the imaging region is in the center of the magnetic field.
18. Load your site’s Cardiac protocol. If your site does not have one, select a Cardiac protocol from the System library.

Refer to Chapter 3-4, *Gating*, for information on selecting gating parameters.

19. In the **Protocol Properties** window, select the Scanogram task.

20. Click **START**.
In the Protocol Properties window, select the Shim task. Adjust the slice number and slice position so that the entire heart is covered.

Click \[START\].
To perform axial cardiac imaging, select an axial scan task. Adjust the position and number of slices to cover the entire heart.

View the patient’s heart rate in the WaveForm window.

Under the Gating area, enter the patient’s heart rate in the Beat Rate box. Be sure to enter a value that is a little higher than the patient’s actual heart rate.

Click START.
To perform left ventricle long axis (VLA) cardiac imaging, select a VLA scan task. Adjust the slice position so that the slice is angled parallel to the interventricular septum.

View the patient’s heart rate in the WaveForm window.

Under the Gating area, enter the patient’s heart rate in the Beat Rate box. Be sure to enter a value that is a little higher than the patient’s actual heart rate.

Click \textbf{START}.
To perform left ventricle short axis (SA) cardiac imaging, select an SA scan task. On the axial image, adjust the position and number of slices to cover the entire left ventricle.

On the VLA image, adjust the position and number of slices to cover the entire left ventricle.

View the patient’s heart rate in the WaveForm window.

Under the Gating area, enter the patient’s heart rate in the Beat Rate box. Be sure to enter a value that is a little higher than the patient’s actual heart rate.

Click START.
To perform four chamber cardiac imaging, select a 4-Chamber scan task. On the VLA image, position the slice through the center of the left ventricle. The slice should be parallel to the length of the left ventricle.

On the SA image, position the slice so that it passes through the center of the left ventricle, and the apex of the right ventricle.

View the patient’s heart rate in the WaveForm window.

Under the Gating area, enter the patient’s heart rate in the Beat Rate box. Be sure to enter a value that is a little higher than the patient’s actual heart rate.

Click START.
To perform three chamber cardiac imaging, select a 3-Chamber scan task. On the SA image, position the slice so that it passes diagonally through the center of the left ventricle.

View the patient's heart rate in the WaveForm window.

Under the Gating area, enter the patient's heart rate in the Beat Rate box. Be sure to enter a value that is a little higher than the patient's actual heart rate.

Click **START**.
To perform candy cane views of the aortic arch, select an oblique aorta scan task. On the axial image, position the slice so that it passes diagonally through both the ascending and descending aorta.

View the patient’s heart rate in the WaveForm window.

Under the Gating area, enter the patient’s heart rate in the Beat Rate box. Be sure to enter a value that is a little higher than the patient’s actual heart rate.

Click **START**.
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How to use Interactive Scan Control function:

1. Register the patient and choose protocol. Refer to chapter 2 of this manual for complete patient and study registration details.

2. If not already in the protocol, add a Scanogram I-Scan task.
   - **Note:** A Shim task must be run prior to running I-Scan.

3. In the Protocol Properties window, click the Scanogram I-Scan task to select it.

4. On the ALL parameter tab, select the desired slice plane. Turn on Auto Voice if needed.

5. Click START to begin the Scanogram I-Scan task. When started, the system performs a prescan and automatically pauses when the prescan completes.
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If you are instructing the patient for breath holds, give breathing instructions and click CONTINUE. If you are using Auto Voice, breathing instructions will be given to the patient after CONTINUE is clicked. In either case, after CONTINUE is clicked, the Scanogram I-Scan task continues to run and images are displayed in the fluoro viewports on the bottom row of the Exam window.

Changes to slice position can be made by manipulating the slice group in one of the viewports. The changes are immediately reflected in the Fluoro viewport.
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7 While acquiring images with the I-Scan task, the overview icon can be opened. Parameters that are white can be changed during acquisition.

8 To save a fluoro image, click SAVE in the lower right corner of the Exam window. The saved image is listed in the Output Series window. If multiple images are saved without stopping the I-Scan, they will be placed in the same series in the Output Series window.
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9 Click STOP in the lower right corner of the Exam window to stop the Scanogram I-Scan task. The last displayed fluoro image is saved as a series and is listed in the Output Series window.

The Scanogram I-Scan task can be stopped and started multiple times. Each time the task is stared and stopped, images are saved, and another series is created in the Output Series window. These series are listed as Scanogram I-Scan-S-1, Scanogram I-Scan-S-2 etc.

10 I-Scan images can be used as reference images or used to copy slice position in the Copy Option window.

Note: The I-Scan and the selected scan task must be the same plane in order to use Copy Option.