

**Canon**



***Vantage Elan***

**NX Edition**

Fast. Efficient. Compact.

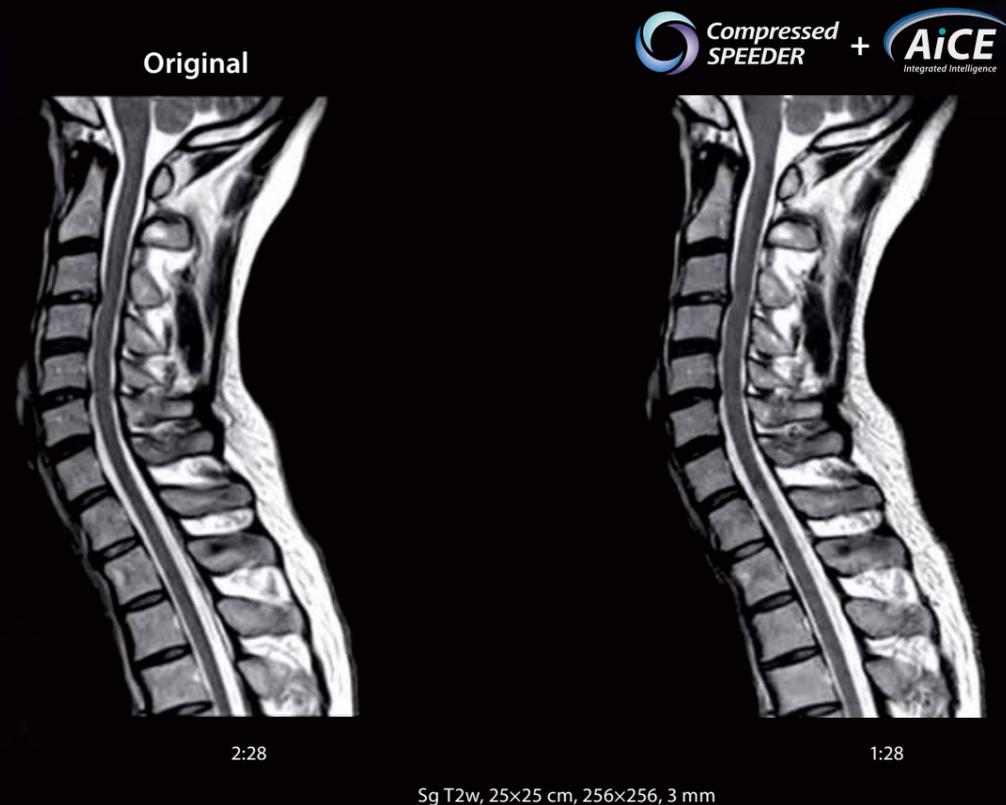
**Vantage Elan / NX Edition delivers next generation MRI.**

New available with Advanced intelligent Clear-IQ Engine (AiCE) and compressed sensing scan acceleration technology inherited from our high-end MRI scanners, Vantage Elan delivers operational and clinical freedom on every front.

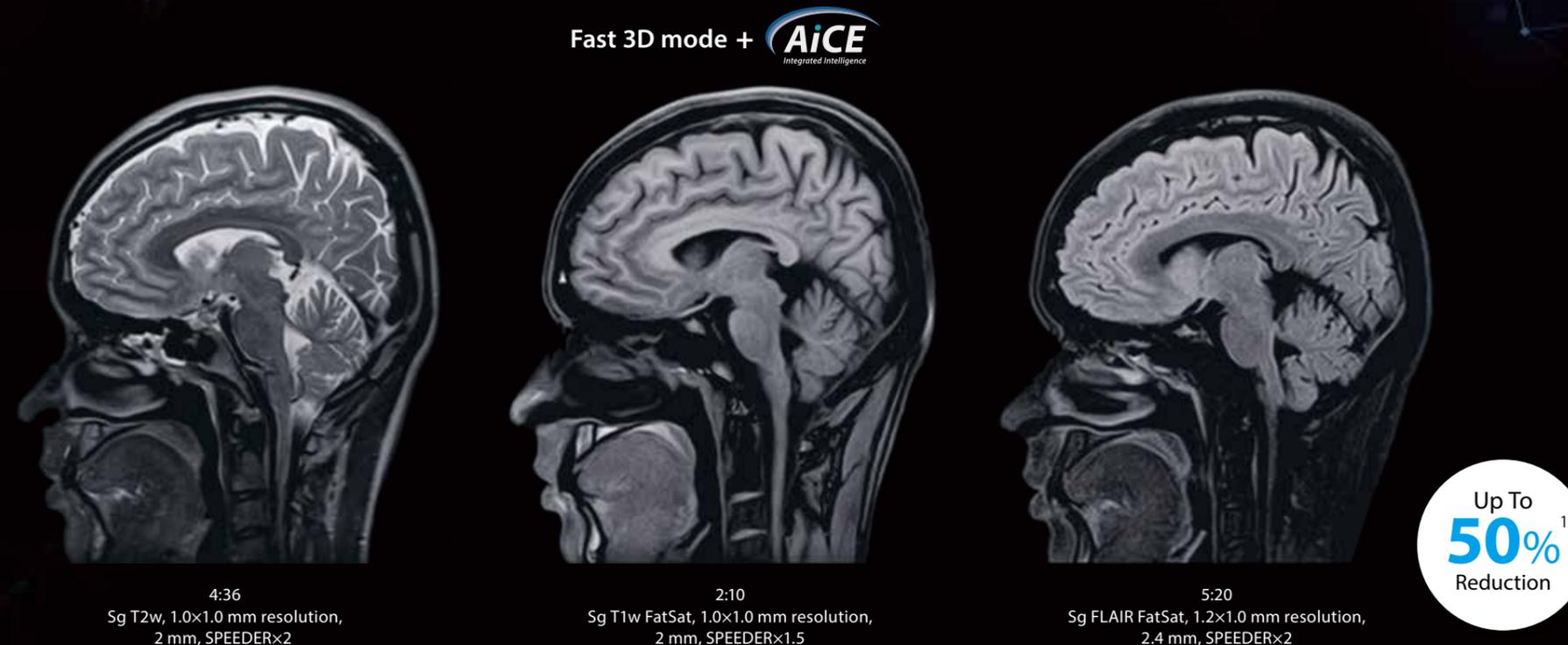


# Accelerated scanning combined with AI to restore SNR – the perfect solution

Fast scanning techniques like Compressed SPEEDER and Fast 3D mode are essential to increase throughput but can be at the expense of SNR. Canon's AI boosted Advanced intelligent Clear-IQ Engine (AiCE) solves that problem by removing noise from images and restoring SNR.



Example above shows how accelerating scan time with Compressed SPEEDER and removing noise with AiCE delivers a fast and distinct imaging result.



Example above shows how accelerating scan with Fast 3D mode and removing noise with AiCE delivers a fast and distinct imaging result.

<sup>1</sup> As compared to standard FASE3D sequence.

# Vantage Elan now delivers fast scanning to the compact MRI suite

With the advantage of Vantage Elan's high image quality, now you can add fast scanning techniques to increase throughput. With our range of intelligent rapid scan technology, including compressed sensing and parallel imaging, procedures move faster meaning patients spend less time on the table.

## Compressed SPEEDER



Compressed SPEEDER is a new imaging technique that can accelerate scan times across the whole body. This unique imaging approach enables high-speed imaging up to four times compared to current scan speeds while maintaining excellent image performance.



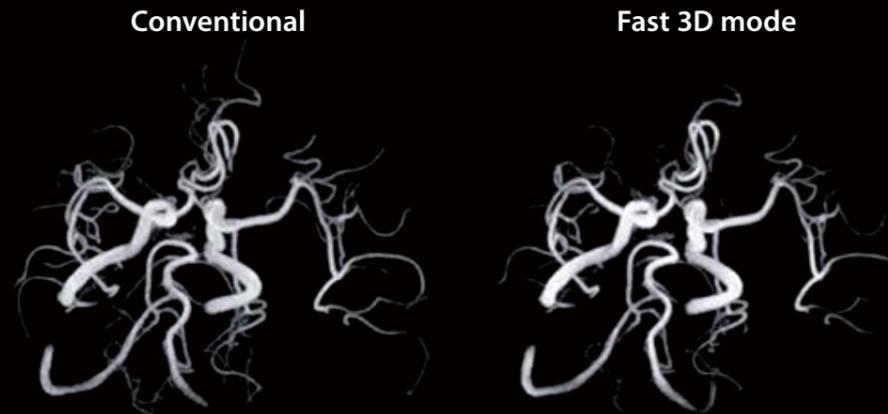
1:40  
Co PDw FatSat, CSx3

16x16 cm, 320x320, 3 mm

1:22  
Sg PDw, CSx2

## Fast 3D mode for TOF

You can now apply Fast 3D mode to TOF contrast MRA procedures with the ability to reduce scan times by up to 50%<sup>2</sup>, while maintaining excellent image consistency.



7:09

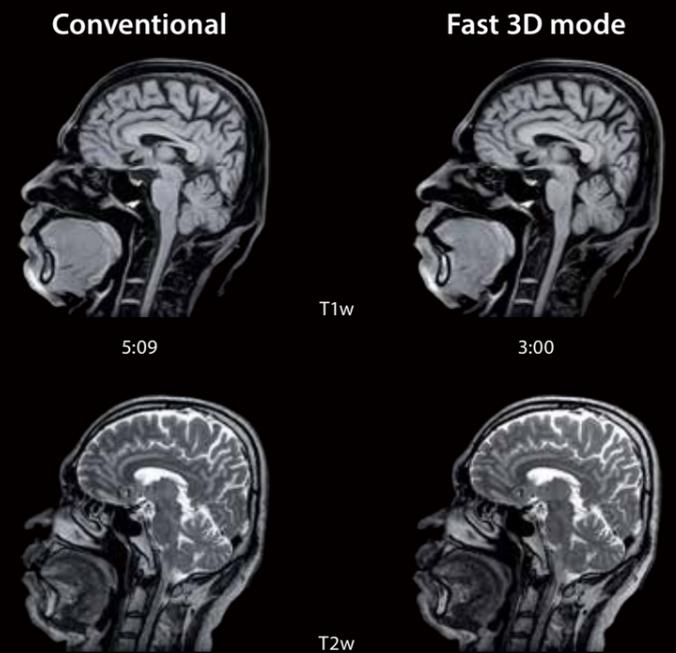
3D TOF 20x20 cm, 240x288, 1 mm

3:09

<sup>2</sup> As compared to standard 3D TOF sequence.

## Fast 3D mode for mVox

Fast 3D mode reduces scan times up to 50%<sup>3</sup> for different contrast weighted images while maintaining homogeneity and fat suppression.



5:09

T1w

3:00

7:21

T2w

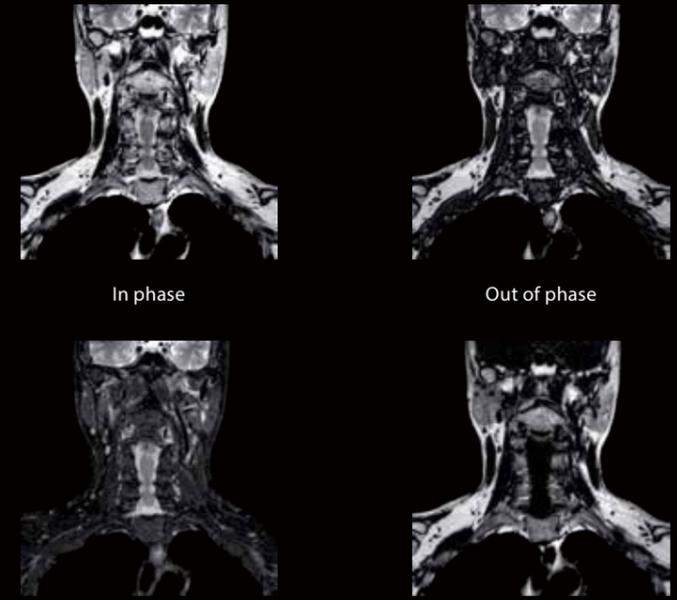
3:41

3D Sg, 25x25 cm, 240x240, 2 mm

<sup>3</sup> As compared to standard FASE3D sequence.

## Water Fat Separation (WFS)

WFS achieves consistent fat suppression and homogeneity while acquiring four different tissue contrasts in one scan, reducing the total number of scans you need to acquire. Available for T1, T2, and PD sequences, WFS can be acquired in any area of the body.



In phase

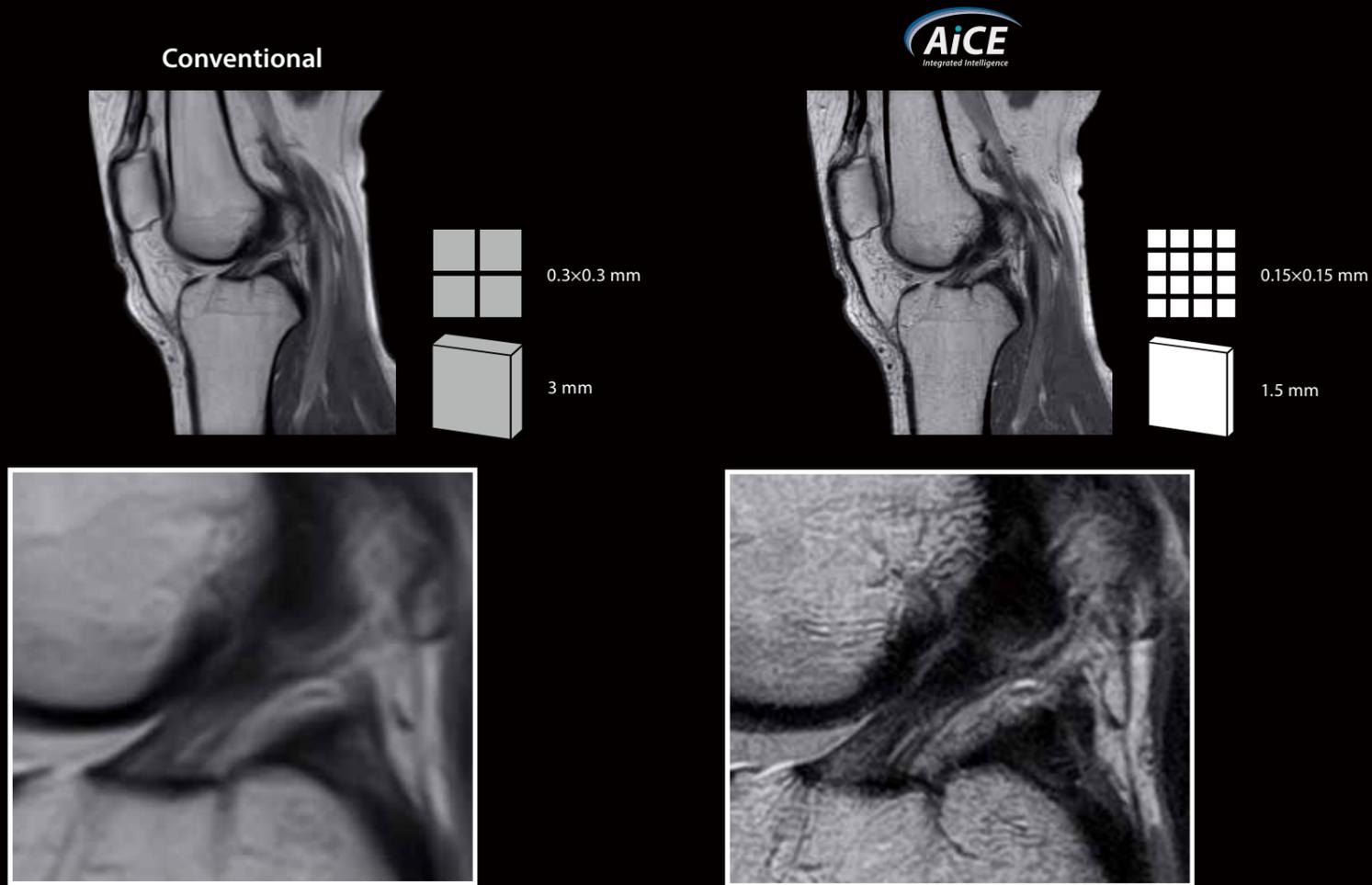
Out of phase

Water

Fat

Co T2w, 26x26 cm, 288x288, 3 mm, 3:04

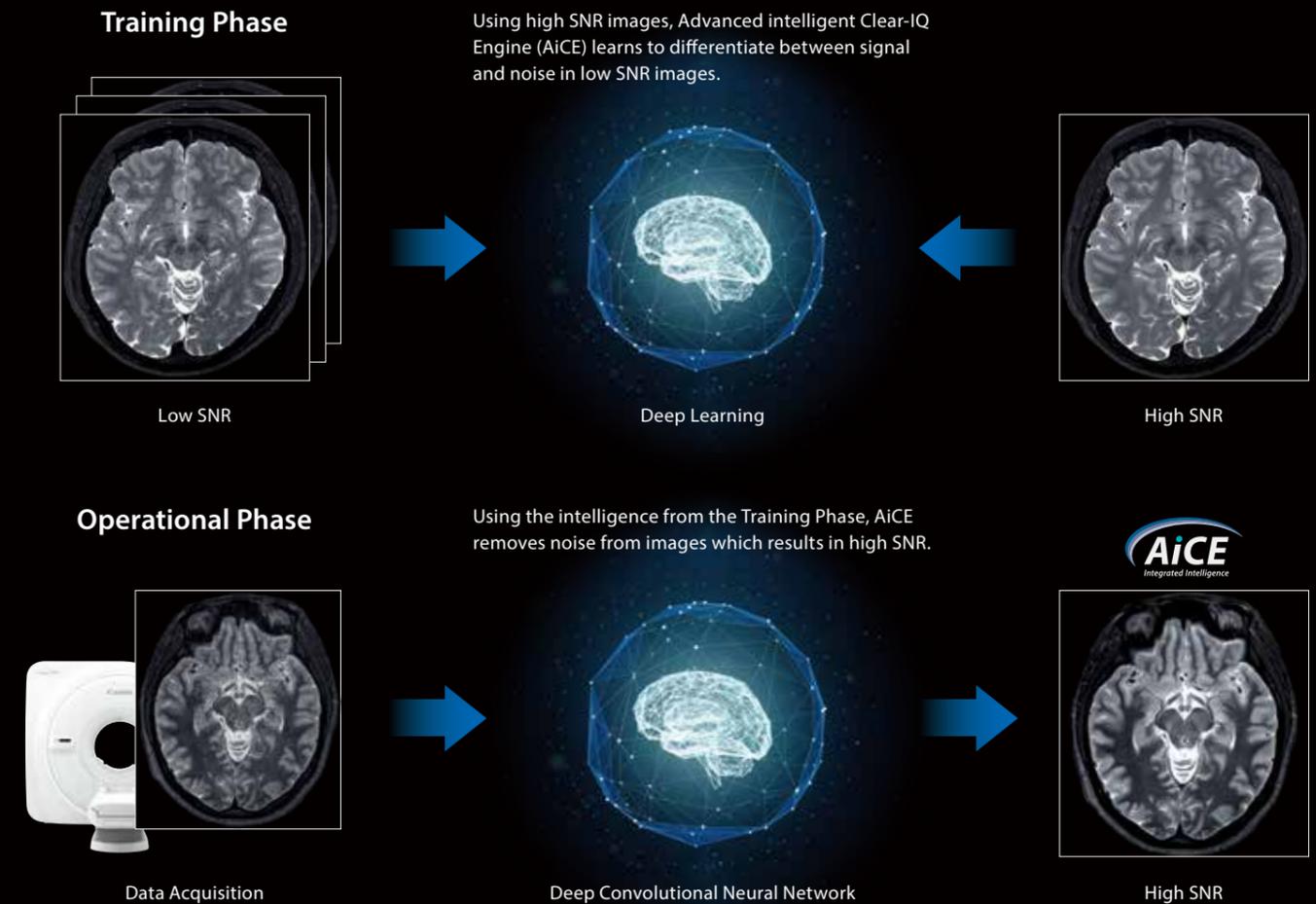
# Achieve the perfect balance between resolution and speed utilizing Deep Learning Reconstruction



Increase resolution in the clinical setting by 8 times without increasing the scan time.

# See through the noise. This is intelligence.

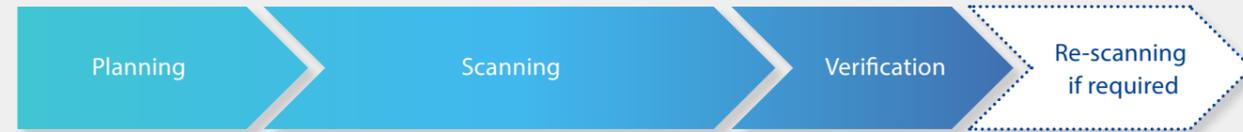
Advanced intelligent Clear-IQ Engine (AiCE) is the world's first Deep Learning Reconstruction technology for MRI. Producing stunning MR images that are exceptionally detailed. Harnessing the enormous computational power of a Deep Convolutional Neural Network (DCNN), AiCE is trained to restore low SNR MR data to match the properties of high SNR images.



# Enhanced scan planning with ForeSee View

ForeSee View is an essential new scan planning tool designed to allow you to preview your slice planning in real time. This tool is particularly useful in anatomies that can be difficult to plan such as the pancreas, the heart, and certain orthopedic joints. This excellent new feature reduces the need for re-scanning and saves time on scan planning for all body regions.

## Normal



## ForeSee View



The desired cross section is displayed in real time in conjunction with the positioning operation.



# EasyTech

With the complexity of scan planning, achieving scan plane reproducibility can be challenging and time-consuming. EasyTech technology takes away the variability and helps you improve workflow with automatic slice alignment for neuro, spine, knees and cardiac standardizing your workflow with automatic positioning.

## NeuroLine+

Achieve outstanding scan consistency for all your brain exams with NeuroLine+. The function's alignment algorithm allows you to automatically set up according to AC-PC or OM line.



*"Using this technique allows us to carry out a real follow-up on patients with multiple sclerosis and brain tumors. The reproducibility of the scan planes allows us to compare both the number of macrophages and their size. Measurements can also be replicated in the case of brain tumor treatment, and we can judge the effectiveness of the treatment. Today, 97% of exams for MS and tumors are carried out using this technique."*  
 Marie Dominique BOESPFLUG, Radiologist and Doctor, GIE VAR OUEST, Ollioules

## SUREVOI Knee and KneeLine+

SUREVOI Knee supports the accurate alignment of the knee to the iso-center which reduces artifact related re-scans. KneeLine+ improves reproducibility and image quality.



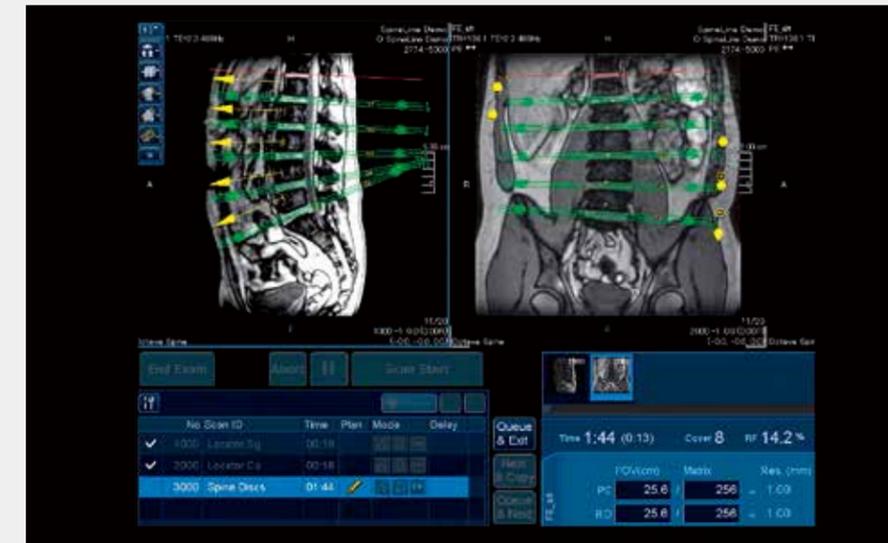
*"After 2 or 3 days of adaptation, the team has the utmost confidence in the AI automatic positioning techniques, which allow them to concentrate on other, more rewarding tasks, such as post-processing tasks. Exam time is optimized and no time is wasted. Today, 85% of knee exams are performed using this technique."*  
 Frédéric MARTIN, Referring MRI technician, GIE VAR OUEST, Ollioules

*"Vantage Elan has delivered excellent consistency for our routine imaging procedures, improving confidence for staff and image readers. The range of EasyTech procedures has reduced workflow due to the automated technology, which in turn improves image consistency."*

*Dr. Xavier Alomar, Clinica Creu Blanca, Spain*

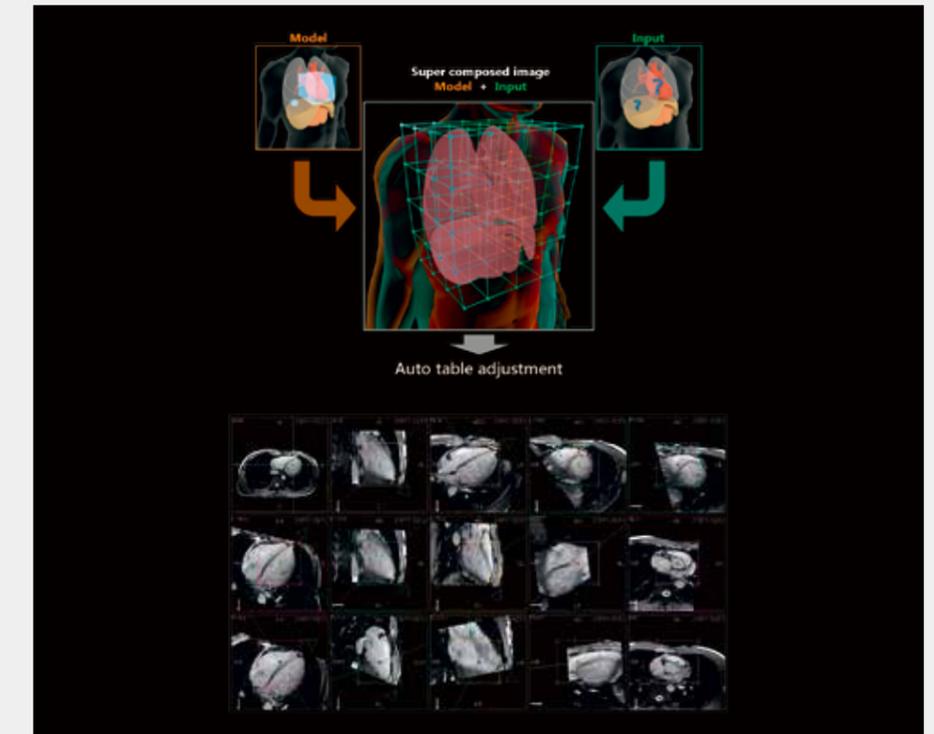
## SpineLine+

With its auto-locator functionality, SpineLine+ allows you to plan spine studies quickly and easily. Sagittal and coronal locators allow you to set double-oblique slices, enhancing the reproducibility of follow-up exams.



## SUREVOI Cardiac and CardioLine+

SUREVOI Cardiac and CardioLine+ improve reproducibility and image quality by supporting the alignment and centering of the heart to the magnet isocenter and the positioning of the exam's standard planes automatically.



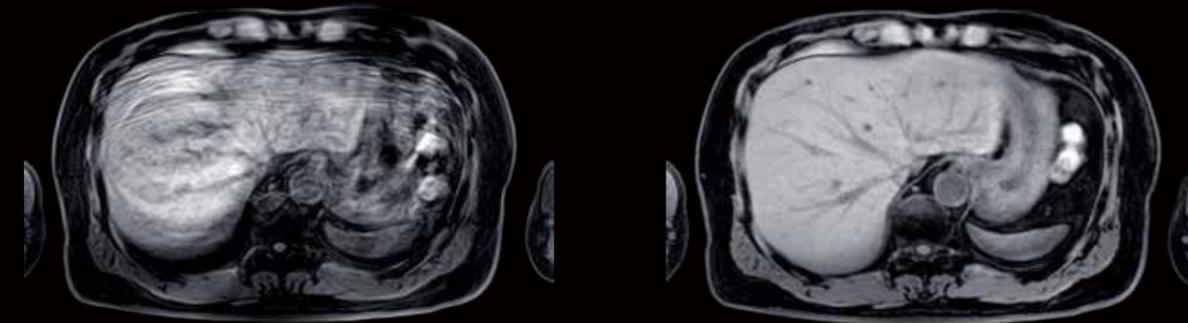
## Redefine efficient MR imaging

You will be amazed by the total package of efficiencies Vantage Elan offers to your MRI procedures every day.



## Quick Star

Quick Star free breathing and motion reduction is especially useful in liver examinations and can be helpful for challenging patients that have difficulty holding their breath like older patients and young children.



Free breathing without Quick Star

Free breathing with Quick Star

## Non-contrast MRA

An increasing awareness of the potential risks associated with gadolinium-based contrast agents has revealed the need for alternative, contrast-free MRA techniques. Non-Contrast MRA sequences minimize risk to patients with sensitivity to contrast while producing exceptional diagnostic images.



SSFP, 1.5x1.2 mm resolution, 3 mm, 5:41, MIP

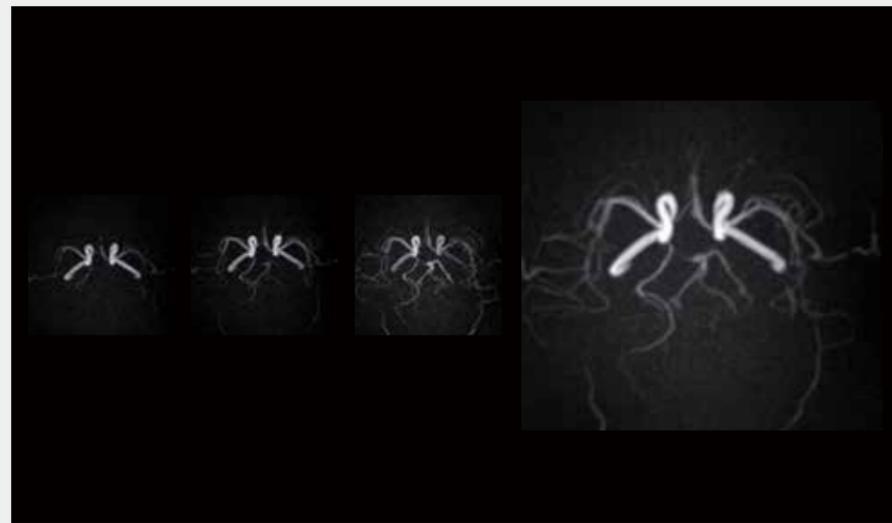
SSFP, 1.5x1.2 mm resolution, 3 mm, 2:51, MIP

## A complete clinical solution for you and your patients

Vantage Elan offers a wide range of diagnostic solutions through many high-end applications such as UTE.

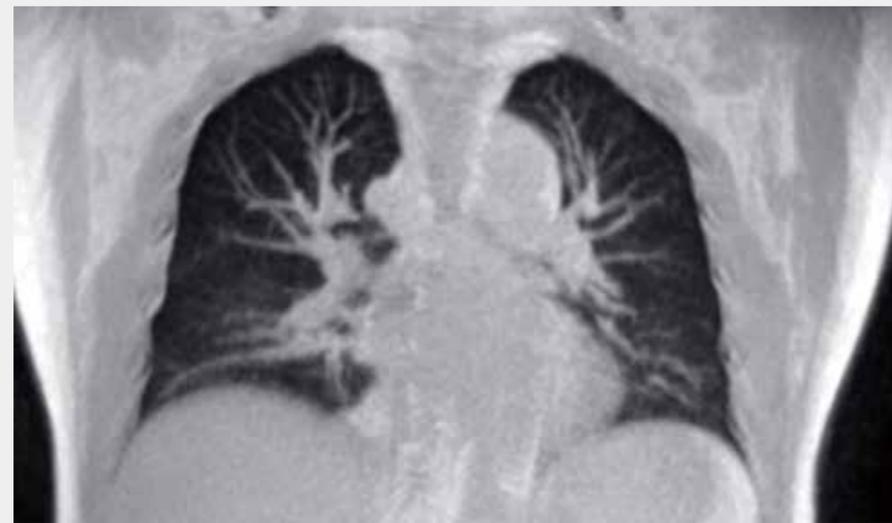
### Capturing hemodynamics with mUTE<sup>4</sup> 4D-MRA

Vantage Elan's UTE sequences allow for less dephasing and more homogeneous vessel signals. At the same time, the multiple TI (4D) generates dynamic images visualizing the blood flow without the need for contrast agents.



### Ultrashort TE (UTE) imaging

Allows clinicians to capture images in tissues that generally disappear too quickly for accurate MR imaging. This enables imaging of anatomy such as the lungs, helping providers obtain information to diagnose and treat their patients.



Co UTE 1.1x1.1 mm resolution, 2.0 mm, MIP



4 mUTE : minimized acoustic noise utilizing UTE

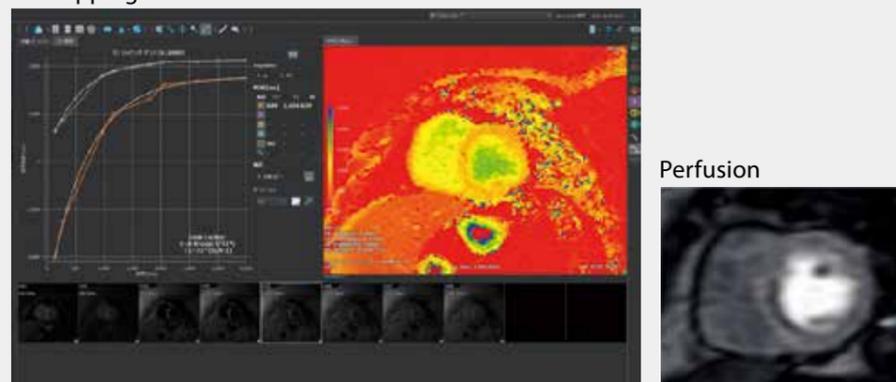
# Advanced post processing enhances diagnosis while helping to expand patient services

Access advanced applications with post processing tools.

## T1, T2, T2\* Mapping

Expand your cardiac toolset with T1, T2, T2\* mapping, allowing you to acquire a much more quantitative characterization of myocardial tissue.

### T1 Mapping



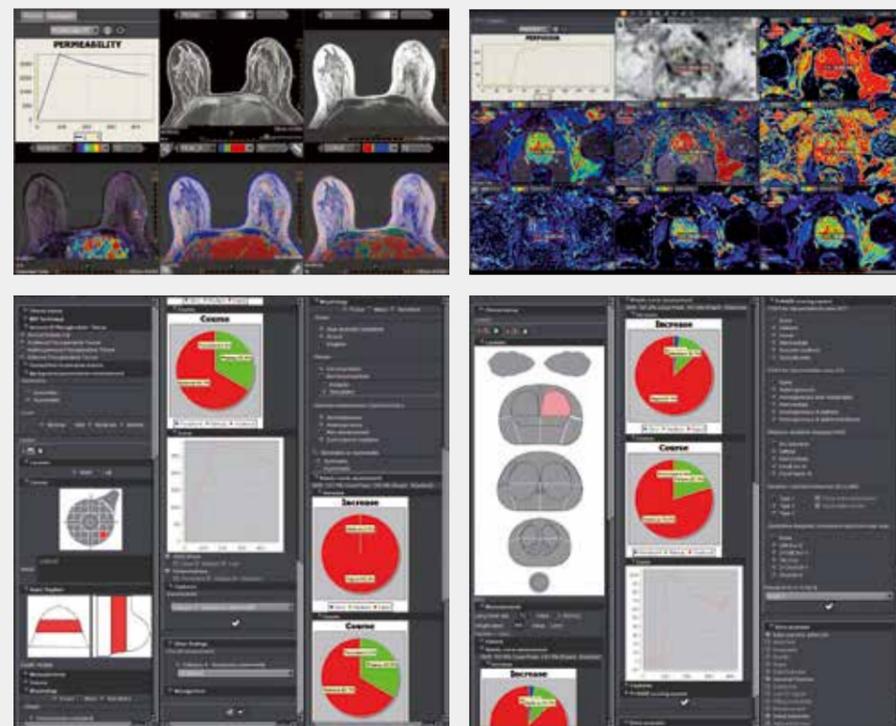
Courtesy of Dr. Nomura, Instituto do Coração, Brazil

*“ T1 Mapping allows us to identify the pathologic area without the injection of contrast. In general, a prolonged native myocardial T1 signal is encountered in various disease states that result in edema or fibrosis, and in amyloid deposition.”*

*Dr. César Nomura, Instituto do Coração, Brazil*

## Dedicated automatic reporting

Stroke, breast (BI-RADS®) and prostate (PI-RADS® v1 and v2) automatic compliant reports.



## Bayesian IVIM

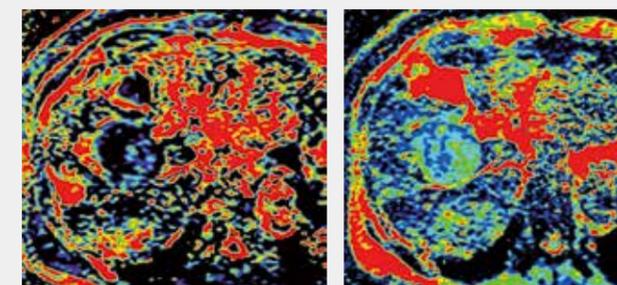
Bayesian-based method provides a rigorous probabilistic estimation of parameters. It is fully adaptive, delay-insensitive and highlighted better results than other methods.



T2w

Dynamic Arterial phase

DWI



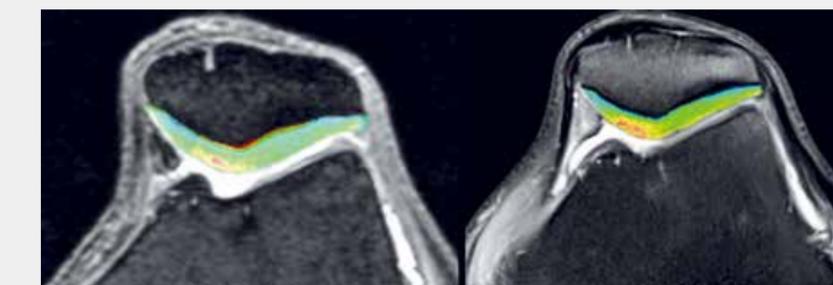
F : 0.08  
Vascular volume fraction

D : 0.79  
Molecular diffusion restriction coefficient

Courtesy of St. Marianna University School of Medicine, Japan

## Volume segmentation

Automatic or semi-automatic segmentation tools to compute volume of interests from various anatomical areas such as cartilage or brain.



Canon

## Efficient design to meet your needs

This extremely compact system meets your operational needs by reducing construction and operating costs.



## One of the smallest MR systems in its class with a compact footprint of 23m<sup>2</sup>

In addition to the reduced system size, the installation method, cooling method, and control cabinet have been innovatively redesigned. Vantage Elan does not require a separate computer room making the overall installation area approximately 29% smaller than previous 1.5T systems<sup>5</sup>.

## Efficient Design to meet your needs

Recognized for its low power consumption technology, this extremely compact system meets your operational needs by reducing construction and operating costs.

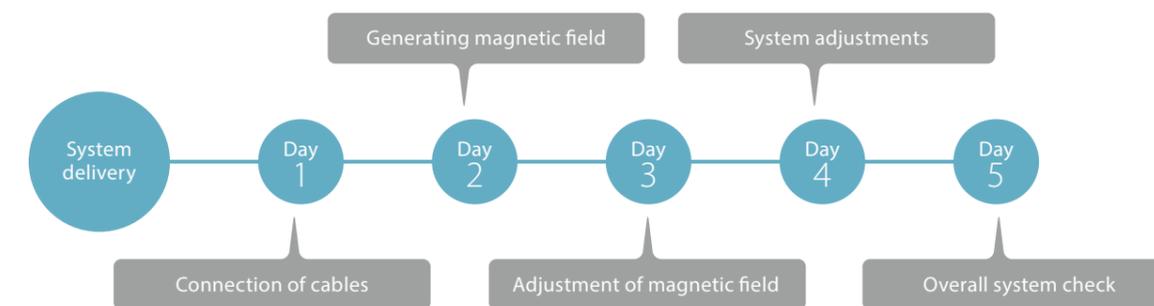


These values may change depending on chosen configurations.



## Rapid installation time – in as little as 5 days<sup>6</sup>

With a new installation, you can start using the system in as little as 5 days after delivery. Downtime in installation work can be minimized.



<sup>5</sup> Compared to Vantage Titan.

<sup>6</sup> This installation schedule is a standard schedule for the system and may vary depending on site situation and progress status of the installation.



## Reduce power consumption with ECO Mode

Vantage Elan's ECO Mode reduces power consumption to minimize system operating costs. Among other methods, the ECO Mode can be automatically activated simply by lowering the couch.



## Total power requirement of 25 kVA

Vantage Elan minimizes power consumption through optimization of the gradient system which typically consumes a high amount of electric power, integration of electronic components, and improvement of the chiller. The power capacity required for the entire system including the refrigerator is 25 kVA. This results in lower running costs..

## A quieter MR exam for every patient, every sequence, every time

In MRI examinations, the patient's cooperation is essential, and it is important to eliminate psychological discomfort and help the patient relax.

Utilizing Pianissimo Zen technology, Vantage Elan minimizes acoustic noise, one of the major complaints of patients and medical staff.

### Quieter exams with Pianissimo $\Sigma$ and Pianissimo Zen

Vantage Elan's unique Pianissimo  $\Sigma$  (sigma) technology significantly reduces the noise in and around the MRI environment for every patient, every sequence, every time. And Pianissimo Zen quiet sequences further reduce noise to just above ambient noise level, making exams even more comfortable and easier to complete.

### Quiet scanning with mUTE

The mUTE application suppresses high-speed gradient field switching, making it possible to provide quiet scanning.

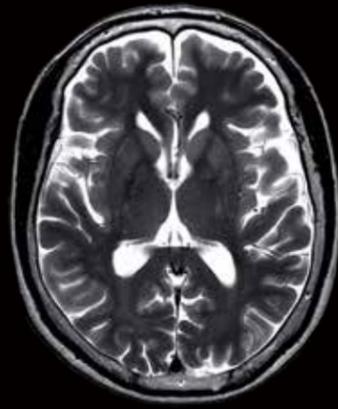


<sup>7</sup> Depending on the condition of usage and examination.

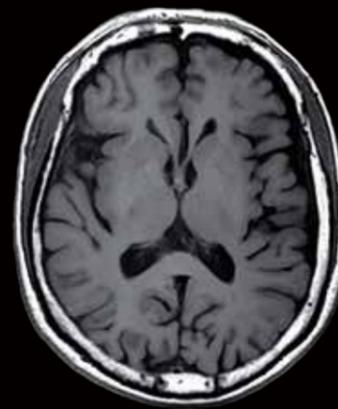
Up To  
**99%**<sup>7</sup>  
Noise  
Reduction



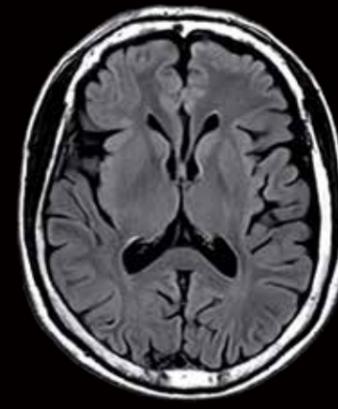
# Head



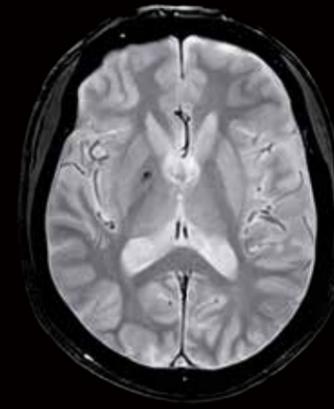
1:36  
T2w, 0.7x0.7 mm resolution, 5 mm



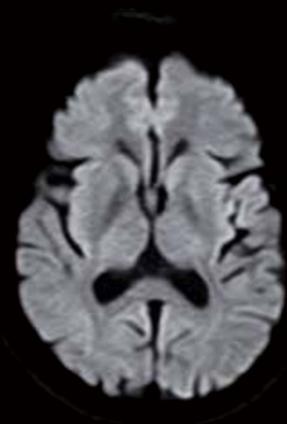
2:19  
T1w, 0.9x0.9 mm resolution, 5 mm



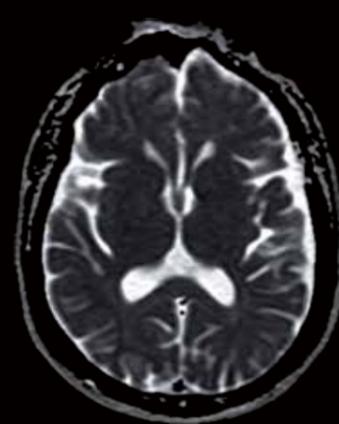
2:48  
FLAIR, 0.9x0.9 mm resolution, 5 mm



1:35  
T2\*, 1.0x1.0 mm resolution, 5 mm



0:48  
DWI/b1000, 1.4x1.4 mm resolution, 5 mm



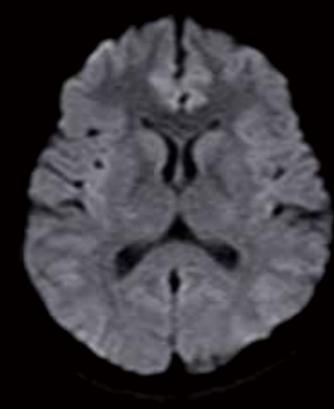
ADC map



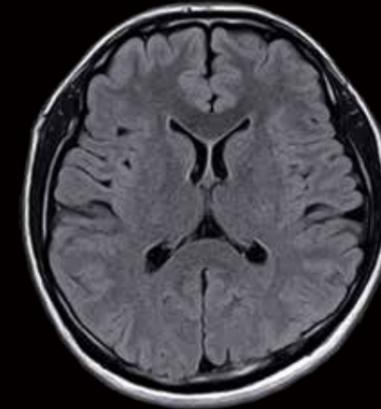
3:09  
3D TOF-MRA, 0.8x0.7 mm resolution, 1 mm, MIP

# Head

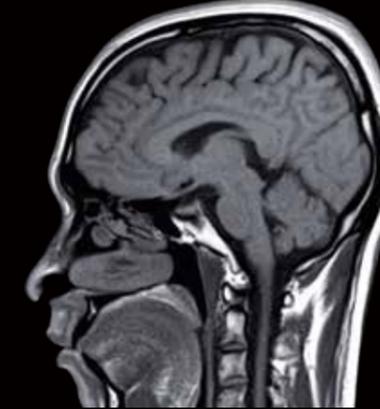
## Conventional



1:11  
Ax DWI/b1000, 1.4x1.4 mm resolution, 5 mm



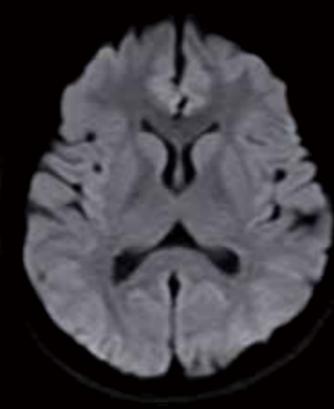
4:24  
Ax FLAIR, 0.9x0.9 mm resolution, 4 mm



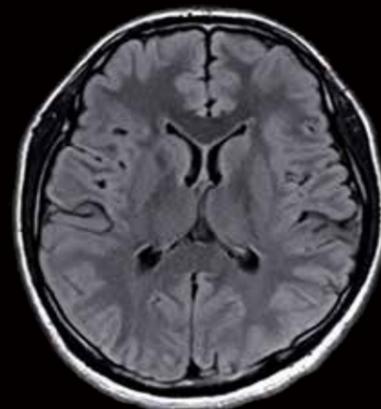
2:52  
Sg T1w, 0.9x0.8 mm resolution, 5 mm



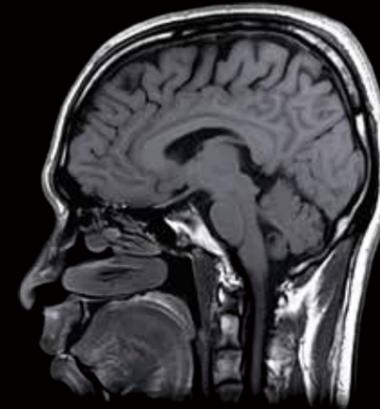
3:36  
Co T2w, 0.9x0.8 mm resolution, 4 mm



0:40  
Ax DWI/b1000, 1.4x1.4 mm resolution, 5 mm



2:48  
Ax FLAIR, 0.9x0.9 mm resolution, 4 mm, CSx2.2



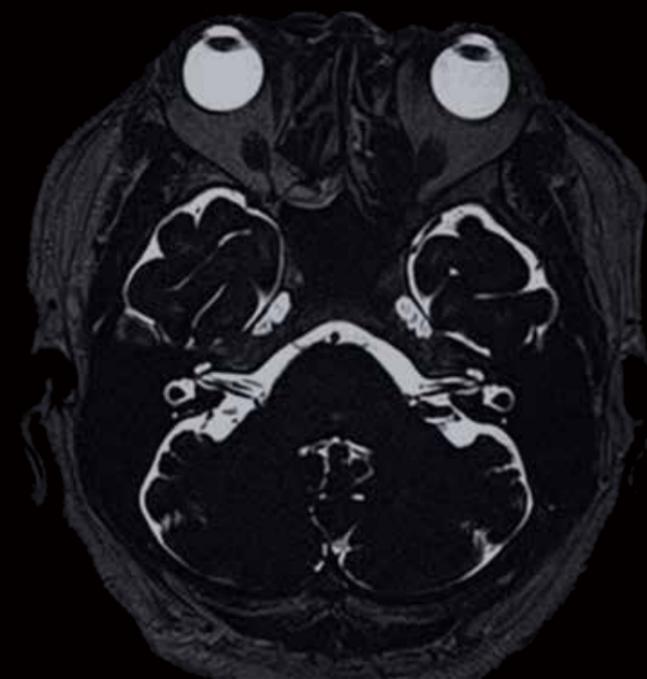
2:09  
Sg T1w, 0.9x0.9 mm resolution, 5 mm



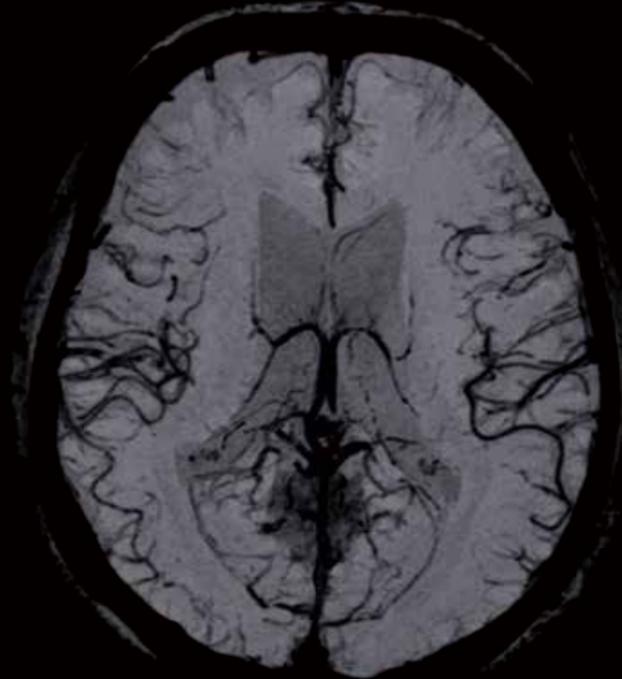
2:50  
Co T2w, 0.7x0.7 mm resolution, 4 mm, CSx2.4

# Head

Cisternography & FSBB



2:30  
Ax T2w, 0.7x0.7 mm resolution, 1 mm



4:52  
Ax FSBB, 0.9x0.7 mm resolution, 1.5 mm, mIP

# Spine

Conventional



2:52  
Sg T2w, 1.0x1.1 mm resolution, 4 mm

2:36  
Sg T1w, 1.3x1.1 mm resolution, 4 mm

Conventional



3:58  
Sg T2w, 0.8x0.8 mm resolution, 3 mm

3:20  
Sg T1w, 0.8x0.8 mm resolution, 3 mm



0:39  
Sg T2w, 1.0x1.1 mm resolution, 4 mm, CSx2

0:40  
Sg T1w, 1.3x1.1 mm resolution, 4 mm, CSx2



1:20  
Sg T2w, 0.8x0.8 mm resolution, 2.5 mm

1:48  
Sg T1w, 0.8x0.8 mm resolution, 2.5 mm

# C-Spine

# Knee



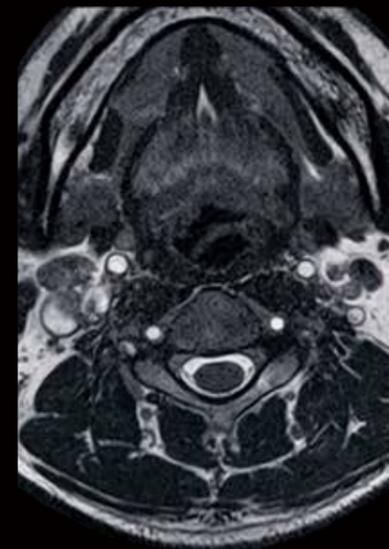
Sg T2w  
1.0x0.8 mm resolution,  
3 mm, 2:53



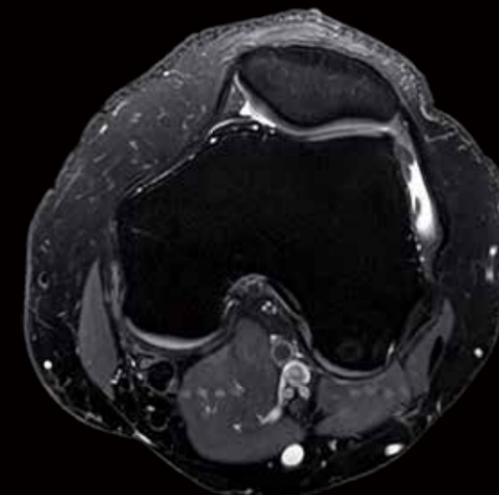
Sg T1w  
1.0x0.8 mm resolution,  
3 mm, 1:54



Sg STIR  
1.0x0.8 mm resolution,  
3 mm, 2:53



Ax 3D T2w  
0.6x0.6 mm resolution,  
2 mm, 2:53



Ax PDw FatSat,  
0.5x0.5 mm resolution,  
3 mm, 2:26



Sg PDw FatSat,  
0.5x0.5 mm resolution,  
3 mm, 2:44



Sg PDw,  
0.5x0.5 mm resolution,  
3 mm, 2:40

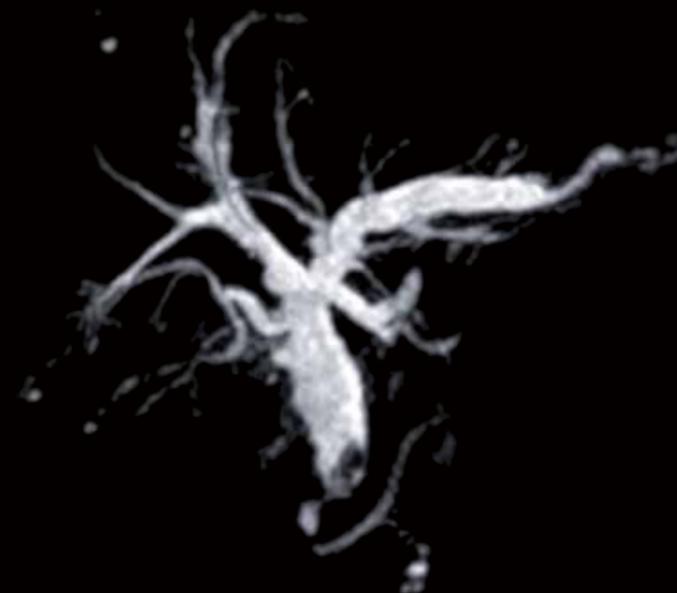
# 3D MRCP Cholangiectasis

Conventional



2:34  
3D MRCP (RMC), 1.0x1.0 mm resolution, 2.0 mm

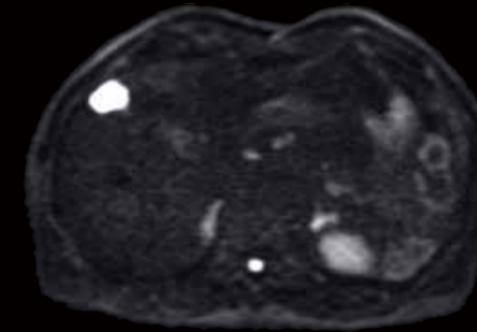
Fast 3D mode



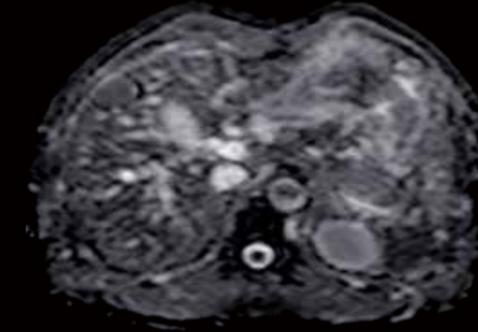
0:20  
3D MRCP (BH), 1.0x1.0 mm resolution, 3.5 mm

Courtesy of Midorigaoka Hospital, Japan

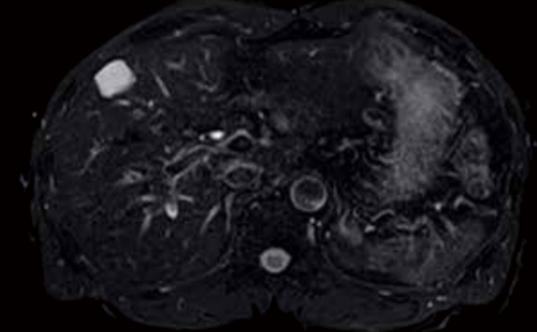
# Hepatic hemangioma f/u



iso DWI

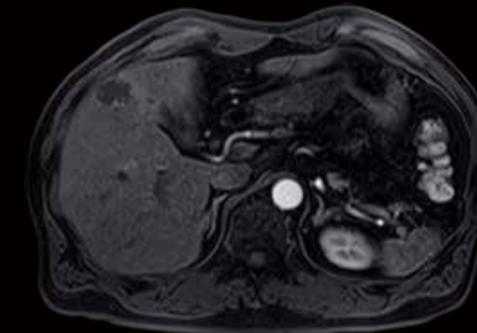


ADC

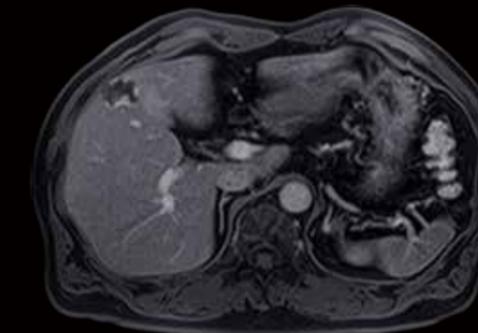


Ax T2w FatSat,  
1.6x1.2 mm resolution, 7.0 mm, 1:00

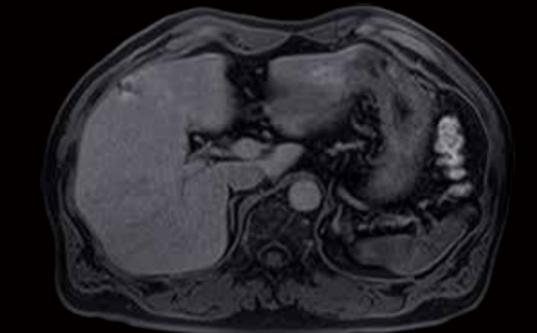
Ax DWI / b1000, 2.3x3.1 mm resolution, 7.0 mm, 4:11



25 sec



60 sec



170 sec

Ax 3D Dynamic, 1.9x1.4 mm resolution, 5.0 mm, 0:21

Courtesy of Kanai Hospital, Japan

Delivering productivity while  
taking care of your patients.  
That is the Vantage Elan difference.

## Vantage Elan delivers next generation MRI in a compact system with best in class power consumption

Infused with next generation AI and Compressed sensing technology, Vantage Elan delivers fast scanning and efficient procedures in a compact system which optimizes valuable hospital floor space.

With increasing case loads and more complex disease sets, there is more pressure than ever on MRI labs to increase productivity and efficiency. Vantage Elan / NX Edition meets these needs with leading MRI technology in the standard bore market.

Utilizing AI technology, Canon's Advanced intelligent Clear-IQ Engine (AiCE) helps to deliver sharp, clear and distinct images and increases SNR by intelligently removing noise. Compressed SPEEDER enables high-speed imaging by up to 4X current scan speeds while maintaining diagnostic imaging performance. Together, AiCE and Compressed SPEEDER form a powerful combination of high resolution images and speed.

Your facilities' throughput will meet the needs of staff and patients alike with workflow features including ForeSee View for enhanced scan planning and EasyTech that automates many common scan sequences. And you can also manage challenging patients with quiet Piannissimo Zen, reduced breath hold times, free breathing and contrast free applications.

With Vantage Elan's industry leading small footprint and rapid installation, hospital administrators will be kept happy, while low power consumption, outstanding reliability and excellent maintenance programs will maximize your facility's investment.

### **Fast**

- AiCE increases SNR which helps you to see through the noise to deliver clear, sharp and distinct images without increasing procedure times
- Compressed SPEEDER reduces scan time while maintaining diagnostic imaging performance
- Our range of rapid scan technologies including Fast 3D mode and Water Fat Separation reduce scan time

### **Efficient**

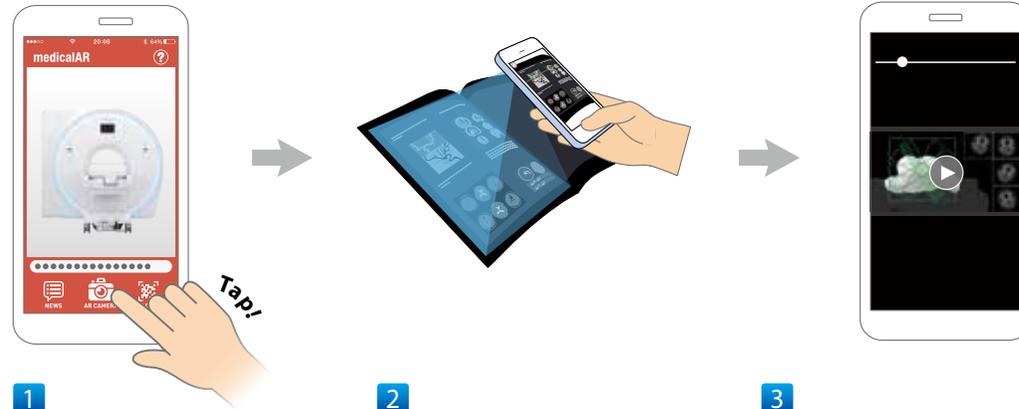
- ForeSee View improves scan planning time and reduces re-scans
- EasyTech automates many common procedures, reducing workflow and improving image consistency
- Efficiently manage challenging patients with quiet scans and other patient friendly applications

### **Compact**

- Optimize your hospital installation space with an industry leading small footprint
- Minimize hospital downtime with rapid installation
- Optimize hospital running costs with Vantage Elan's low power consumption

## How to Use the medicalAR App

Images with the  icon can be viewed in motion. Download the app by scanning the QR code or visit our website:  
<https://global.medical.canon/about/medicalAR>



1

Launch the app and start the camera.

2

Scan the whole page, including an image with the .

3

When the trigger image is captured, the linked contents will be displayed.

# Canon

CANON MEDICAL SYSTEMS CORPORATION

<https://global.medical.canon>

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