

**GE Healthcare**  
Tomorrow Today

# SIGNA™ Works

**Standard applications for the  
SIGNA™ MR 1.5T portfolio**



# SIGNA™Works

Fueling the future of MR

Our SIGNA™Works platform redefines productivity across the breadth of our core imaging techniques. It takes full advantage of Total Digital Imaging (TDI), further advancing diagnostics and quickening throughput, while enabling patient outcomes and your ROI. Comprised of standard, elective and innovative applications, it is upgradeable and customizable with additional applications to suit your growing practice.

## Standard Applications

Energize your clinical capabilities with all the tools you need to complete an exam. Imaging solutions cover a variety of contrasts, 2D and 3D volumetric data and motion correction capabilities.

## Innovative Applications

Expand your expertise to the next level, to deliver improved image quality, higher efficiency and a more streamlined workflow, so you perform better than ever before.



Please contact your GE Representative for more information.

# SIGNA™Works

The new standard is extraordinary

## ► Standard Applications

### **BodyWorks**

One of the fastest growing areas in MR, BodyWorks allows you to image abdominal and pelvic anatomy with user flexibility to adapt to different patient types.

### **CVWorks**

Gain crucial insights into vascular structure and flow dynamics and access morphology, flow, function and tissue viability with CVWorks.

### **NeuroWorks**

This one-stop solution enables you to image brain, spine, vascular and peripheral nerve anatomy with exceptional tissue contrast.

### **OncoWorks**

Delivers robust tissue contrast, motion-insensitive, high temporal and spatial resolution imaging techniques that capture anatomical and morphological data for oncological assessment.

### **OrthoWorks**

This extensive library of musculoskeletal imaging techniques enables you to image bone, joint and soft tissue with remarkable tissue contrast.

### **PaedWorks**

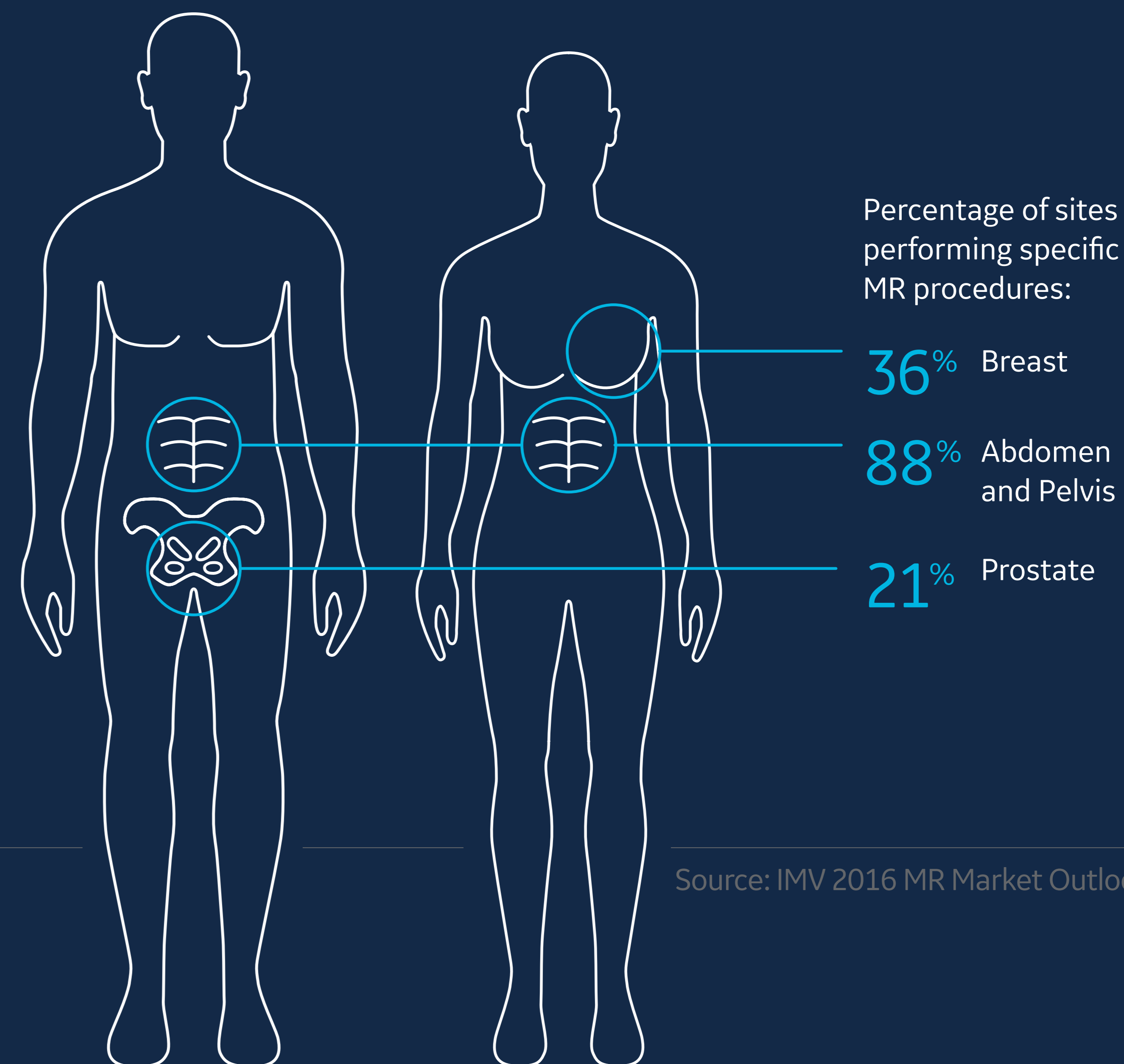
Delivers distinctive child-centered imaging techniques that provide ease of use for the user and clinical excellence for your smallest, most fragile patients.

# BodyWorks

## Standard Applications

BodyWorks is GE's solution for fast body scanning. With more patients being scanned in the pelvis, abdomen, breast and prostate areas than ever before, body scanning is one of the fastest growing areas in MR. Our all-inclusive BodyWorks library allows you to image abdominal and pelvic anatomy with user flexibility that adapts to different patient types.

BodyWorks includes a range of applications designed to advance your body imaging capabilities.



Source: IMV 2016 MR Market Outlook Report

## BodyWorks

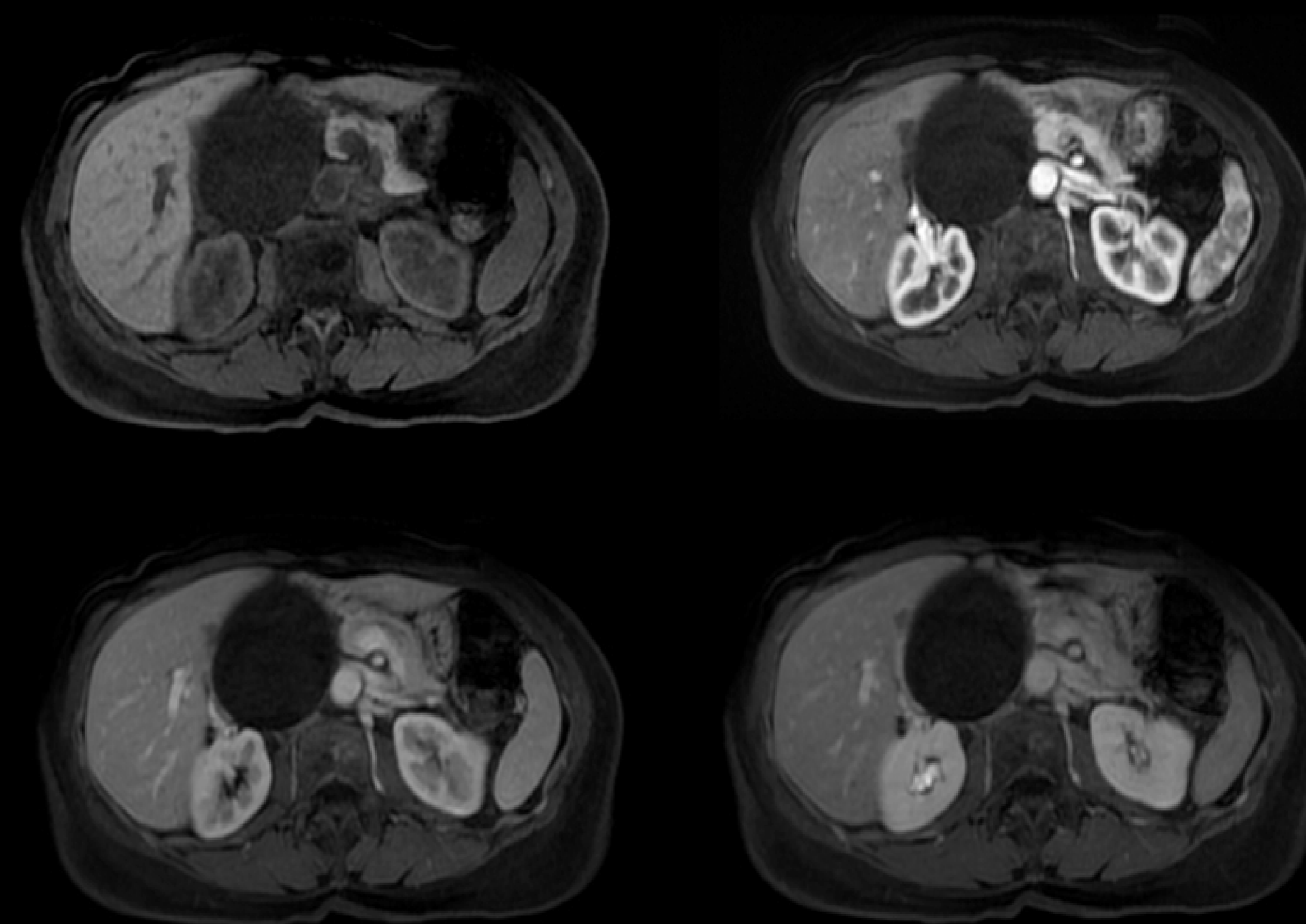
# LAVA

Liver Acquisition with Volume Acceleration (LAVA) is a rapidly accelerated, 3D T1 dynamic (DCE) body imaging technique that uses a unique PSD waveform to allow for a reduction of scan time needed for dynamic imaging.

### Clinical benefits:

- Produces ARC parallel imaging for short scans
- Turbo mode further reduces scan time up to 50%
- Provides adiabatic special fat suppression for robust imaging
- Compatible with Auto Navigator for free-breathing acquisition

Abdominal imaging



Axial 3D LAVA  
Multi-phases

## BodyWorks

# Case Study: Assessing focal nodular hyperplasia with a 15-minute multi-arterial protocol using Turbo LAVA

### Clinical solutions

System: SIGNA™ Voyager

### Protocols used

Coronal T2 SSFSE, Axial T2 SSFSE FatSat, Axial DWI b800 breath-hold, Axial T1 Turbo LAVA multi-arterial breath-hold, Axial T1 LAVA post-contrast breath-hold.

### Patient history

A 45-year-old female patient, presented with liver lesions found during an Ultrasound procedure.

### Procedure

Turbo LAVA allows for more data in shorter breath-holds, enabling the ability to perform multi-arterial dynamic imaging to help depicting FNH lesions.

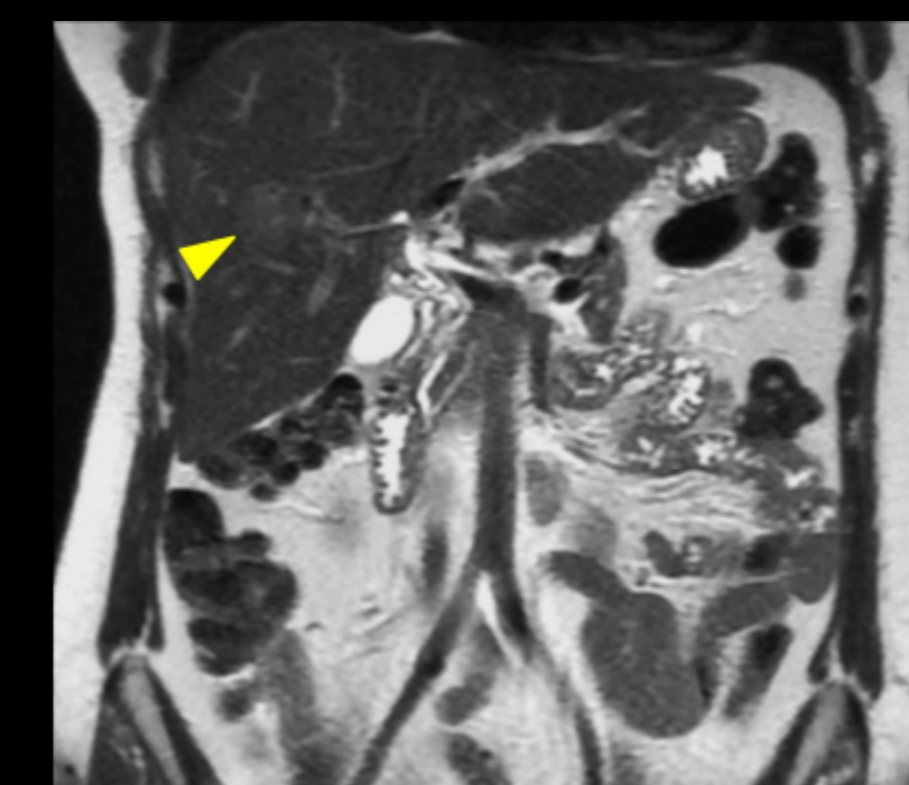
### MR findings

Physician diagnosis determined 3 distinct FNH lesions in both the right and left liver's lobe.

### Reference

Optimal visualization of focal nodular hyperplasia: quantitative and qualitative evaluation of single and multiphasic arterial phase acquisition at 1.5 T MR imaging.

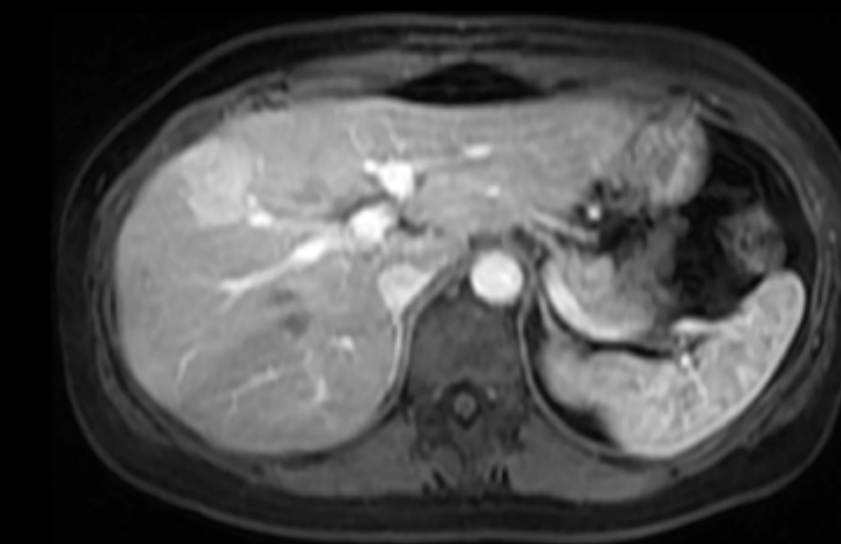
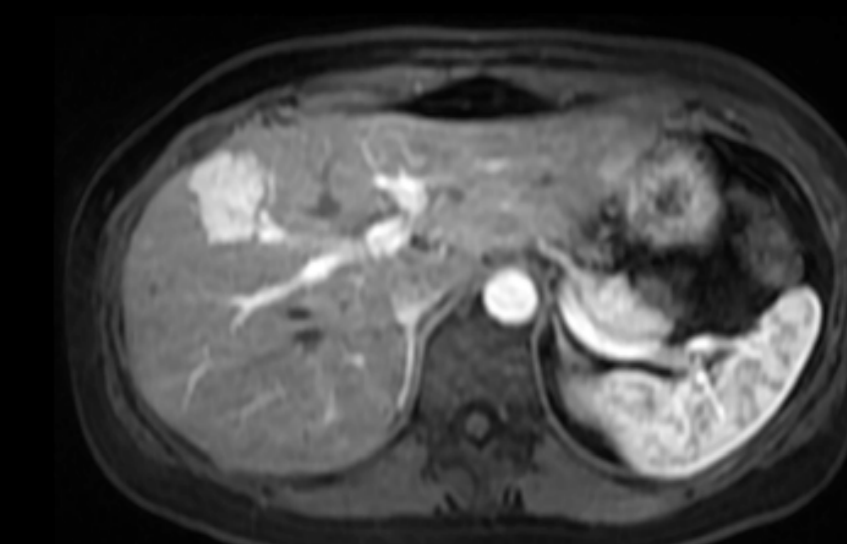
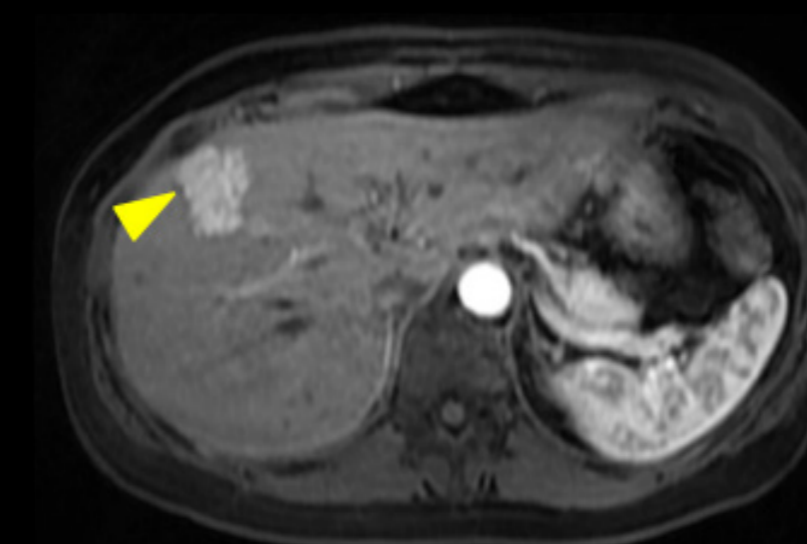
<https://www.ncbi.nlm.nih.gov/pubmed/27193796>



Coronal T2 SSFSE, 4.4 mm slices, 15-second breath-hold



Axial T1 Turbo LAVA Portal phase 17-seconds breath-hold, 2 mm slice thickness



Axial T1 Turbo LAVA, multi-arterial 3 phases 24-second breath-hold, 3 phases, 2.5 mm slice thickness

## BodyWorks

# PROPELLER

PROPELLER Multi-Blade (MB) is a multi-shot approach that preserves tissue contrast regardless of weighting while also reducing motion artifacts and providing a more signal-rich image. Additionally, this technique allows for all contrasts for 2D FSE: T1, T2, STIR and PD weightings.

### Clinical benefits:

- Delivers diagnostic images with reduced motion-artifacts (respiration and peristalsis)
- Increases productivity and decreases the number of repeated scans
- Enables sedation-free scanning and increases patient tolerance



Axial T2 PROPELLER  
288 x 288  
3.2 mm  
3:54 min

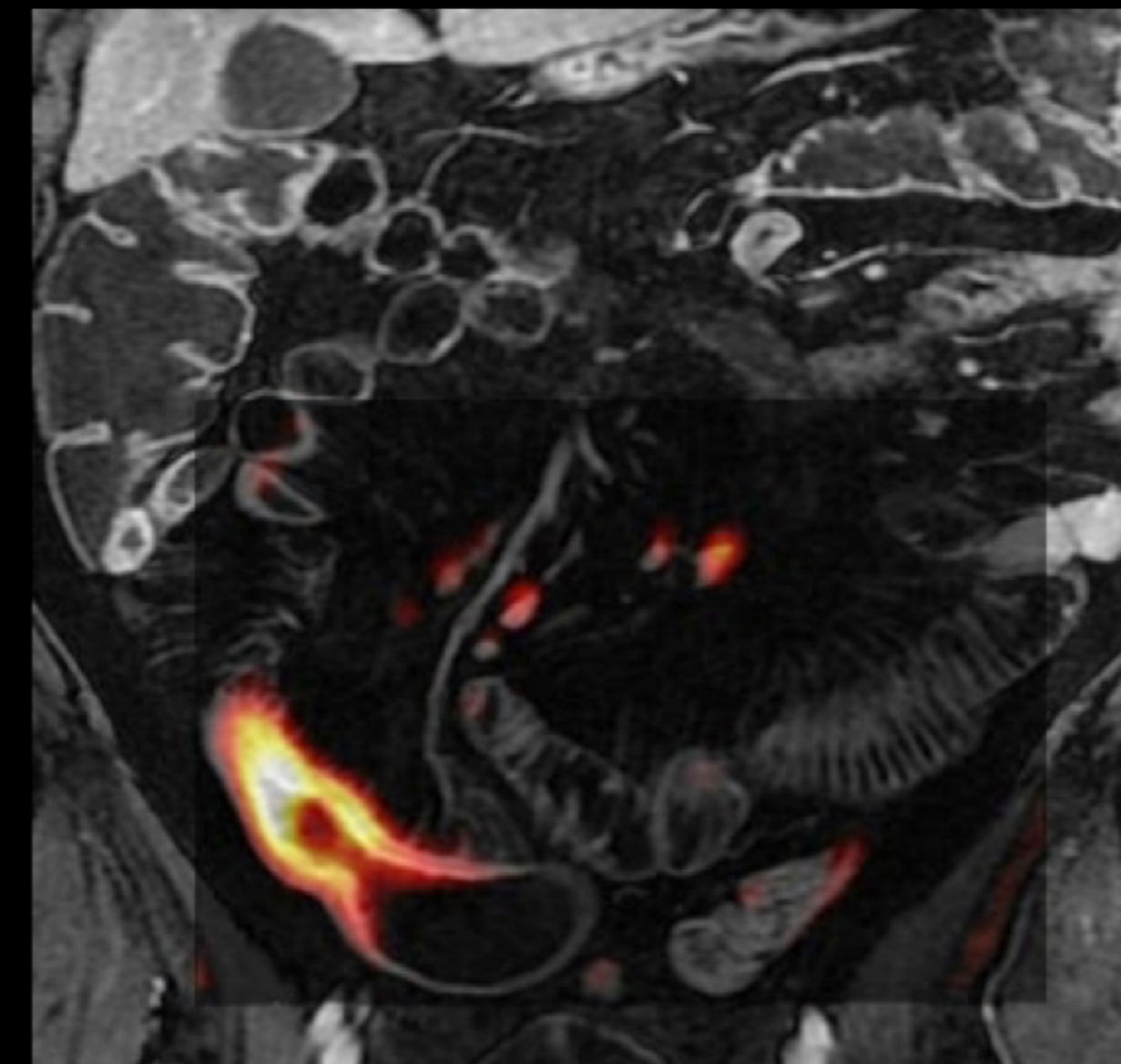
## BodyWorks

# eDWI

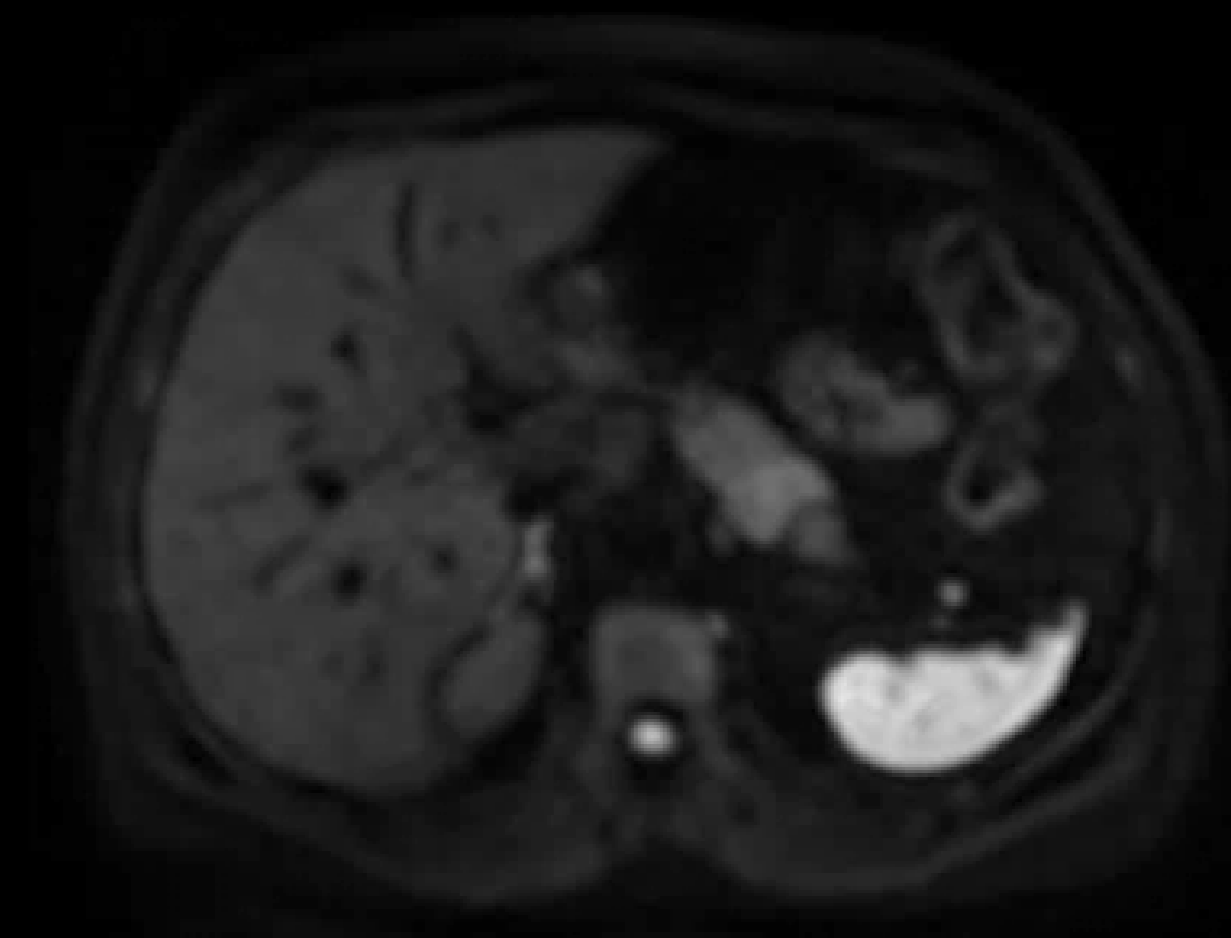
Diffusion-weighted imaging (DWI) is used to image diffusivity of water molecules (Brownian motion). This enhanced Diffusion-weighted imaging (eDWI) technique is designed to provide high signal-to-noise-ratio (SNR) diffusion images, with short-acquisition time and shortest possible echo time (TE). Its multi-b feature is designed to provide measurement of apparent diffusion coefficient (ADC) map with reduced effect of perfusion.

### Clinical benefits:

- Helps to improve patient tolerance with shortened breath-hold time or free-breathing Auto Navigator
- Decreases overall exam sequences and time



eDWI fused with Turbo LAVA on  
READYView



Axial eDWI  
b800  
40 FOV  
5 mm  
3:23 min



## BodyWorks

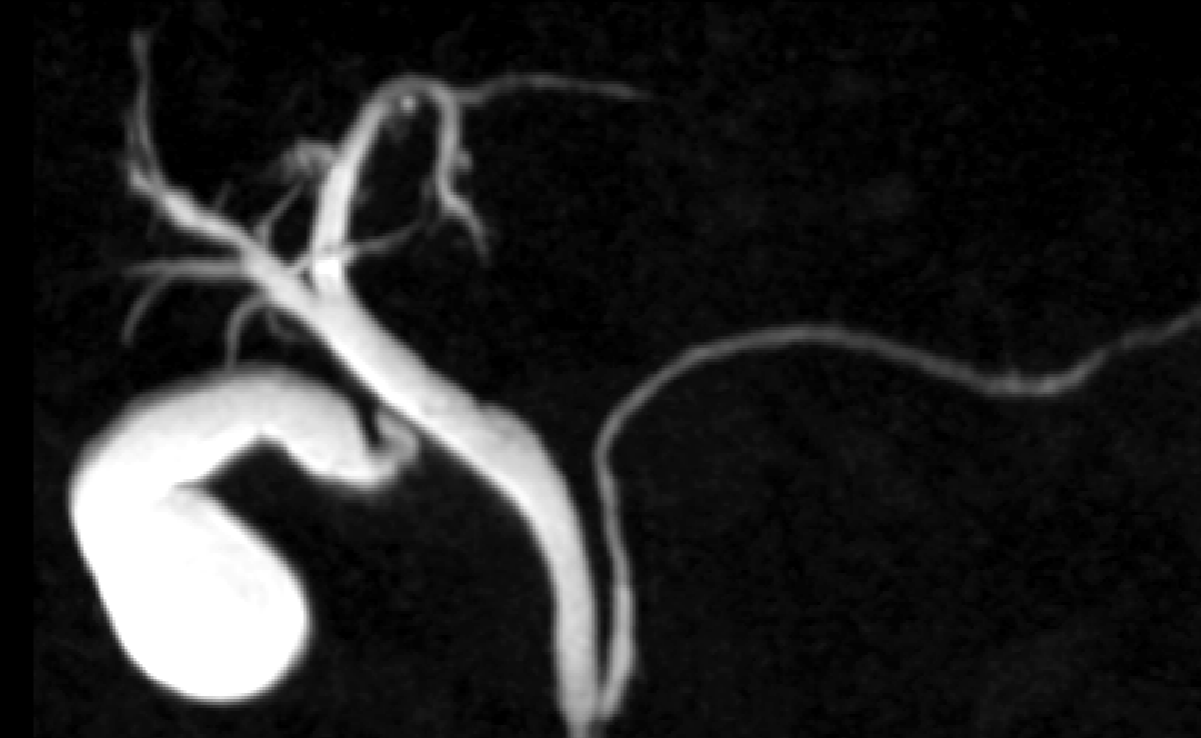
# Auto Navigator

Auto Navigator uses a tracker to detect the motion of the diaphragm which enables free-breathing body imaging acquisition. The Auto Navigator tracker is automatically placed over the right hemidiaphragm. The acquisition then synchronizes the patient's breathing pattern and minimizes ghosting artifacts.

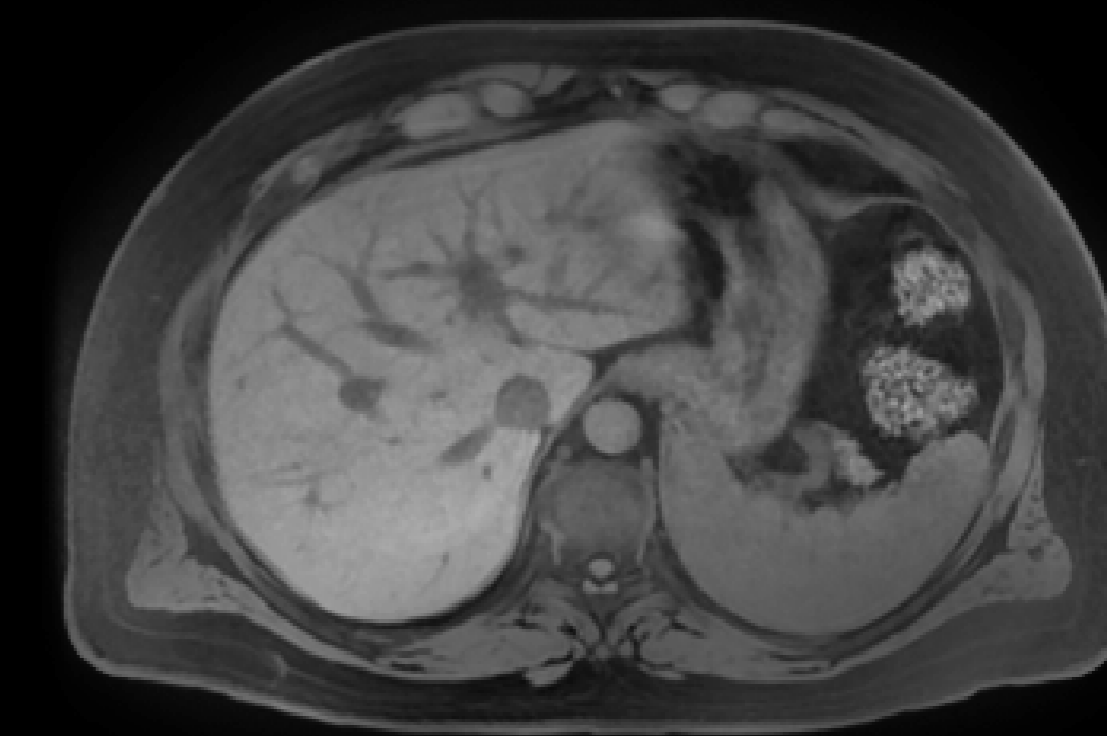
### Clinical benefits:

- Enhances workflow
- Eliminates need to use respiratory bellows
- Allows for adjustment of threshold and acceptance window in real time as the patient's respiration changes

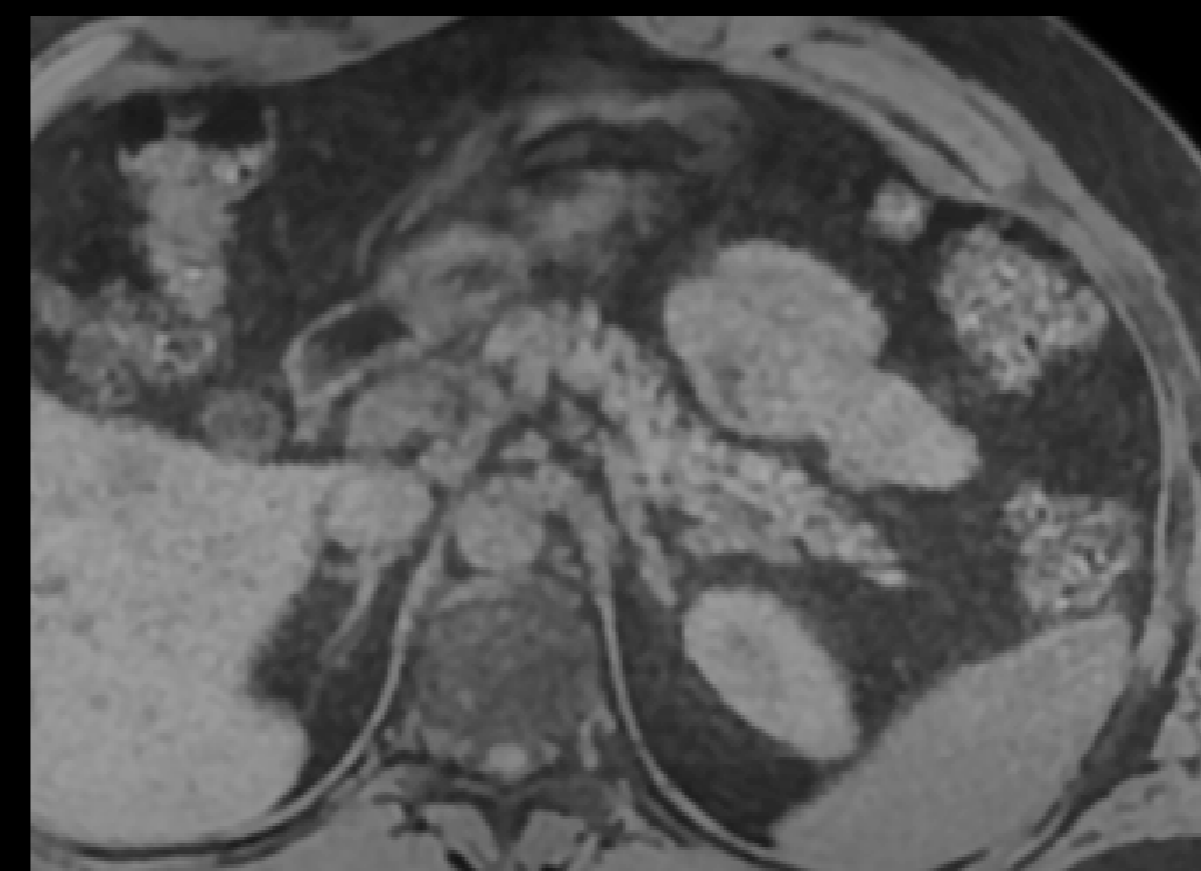
Coronal 3D MRCP  
1 x 1 x 1.6 mm



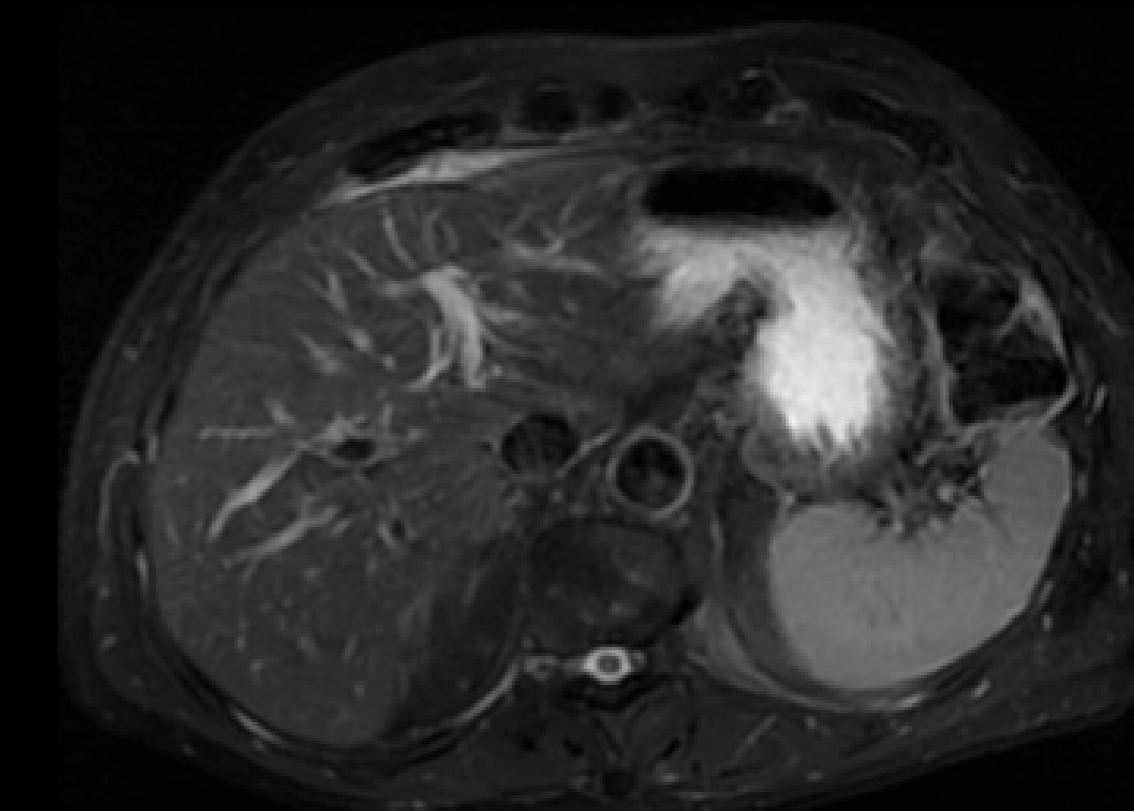
Axial 3D LAVA FatSat Navigated



Axial 3D LAVA FatSat Navigated  
Pancreas – 1.6 x 1.6 x 2 mm



Axial T2 FatSat PROPELLER Navigated



# CVWorks

## Standard Applications

An intuitive set of cardiac applications that assess morphology, flow, function and tissue viability, and goes deeper into the analysis to gain crucial insights into the heart's vascular structure and flow dynamics. Adapts to a variety of different patient types.

# 31%

Cardiovascular diseases (CVDs) are the #1 cause of death accounting for 31% of global deaths in 2015.



## 17.7 million

Deaths from CVDs in 2015

## 7.4 million

Deaths from coronary heart disease in 2015

World Health Organization, Cardiovascular diseases (CVDs) Fact sheet, Updated May 2017

## CVWorks

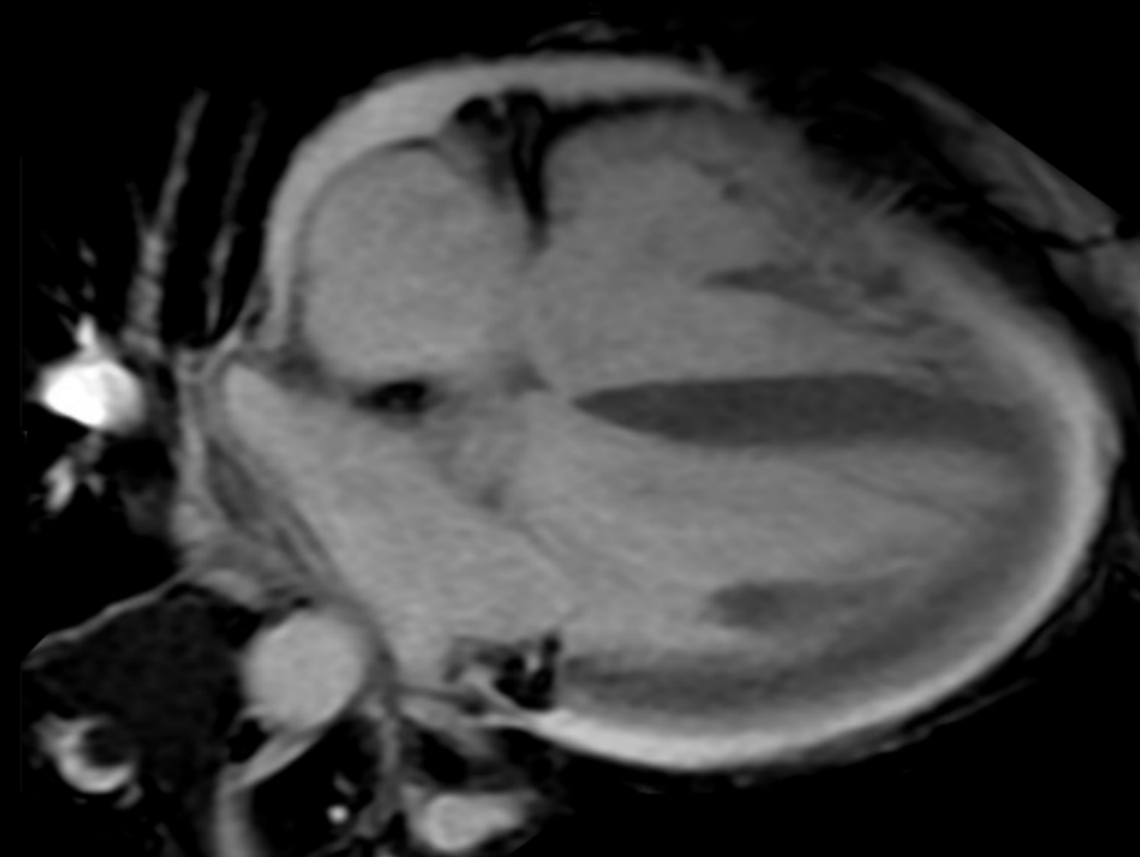
# 2D FIESTA Cine

The workhorse of functional cardiac imaging, 2D FIESTA Cine can be used as a gated functional sequence or non-gated quick localizer to assess the heart's anatomy and function by providing excellent tissue contrast between blood pool, myocardium and valves.

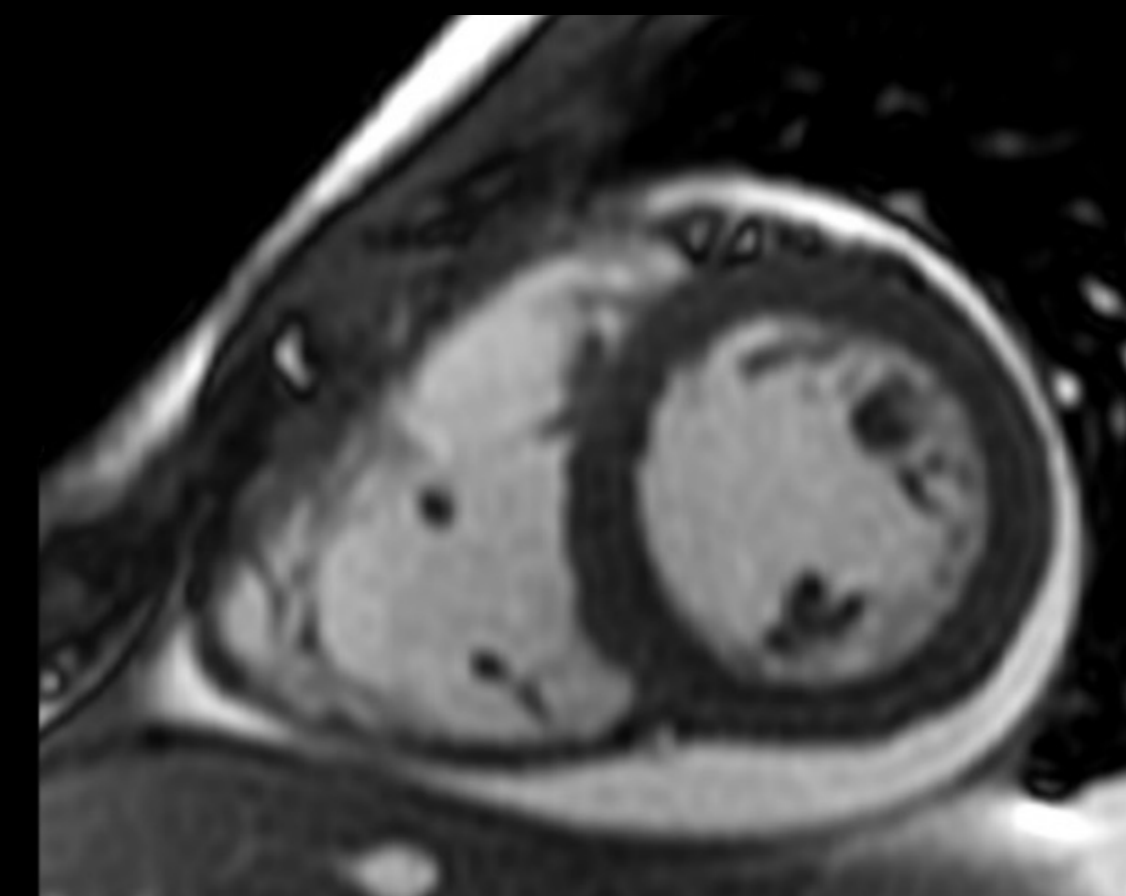
**Clinical benefits:**

- Qualitative assessment of valvular structure and anatomy
- Used to calculate LV and RV function and cardiac output in tools such as cmr<sup>42</sup> and Arterys™

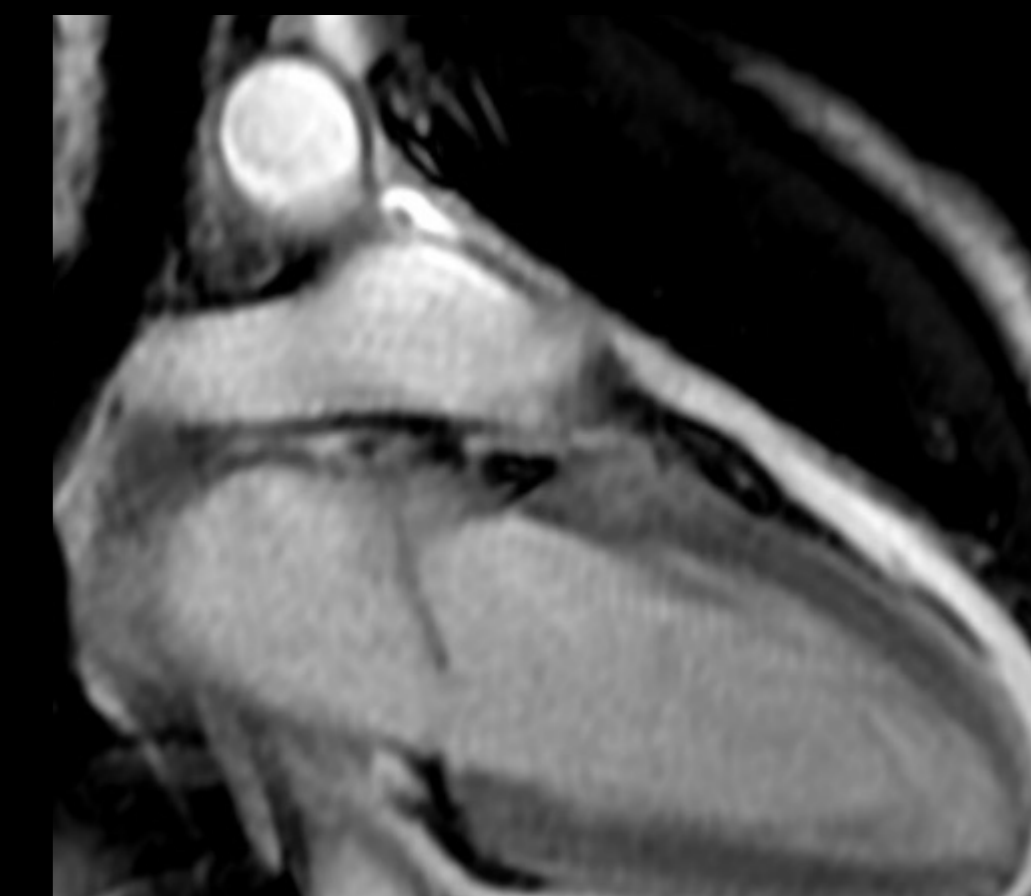
4-chamber



Short axis



Long axis



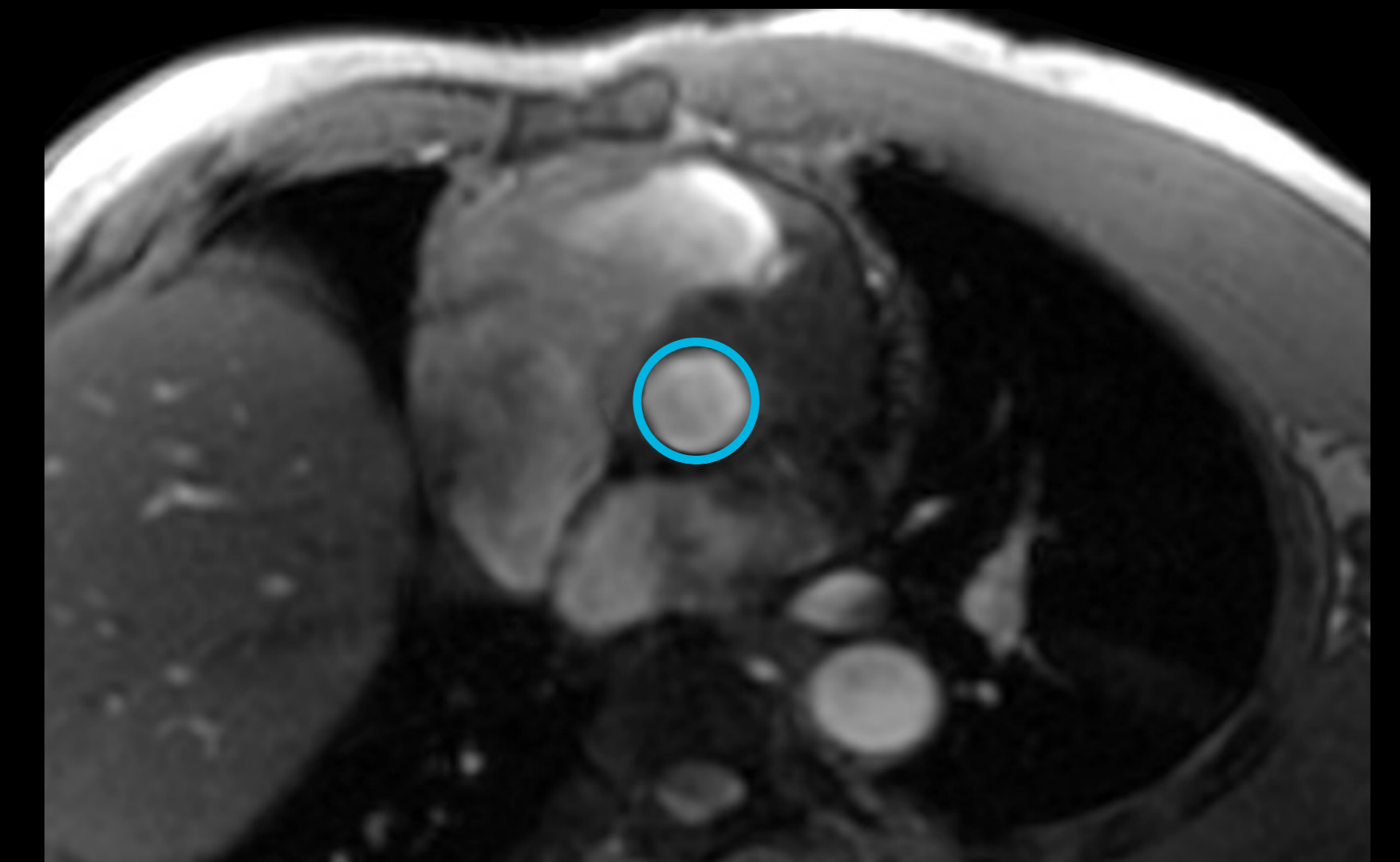
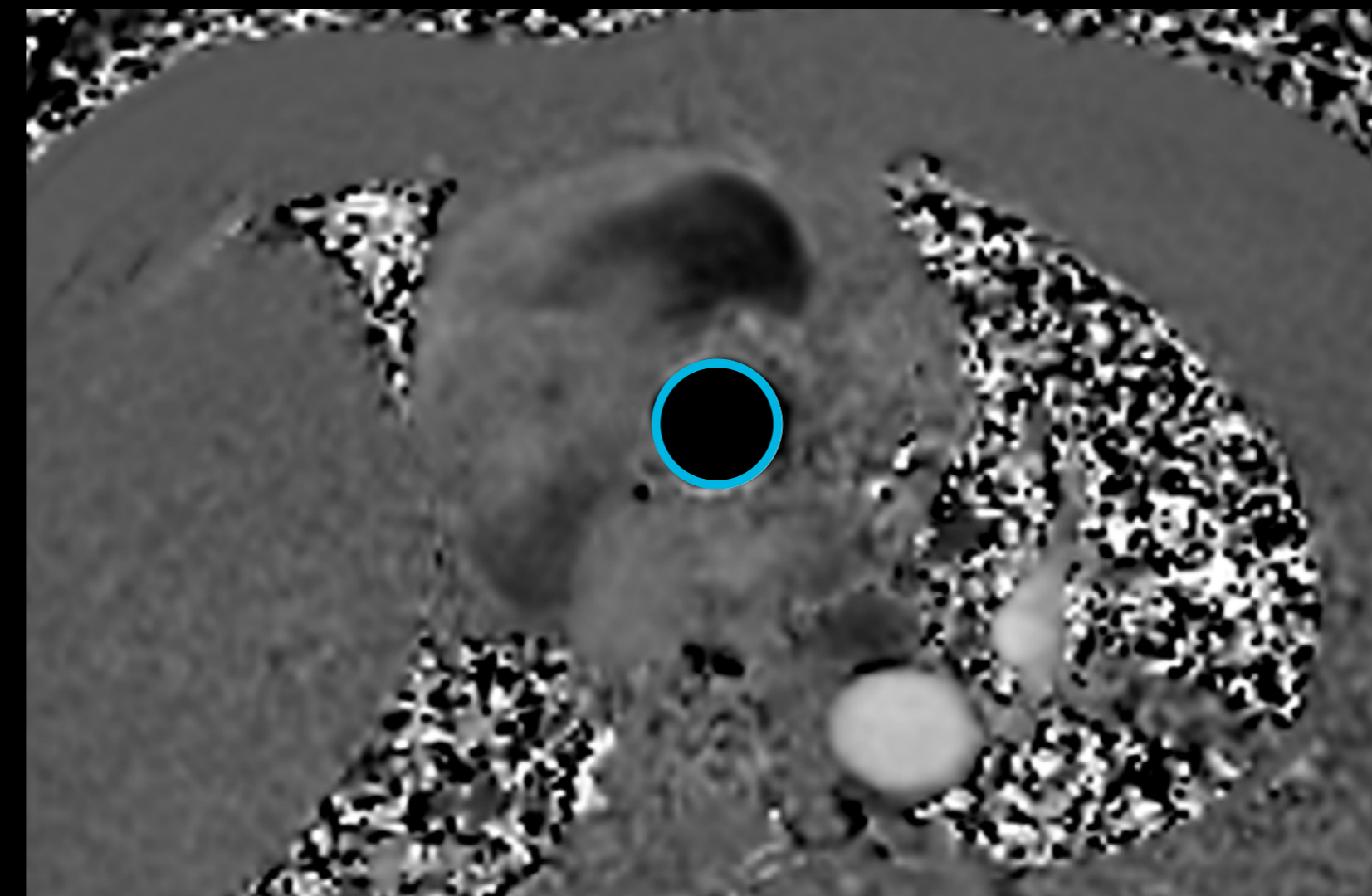
## CVWorks

# 2D Phase Contrast

A quantification sequence used to calculate flow velocity and measure regurgitation flow in heart valves or vascular structures.

**Clinical benefits:**

- Helps to assess aortic stenosis, regurgitation and shunt evaluation
- Aids in the measurement of anomalies, like septal defects, and obtaining pulmonary and systemic flow (Qp:Qs) ratios



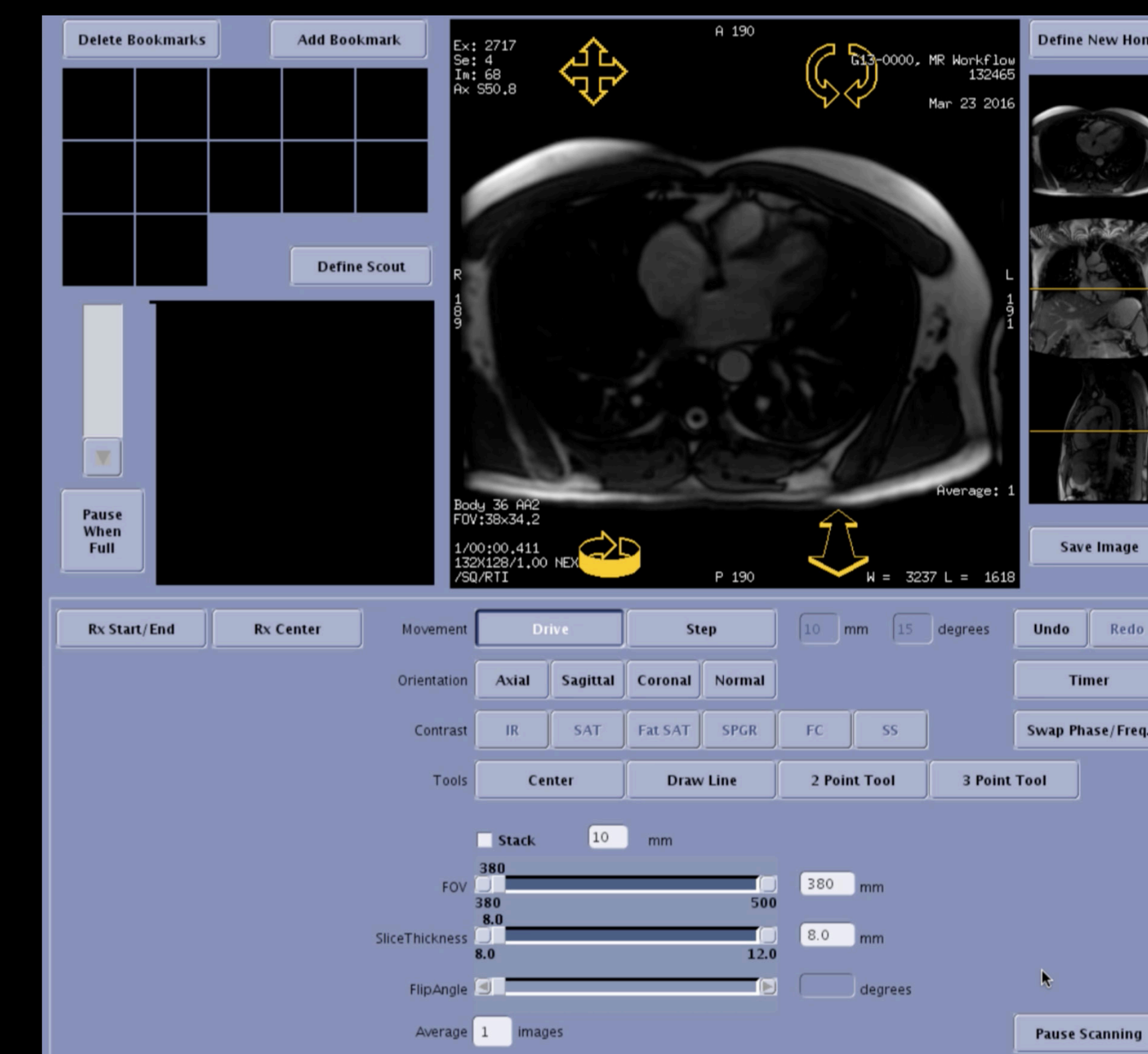
## CVWorks

## iDrive

Free-breathing, real-time localization and quick imaging tool that simplifies exam workflow for cardiac exams with live interactive capability.

**Clinical benefits:**

- Streamlines cardiac workflow by acquiring free-breathing localizers
- Avoids breath-holds which elevates patient comfort throughout entire exam
- Extremely helpful for patients with skewed anomalies, particularly congenital defects



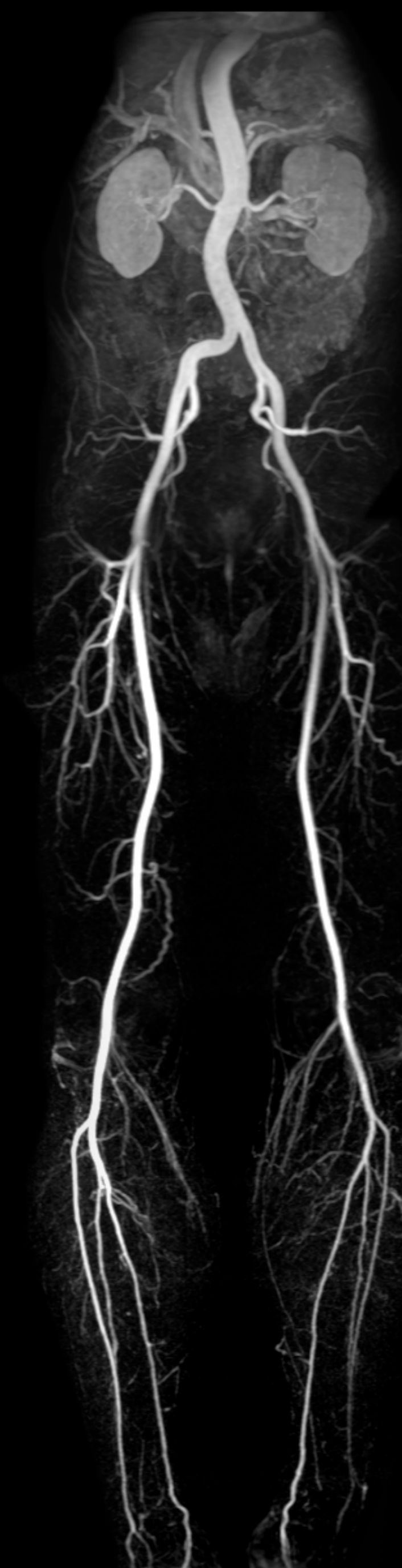
## CVWorks

# QuickStep

An automated multi-station run-off acquisition with a simplified workflow that prescribes, acquires and combines images from multiple locations in a faster acquisition.

**Clinical benefits:**

- Allows for whole-body vascular scanning in under 7 minutes
- Acquires mask datasets and provides subtractions from multiple stations without any user intervention
- Automatically pastes each station together to provide a unified data set



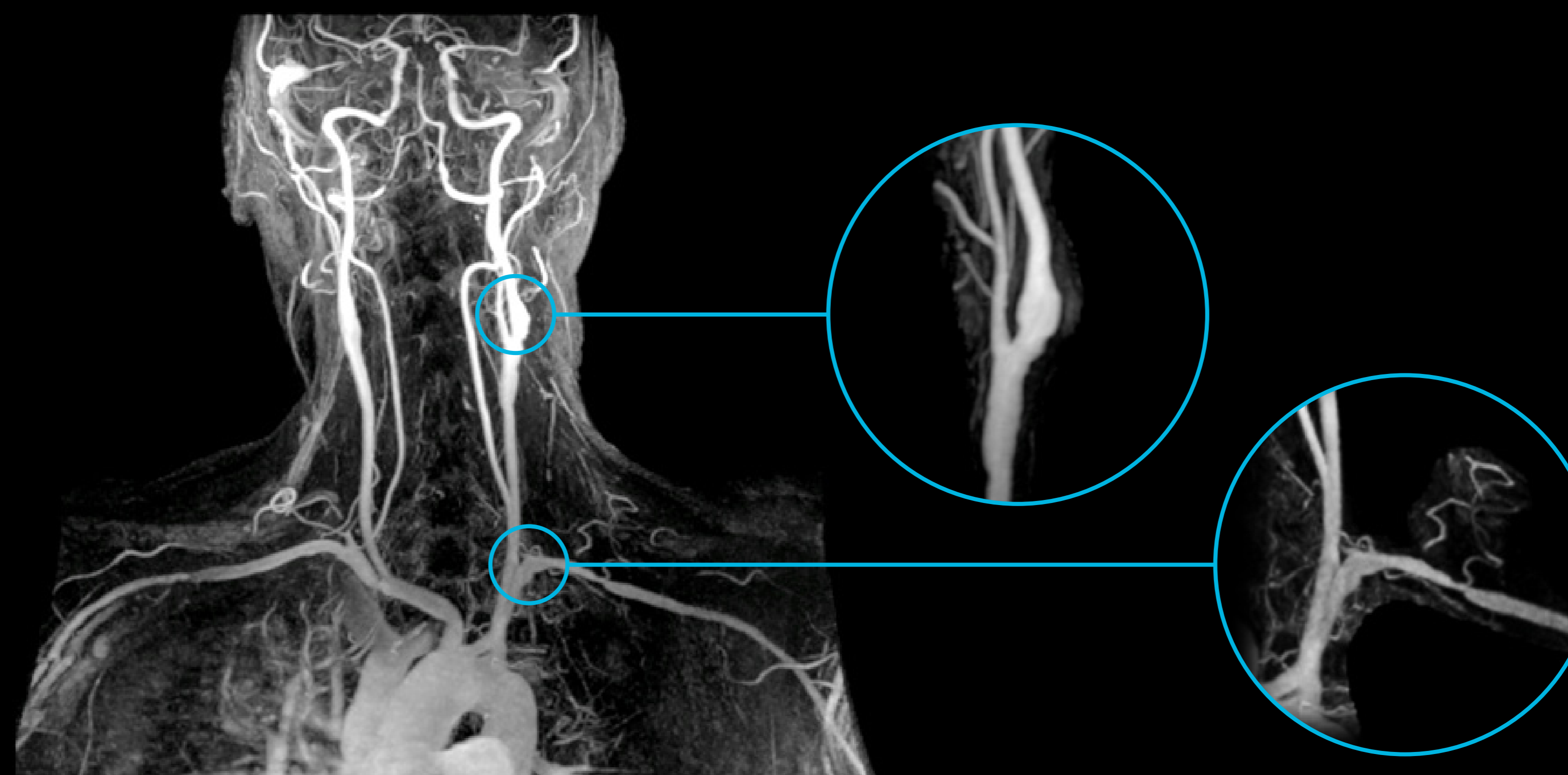
## CVWorks

# Fluoro Trigger MRA

Fluoroscopic triggering is a real-time bolus detection method of contrast arrival for vascular scans.

**Clinical benefits:**

- Provides real-time detection of the bolus for right-time, every-time accuracy
- Minimally invasive with no exposure to ionizing radiation
- Particularly helpful for patients with slow cardiac output



Coronal Fast TOF SPGR  
512 x 512  
FOV 36 cm  
0.9 mm  
3:12 min

# NeuroWorks

## Standard Applications

NeuroWorks is GE's solution for fast neuro imaging. This one-stop solution enables you to image brain, spine, vascular and peripheral nerve anatomy with exceptional tissue contrast.

These motion insensitive techniques feature single-click auto-alignment, providing the complete neuro solution from scanning to post-processing.

NeuroWorks includes a range of applications designed to advance your neuro imaging capabilities.



# 46%

Neuro scans, which include brain and spine,<sup>1</sup> account for 46% of all MR procedures.<sup>2</sup>

24% Spine procedures

22% Brain procedures

<sup>1</sup> Spine as a category could also apply to orthopedics

<sup>2</sup> Source: IMV 2016 Market Outlook



## NeuroWorks

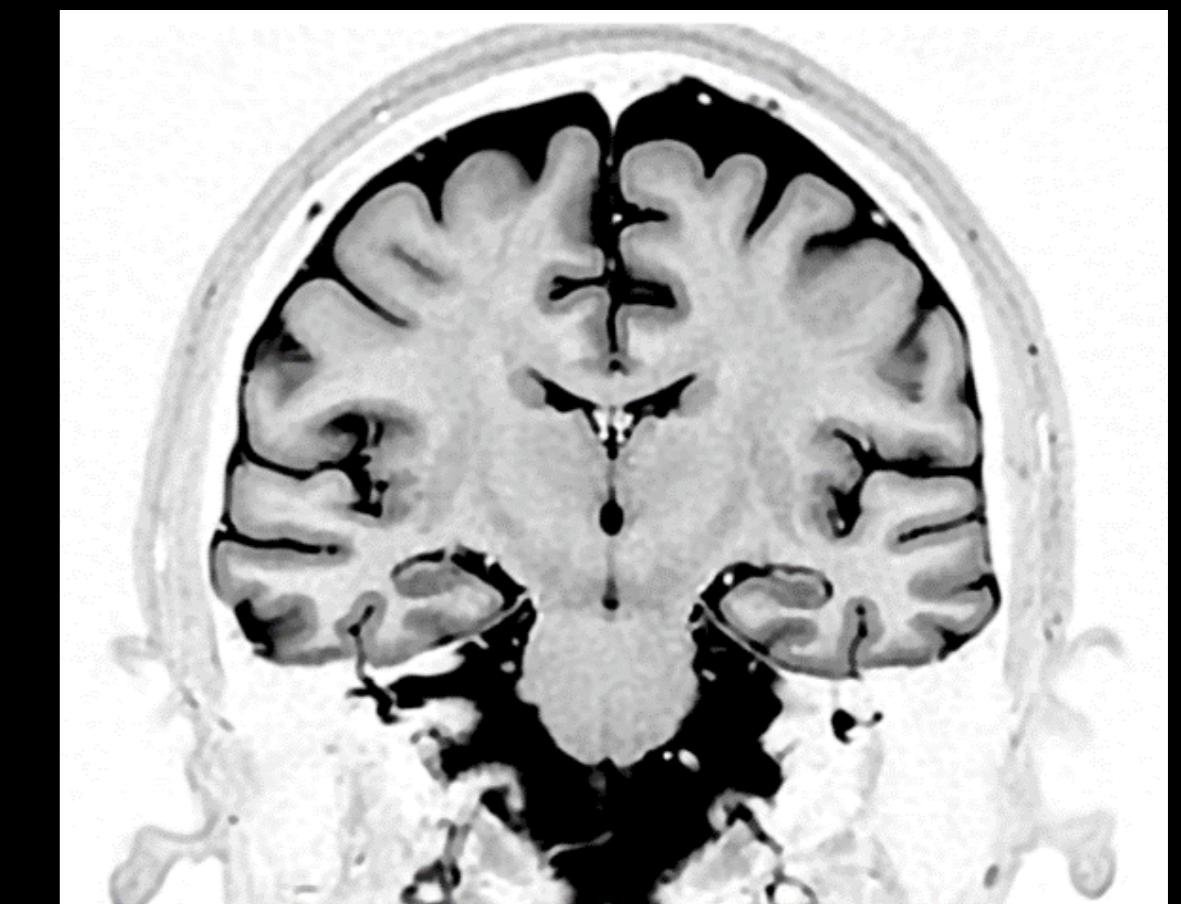
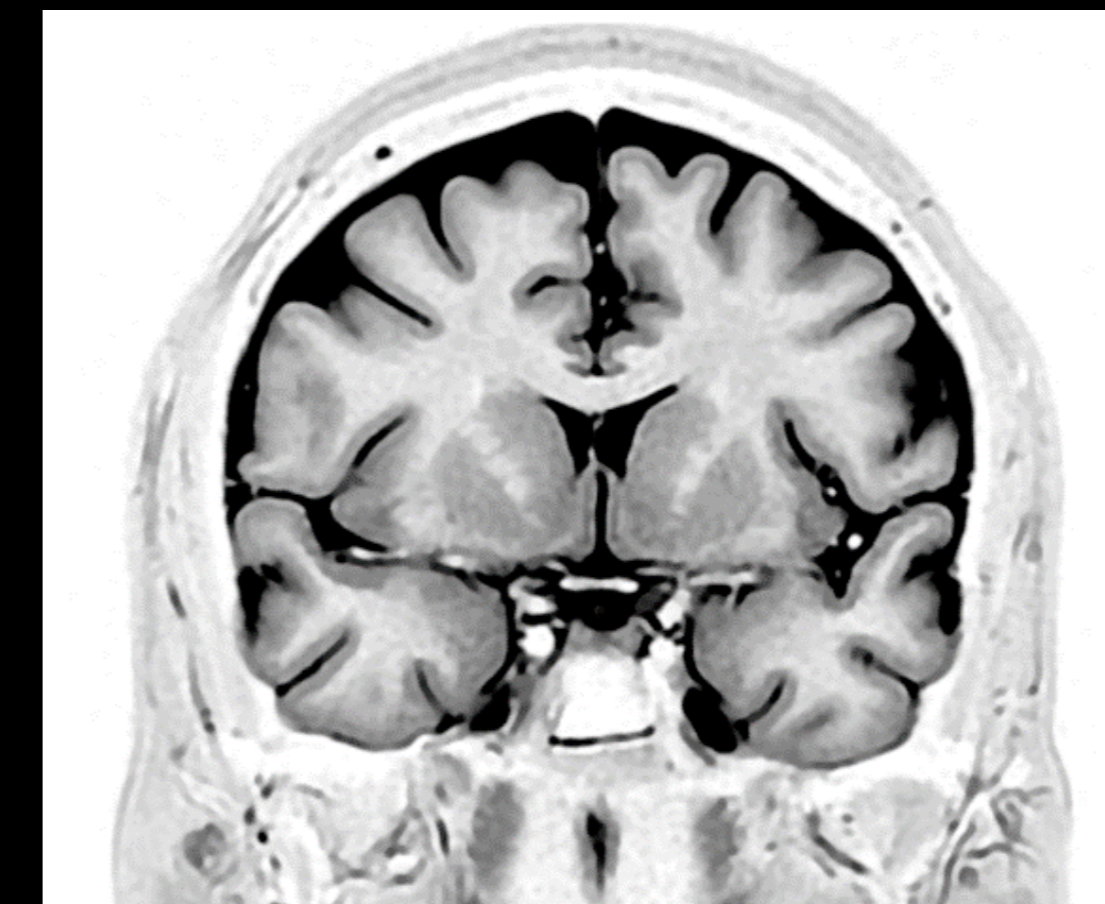
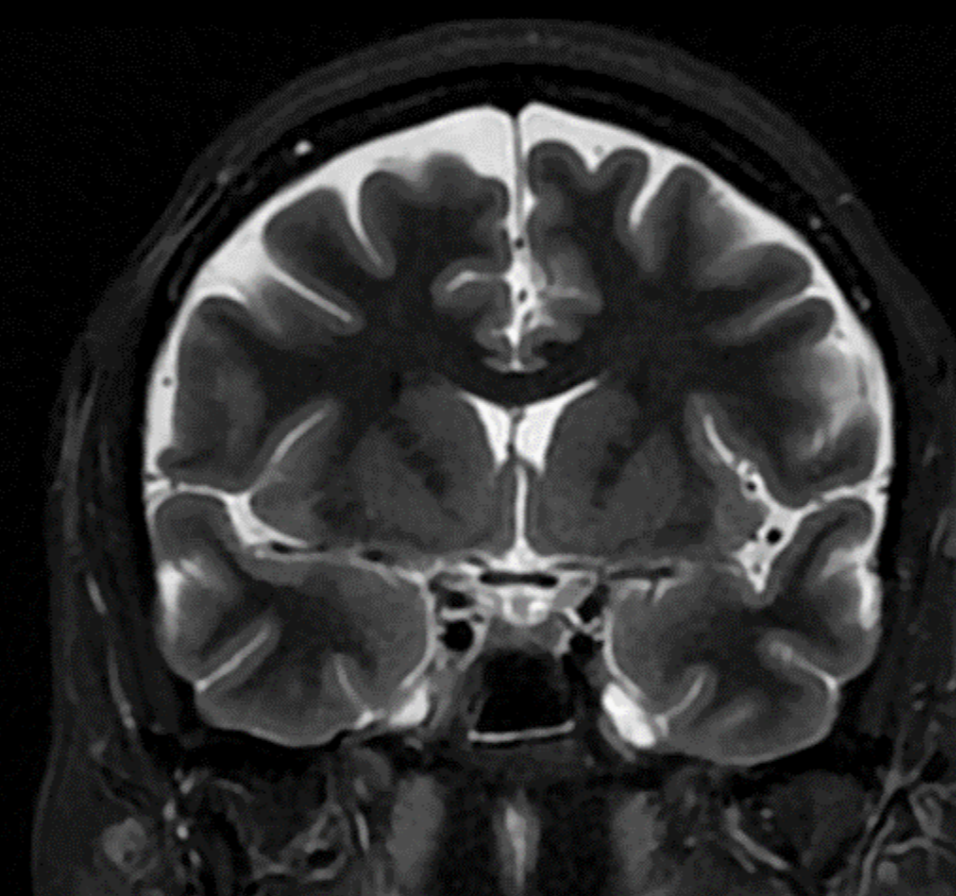
# PROPELLER

PROPELLER Multi-Blade (MB) is a multi-shot approach that preserves tissue contrast regardless of weighting while also reducing motion artifacts and providing a more signal-rich image. Additionally, this technique introduces new contrasts such as T1 FSE.

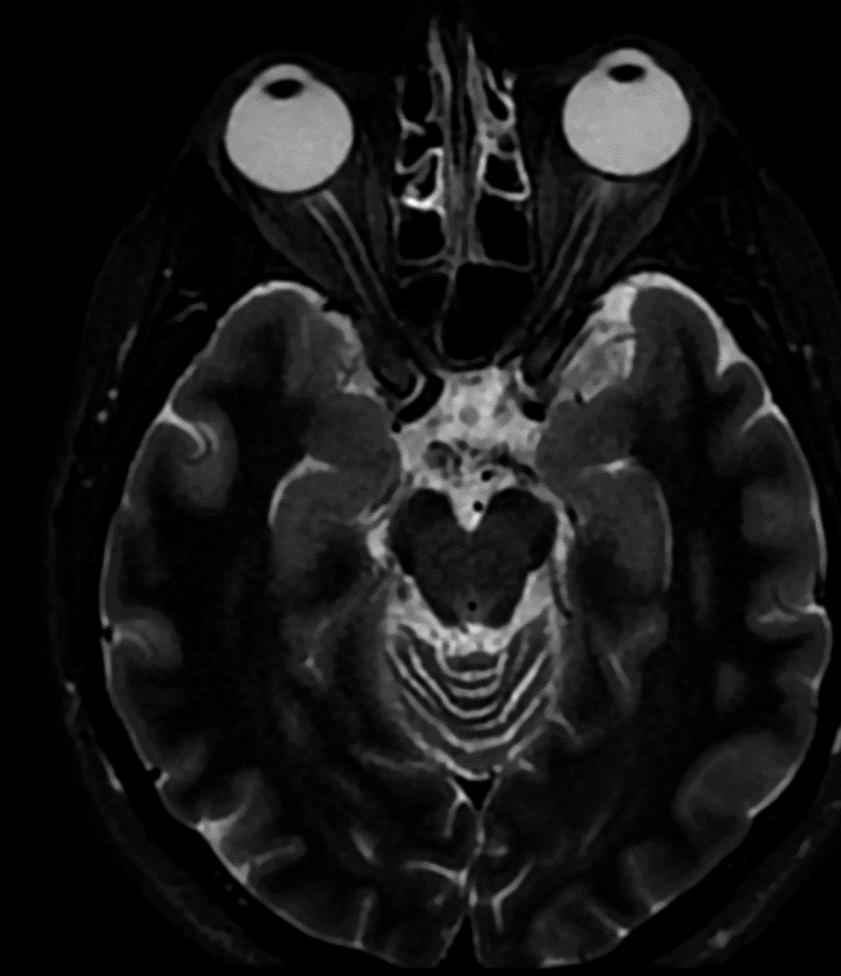
### Clinical benefits:

- Sedation-free scanning and increased patient tolerance
- Reduces overall scan time
- Delivers diagnostic images with reduced motion-artifacts (respiration and peristalsis)
- Increases productivity and decreases the number of repeated scans

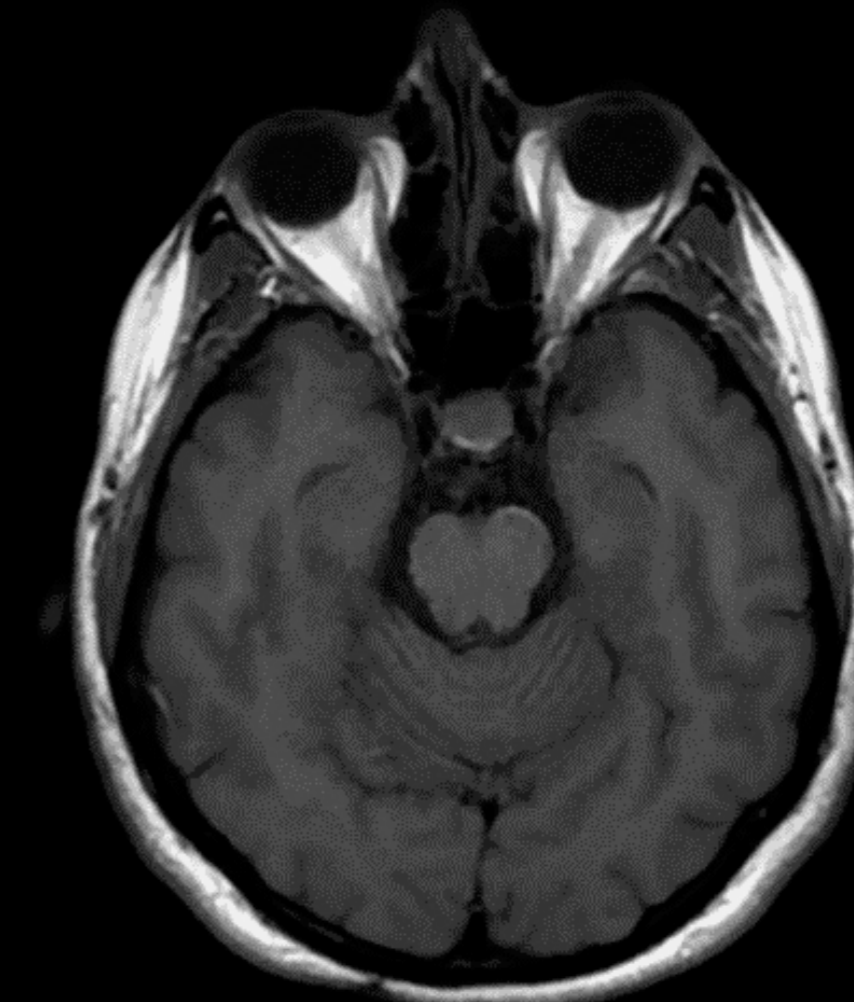
Coronal T2 STIR PROPELLER MB and inverted grayscale 0.8 x 0.8 x 3 mm



Axial T2 STIR PROPELLER MB  
0.8 x 0.8 x 2 mm



Axial T1 PROPELLER MB  
0.8 x 0.8 x 4 mm



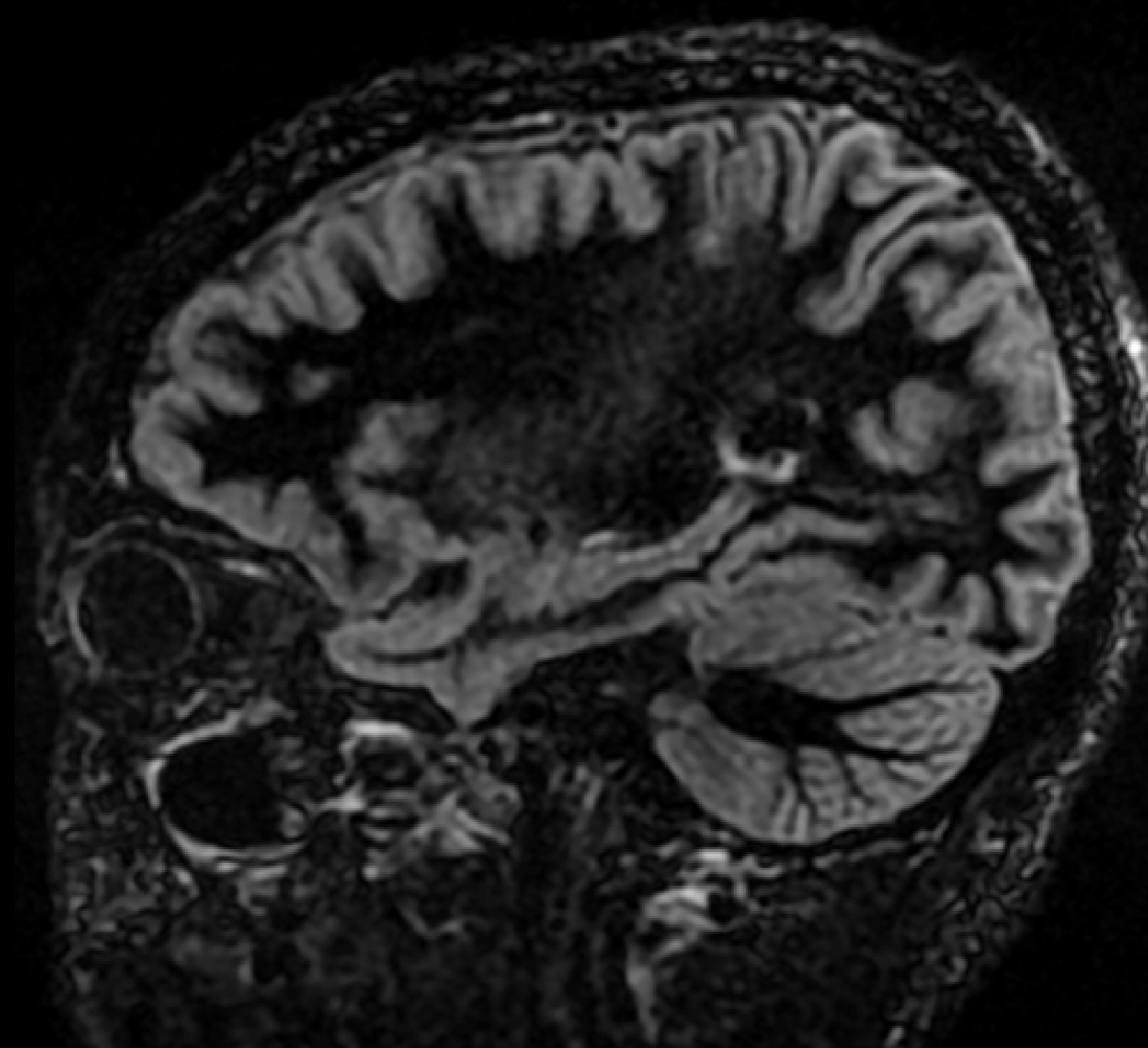
## NeuroWorks

# Cube

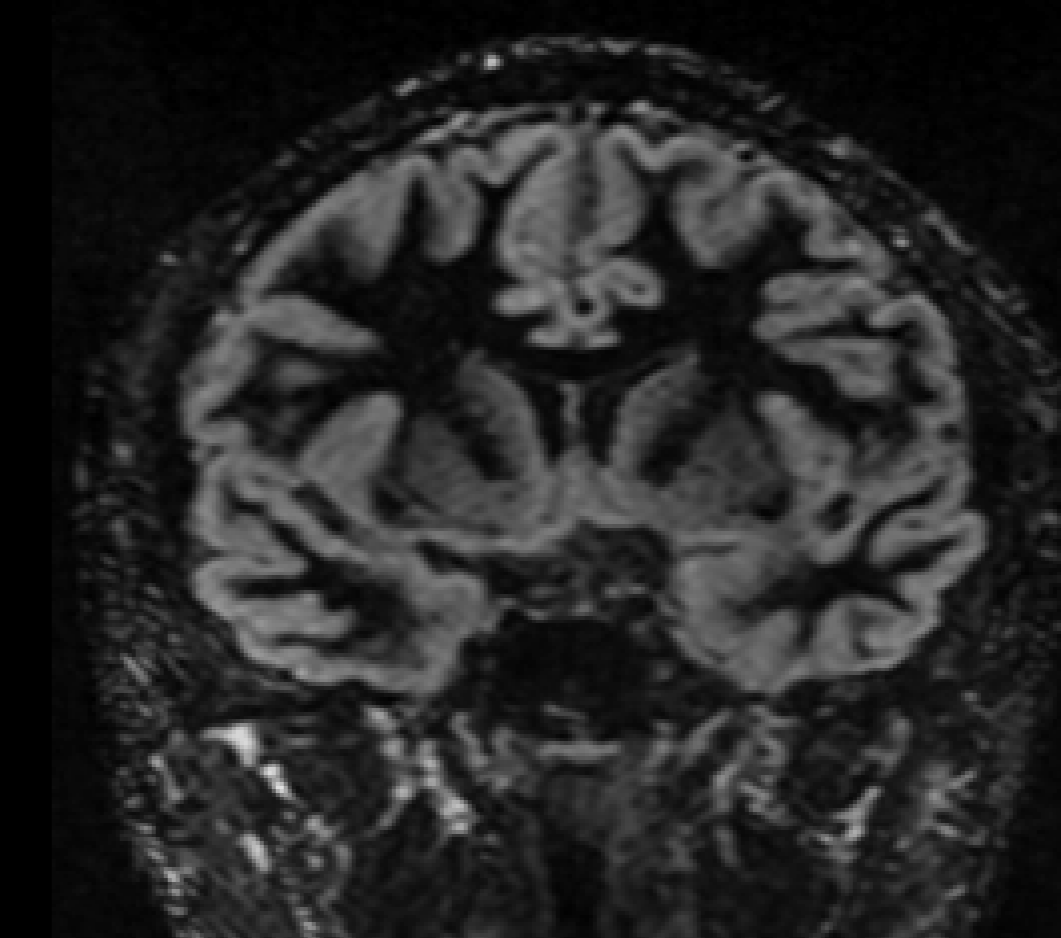
Cube is our 3D volumetric imaging suite. This application allows you to suppress cerebrospinal fluid (CSF) and either white or gray matter to increase lesion conspicuity. Scan once, format many.

**Clinical benefits:**

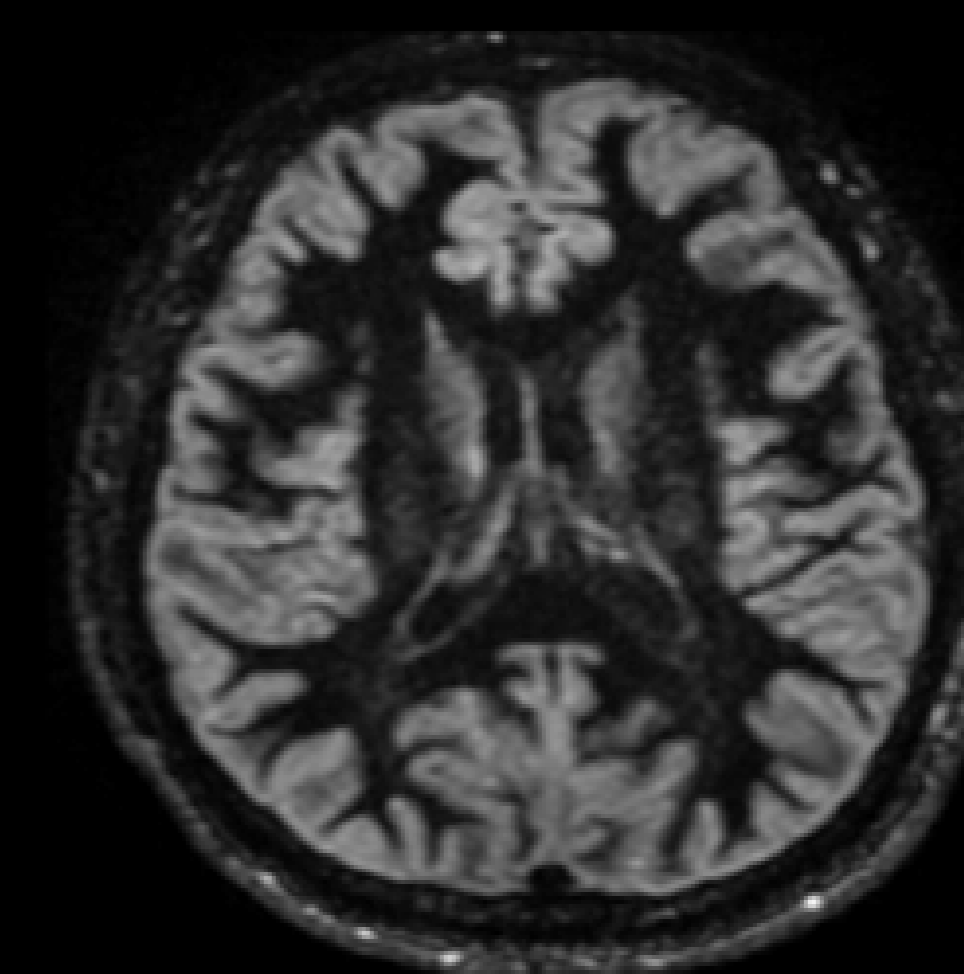
- Spatial anatomical localization for tumor evaluation
- Free breathing and respiratory triggered to reduce motion artifacts
- High slice resolution to evaluate disease
- Decreases flow artifacts



Cube DIR  
192 x 192  
1.8 mm  
4:36 min



Coronal Reformat



Axial Reformat

## NeuroWorks

# Case Study: Assessing carotid dissection with Cube T1 FatSat

### Clinical solutions

System: Optima™ MR450w GEM

### Protocols used

Axial Cube T1 FatSat, 2D TOF FSPGR

### Patient history

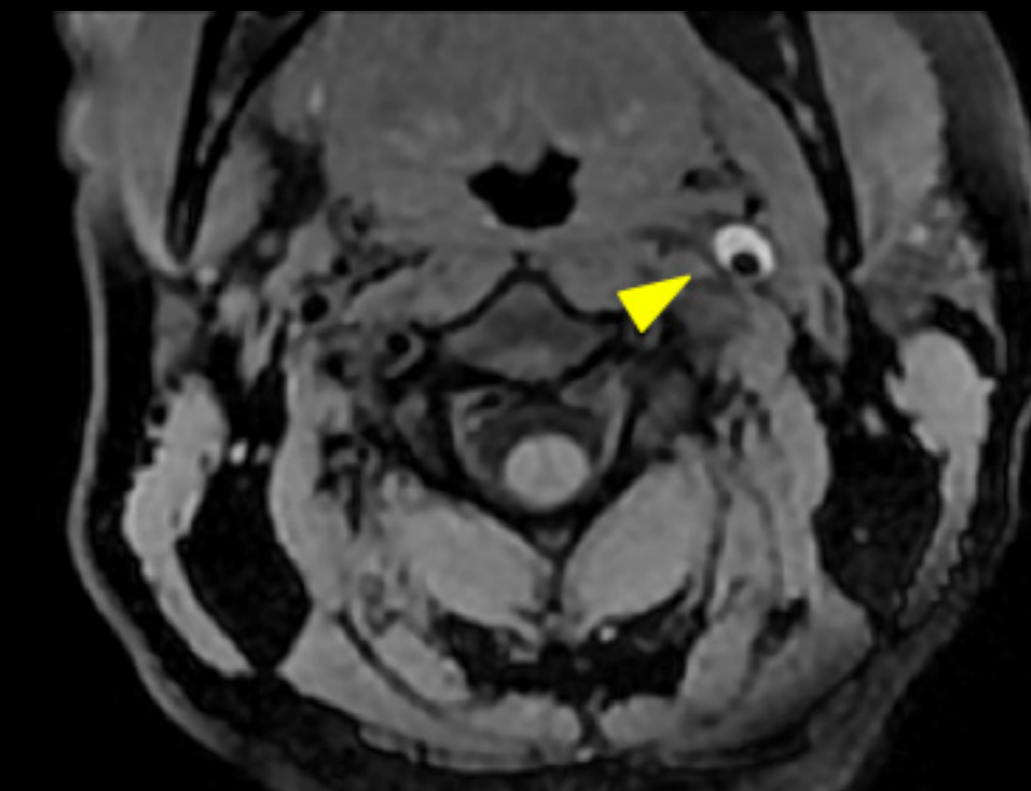
A 42-year-old female patient presented with Horner's syndrome and concern for carotid dissection.

### Procedure

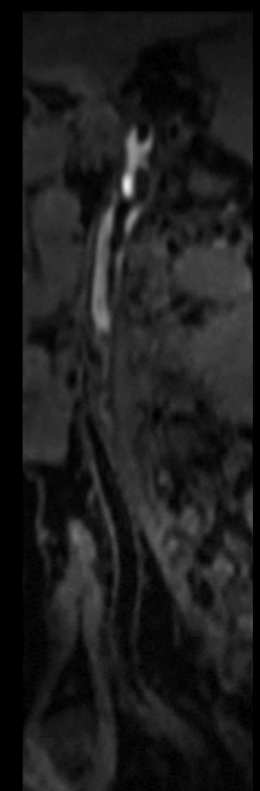
Examination performed with an Axial Cube T1 and fat suppression, presenting a higher resolution, more homogenous fat suppression and shorter scan time compared to a traditional axial 2D T1 FatSat.

### MR findings

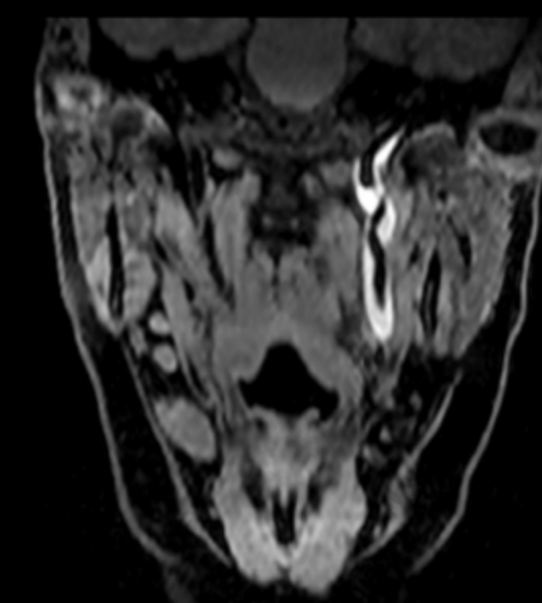
Dissection throughout much of the left internal carotid artery cervical segment. There is less than 50% luminal narrowing compared to the right, but hematoma within the wall expands the overall diameter of the artery.



Axial Cube T1 FatSat  
1 x 1 x 2 mm  
3:19 min



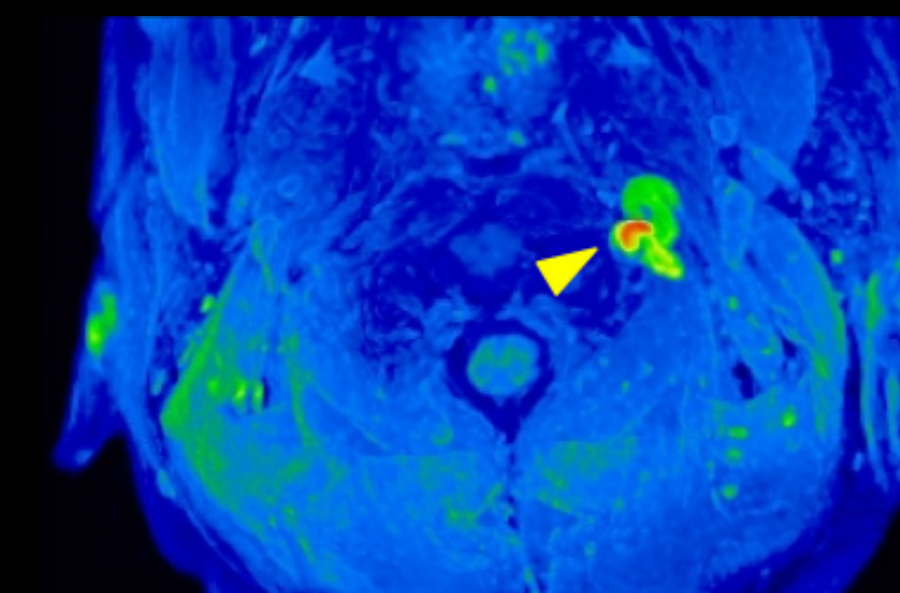
Sagittal reformat  
Cube T1 FatSat



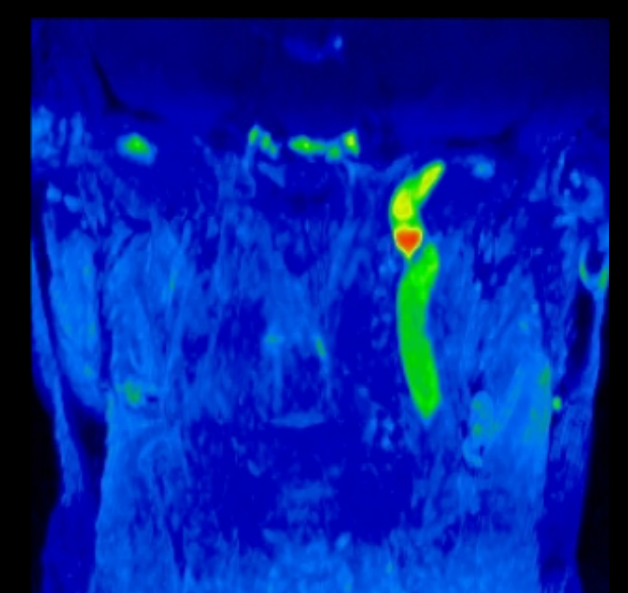
Coronal oblique reformat  
Cube T1 FatSat



Axial 2D TOF FSPGR  
Coronal volume  
Rendering view



Axial Cube T1 FatSat  
Thick MIP with rainbow  
color overlay



Coronal reformat,  
Cube T1 FatSat  
Thick MIP with rainbow  
color overlay

## NeuroWorks

## FastBrain

A high-resolution, rapid brain imaging protocol in 5 minutes or less.

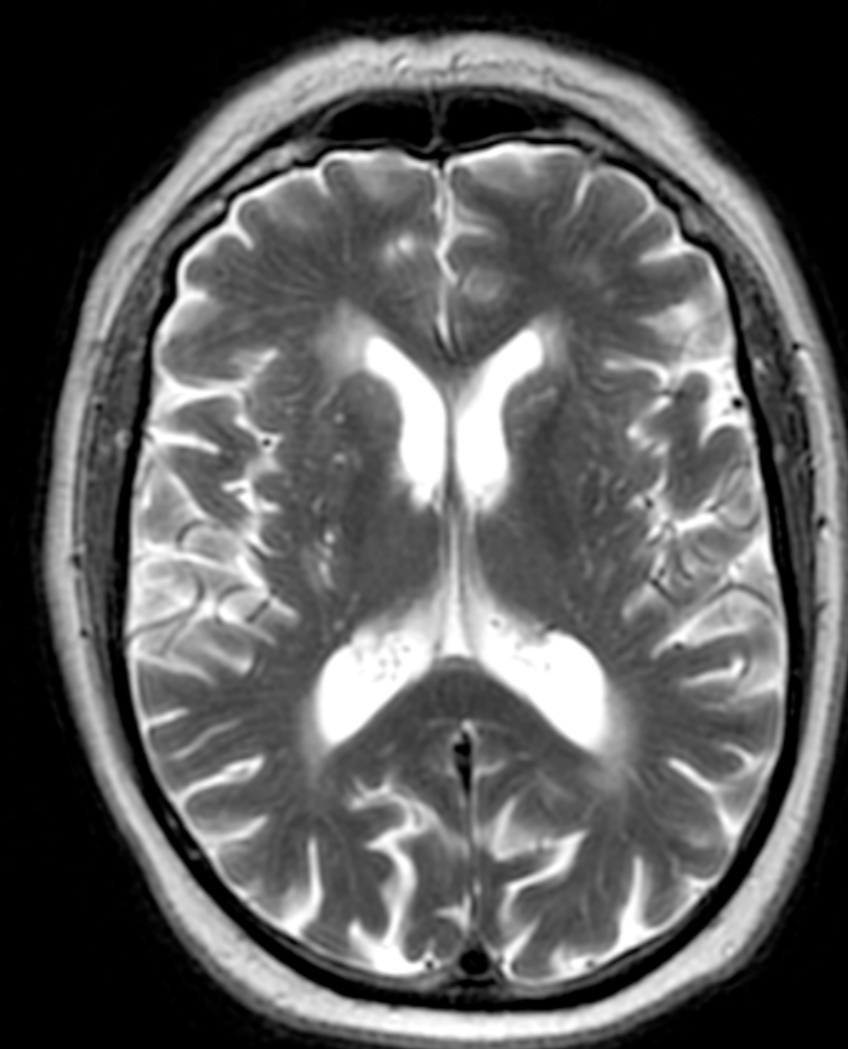
**Protocols include:**

- T1
- T2
- FLAIR
- GRE
- DWI

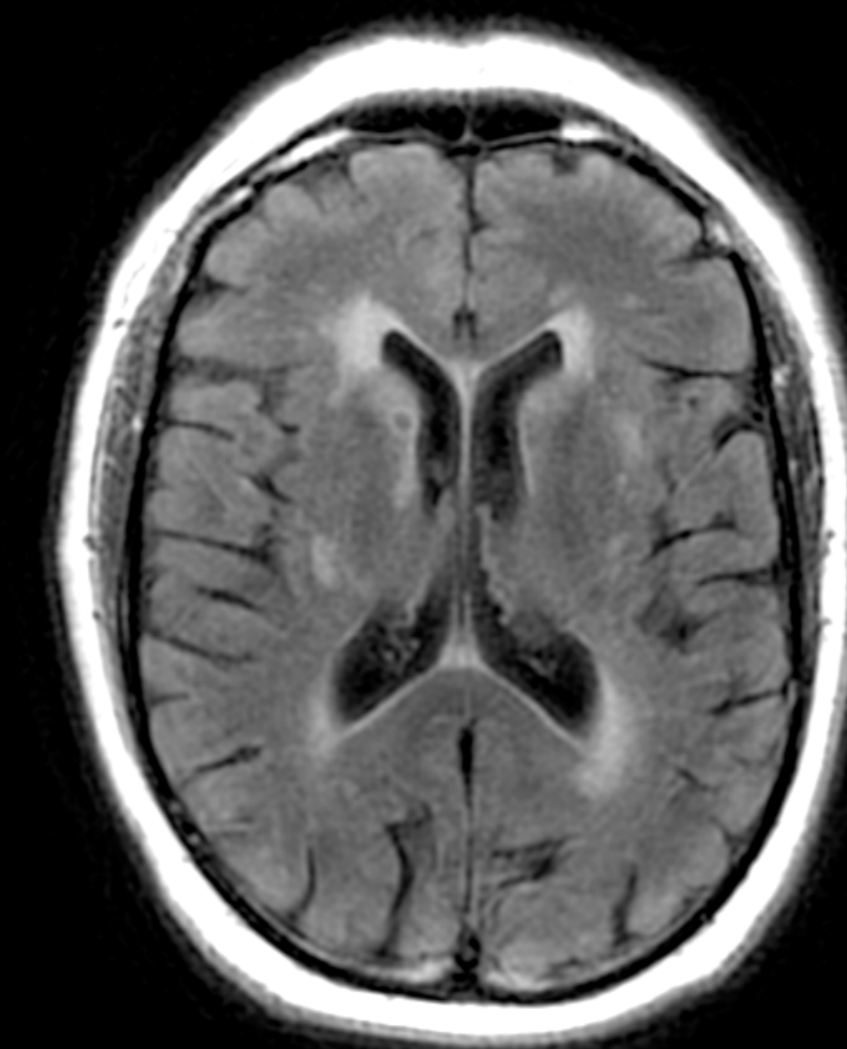
**Clinical benefits:**

- Provides reliable image quality at extraordinary acquisition speed
- Reduces patient motion artifacts and the need for rescans
- Offers efficient operating power enabled by fast and optimized push-button exams
- Compensates for uncooperative patients with conditions that make it hard to comply
- Helps to increase patient throughput

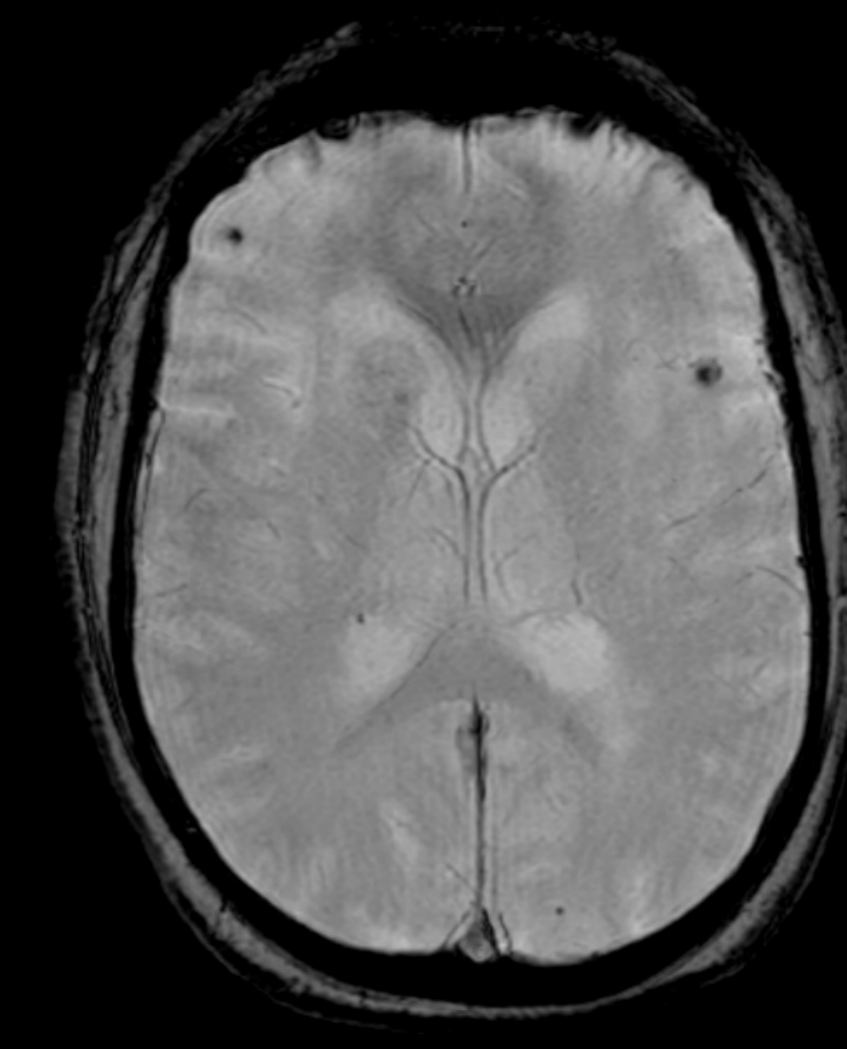
T2 PROPELLER MB 1 min



T2 FLAIR PROPELLER MB 1:22 min

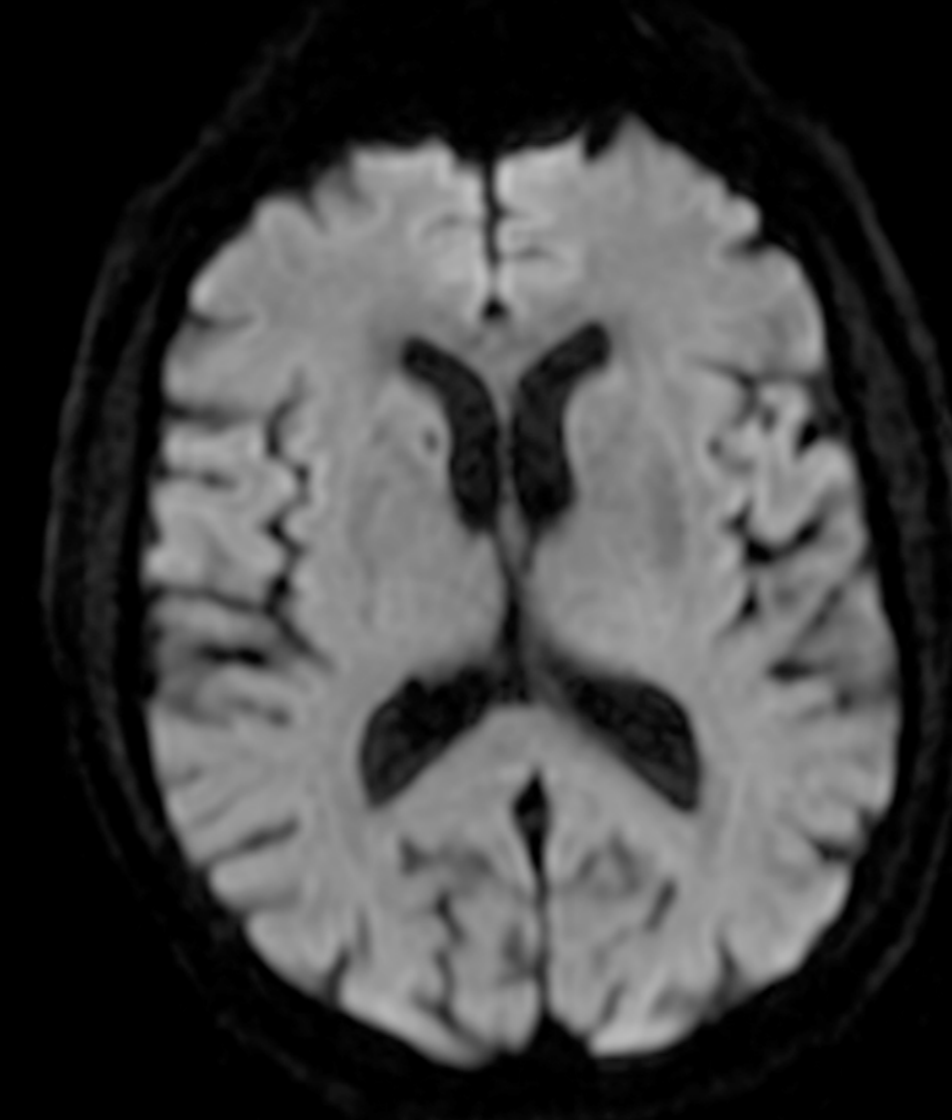


T2 GRE 56 s

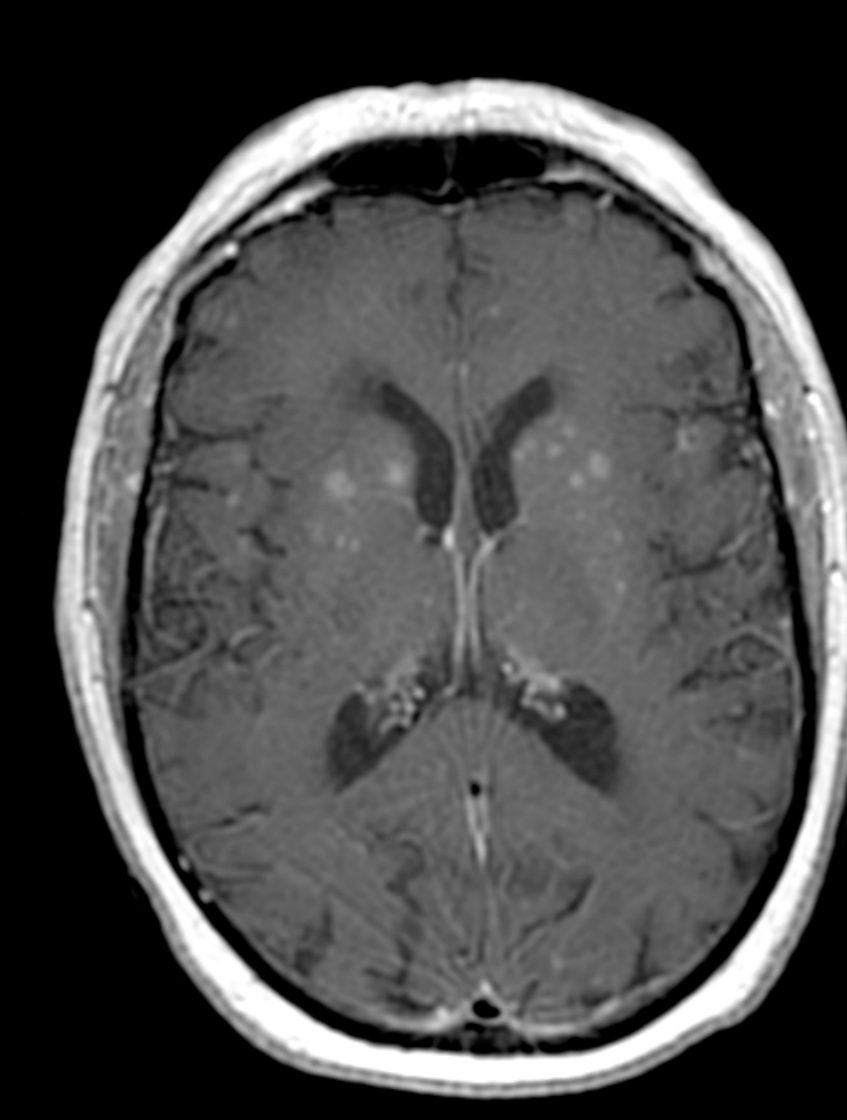


Total  
scan time  
4:45 min

Diffusion b1000 14 s



T1 PROPELLER MB 1:13 min



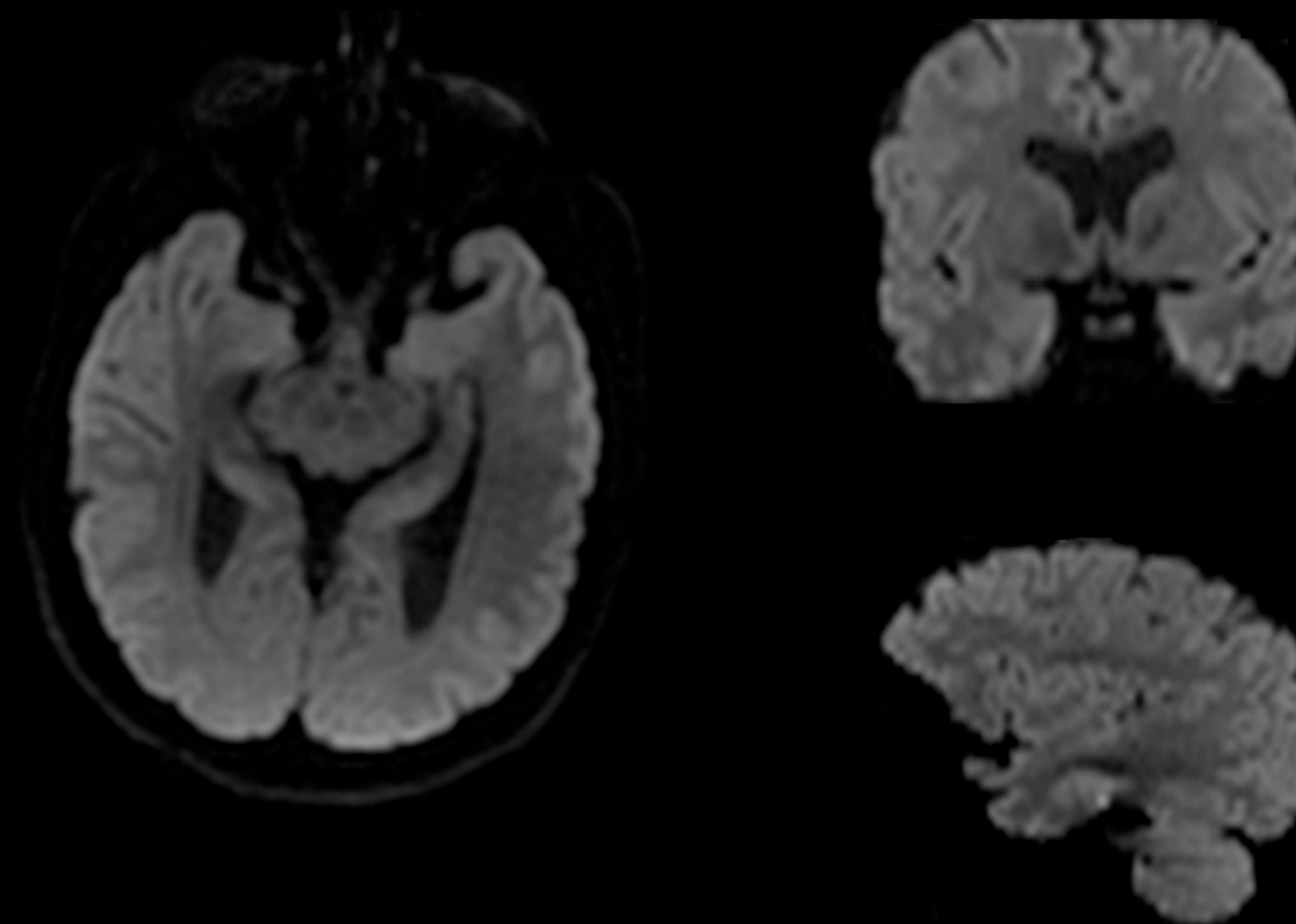
## NeuroWorks

# eDWI

Diffusion-weighted imaging (DWI) is used to image diffusivity of water molecules (Brownian motion). This enhanced Diffusion-weighted imaging (eDWI) technique is designed to provide high signal-to-noise-ratio (SNR) diffusion images, with short-acquisition time and shortest possible echo time (TE). Its multi-b feature is designed to provide measurement of apparent diffusion coefficient (ADC) map with reduced effect of perfusion.

### Clinical benefits:

- By achieving shorter TE's, eDWI lessens susceptibility and distortions in problematic areas (such as temporal lobes in the brain)
- Decreases overall exam sequences and time



## NeuroWorks

# MERGE

Multi-Echo Recalled Gradient Echo (MERGE) uses multiple TE's to generate superior contrast and visualization of the different layers of cartilage in MSK imaging and better definition of gray/white matter in the spine. It can be acquired in 2D or in 3D with excellent spatial resolution, includes water excitation for elimination of fat, and maintains ligament visualization while adding soft tissue contrast.

### Clinical benefits:

- Distinguishes femoral and acetabular cartilage in the hip
- Helps visualize scaphoid fractures and delineation of ligaments in the wrist
- Offers better visualization of lesions in the spinal cord (e.g., Multiple Sclerosis)

Cervical Spine



# OncoWorks

## Standard Applications

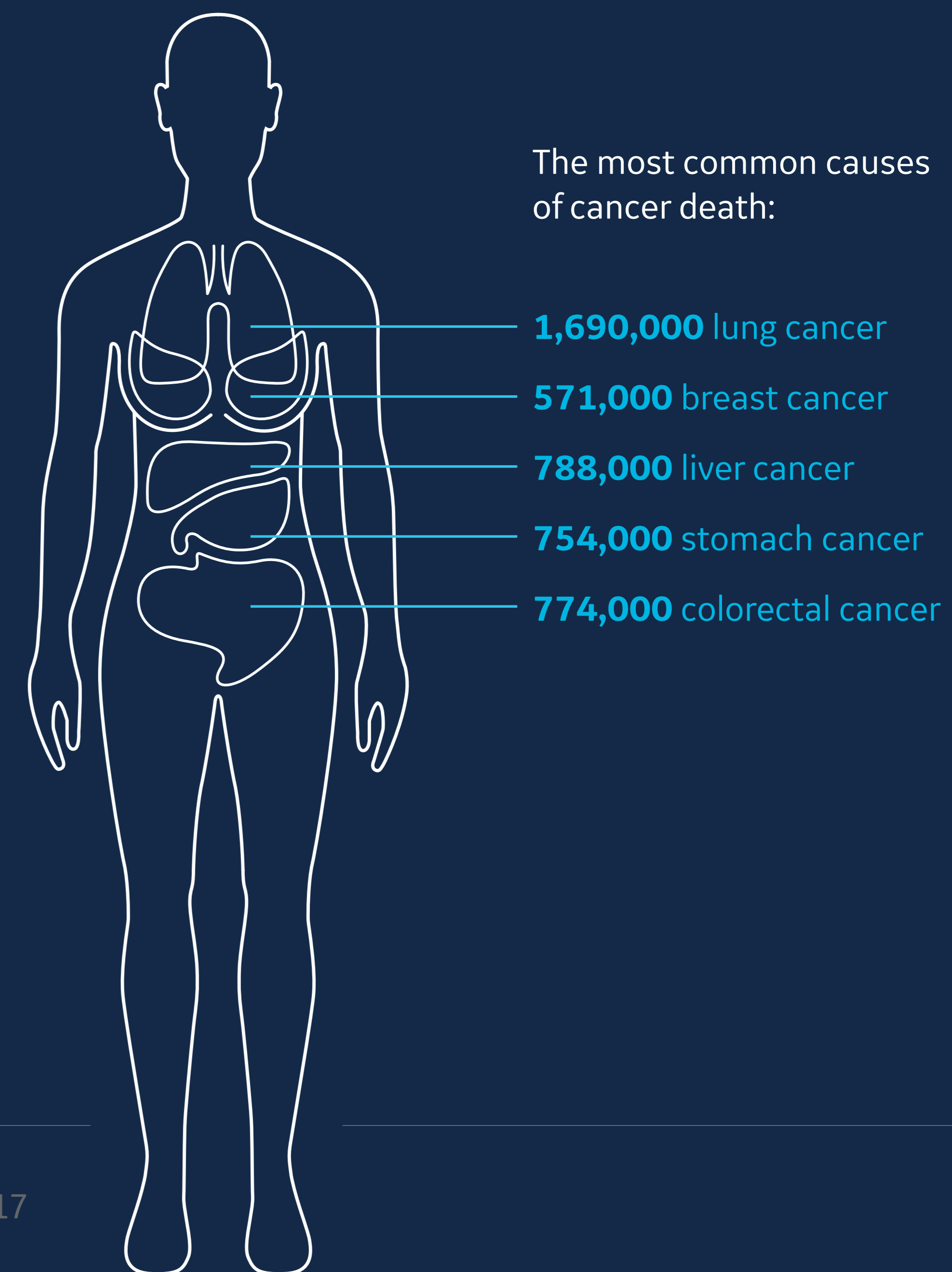
OncoWorks is an extensive library comprised of robust tissue contrast, motion-insensitive, high temporal and spatial resolution imaging techniques used for oncological assessment.

Cancer is a leading cause of death worldwide. Number of cancer-related deaths in 2015:

**8.8**  
million

Between  
**30–50%**  
of cancers can  
currently be  
prevented

The most common causes of cancer death:



World Health Organization  
Cancer Fact sheet, February 2017

## OncoWorks

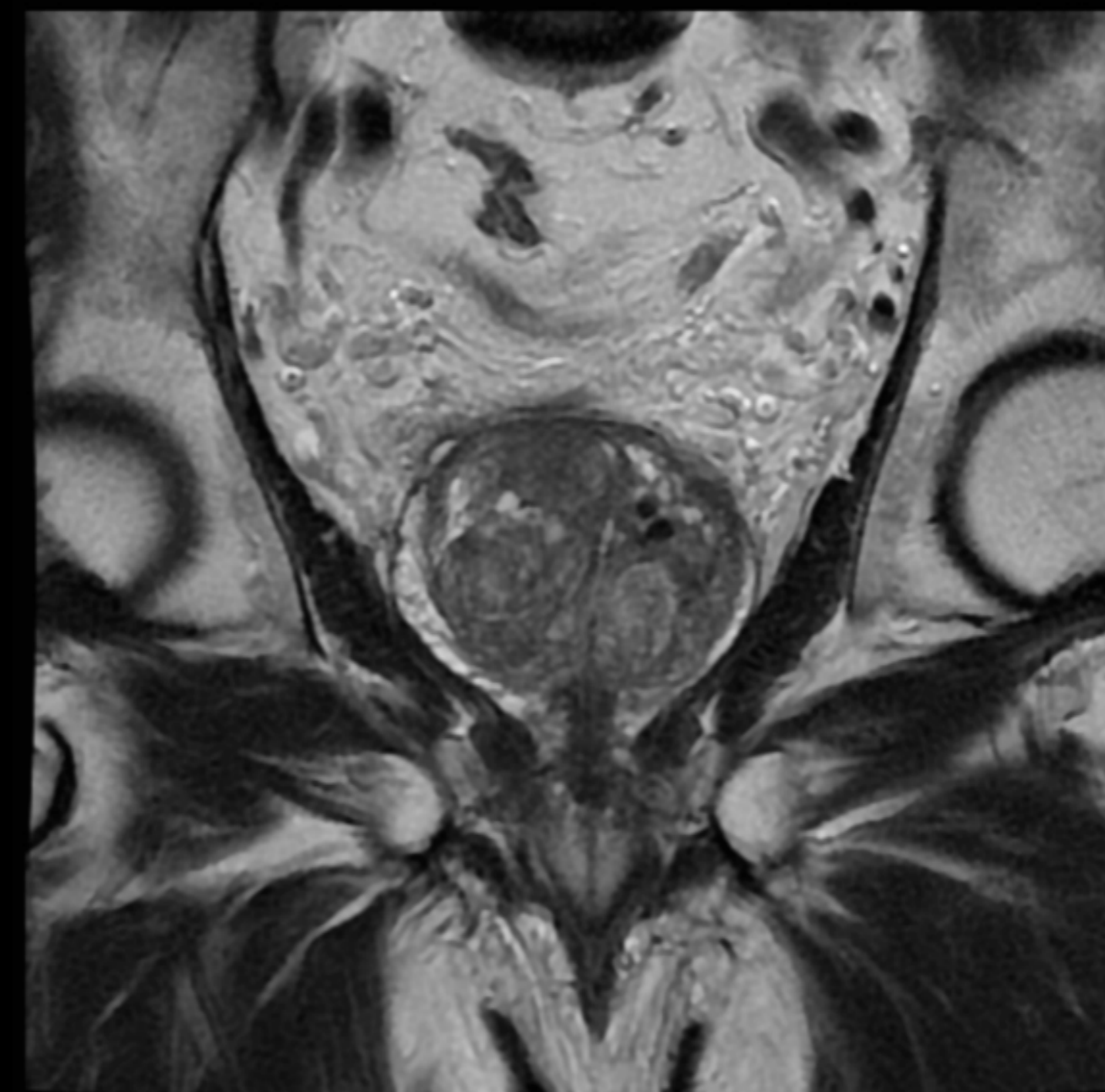
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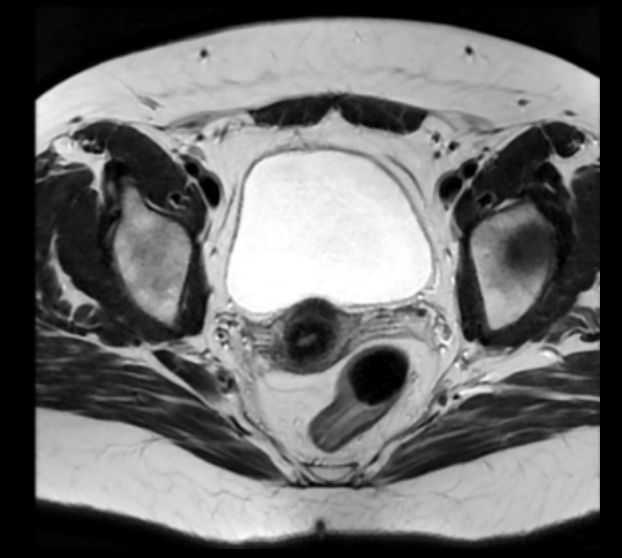
**Clinical benefits:**

- Delivers diagnostic images with reduced motion-artifacts (respiration and peristalsis)
- Increases productivity and decreases the number of repeated scans
- Enables sedation-free scanning and increases patient tolerance

Prostate imaging

Coronal T2 PROPELLER  
0.6 x 0.6 x 4 mm

Female pelvis imaging

Coronal T2 PROPELLER  
0.8 x 0.8 x 3 mmSagittal T2 PROPELLER  
0.8 x 0.8 x 3 mmAxial T2 PROPELLER  
0.8 x 0.8 x 3 mm



## OncoWorks

# Cube

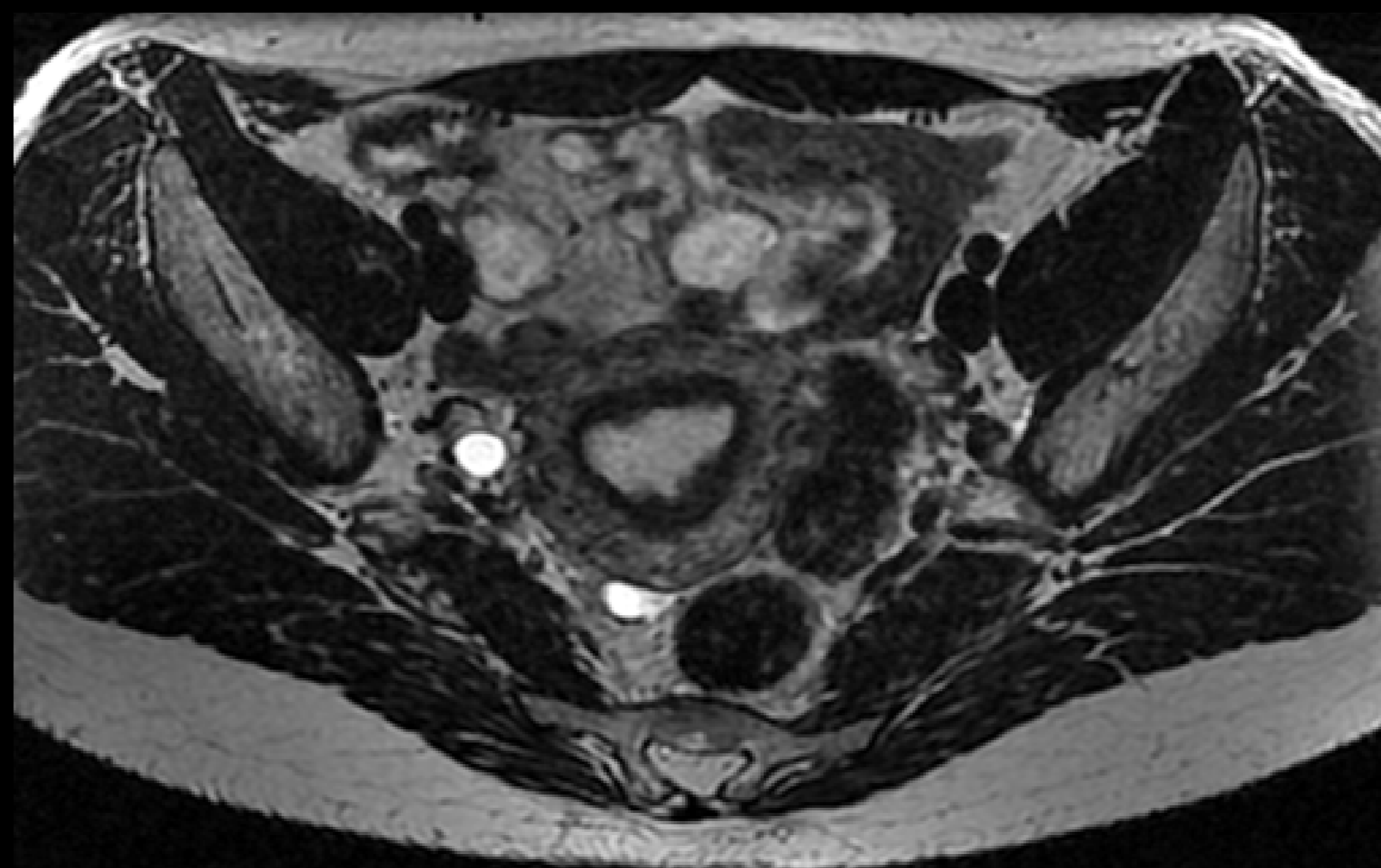
Cube is our 3D volumetric imaging technique that can easily be reformatted into any plane. The SNR-rich sub-millimeter slices can provide partial volume averaging effect which helps to visualize even small and subtle abnormalities.

### Clinical benefits:

- Scan once, then reformat to any plane with high sub-millimeter resolution
- Spatial anatomical localization for abnormalities
- Higher slice resolution compared to 2D imaging
- Can decrease flow artifacts
- Combines with ARC acceleration to reduce scan times

Female Pelvis Cube

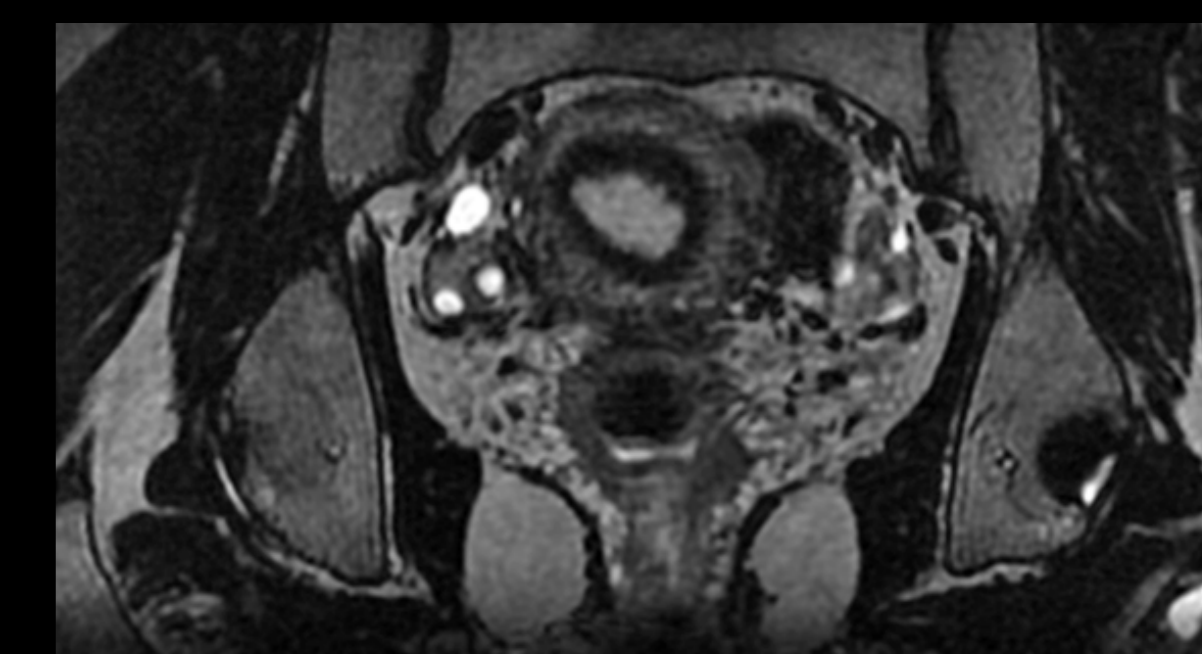
Axial Cube



Sagittal reformat



Coronal reformat



## OncoWorks

## eDWI

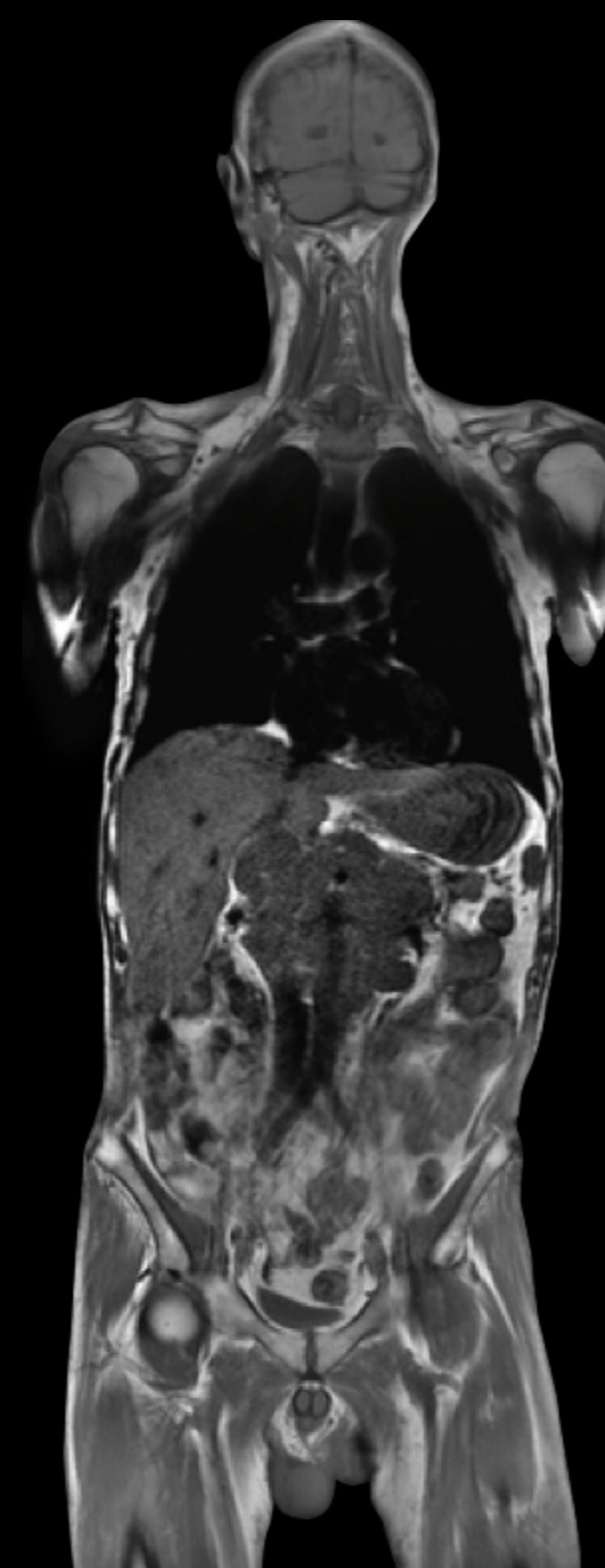
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**Clinical benefits:**

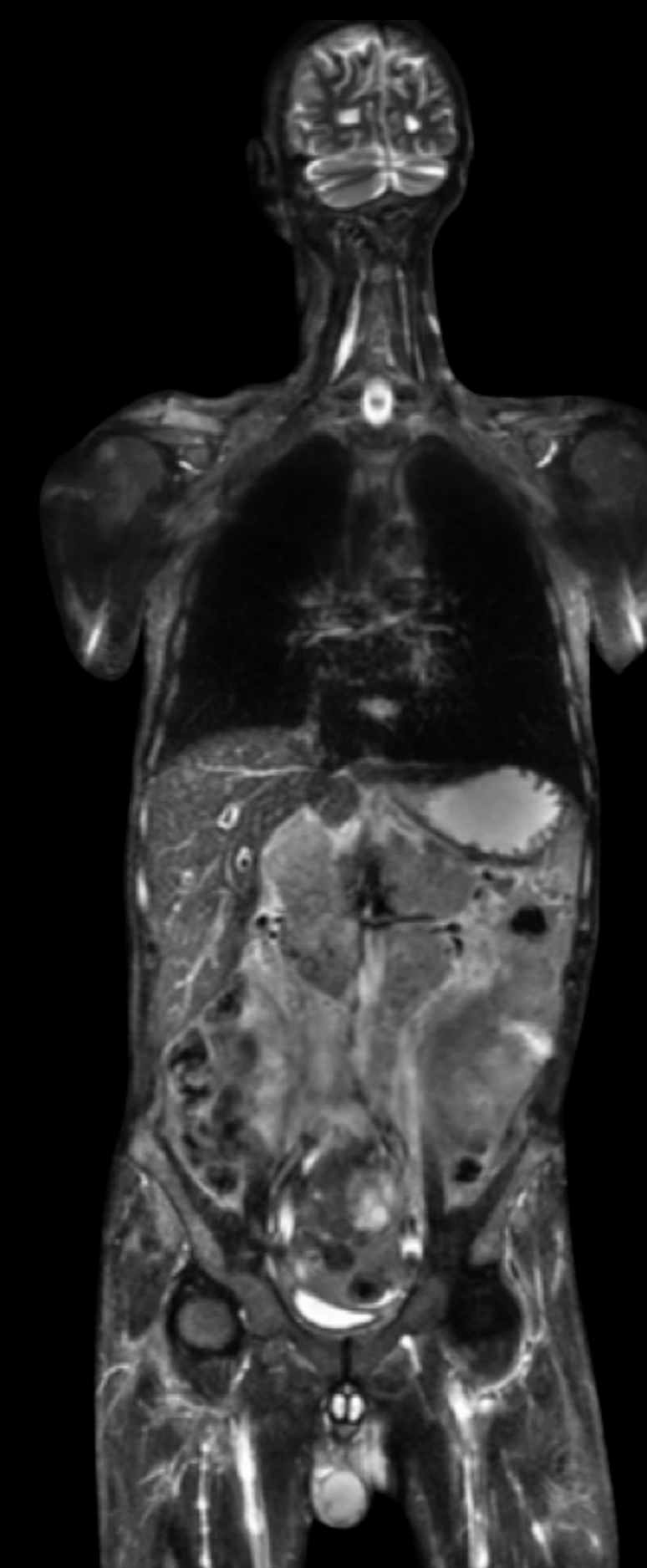
- Decreases overall exam sequences and time
- For body imaging, helps to improve patient tolerance with shortened breath-hold time or free-breathing Auto Navigator

Whole-body diffusion on patient with lymphoma

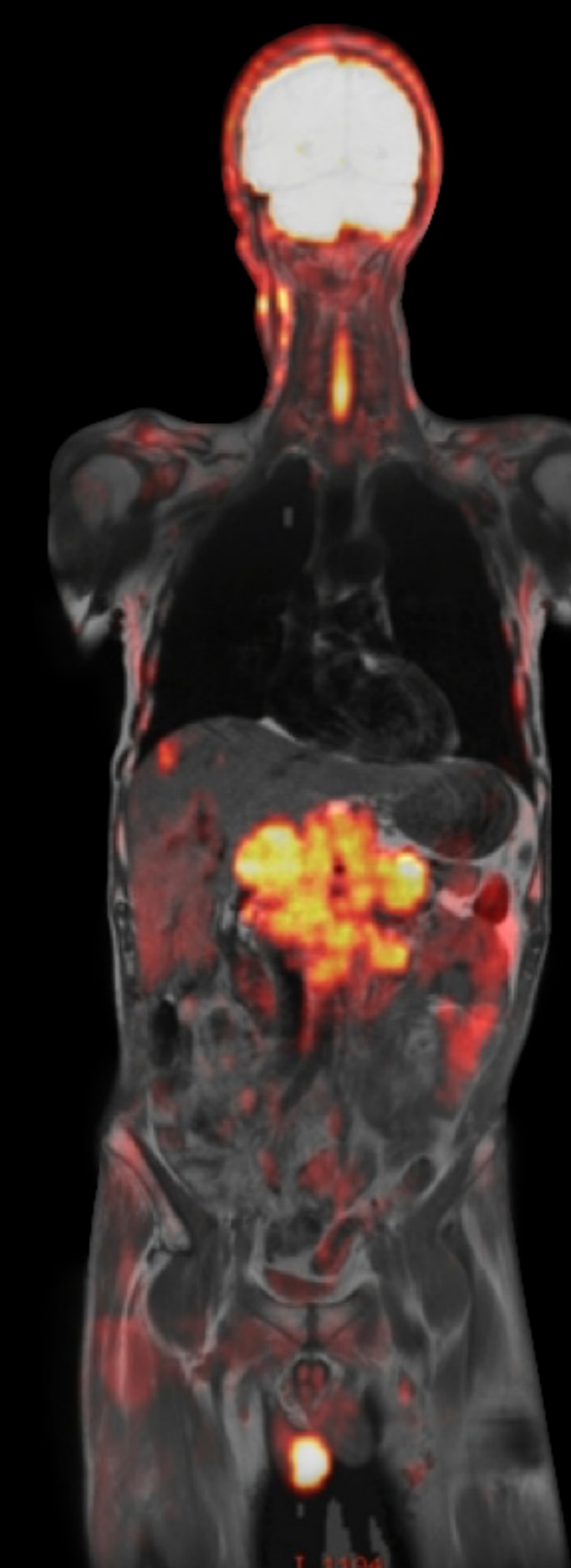
Coronal T1, 3 Stations  
2:17 min



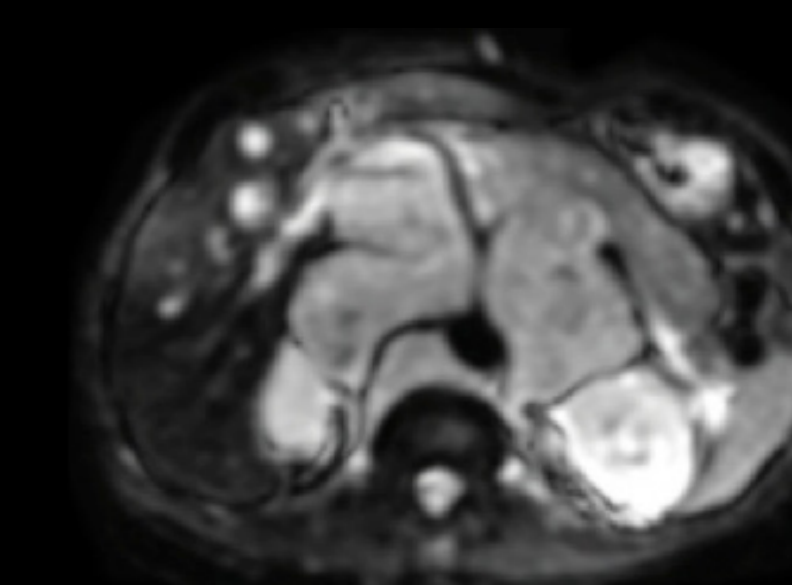
Coronal STIR, 3 Stations  
2:48 min



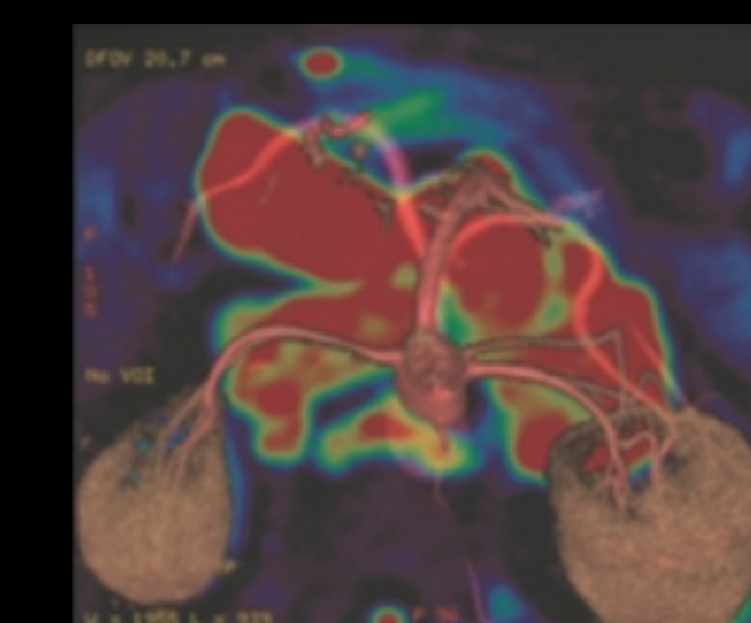
Axial DWI, 6 Stations  
T1 with DWI fused  
9:54 min



Axial DWI



Inhance Inflow IR  
fused to DWI



## OncoWorks

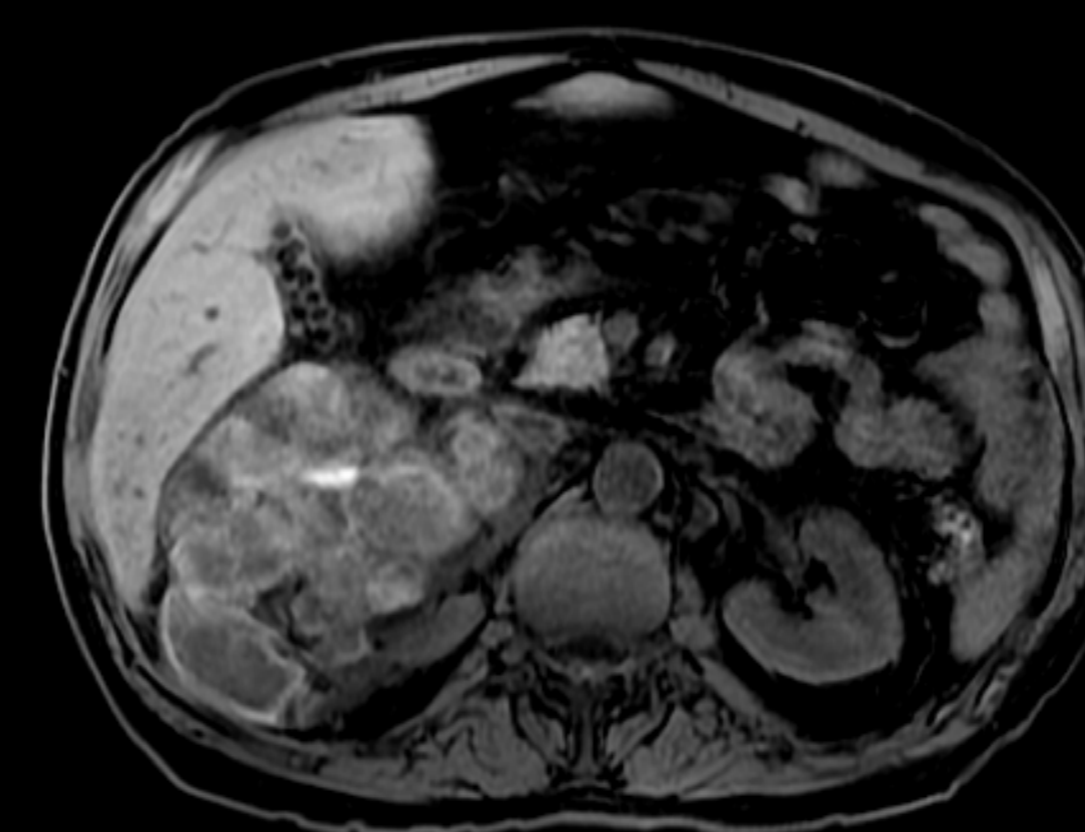
# LAVA

Liver Acquisition with Volume Acceleration (LAVA) is a rapidly accelerated 3D T1 dynamic (DCE) body imaging technique that uses a unique PSD waveform to allow for a reduction of scan time needed for dynamic imaging.

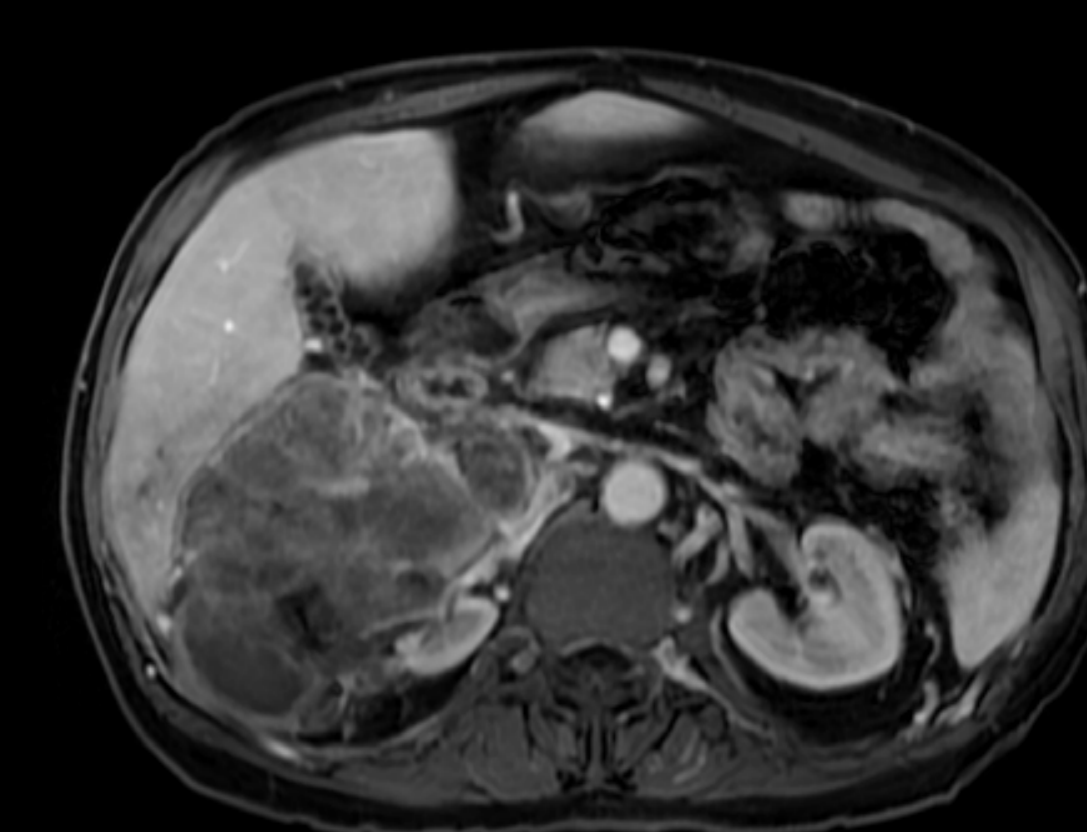
### Clinical benefits:

- Produces ARC parallel imaging for short scans
- Turbo mode further reduces scan time up to 50%
- Provides adiabatic special fat suppression for robust imaging

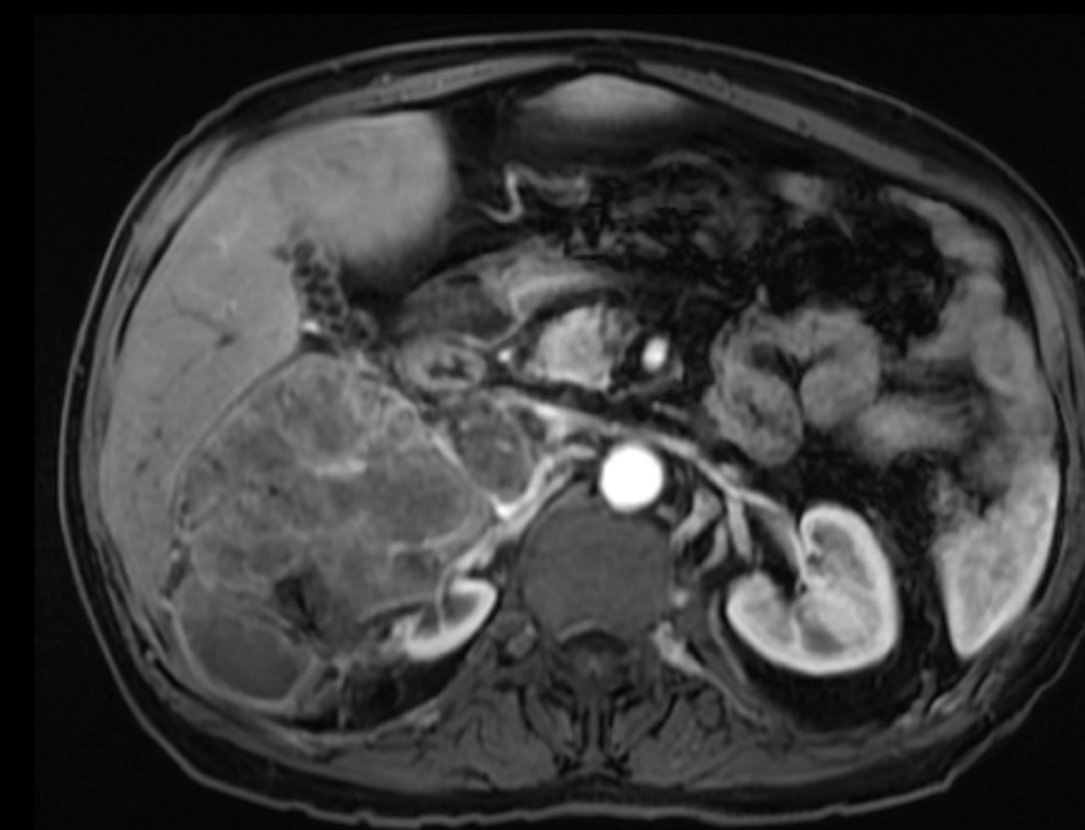
Axial LAVA Flex Pre



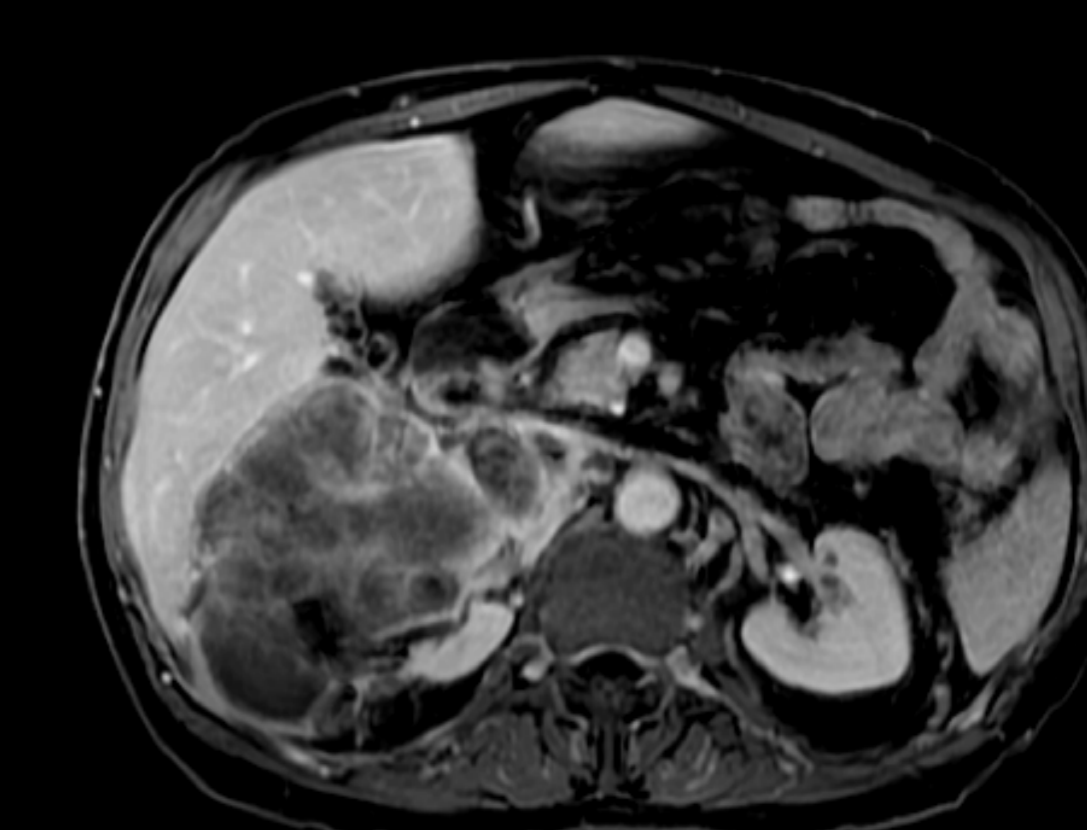
Axial LAVA Venous



Axial LAVA Arterial



Axial LAVA Equilibrium



## OncoWorks

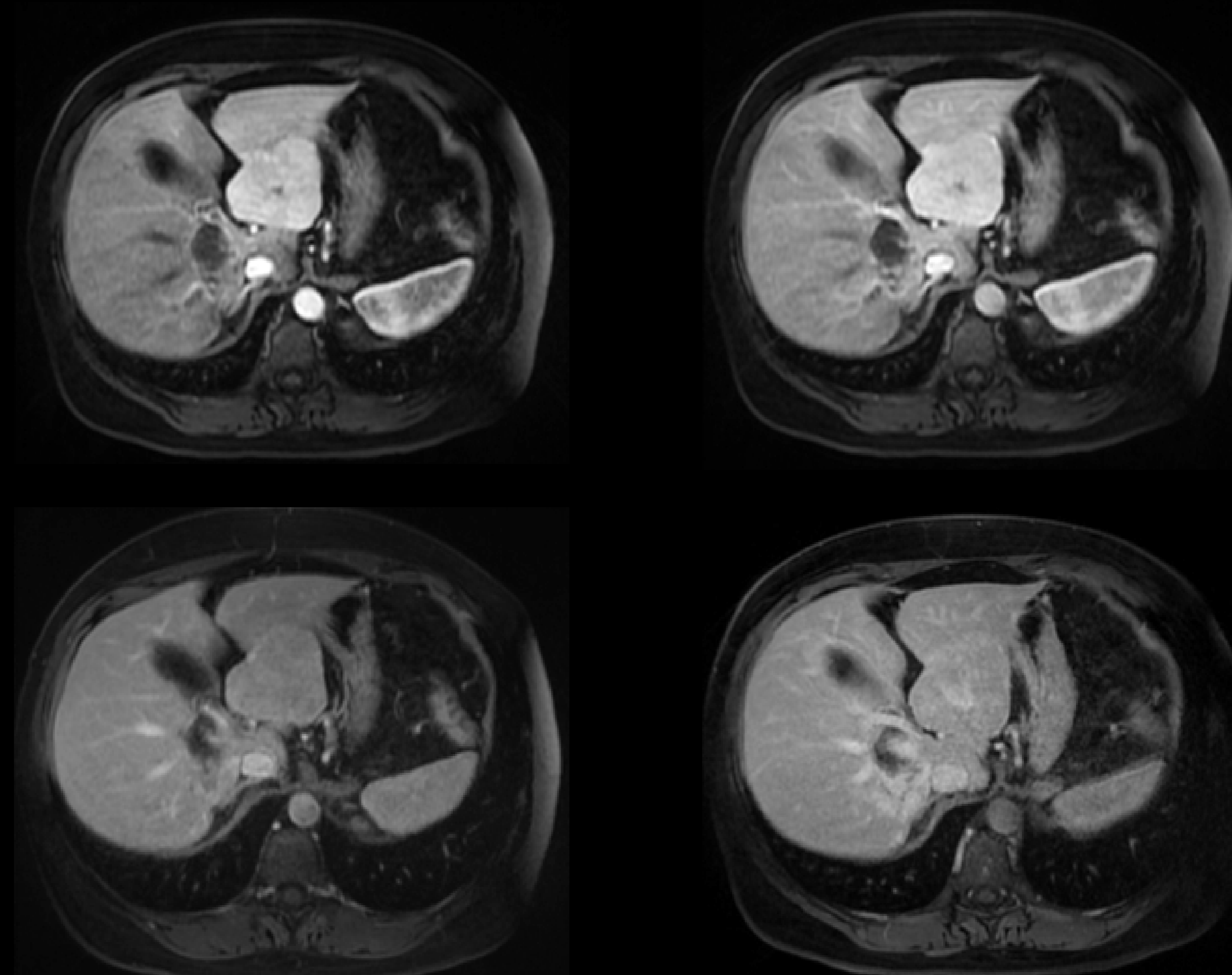
# Auto Navigator

Auto Navigator uses a tracker to detect the motion of the diaphragm which enables free-breathing body imaging acquisition. The tracker is automatically placed over the right hemidiaphragm so the acquisition synchronizes the patient's breathing pattern and minimizes ghosting artifacts.

### Clinical benefits:

- Enhances workflow
- Eliminates need to use respiratory bellows
- Allows for adjustment of threshold and acceptance window in real time as the patient's respiration changes

Axial 3D LAVA



# OrthoWorks

## Standard Applications

The OrthoWorks package is an extensive library of musculoskeletal imaging techniques that provide dynamic imaging of bone, joint and soft tissue with remarkable tissue contrast.

Lower and upper extremity scans as a proportion of all MR procedures

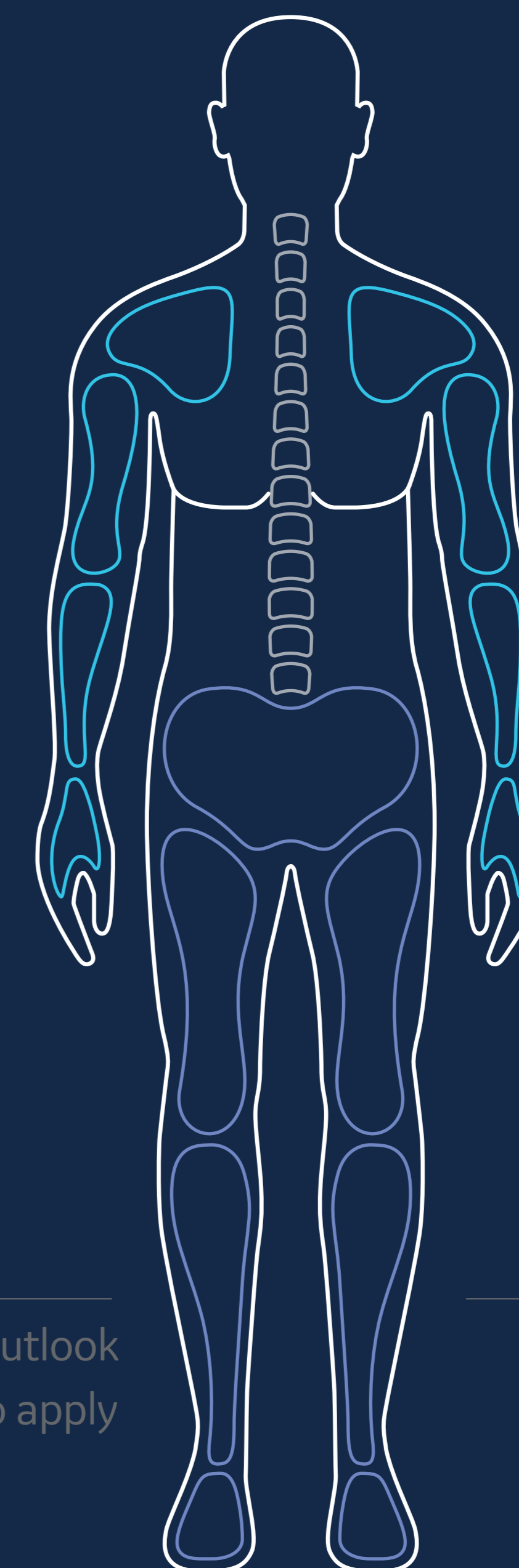
# 24%

Spine scans as a proportion of all MR procedures

# 24%\*

Source: IMV 2016 MR Market Outlook

\* Spine as a category could also apply to neurology



Increase in MR procedure volume from 2013 to 2016

**+33%**  
Upper extremities

**+28%**  
Lower extremities

## OrthoWorks

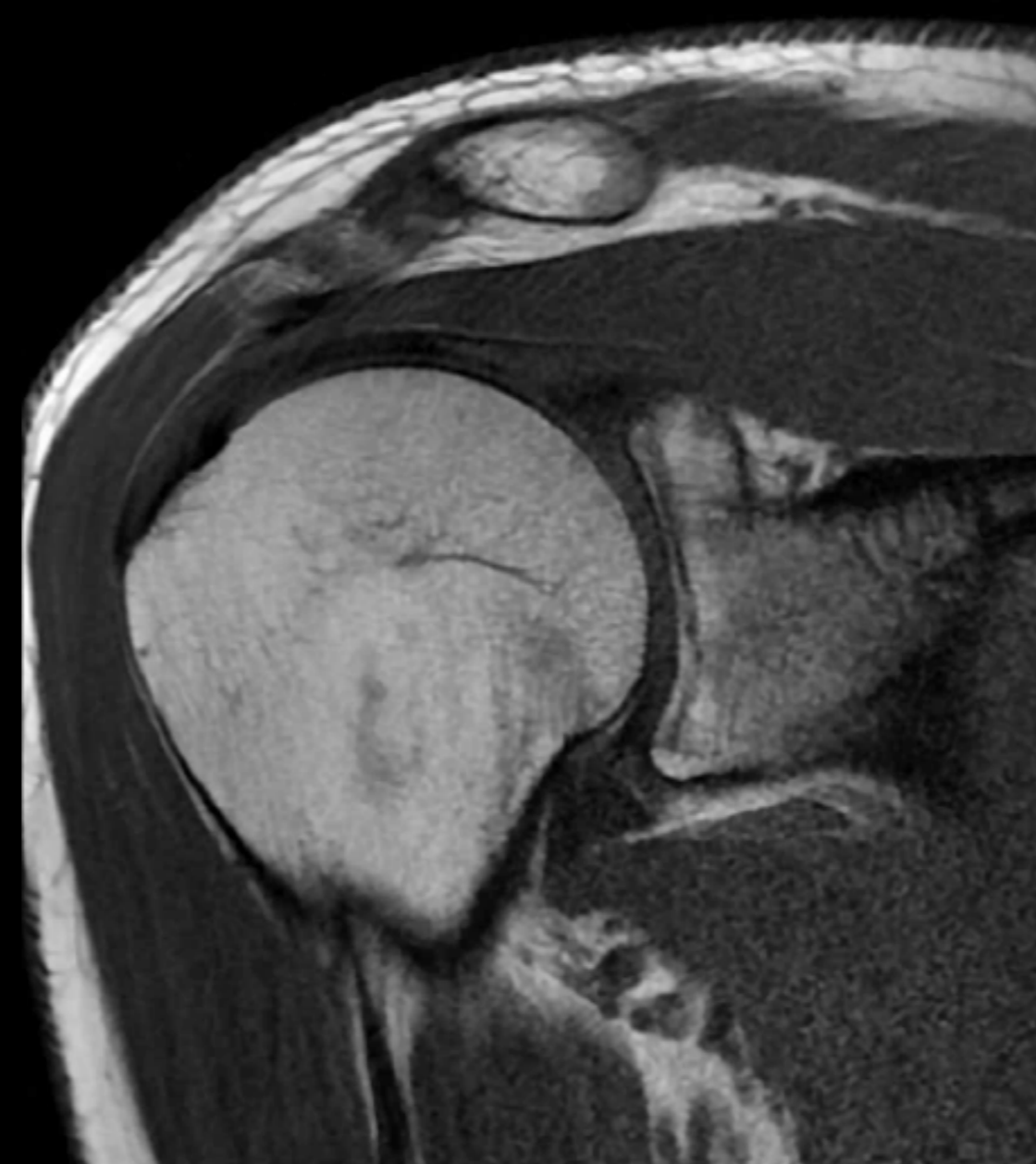
# PROPELLER

PROPELLER Multi-Blade (MB) is a multi-shot approach that preserves tissue contrast regardless of weighting while also reducing motion artifacts and providing a more signal-rich image. Additionally, this technique allows for all contrasts for 2D FSE: T1, T2, STIR and PD weightings.

**Clinical benefits:**

- Delivers diagnostic images with reduced motion-artifacts for voluntary and involuntary patient motion (respiration and peristalsis)
- Increases productivity and decreases the number of repeated scans
- Enables sedation-free scanning and increases patient tolerance

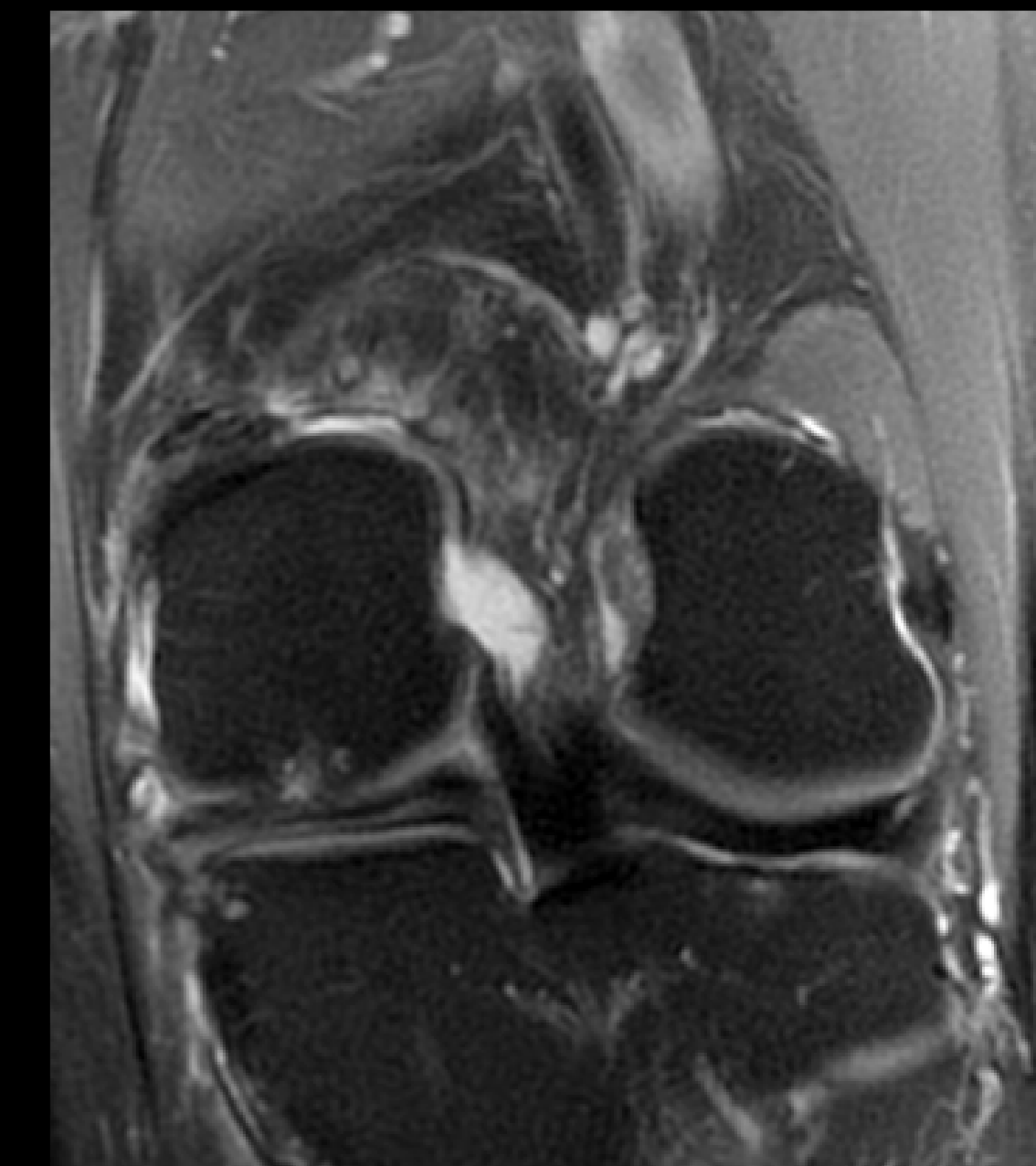
Standard  
Coronal T1 FSE



T2 PROPELLER  
FatSat



PD FatSat PROPELLER  
Coronal Silent



## OrthoWorks

# Case Study: Characterizing shoulder joint pathology with PROPELLER

## Clinical solutions

System: Optima™ MR450w

Coil: Shoulder PA Coil

## Protocols used

Axial and Coronal T1 PROPELLER MB, Axial and Coronal PD FatSat PROPELLER MB, Sagittal and Coronal T2 PROPELLER MB

## Patient history

A college-level basketball player, with a history of multiple dislocations, presented with shoulder pain.

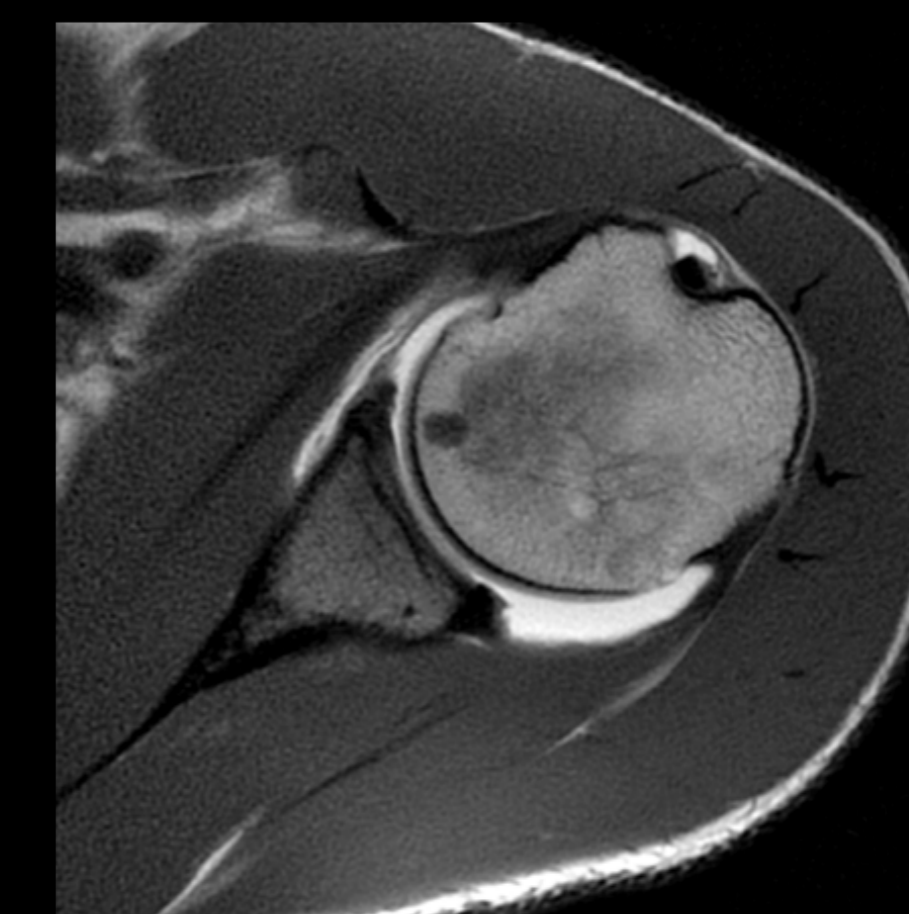
## Procedure

During a shoulder MR arthrogram exam, T1-weighted PROPELLER MB was used due to its motion insensitivity. Total exam time was 25 minutes, with 20 minutes of scan time.

## MR findings

MR arthrogram revealed low-grade articular surface partial tear of the supraspinatus critical zone. Peripheral linear low signal may relate to small displaced labral tear. Minimal acromioclavicular joint hypertrophy, 4 mm round low signal focus within the acromion.

Axial T1



Sagittal T2



Coronal T1 FatSat



Coronal T2



Gd-based contrast agents are not approved for intra-articular administration in the United States and are considered off-label use.

## OrthoWorks

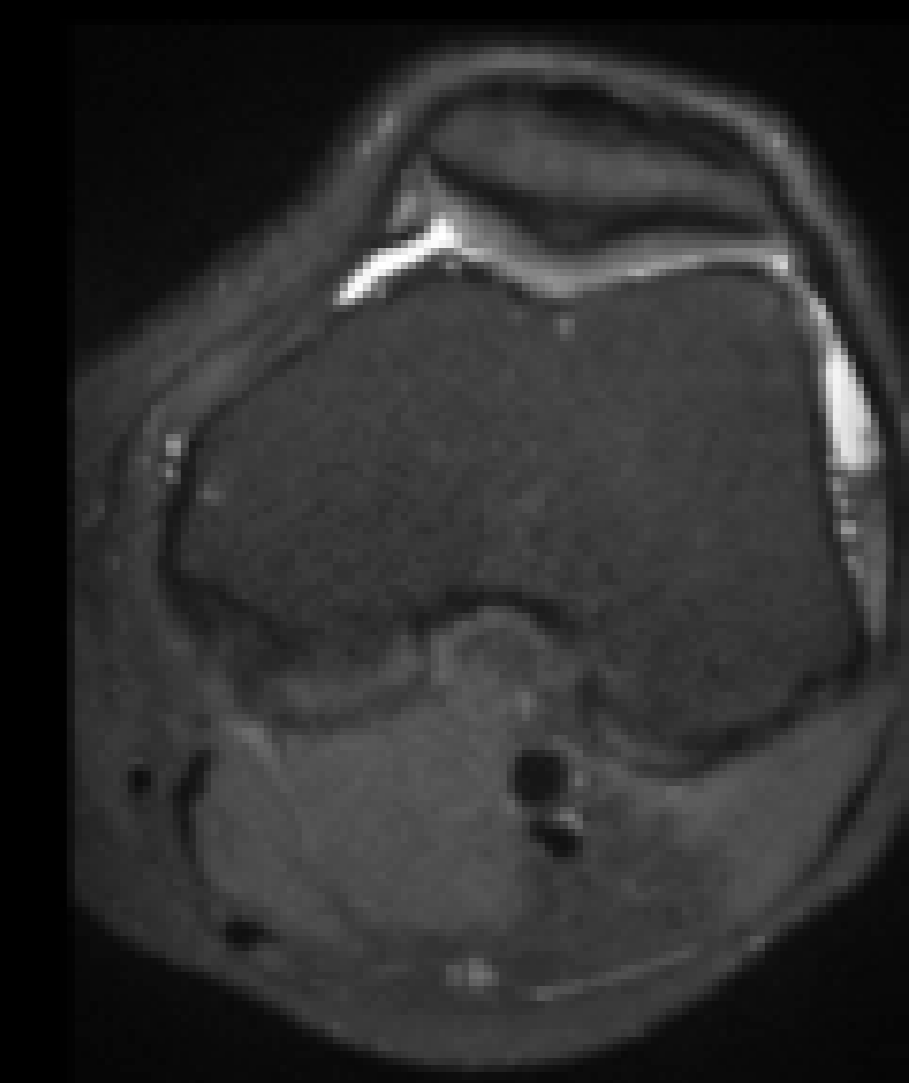
# Cube

Cube is our 3D volumetric imaging technique that can easily be reformatted into any plane. The SNR-rich sub-millimeter slices can reduce partial volume averaging effect which helps to visualize even small and subtle abnormalities.

**Clinical benefits:**

- Scan once, then reformat to any plane with high sub-millimeter resolution
- Combines with ARC acceleration to reduce scan times
- Spatial anatomical localization for abnormalities
- Higher slice resolution compared to 2D imaging
- Can decrease flow artifacts

Cube PD FatSat





## OrthoWorks

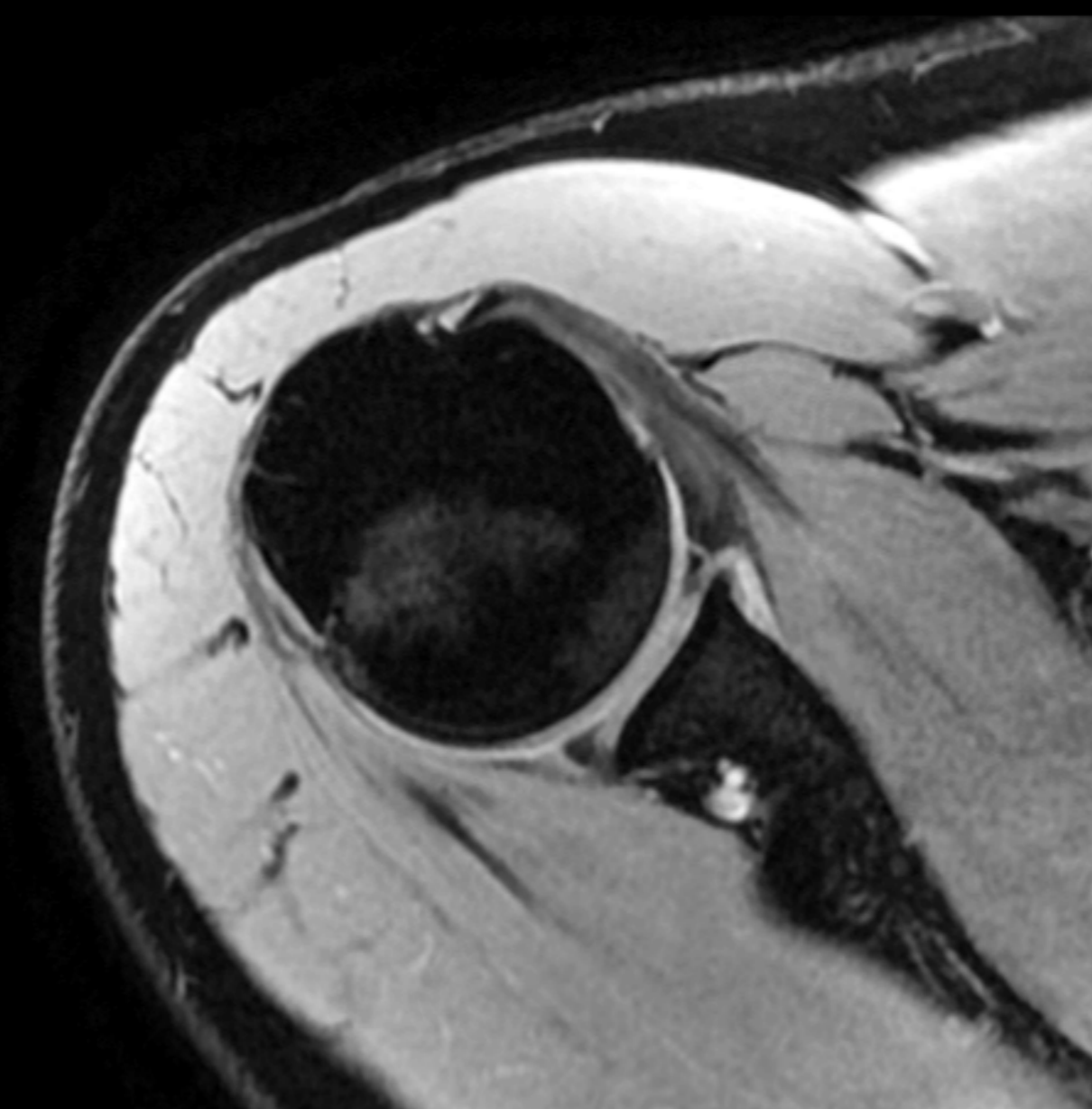
## MERGE

Multi-Echo Recalled Gradient Echo (MERGE) uses multiple TE's to generate superior contrast and visualization of the different layers of cartilage in MSK imaging and better definition of gray/white matter in the spine. It can be acquired in 2D or in 3D with excellent spatial resolution, includes water excitation for elimination of fat, and maintains ligament visualization while adding soft tissue contrast.

**Clinical benefits:**

- Distinguishes femoral and acetabular cartilage in the hip
- Helps visualize scaphoid fractures and delineation of ligaments in the wrist

MERGE

Axial 3D MERGE Water  
Excited

Coronal 2D MERGE



## OrthoWorks

# 2D FSE

2D FSE is a standard imaging technique that accelerates scan time based on Echo Train Length. It also produces sharp and crisp images with familiar contrasts, including PD, T1, T2 and STIR weightings. ARC and ASSET can be used to further accelerate scan times.

**Clinical benefits:**

- Fast, high-resolution images with sharp edge detail
- Compatible with Flex for areas that are difficult to FatSat, such as ankles, toes and fingers

Sagittal T2 FatSat



T1 FSE Sagittal reformat



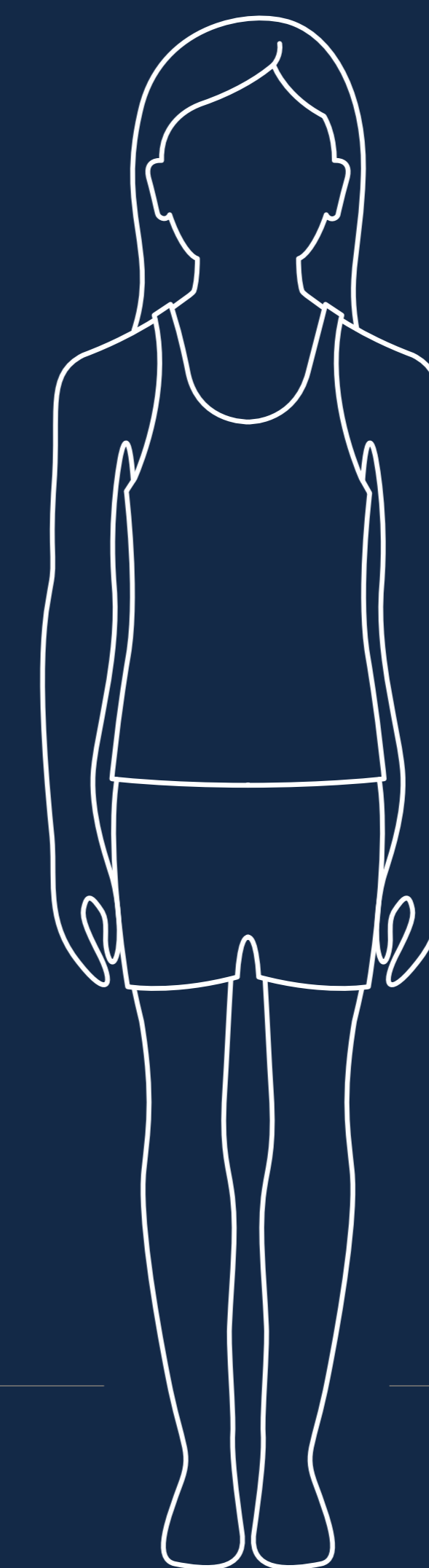
Sagittal FSE PD



# PaedWorks

## Standard Applications

PaedWorks offers specialized protocols specifically designed to meet the needs of your smallest, most fragile patients. These child-centric imaging techniques provide ease of use for technologists and clinical excellence for clinicians.



Proportion of MR sites that perform pediatric procedures:

# 86%

Source: MV 2016 MR Market Outlook

## PaedWorks

# PROPELLER

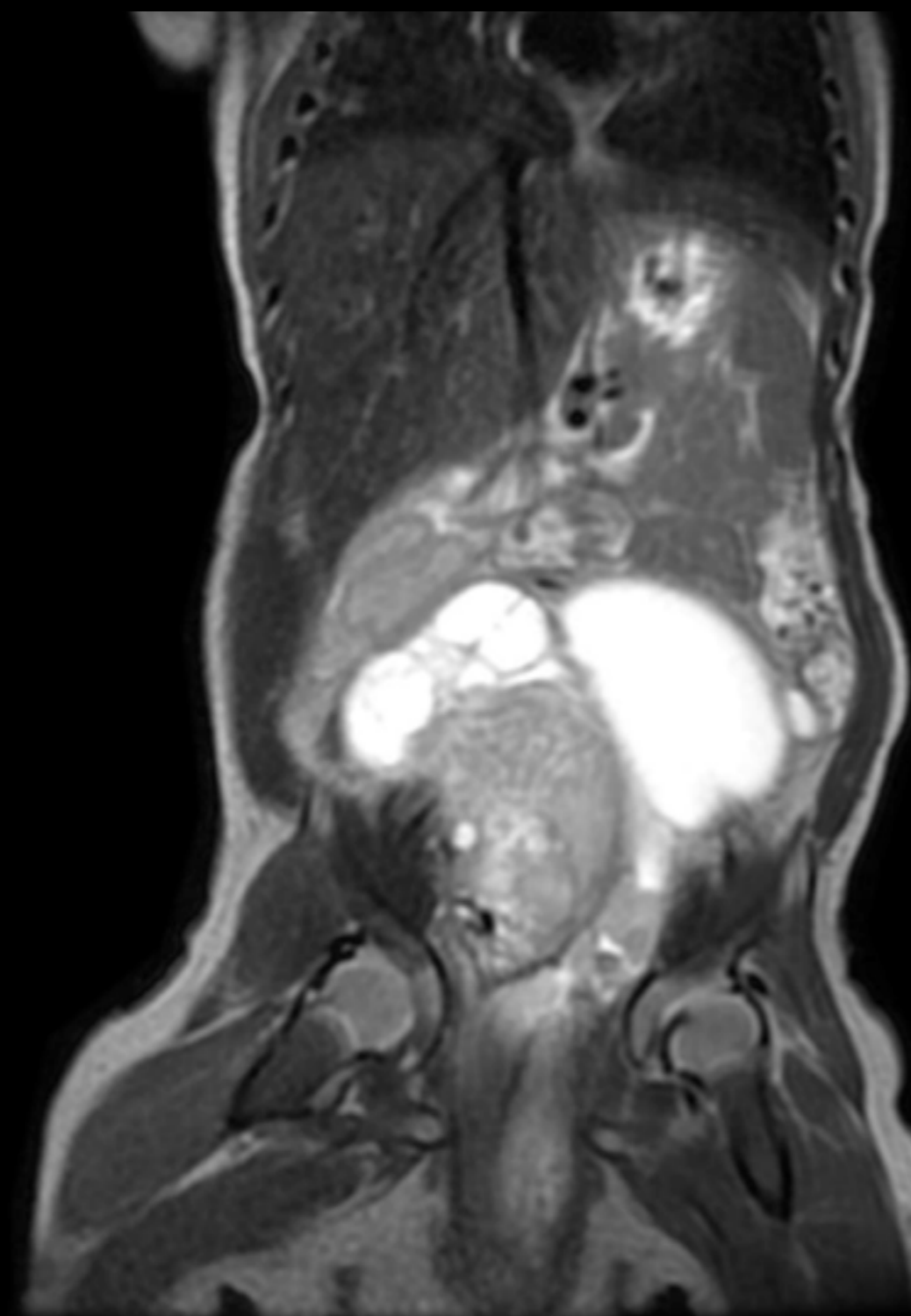
PROPELLER Multi-Blade (MB) is a multi-shot approach that preserves tissue contrast regardless of weighting while also reducing motion artifacts and providing a more signal-rich image. Additionally, this technique allows for all contrasts for 2D FSE: T1, T2, STIR and PD weightings.

**Clinical benefits:**

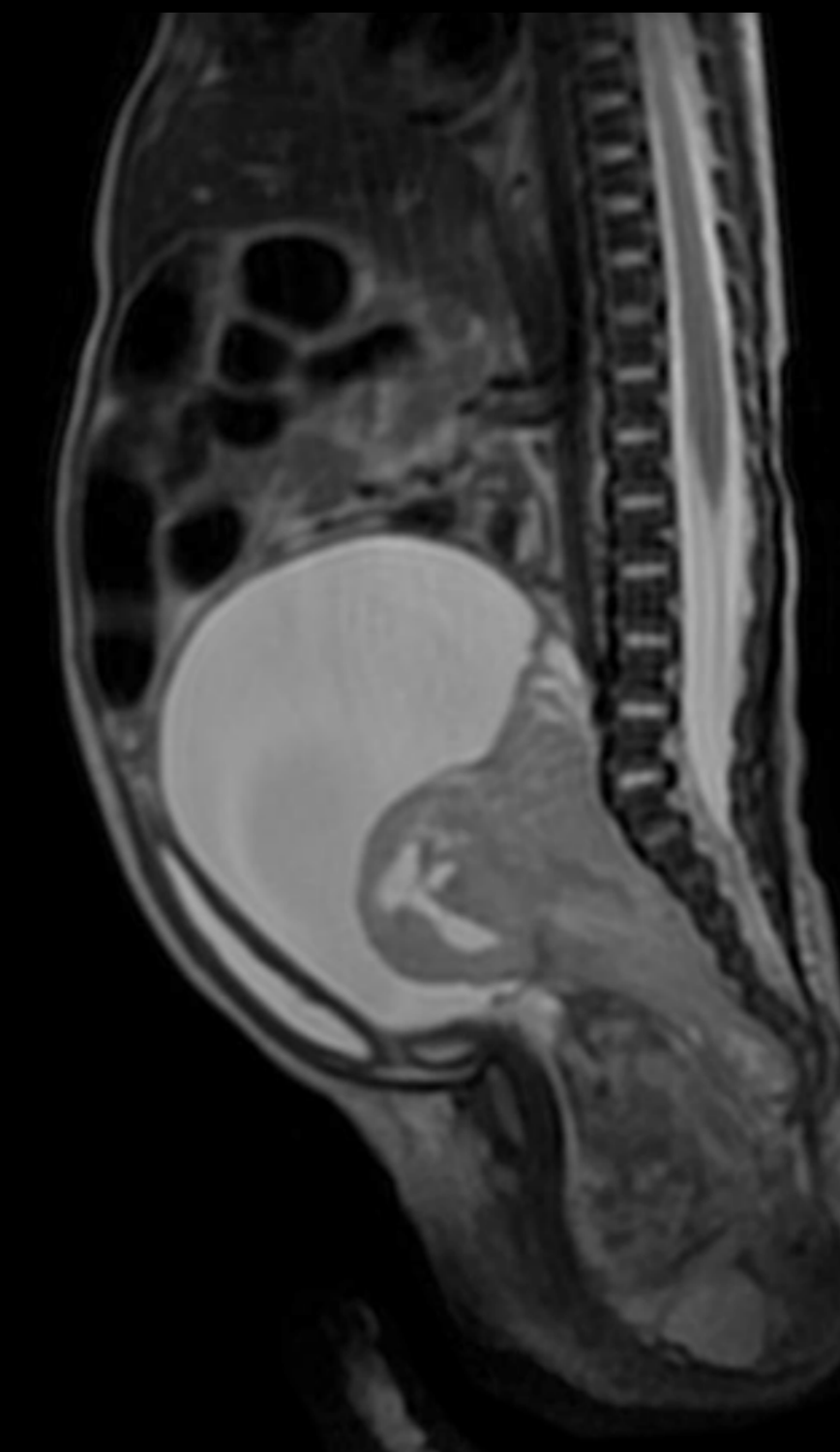
- Delivers diagnostic images with reduced motion-artifacts for voluntary and involuntary patient motion (respiration and peristalsis)
- Increases productivity and decreases the number of repeated scans
- Enables sedation-free scanning and increases patient tolerance

9-day-old, 3.5 kg, non-sedate, free-breathing exam with 16-channel Large Flex Coil

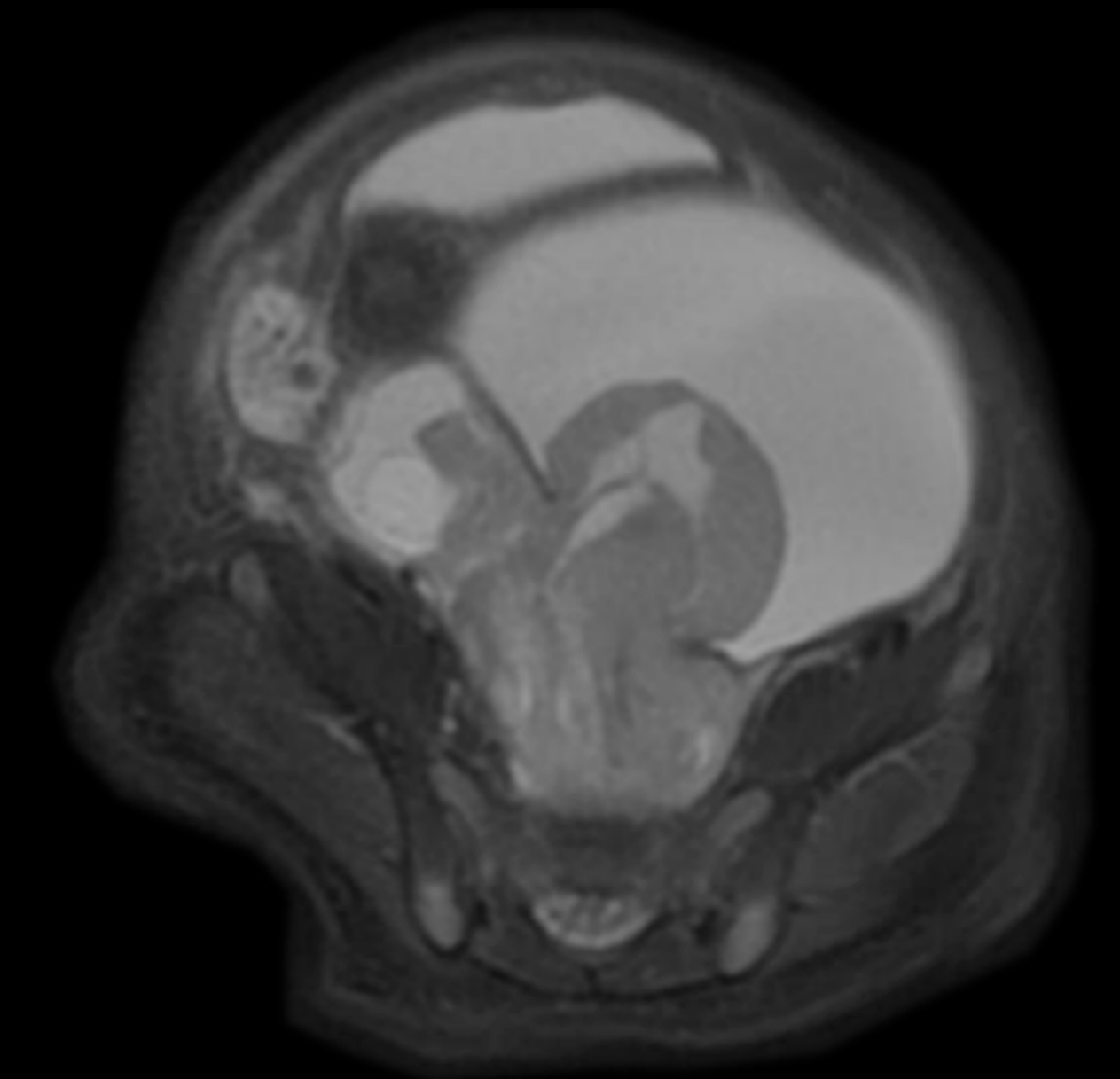
Coronal T2 frFSE, Auto Navigator  
FOV 20 cm



Sagittal T2 PROPELLER with  
Auto Navigator, FOV 20 cm



Axial T2 PROPELLER,  
FOV 20 cm



## PaedWorks

# Case Study: Assessing a retroperitoneal tumor with PROPELLER

### Clinical solutions

System: Optima™ MR450w GEM

### Protocols used

Coronal and Sagittal T2 PROPELLER, Axial T2 FatSat, Axial T2 PROPELLER, eDWI free-breathing LAVA Flex

### Patient history

A 9-year-old child presented with a suspected retroperitoneal tumor.

### Procedure

A combination of PROPELLER sequences, respiratory triggering and Auto Navigator enabled the clinician to perform a Navigated, full free-breathing exam that resulted in sharp images with minimal respiratory ghosting artifacts.

### MR findings

Physician diagnosis determined a retroperitoneal tumor, which was most likely ganglioglioma.

Coronal and Sagittal T2 PROPELLER



## PaedWorks

# Cube

Cube is our 3D volumetric imaging technique that can easily be reformatted into any plane. The SNR-rich, sub-millimeter slices can provide partial volume averaging effect which helps to visualize even small and subtle abnormalities.

### Clinical benefits:

- Scan once, then reformat to any plane with high sub-millimeter resolution
- Combines with ARC acceleration to reduce scan times
- Can decrease flow artifacts
- Spatial anatomical localization for abnormalities
- Higher slice resolution compared to 2D imaging

Free-breathing Cube



## PaedWorks

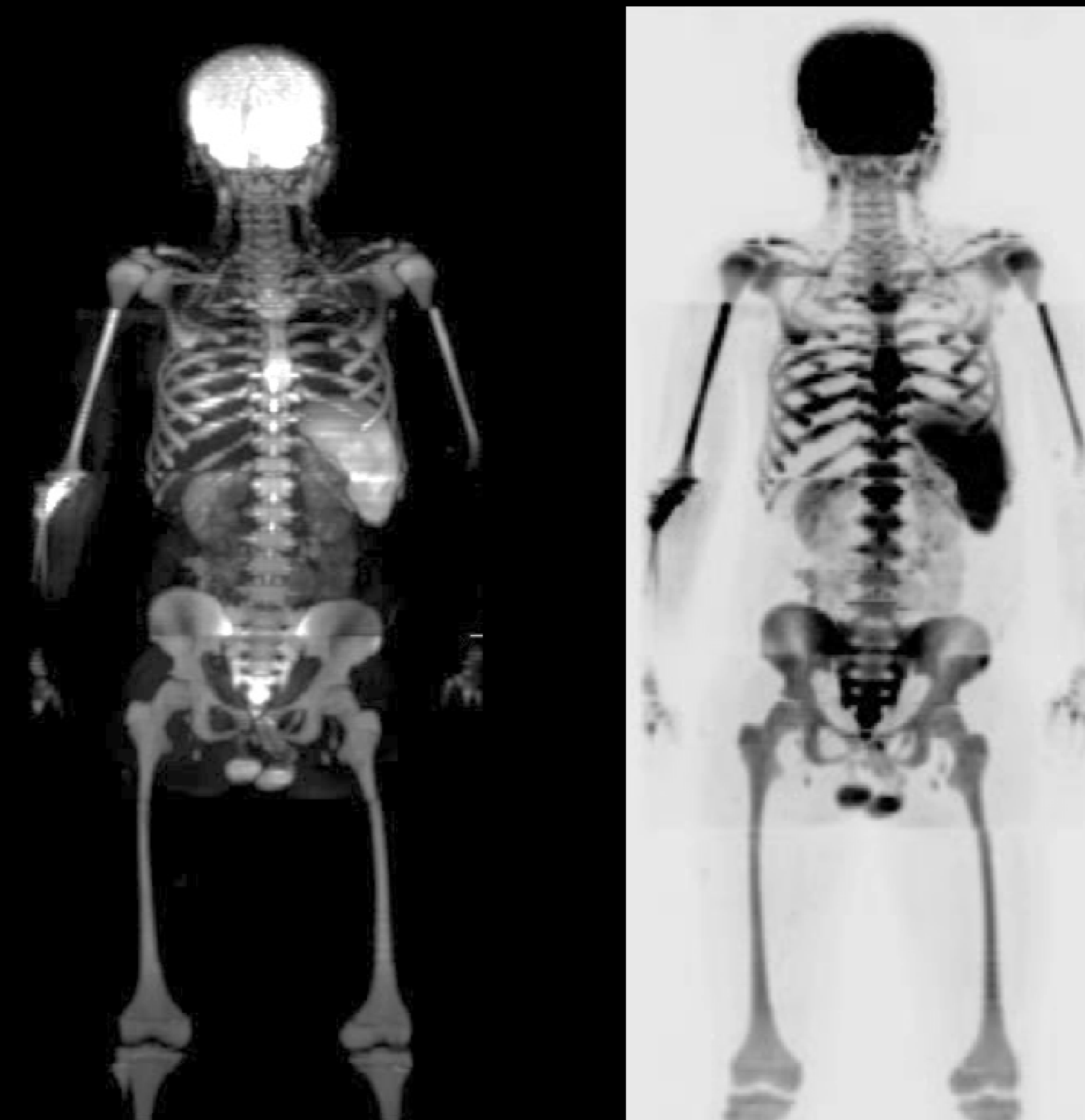
# eDWI

Diffusion-weighted imaging (DWI) is used to image diffusivity of water molecules (Brownian motion). This enhanced Diffusion-weighted imaging (eDWI) technique is designed to provide high signal-to-noise-ratio (SNR) diffusion images, with short-acquisition time and shortest possible Echo Time (TE). Its multi-b feature is designed to provide measurement of apparent diffusion coefficient (ADC) map with reduced effect of perfusion.

### Clinical benefits:

- Helps to improve patient tolerance with shortened breath-hold time or free-breathing Auto Navigator
- Decreases overall exam sequences and time

Coronal multi-planar reformat,  
acquired at b800



## PaedWorks

# BRAVO

A neuro imaging solution that produces excellent T1-weighted contrast between gray and white matter in a fast, high-resolution 3D acquisition.

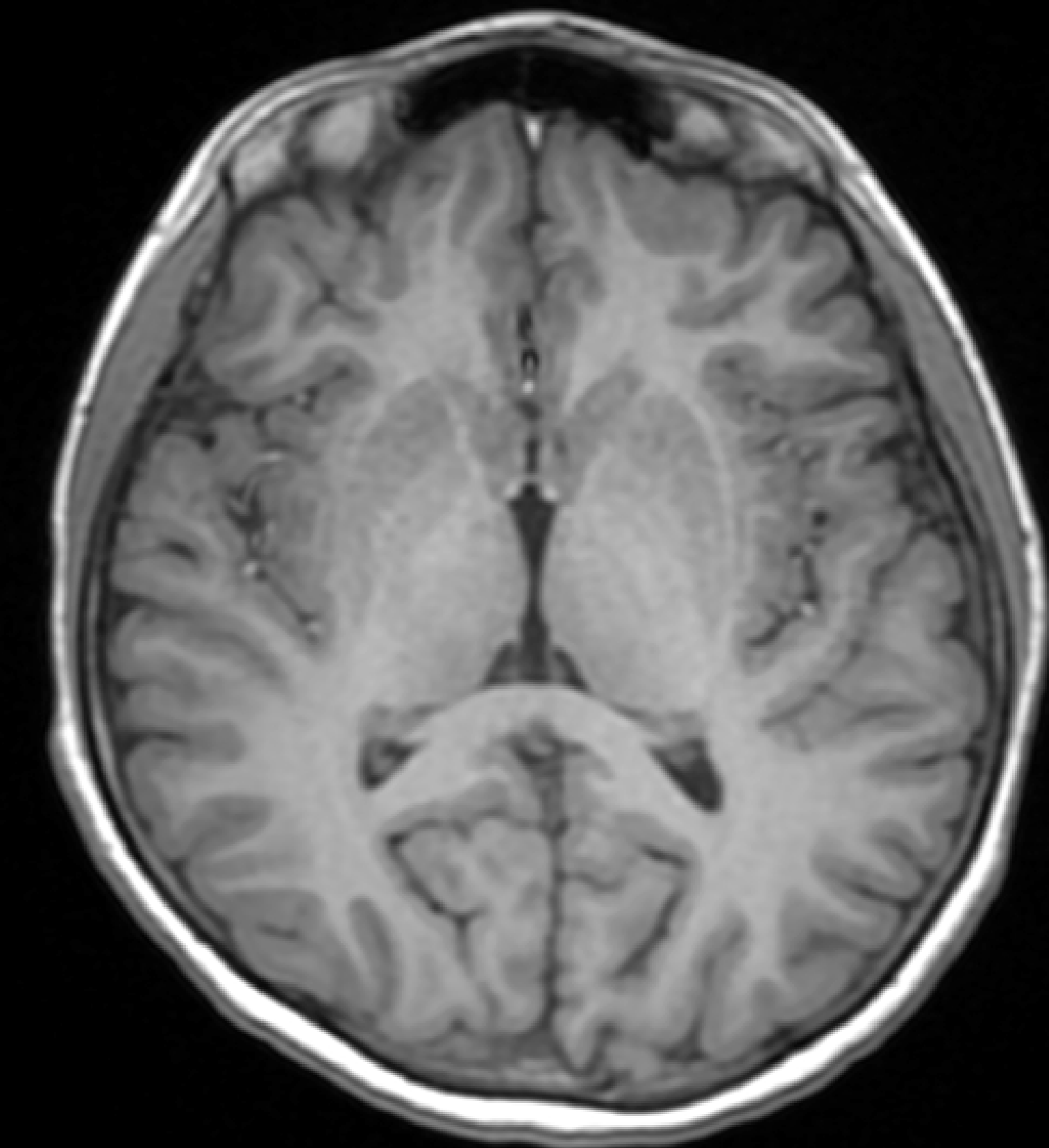
**Clinical benefits:**

- Higher slice resolution compared to 2D imaging
- Scan once, then reformat to any plane with high sub-millimeter resolution
- Spatial anatomical localization for abnormalities
- Combines with ARC acceleration to reduce scan times

Sagittal BRAVO



Axial BRAVO







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