## MAGNETOM Vida with BioMatrix

# Embrace human nature at 3T

↗ siemens-healthineers.us/vida




SIEMENS Healthineers

# MAGNETOM Vida

## It’s all new!

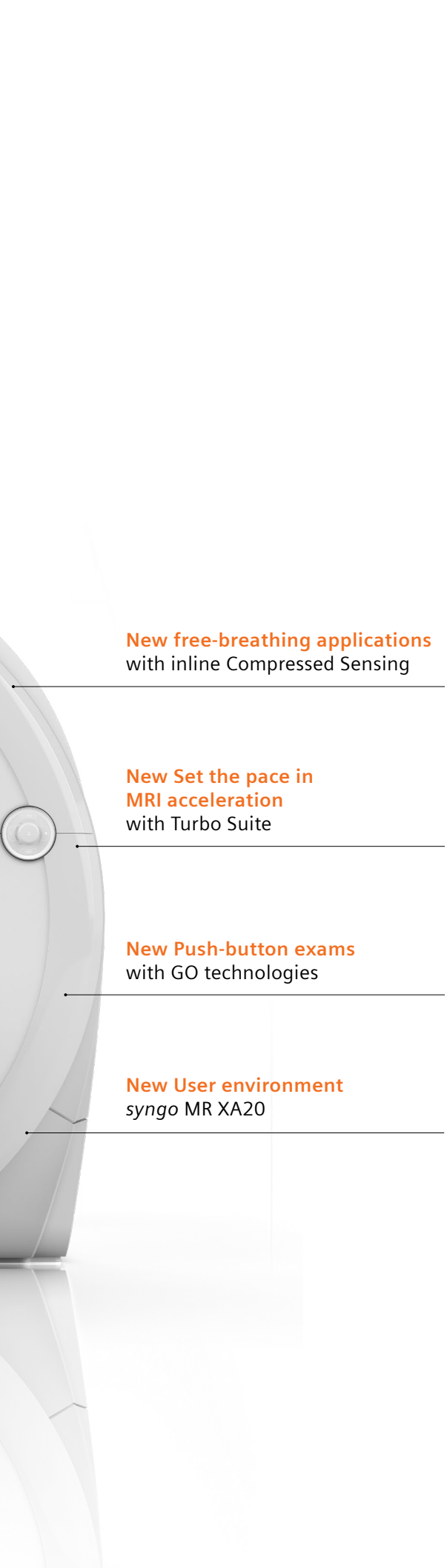
**New 3T Magnet**
70 cm Open Bore,
55 x 55 x 50 cm³ FoV
205 cm scan range

**New Gradient Power**
XQ: 45 mT/m @ 200 T/m/s
XT: 60 mT/m @ 200 T/m/s
Simultaneously with strongest amplifiers up to 2.7MW

**New Efficient Energy Management**
with Eco-Power

**New Ultra-high density**
3T coils





**New free-breathing applications**
with inline Compressed Sensing

**New Set the pace in MRI acceleration**
with Turbo Suite

**New Push-button exams**
with GO technologies

**New User environment**
*syngo* MR XA20

# Embrace human nature

## with BioMatrix

Patients have unique characteristics. Different physiologies and anatomies—but also the way we interact with them and technology—cause unwanted variability in MRI exams.

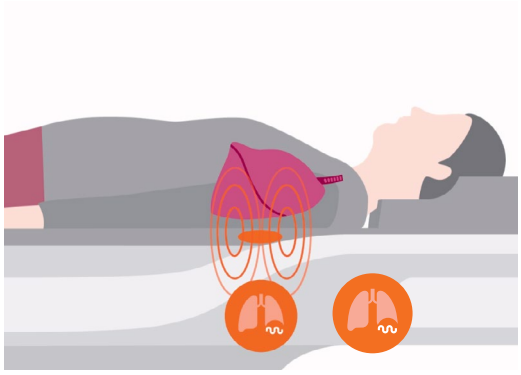
These unique human characteristics, or bio-variabilities, present a challenge and are a source of errors, rescans, and inefficiencies when it comes to MR imaging. This intrinsic patient variability needs to be addressed in order to truly personalize MRI, and pave the way toward precision medicine. To turn this challenge into an opportunity, we must think differently. Instead of adapting human variability to technology, we must adapt technology to humans. We do this by embracing their individual nature—with BioMatrix Technology.

# Anticipate challenges

## before they happen with BioMatrix Sensors

BioMatrix Sensors capture physiological characteristics of the patient, allowing users to anticipate challenging situations before they arise. New ultra-high-density BioMatrix coils utilize seamlessly integrated sensors to acquire and display the patient's respiration data automatically. Knowing the breathing capacity of a patient enables the user to choose the optimal exam strategy right from the beginning. This information can also be used to actively trigger sequences—combining a streamlined workflow with excellent results.

## BioMatrix Respiratory Sensors



Integrated Respiratory Sensors automatically detect breathing patterns as soon as the patient lies on the table. Respiratory-triggered scans can be performed without additional user interaction to help simplify workflow.



Patient respiration data, acquired by the BioMatrix Sensors, are displayed on the side of the magnet. By viewing the patient's respiration rate, technologists have a sense for how patients are reacting to the exam and can adapt their patient and scanner interactions.

## BioMatrix Beat Sensor



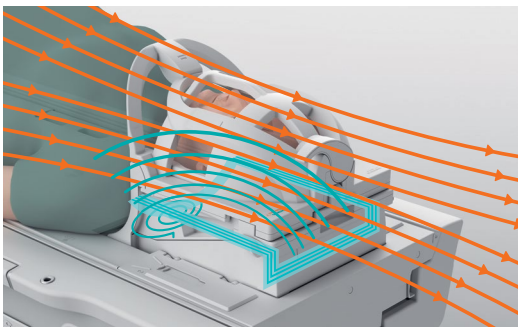

The new BioMatrix Body 12 and Body 18 coil contain the integrated Beat Sensor[8].

# Adapt to all patients, even critical ones,

## with BioMatrix Tuners

BioMatrix Tuners use CoilShim and SliceAdjust technologies to adapt to challenging anatomical regions. This enables robust and reproducible high-quality imaging for all patients.

CoilShim technology, integrated into the new BioMatrix Head/Neck coils, reduces repeat scans by delivering significantly improved fat saturation and better DWI quality in the head/neck region. SliceAdjust provides reliable and distortion-free whole-body DWI scans.



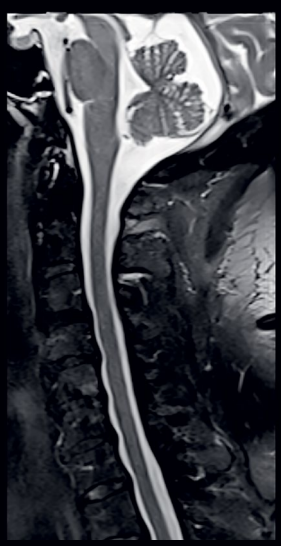
Additional shim elements integrated directly into the BioMatrix Head/Neck coil perform region-specific shimming for a more homogeneous B0 field in the challenging head/neck region.

### Significantly improved fat saturation and image quality with the BioMatrix Tuner CoilShim

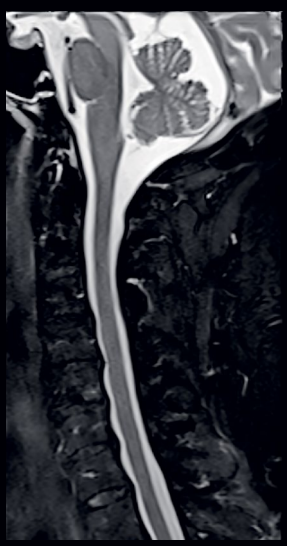



**BioMatrix Head/Neck 20, tiltable (0°/ 9°/ 18°) with CoilShim**

1aaaa1427



**Conventional Shim**



**With CoilShim**

# Improved image quality in the entire imaging volume

## with SliceAdjust



1aaaa1666

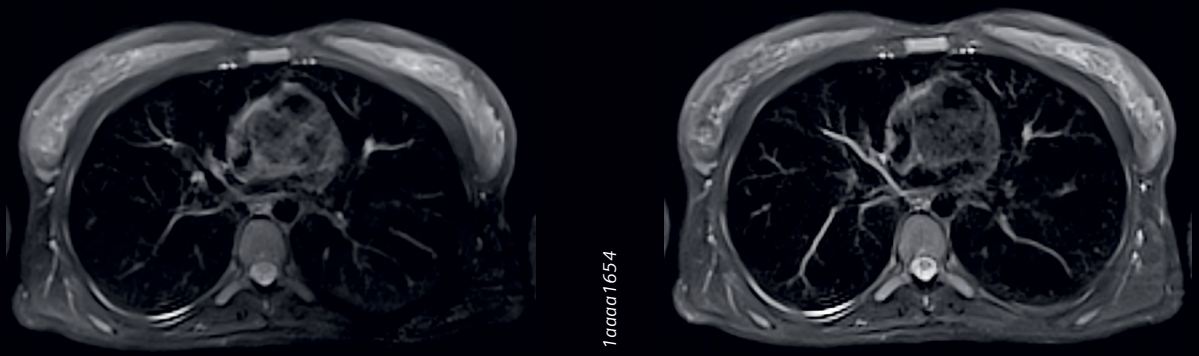
Conventional Volume Adjust

With SliceAdjust

SliceAdjust technology provides reliable fat saturation for both TSE and DWI sequences, as well as distortion-free whole-body DWI scans. SliceAdjust avoids broken spine artifacts in whole-body DWI to provide excellent correlation with anatomical scans.

## NEW

### SliceAdjust with TSE for improved fat saturation



1aaaa1654

Conventional Volume Adjust

With SliceAdjust
Integrated in Multi-concatenation TSE acquisitions

# Accelerate patient positioning

## with Select&GO

Select&GO one-touch positioning utilizes AI to accelerate patient positioning by up to 30%[2] compared to laser positioning. The user simply selects the region or organ to be scanned on the touch display and the patient is automatically positioned for the respective scan, helping to avoid delays due to incorrect positioning.






Fast and easy positioning with the Select&GO display.

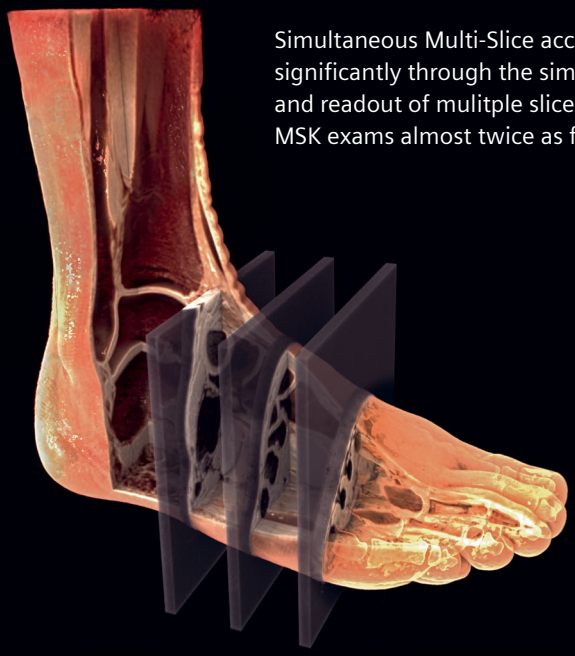





The BioMatrix dockable table with eDrive support provides motorized assistance, enabling even the heaviest patient to be moved effortlessly to and from the scanner.

# Simultaneaous Multi-Slice TSE

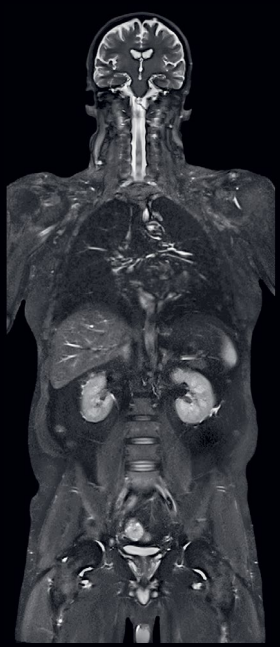
**New speed applications with Simultaneous Multi-Slice reduce scan time without compromising image quality.**



Simultaneous Multi-Slice accelerates imaging significantly through the simultaneous excitation and readout of mulitple slices, making complete MSK exams almost twice as fast.

**Up to 46% scan time reduction for complete MSK exams[2]**

## Whole-body MRI from head to pelvis in 25 minutes[3]



**High-resolution T2w STIR images**



T1w VIBE images with excellent fat suppression

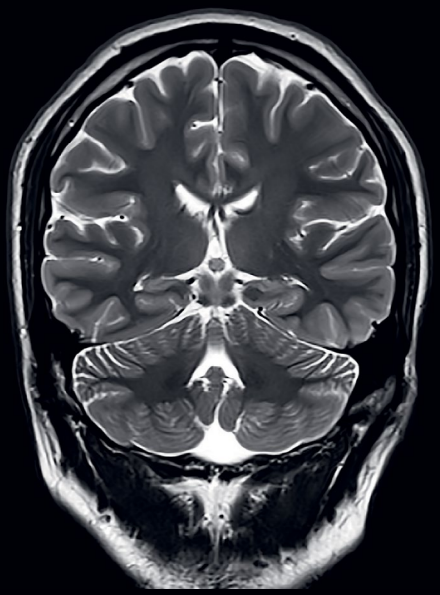


Distortion-free whole-body DWI with SliceAdjust

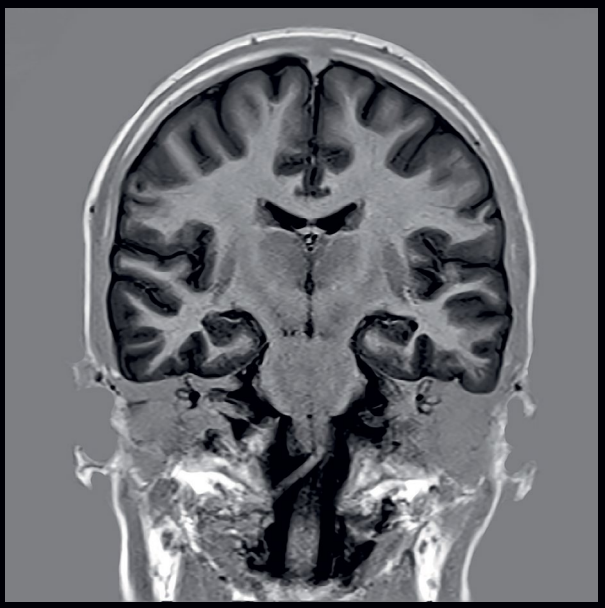
The new Whole-Body Dot Engine reduces the planning and execution of complex whole-body exams to a few clicks: simply select which regions need to be scanned, whether a focus region shall be investigated, and set a few patient-specific settings (e.g., breath-hold capability).

# Neurology

Ultra-fast, high SNR head/neck imaging with the tiltable BioMatrix Head/Neck 20 and the BioMatrix Head/Neck 64



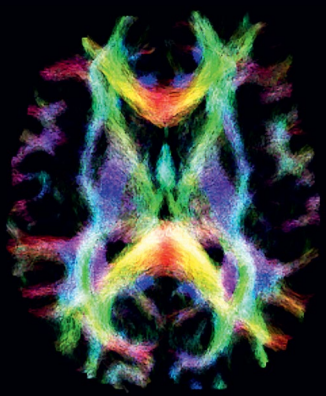
T2 TSE, TA 3:49 min
BioMatrix Head/Neck 20



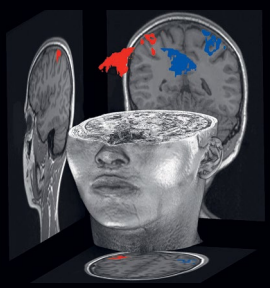
T1 TSE Inversion Recovery, TA 2:47 min
BioMatrix Head/Neck 20




DTI fibertracking 64 directions, postprocessed with Neuro 3D



DTI fibertracking, 256 directions, postprocessed with *syngo*.via Frontier TDI prototype[6]

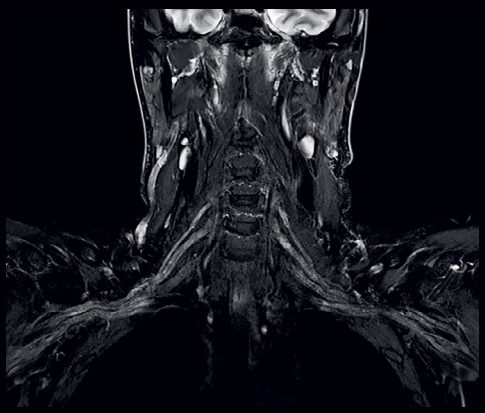


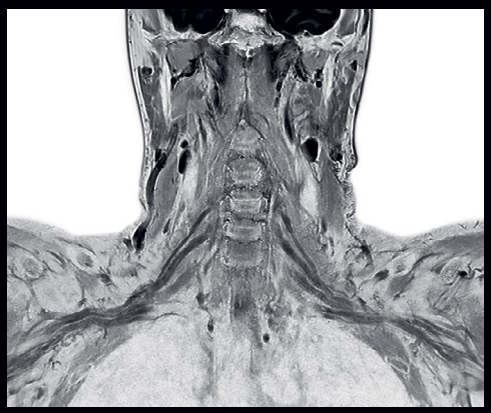
BOLD imaging, post-processed with Neuro 3D

# Head/Neck and Spine imaging

Achieve high-quality head/neck and spine imaging for all patients and conditions.

**In the new BioMatrix Head/Neck coils, CoilShim technology helps prevent repeat scans due to significantly improved fat saturation and better DWI quality.**





Imaging of the brachial plexus with 3D T2 SPACE
1.0 x 1.0 x 1.0 $mm^3$
TA 3:57 min
BioMatrix Head/Neck 64

Whole spine T2
3 stations
TA 6:11 min
BioMatrix Spine 32,
BioMatrix Head/Neck 64

*Benson Radiology*
*City West practice,*
*Adelaide, Australia*



Whole spine T1
3 stations
TA 6:08 min
BioMatrix Spine 32,
BioMatrix Head/Neck 64

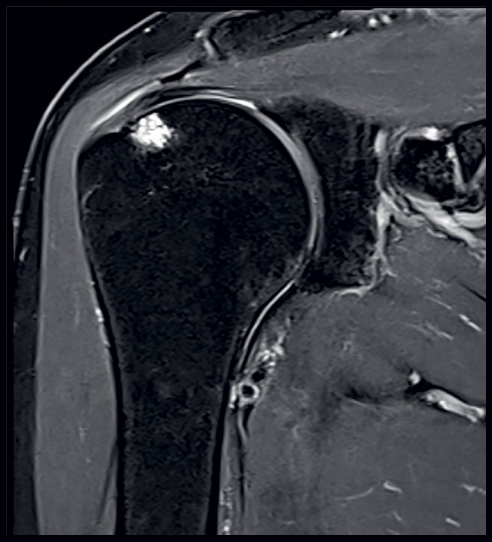
*Benson Radiology*
*City West practice,*
*Adelaide, Australia*



# Orthopedics

Ultra-high-density coils for orthopedic imaging with maximized SNR and anatomic coverage

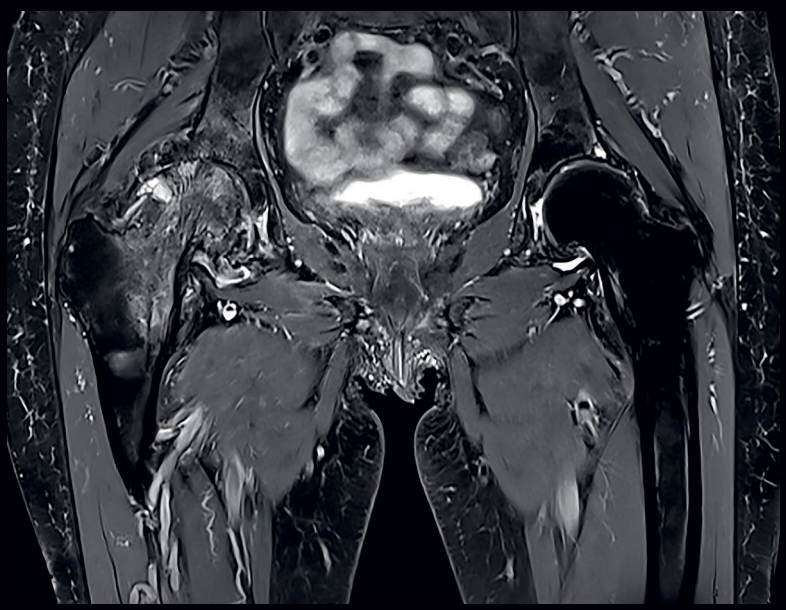
**The Shoulder Shape 16 is a new ultra-high element density coil with an innovative, flexible, and patient-adaptive design.**



PD FatSat
Shoulder Shape 16, TA 3:14 min



T1 TSE
Shoulder Shape 16, TA 2:20 min





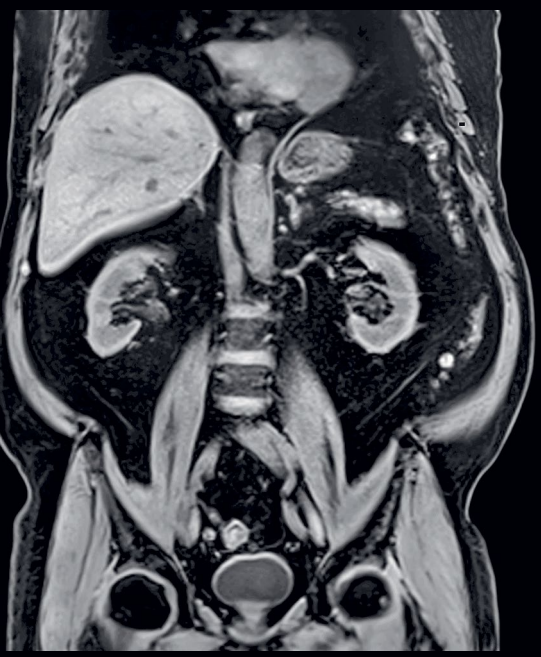
High-resolution hip imaging with ultra-high-density Body 30

*Radiologie München Harlaching, Munich, Germany*

# Body imaging

High-channel body imaging thanks to the combination of ultra-high-density body and spine coils

**Full abdominal coverage from the liver dome down to the pelvis enable for comprehensive oncological scans in one station with excellent quality.**

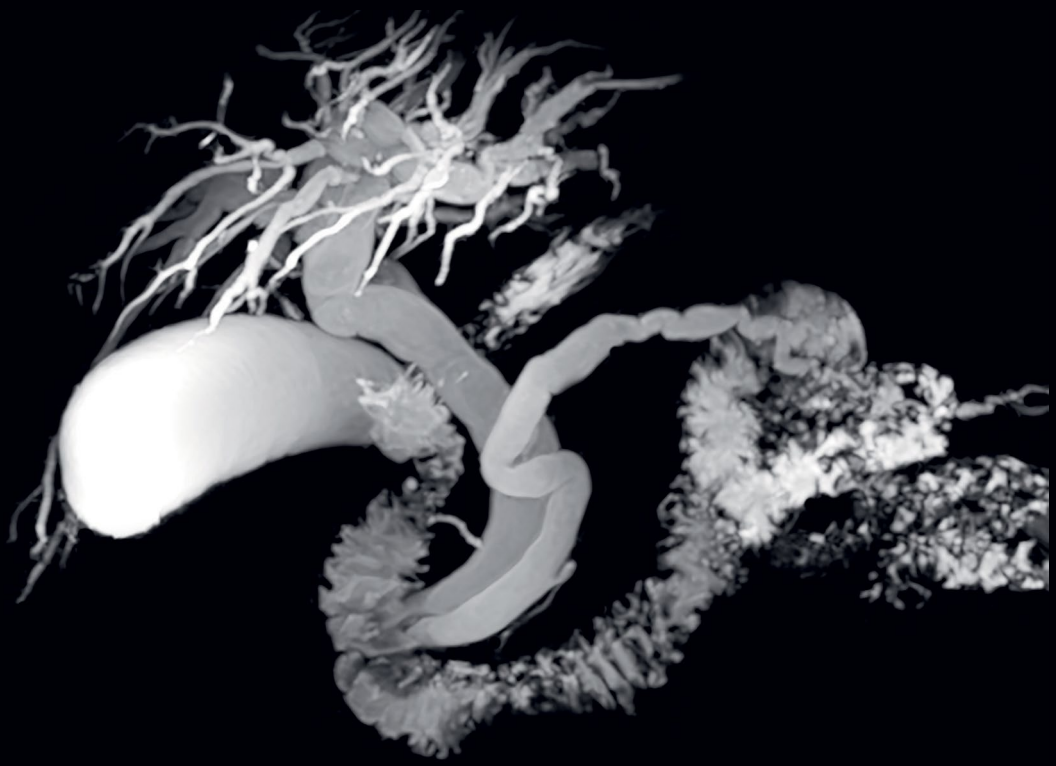


3D VIBE Dixon Water, 50 cm z-FoV
Body 18, BioMatrix Spine 72



Large Field of View and homogeneous fat saturation for enterography imaging

*Radiologie München Harlaching, Munich, Germany*

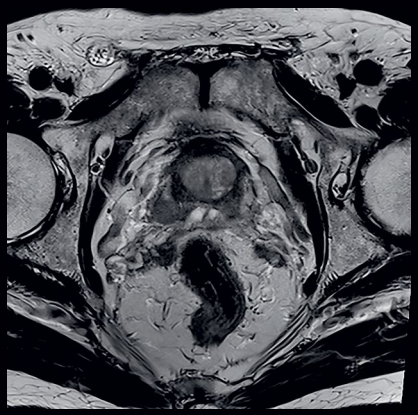


High-resolution MRCP using T2 SPACE with the Body 30

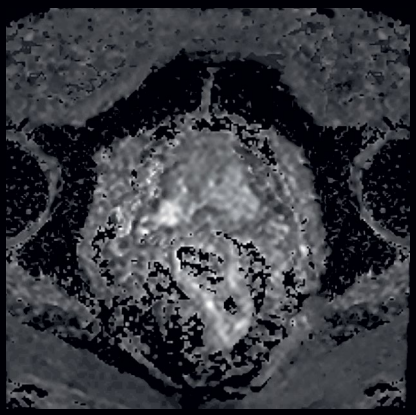
*Radiologie München Harlaching, Munich, Germany*

# Men's health

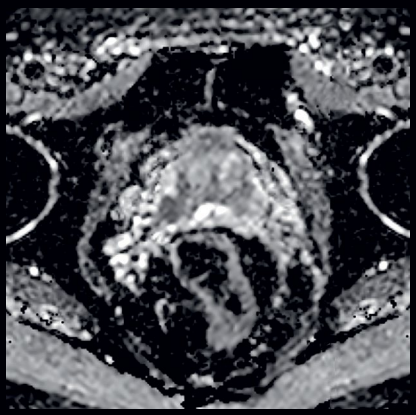
Comprehensive prostate exam according to PI-RADS v2 in less than 13 minutes acquisition time



T2 TSE
Body 30, BioMatrix Spine 72



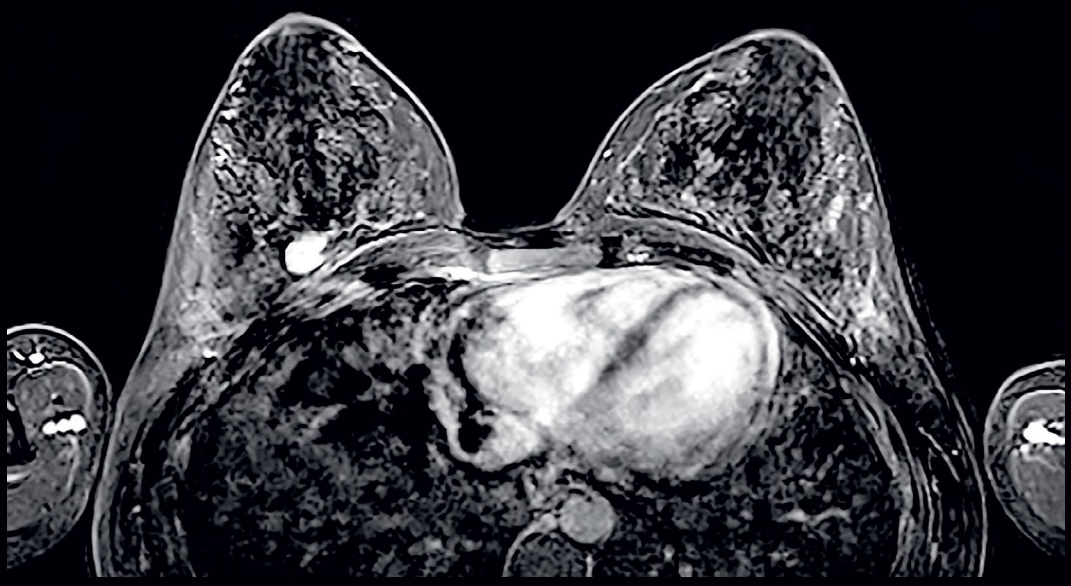
Diffusion calculated b1400



ADC map

# Women's health

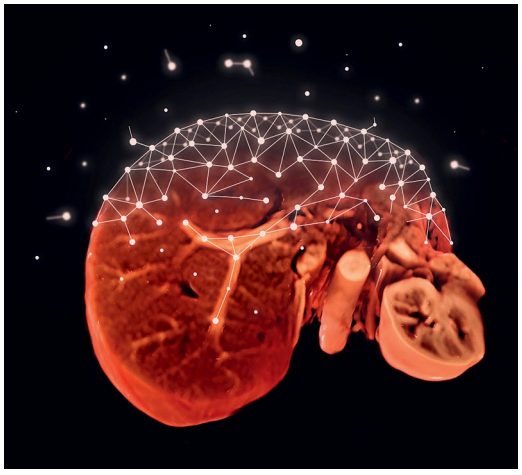
Coils and imaging applications provide excellent image quality for diagnosis and MRI-guided breast interventions



Dynamic T1 VIBE DIXON
0.85 x 1.07 x 1.5 $mm^3$
TA 1:08 min
Breast 18

*University Hospital Erlangen, Germany*

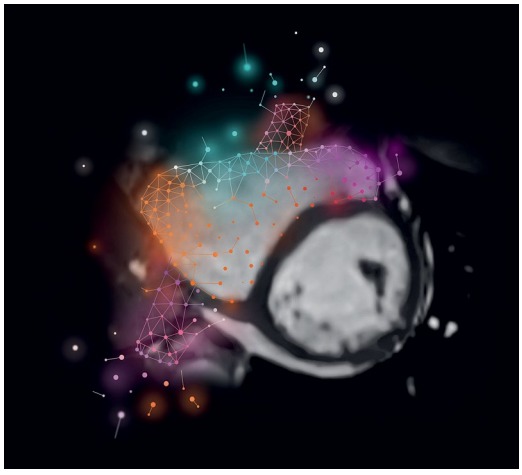
# Embrace new 3T clinical capabilities



### Compressed Sensing GRASP-VIBE

Dynamic contrast-enhanced imaging is a key test to characterize liver lesions, but can be challenging for many patients because it requires them to hold their breath several times over a short period. For patients who cannot do this, the result is often a nondiagnostic image.

Compressed Sensing GRASP-VIBE enables push-button, free-breathing exams of liver dynamics with an extremely simplified workflow. An intelligent framework recognizes the relevant phases of liver dynamics automatically, and only the clinically relevant phases are reconstructed with automatic labeling (e.g., arterial phase). Reliable dynamic contrast-enhanced imaging can now be performed for patients previously excluded from MRI.



### Compressed Sensing Cardiac Cine

MR cardiac function imaging is the gold standard for the diagnosis and prognosis of a variety of cardiac diseases, but it is time-consuming and requires a challenging number of breath holds. Image quality for patients with arrhythmia is particularly impaired.

Compressed Sensing Cardiac Cine provides image quality and resolution comparable to conventional CINE imaging in free breathing instead of 7–14 breath holds. In combination with leading applications for cardiac imaging, this enables free-breathing cardiac MRI exams in high quality.

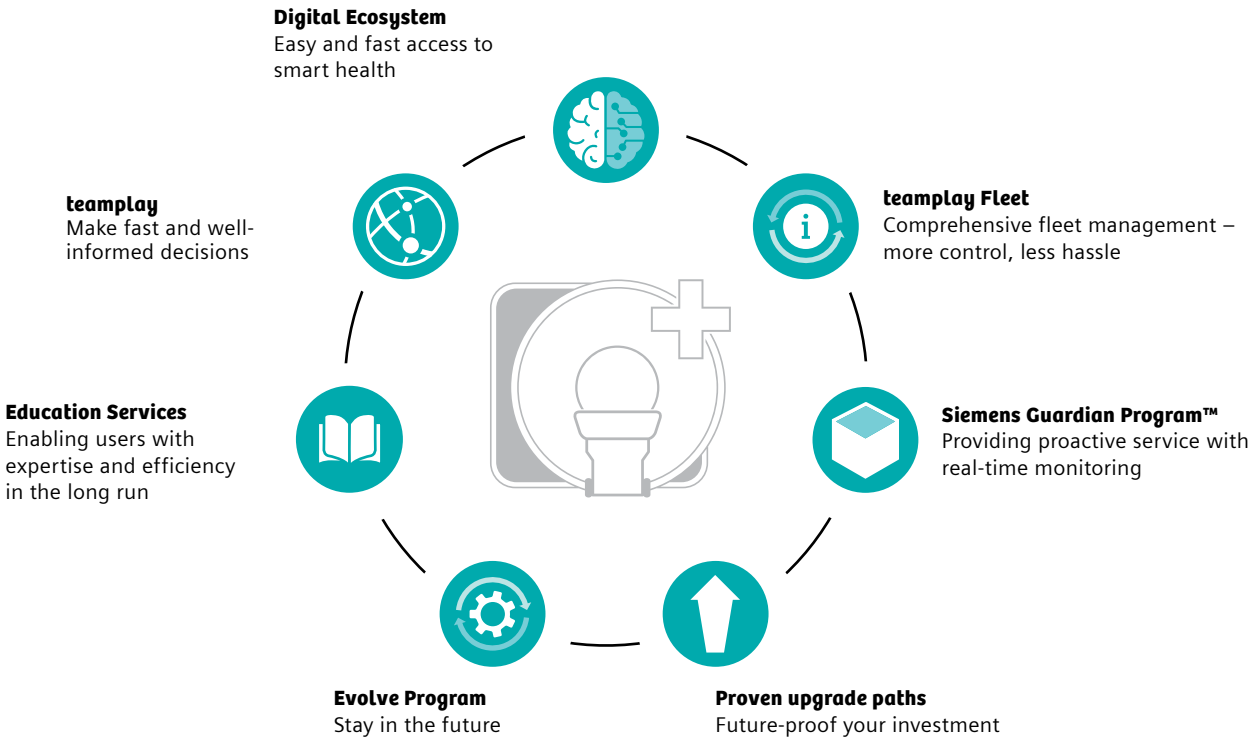
## Beyond speed

# Technical specifications

| MAGNETOM Vida<br>Technical specifications | |
|---|---|
| **Field strength** | 3 Tesla |
| **Bore size** | 70 cm Open Bore design |
| **System length** | 186 cm cover to cover |
| **System weight (in operation)** | 7.35 tons |
| **Minimum room size**[11] | 31 $m^2$ / 334 $ft^2$ |
| **RF** | Tim [204x64]; Tim [228x128] |
| **Gradient strength** | XQ gradients 45/200 simultaneously [2.03 MW]<br>XT gradients 60/200 simultaneously [2.70 MW] |
| **Helium consumption** | Zero Helium boil-off technology |



# Comprehensive offerings for service and exchange




## Digital Ecosystem

Integrating and interconnecting data, participants, applications, and services are key goals of the Siemens Healthineers Digital Ecosystem[9]. The growing data lake is intended to support the development of cloud-deployed and locally installed applications and services. As a result, our Ecosystem will serve the wide spectrum of clinical, operational, and financial tasks and functions in healthcare delivery.

## teamplay

teamplay grants instant[8] access to statistics from your imaging device fleet. Its multi-vendor support empowers you to identify improvement potential on all levels of execution. teamplay provides an easy-to-grasp overview of your institution's imaging workflow for enhancing efficiency, competitiveness, and quality of care in one intuitive Plug & Play solution.

### Education Services

Personalized education and training keeps your staff's knowledge up to date and leads to enhanced expertise, greater efficiency, and higher productivity. Maintain or improve your staff's expertise as well as the efficiency of your systems at a predictable cost with Siemens Healthineers Education Services. By providing a flexible and efficient training and education experience, Siemens Healthineers helps unlock your staff's potential and keep your organization at the forefront of clinical diagnosis and corresponding outcome-based treatments. usa.healthcare.siemens.com/education

### Evolve Program

This investment protection program enables you to cost-effectively keep your imaging system technology current and extend the life of your equipment. It ensures that your imaging system uses the latest software versions and cutting-edge applications to support more accurate diagnostics and greater speed.

### Proven upgrade paths

With MAGNETOM scanners, taking your MRI system to the next level is simple, thanks to clearly defined upgrade paths. In fact, Siemens Healthineers has built an entire organization to help customers truly maximize their system life—and in turn, increase their return on investment.

### Siemens Guardian Program™

By continuously monitoring systems for possible deviations from current norms, the Siemens Guardian Program helps maximize system availability, makes it easy to detect and resolve system errors, prevents downtime, and avoids the rescheduling that disrupts patient care.

### teamplay Fleet

This personalized control center offers more control and less hassle in safeguarding your fleet's productivity. The web-based portal bundles all service-related activities, documents, and reports in one comprehensive online resource available 24/7, whenever it is needed. teamplay Fleet is provided at no charge to all Siemens Healthineers customers.

### MAGNETOM World

The global MRI community of Siemens Healthineers offers peer-to-peer support and information. Radiologists, cardiologists, technologists, and physicists all have contributed with protocols, presentations, application tips, case studies, and more—all freely available to you via this unique network.

### MAGNETOM Flash

The MRI customer magazine features up-to-date clinical case studies, application tips, as well as technical and product information. All content is carefully compiled by experts to meet the needs of today's MRI users in both clinical and research scenarios.
**usa.siemens.com/magnetom-flash**

### IDEA

IDEA[10] is an open development platform supporting the largest and most active MR research community in the world. It brings users from across the globe together and fosters innovation in the field of MRI. Members collaborate online at **mr-idea.com**.

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**Special Issue on MAGNETOM Vida and BioMatrix**

Professor Konstantin Nikolaou (University Hospital Tübingen, Germany) is guest editor of this special issue of MAGNETOM Flash. Read about improved image quality with SliceAdjust (Peking Union Medical CollegeHospital, China); automated chest, abdomen, and pelvis exams with the Whole-Body Dot Engine (University of Zurich, Switzerland); free-breathing dynamic liver MRI (New York University, NY, USA); and

At Siemens Healthineers, our purpose is to enable healthcare providers to increase value by empowering them on their journey toward expanding precision medicine, transforming care delivery, and improving patient experience, all enabled by digitalizing healthcare.

An estimated 5 million patients globally benefit every day from our innovative technologies and services in the areas of diagnostic and therapeutic imaging, laboratory diagnostics, and molecular medicine, as well as digital health and enterprise services.

We're a leading medical technology company with over 120 years of experience and 18,500 patents globally. With about 50,000 dedicated colleagues in over 70 countries, we'll continue to innovate and shape the future of healthcare.

The outcomes and statements provided by customers of Siemens Healthineers are unique to each customer's setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, and level of service/technology adoption), there can be no guarantee that others will achieve the same results.

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For accessories, please visit:
siemens-healthineers.us/accessories

*[1]Data on file.*

*[2]Values for a 196 cm person.*

*[3]2013 MAGNETOM Flash reader survey. Data on file.*

*[4]This website provided by Siemens AG may be used solely in accordance with the general terms and conditions of use, available prior to registration/login on the website itself.*

*[5]Minimum total space requirement for magnet, electronics and console room.*

*[6]Channels (coil elements) that can be connected simultaneously.*

*[7]Siemens AG, "Sustainable healthcare strategy—Indicators in fiscal 2014", page 3–4*

*[8]Cardiac Triggering is still under development and not commercially available yet. Its future availability cannot be ensured.*

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