FUJIFILM
Value from Innovation

CenQuip®

APERTO Lucent *with SynergyDrive*

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APERTO Lucent ***with SynergyDrive***
Prime Open MRI

FUJIFILM

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https://www.fujifilm.com/fhc/en

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Question

Aren't Open MRI scan times long?

Answer

Not today's Open MR.

Today's Open MRI is equipped with IP-RAPID - a modern day technique that reduces scan times while maintaining high image quality by employing undersampling and image reconstruction with iterative processing.

APERTO Lucent provides high speed solutions combined with open patient experience.

01
Securing time for patient care

Improve patient satisfaction

02
Plus One Scan with shorter imaging time

+1

03
Improved image quality with higher spatial resolution

With the same imaging time as conventional models

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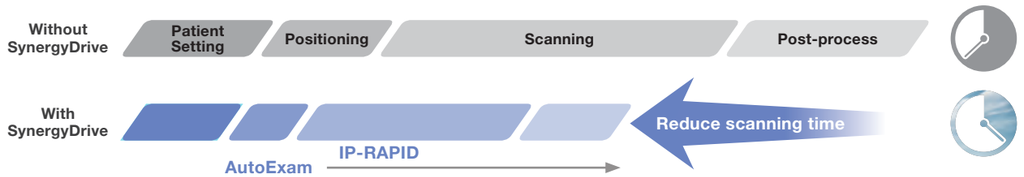
SynergyDrive

Scan Time 30% Reduction*

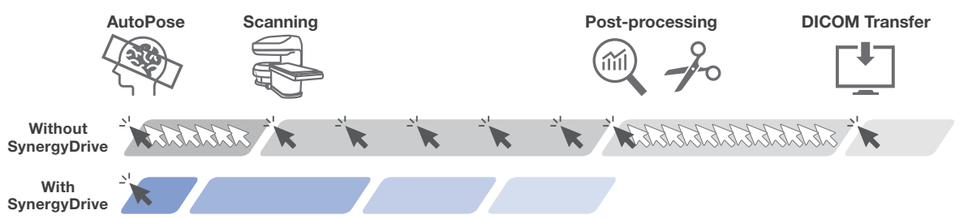
Minimize the “effort required” in MRI scanning to increase the time available for examining the images and providing patient support. Improved workflow reflecting feedback from long-time users. The change is obvious for both beginners and experienced users.



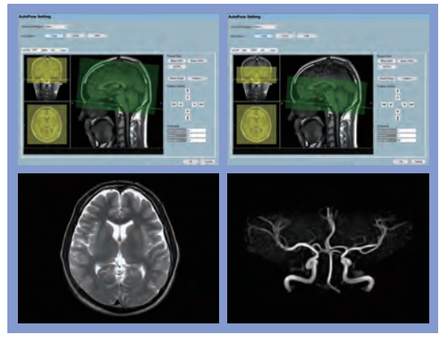
AutoExam**

Automated imaging operation:
Efficiently support complicated operations

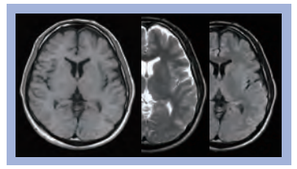
Slice positioning, image analysis, image display, image storage, and image transfer can be performed with single click.
The operator can choose to perform semi-automated examinations that may stop, correct and restart imaging at any time.



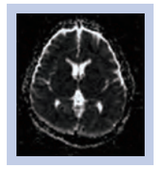
Start scanning with just a click



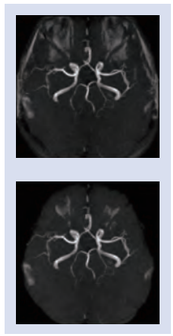
AutoPose: Proposes slice positioning according to a preset scanning section



Scanning



Analysis



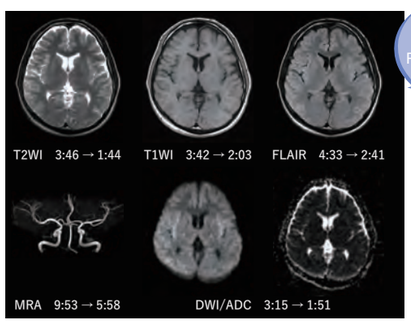
AutoClip: Minimizes workload with the automatic clipping function

IP-RAPID**

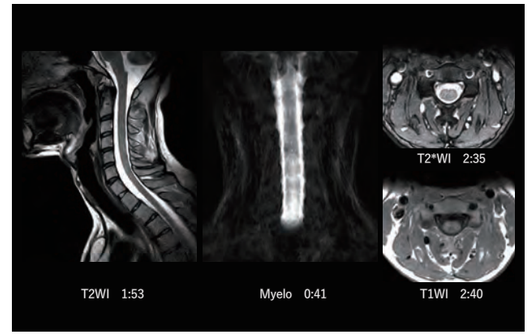
High-speed imaging:
Quickly provides information useful from diagnosis to treatment

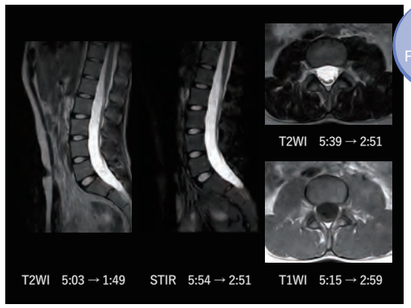
IP-RAPID is a technology that reduces scan time while maintaining a high image quality by using undersampling and image reconstruction utilizing iterative image processing. It can used to scan a wide range of body parts, such as neuro, torso and orthopedic.

01 For all anatomical regions

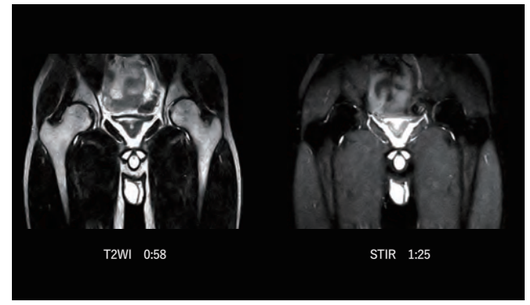


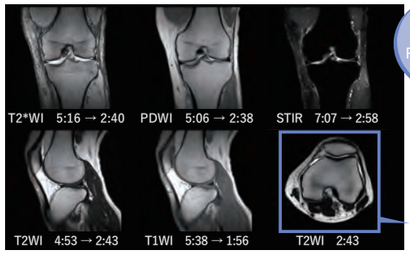
43% Reduction
Total Scan Time 25:09 ▼ 14:17



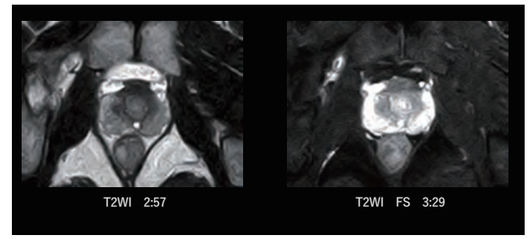


52% Reduction
Total Scan Time 21:51 ▼ 10:30



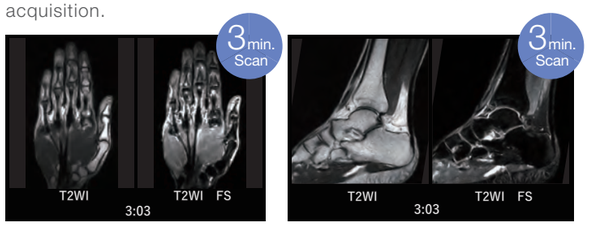


44% Reduction
Total Scan Time 28:00 ▼ 15:38
+1 Plus One Scan



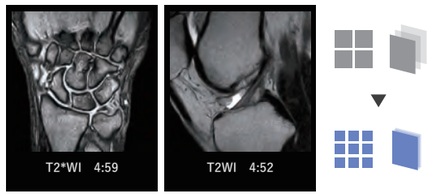
02 Multi images in one scan

IP-RAPID can be combined with various pulse sequences such as FatSep that can offer multiple contrast images with one acquisition.



03 For higher image quality

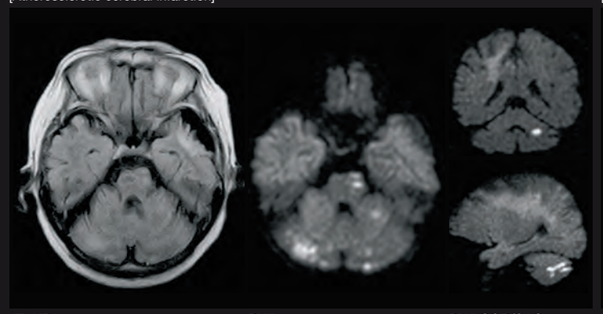
IP-RAPID offers higher resolution images without increasing scan time.



* Maximum 30% reduction depending on scan parameters.

Clinical Image Gallery

[Atherosclerotic cerebral infarction]

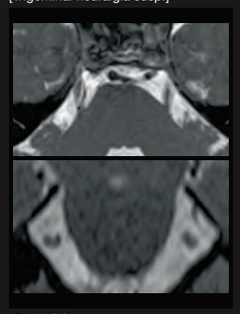


FLAIR DWI DWI COR/SAG

[Basilar aneurysm]

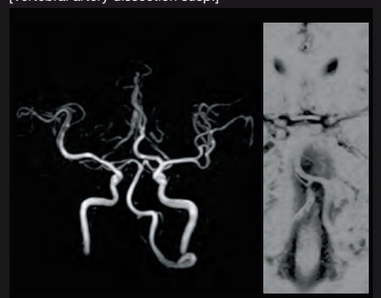
3DTOF MRA
MIP image

[Trigeminal neuralgia susp.]



3DBASG
(Below) MPR image

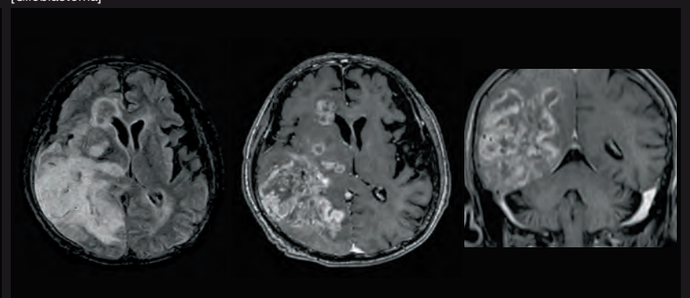
[Vertebral artery dissection susp.]



3DTOF MRA
MIP image

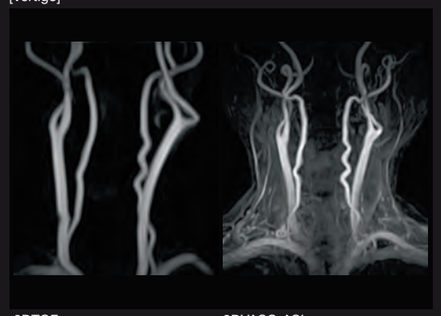
BPAS
MPR image

[Glioblastoma]



WAIR 3DRSSG+CE 3DRSSG+CE
MPR image

[Vertigo]



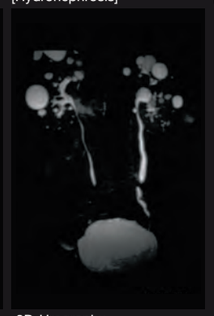
2DTOF
MIP image

3DVASC-ASL
MIP image

[Renal artery/Portal vein MRA]

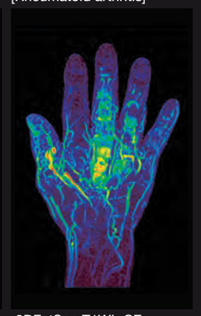
3DVASC-ASL
MIP image

[Hydronephrosis]



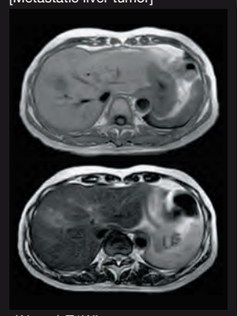
3D-Urography
Resp Gate MIP image

[Rheumatoid arthritis]



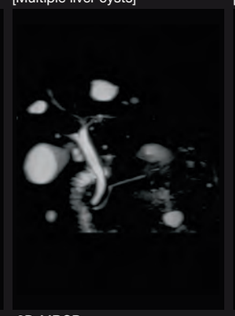
3DFatSep T1WI+CE
Subtraction MIP image

[Metastatic liver tumor]



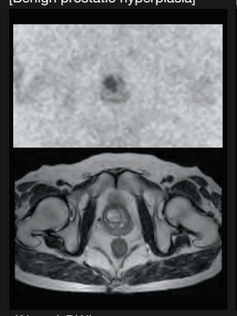
(Above) T1WI
(Below) T2WI

[Multiple liver cysts]



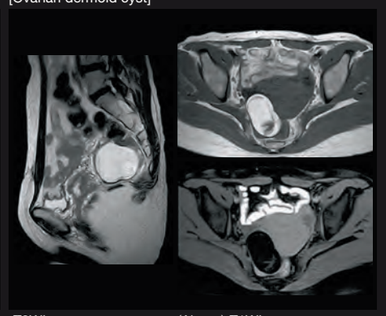
3D-MRCP
Resp Gate MIP image

[Benign prostatic hyperplasia]



(Above) DWI
(Below) T2WI

[Ovarian dermoid cyst]

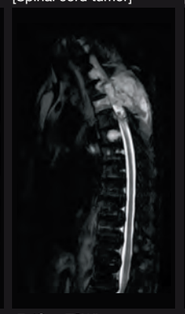


T2WI (Above) T1WI
(Below) FatSep T1WI

[Cervical spine tumor susp.]

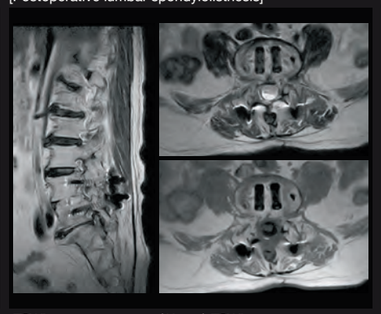
DWI T2WI T1WI

[Spinal cord tumor]



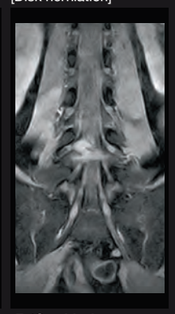
FatSep T2WI

[Postoperative lumbar spondylolisthesis]



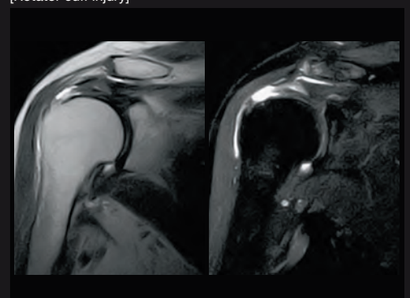
T2WI (Above) T2WI
(Below) T1WI

[Disk herniation]



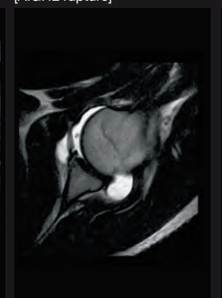
FatSep Myelo
CPR image

[Rotator cuff injury]



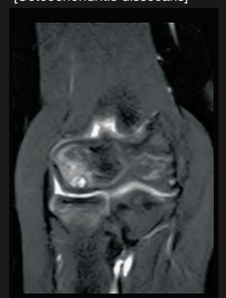
RADAR T2WI RADAR FatSat T2WI

[AIGHL rupture]



T2WI ABER position

[Osteochondritis dissecans]

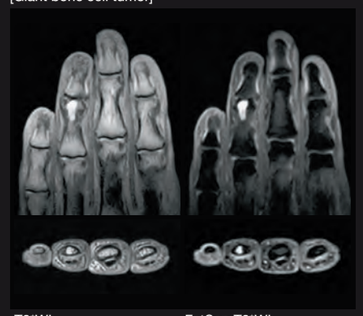


FatSep T2WI

[TFCC damage]

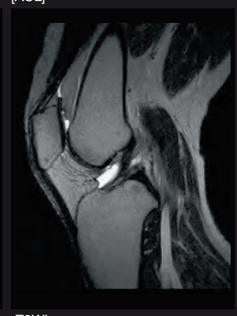
T2*WI

[Giant bone cell tumor]



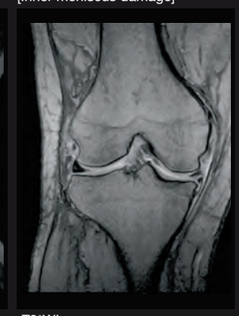
T2*WI FatSep T2*WI

[ACL]



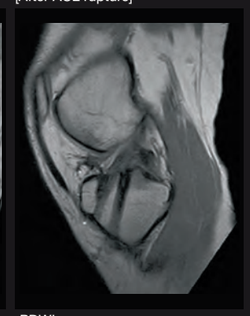
T2WI

[Inner meniscus damage]



T2*WI

[After ACL rupture]



PDWI
MPR image

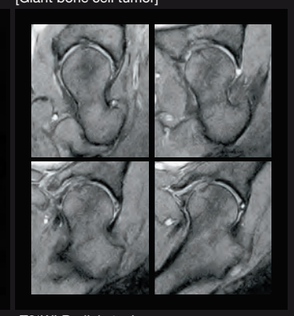
[rt. Hip arthroplasty/Pediatrics]

FatSep T2WI (Above) T2WI
(Below) FatSep T2WI

[Osteomyelitis (Cellulitis susp.)]

FatSat PDWI

[Giant bone cell tumor]



T2*WI Radial stack

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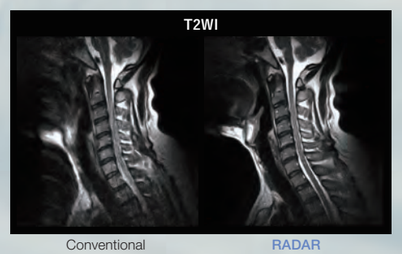
Technology improves image quality.

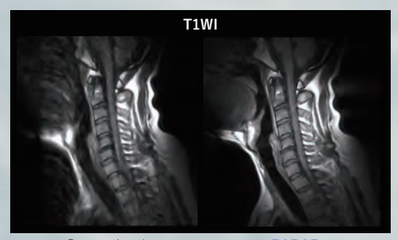
■ RADAR**

Motion reduction capability

RADAR uses radial scan technology to mitigate motion artefact caused by a patient's body movement. Available with T2WI but also T1WI and FLAIR imaging in any plane and any body region including the head and shoulder joint, which are susceptible to respiration movements and the cervical spine that can be affected by swallowing movements.



Conventional RADAR



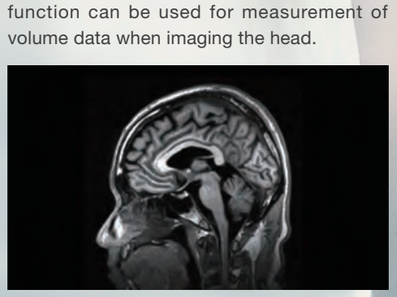
Conventional RADAR

Conventional RADAR

■ 3DGEIR**

Acquire high contrast, 3D, high spatial resolution images

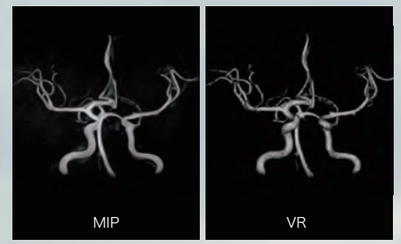
This function offers high-speed T1WI imaging through Gradient Echo with IR pulse. This allows high contrast, 3D, high spatial resolution images to be acquired. This function can be used for measurement of volume data when imaging the head.



■ Volume Rendering(VR) Function**

Supports diagnosis of complex vascular structures

Volume rendering, a reconstruction method, can be created on the console. The blood flow movement can be determined stereoscopically compared to MIP, providing support to diagnosis of regions with complex vascular structures such as the head.

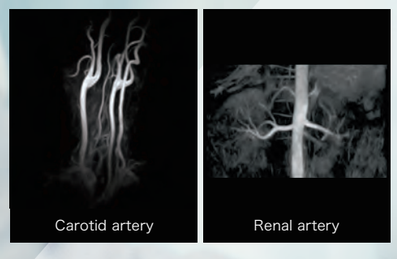


MIP VR

■ VASC-ASL**

Variations on non-contrast MR angiography technique

VASC-ASL is a non-contrast MRA imaging function that uses 3D BASG (Balanced SARGE) to visualize the blood flow labelled with IR pulses. This function is used to produce images of carotid artery, portal veins, renal arteries, and upper and lower extremity arteries.



Carotid artery Renal artery

Technology expands the capability.

■ SuperShim

Reduces magnetic field non-uniformity which cannot be corrected with primary shimming

SuperShim is a technology that increases the uniformity of the static field, which is of paramount importance in MRI. Non-uniformity in the magnetic field cannot be fully corrected with first order shimming which performs linear correction. SuperShim is provided to reduce non-uniformity in the magnetic field by enabling high order shimming.

■ FatSep Function

Provides fat suppression imaging with high SNR

The FatSep (fat water separation) function enables imaging of different TE to acquire in-phase and out-of-phase images simultaneously. The two types of images are added to form fat suppressed images. Through this additional process, FatSep provides fat suppressed images with a good SN ratio and clarity. It can also provide a Fat image through a subtraction process.

■ ORIGIN7 System Software

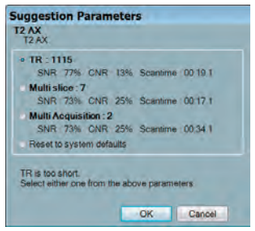
User interface designed via voice of customer

The ORIGIN7 system software ease of use has been optimized from customer feedback. Common anatomic regions can be bookmarked for easy selection.

■ User Interface (UI) Suggestions

Supports alteration of imaging parameters

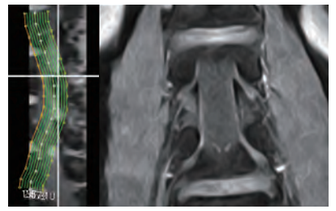
This function provides guidance for parameter settings. During protocol change, several options are displayed to allow the operator to select the parameter most appropriate for that particular scenario.



■ Curved MPR

Reconstruction capability of various cross-sectional images

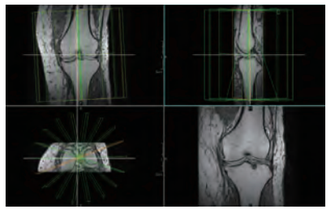
Arbitrary curved cross-sections can be reconstructed using data acquired through imaging. In addition, multiple curved-sections can be reconstructed simultaneously.



■ Radial MPR

Offers simultaneous image reconstruction of multiple cross-sections

Radial MPR images are created which can be useful when diagnosing complex structural tissue such as within the knee joint.



■ High Reconstruction Imaging

Supports high-definition imaging

This function enables high spatial resolution imaging which result in higher definition images of joint regions required for orthopedic areas. An image reconstruction matrix of 2048 x 2048 is achieved through the high-speed imaging processor.

■ High Sensitivity Receiver Coils

Especially effective for images with a small FOV and high spatial resolution

Regions that require a small FOV and high spatial resolution as in orthopedics need higher sensitivity receiver coils. The solenoid coil* adopted in the APERTO Lucent delivers this high sensitivity. The small diameter coil is tailored to fit the body and the target region easily positioned to the centre of the coil where sensitivity is at the highest.

* Coils other than solenoid type are available.

■ DICOM Function**

Offers various interfaces

The DICOM interface is included as standard in the APERTO Lucent which adapts to the hospital's current networks and which will continue to evolve and upgrade over time. DICOM MWM, SWF, and PIR functions are also supported.

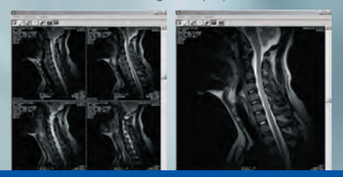
Operation makes more efficient.

■ IHE PDI Function

Extensive coordination for compatibility with the hospital's in-house and external network systems

Support for the IHE PDI standard is provided to enable various data exchanges, such as image zoom and rotation display, with other systems supporting the PDI standard.
Ability to write DICOM data and simple browser software* to a CD-R are also included.

* Cannot be used for diagnostic purposes.



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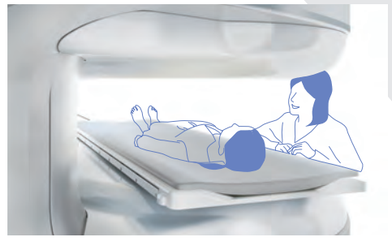
OpenDesign makes comfortable.

Single pillar design.
Creating an open and relaxed experience.

■ Open Design

Created to expand space and light, helping to reduce claustrophobia and anxiety

The single-pillar design creates an open examination area which together with the rounded architecture and innovative colour design establishes a secure, calming atmosphere for the patient.



■ Floating Table

Designed for comfort, accessibility and isocentric imaging

With lateral table shift, the patient table can be moved left and right within the gantry. The table lowers to 490mm for easy access. The 700mm wide table provides comfort and security for patients.

■ Lateral Slide

Enables high-definition imaging even in off-centered regions

In MRI, traditionally the highest definition in imaging can be obtained at the centre of the gantry. This is due to the high uniformity of the static field and RF radiation strength, along with the high linearity of the gradient magnetic field. APERTO Lucent's table can be moved laterally (right and left) inside the gantry. Therefore, any region that is out of the midline (shoulder, knee, etc.) can be centralized to the magnetic field.

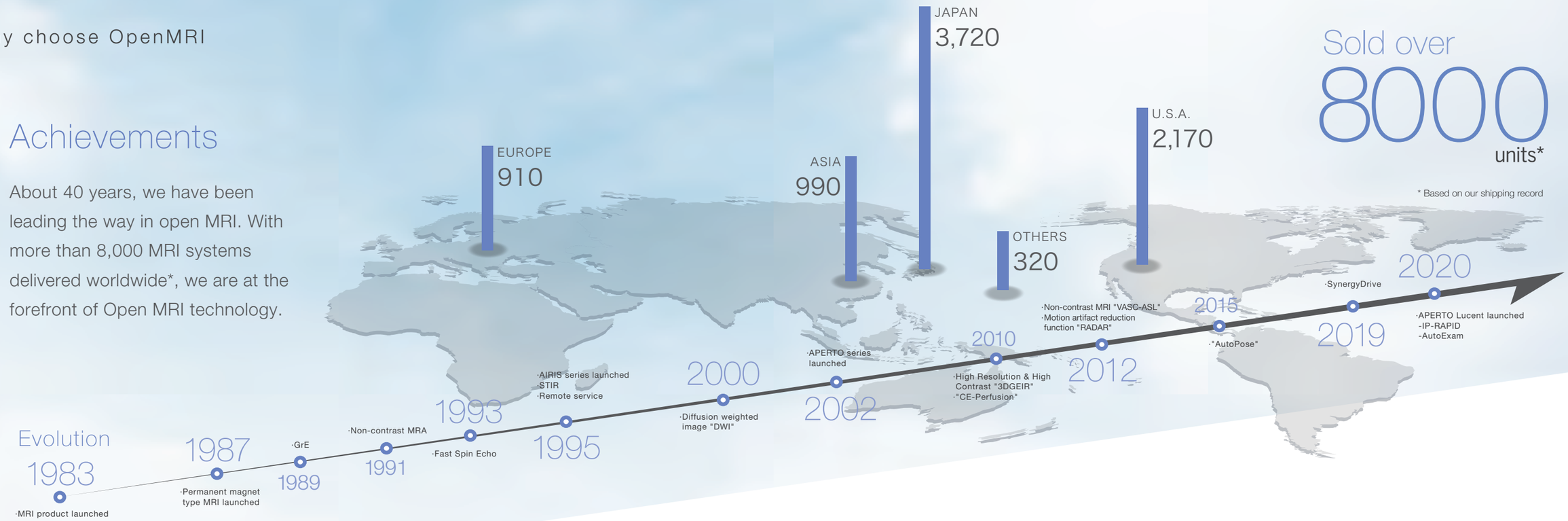
■ Footswitch**

Allowing the operator to focus on the patient

The adopted footswitch enables hands-free control of the table in the vertical and horizontal direction, allowing the operator to focus on patient care.

Achievements

About 40 years, we have been leading the way in open MRI. With more than 8,000 MRI systems delivered worldwide*, we are at the forefront of Open MRI technology.



WHY CHOOSE OPEN MRI?

Cost advantage

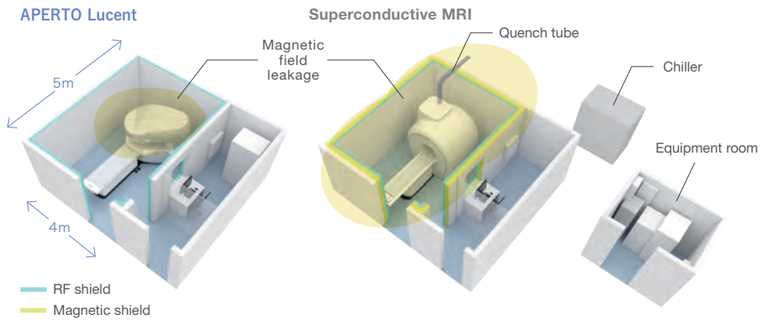
Comparison of installation conditions between APERTO Lucent and Superconducting MRI

Reduced initial cost

In permanent magnet Open MRI technology, the magnetic field remains strong over the years with barely any change. Unlike Superconductive MRI, there are fewer installations and equipment, and the initial cost can be kept low.

System	Equipment room	Chiller cooling system	Magnetic shield	Cubicle	Quench tube Intake and exhausted system
Our Superconductive MRI system	Necessary	Necessary	Necessary	Necessary	Necessary
APERTO Lucent	Unnecessary*	Unnecessary	Unnecessary*	Unnecessary*	Unnecessary

* Depends on the environment and the room layout.



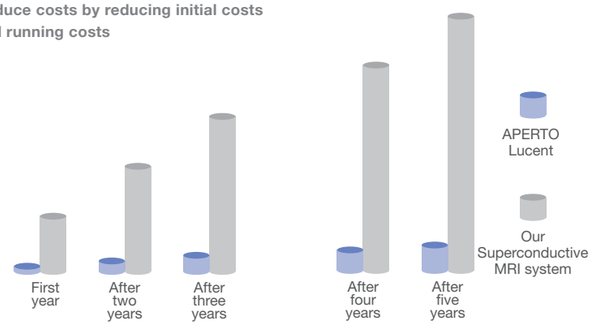
* The layout drawing is an example.
* Depends on the environment and the room layout.

Reduced running cost

With permanent magnet MRI, running costs can be reduced because the power consumption of the main unit is low and a cooling system with high power consumption is not required.

System	Power consumption (system)	Power consumption (cooling system)	Maintenance
Our Superconductive MRI system	High cost	High cost	High cost
APERTO Lucent	Low cost	Unnecessary	Low cost

Reduce costs by reducing initial costs and running costs



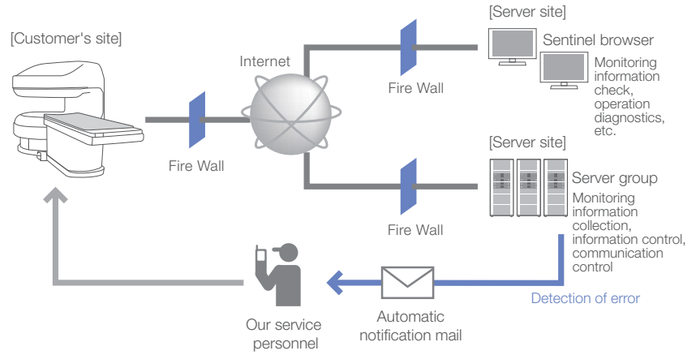
[Cumulative cost over five years / refers to electricity cost for main unit only]
* The above graph is an example. The figures may vary according to system specifications and operating conditions.

Support

This ensures that your system is kept running smoothly and efficiently through round the clock monitoring. It provides proactive first class reliability for stability and maintenance.

System status screen

* Users are required to set up their network environment to make it compatible with Sentinel.
The level of service may vary depending on the contractual coverage.



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