

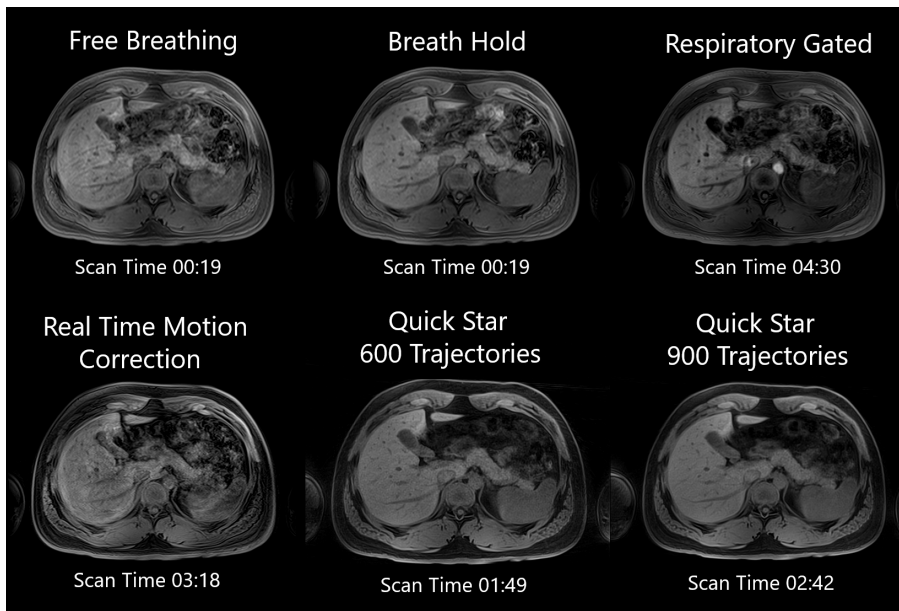
Quick Star: Free Breathing Abdominal MRI

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Quick Star is Canon’s technique to reduce respiratory motion in Free-breathing 3D T1 abdominal scans.

This is achieved by sampling k-space in a radial fashion along the in-plane direction similar to JET which is robust in motion reduction compared to just Cartesian k-space filling. In addition, Quick Star samples along the slice encoding direction with the traditional Cartesian form. The combination of Cartesian phase encoding in the slice direction and radial encoding in-plane results in cylindrical k-space coverage known as “Stack of Stars”.



Cartesian FFE3D liver comparison: Top left to right: Free-breathing, breath-hold and respiratory gating (respectively), Bottom left to right: Cartesian with Real-Time Motion Correction (RMC), and Quick Star acquired with 600 and 900 trajectories, respectively. Notice the motion artifacts in the top row. While the motion mitigation techniques used in the other acquisitions partially remove the artifact, the image quality of Quick Star is higher. The actual scan time is significantly longer with RMC and Respiratory gating than Quick Star scans due to poor breathing efficiency in the volunteer. Quick Star acquired with 900 trajectories offers better image quality than 600.

Benefits of Quick Star

- Robust, unaffected by motion
- Designed for free-breathing abdominal imaging
- Provides flexibility to scan at higher resolution without compromising patient comfort

Quick Star is advantageous over other techniques for two main reasons: **1.** Patients can comfortably breathe freely during the acquisition without imparting motion artifacts on the images, and **2.** Quick Star eliminates timing constraints typically experienced in breath-held and respiratory-gated exams, allowing for increased spatial resolution.

*For more details, please refer to the Quick Star White Paper: <https://us.medical.canon/products/magnetic-resonance/experience/>

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