Extending the **power of MR**

Clinical applications portfolio

Extending the **power of MR**

We believe MR has potential to touch more lives and make an even bigger difference than it does today. Philips clinical applications support a broad range of anatomies, designed to help make MR more accessible[1], more definitive[2], and more impactful. Underpinned by the latest image acquisition and visualization technologies, these applications can help you answer complex diagnostic questions, enhance speed and reduce variability.

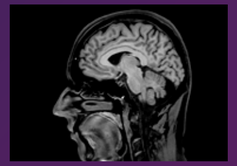
1 Accessible is defined as features that are expected to contribute to speed, consistency, user or patient friendliness
2 Definitive is defined as features that are expected to deliver alternative contrasts, functional or quantitative images

ScanTools Pro

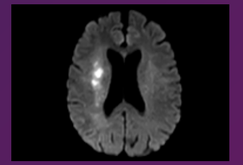
Scantools Pro provides the following generic workflow features for all clinical anatomies:

- **ExamCards**, for automated scanning and processing of patient studies. Examcards can be edited during scanning. The Split Exam option provides you the ability to separate imaging series acquired during a single scan session into multiple scan instances. This allows for correct association of imaging series to ordered/scheduled examinations to facilitate proper reporting, data handling and billing activities.
- **SENSE parallel imaging** methods for fast scan times, high resolution or to reduce susceptibility artifacts.
- **CLEAR** for signal uniformity correction based on coil-sensitivity and on patient loading.
- **PicturePlus** to improve appearance of images through edge enhancement and smoothing. Provides full control over all enhancement parameters, which can be applied automatically post-acquisition or as a post-processing option.
- **High-resolution** acquisitions and reconstruction (1024 matrix)

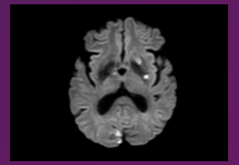
In addition, ScanTools Pro contains fast, high resolution imaging methods for the assessment of morphology of all anatomical areas including brain and spine, MSK, body and breast, cardiac, and various blood vessels with or without contrast agents. Specific features per clinical area are listed below.



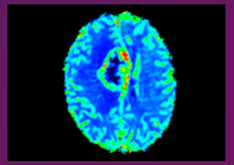
3D BrainVIEW
View your 3D TSE imaging data in any plane



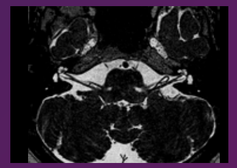
Diffusion
Non-invasive assessment of tissue structure



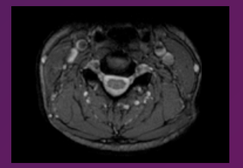
DWI TSE
Diffusion imaging with reduced distortion



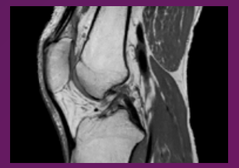
Perfusion
T2* perfusion imaging in short scan times



3D DRIVE
Short scan time, brighter fluid

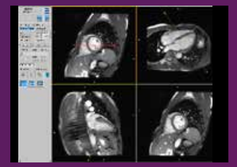


mFFE
Optimal visualization of the spinal cord

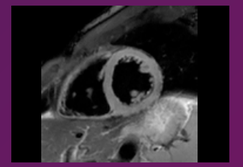


3D MSK VIEW
View your 3D TSE imaging data in any plane

DWIBS
Easily visualize lesions throughout the body



Real-Time Cardiac
Benefit from intuitive planning for cardiac studies



Cardiac MS/QF
Elevate your cardiac imaging to clinical routine level

dS **Performance** Suite Plus

This suite is designed for fast workflow, robust scanning and an enhanced patient experience during MRI examinations. The dS PerformanceSuite Plus delivers fast, robust scanning methods based on dStream digital quality and speed.

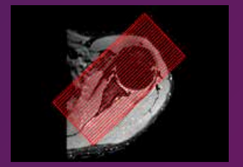
AutoVoice Page 10
Guiding your patients through the MR examination

ComforTone Page 11
Reduce acoustic noise and enhance MR experience

ScanWise Implant Page 12
A key to confidence with MR Conditional implants

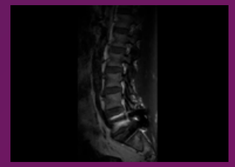
SmartExam Brain Page 13
Standardized exams forconsistent MRI results

SmartExam Spine Page 14
Standardized exams for consistent MRI results

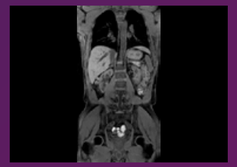


SmartExam Shoulder Page 15
Standardized exams for consistent MRI results

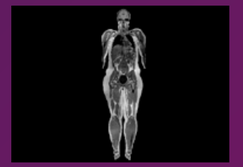
SmartExam Knee Page 16
Standardized exams for consistent MRI results



O-MAR Page 17
Efficient near-metal soft tissue and bone imaging



mDIXON XD FFE Page 18
Improve your fat-free imaging performance



Whole Body Page 19
Get comfortable body imaging with head-to-toe coverage

AutoVoice

Guiding your patients through the MR examination

AutoVoice is a fully integrated and automated solution that guides your patients through the MR examination by indicating scan duration, announcing table movements and providing breathhold guidance, helping you enhance patient comfort. Automated breathhold commands are aligned with the patient's respiratory cycle and can be selected to fit patient conditions, such as expiration versus Inspiration.

Additional information:

- Available in several languages and customizable for local pronunciation or for a staff member's voice if desired.
- Allows export of customized settings to other Philips MR scanners.
- Texts and settings can be further adapted to meet operator preferences.

ComforTone

Reduce acoustic noise and enhance MR patient experience

Leveraging our years of experience in acoustic noise reduction technologies, our unique ComforTone solution achieves up to 80% acoustic noise reduction1 with similar image quality and contrast within the same time slot.

Additional information:

- Can be used in routine exams like brain.
- Can be applied with high gradient settings.
- Easy to implement and use, only few clicks are required to get started thanks to our ready-to-use ExamCards.

1 Compared to scanning without ComforTone.

ScanWise Implant

A key to confidence with MR Conditional implants

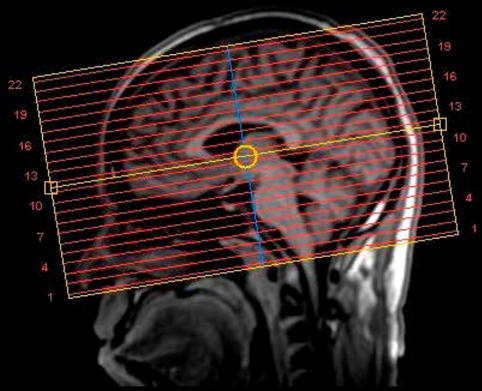
ScanWise Implant software helps you to confidently scan patients within the MR Conditional limits by providing step-by-step guidance to enter the condition values of the implant manufacturer. Your MR system then automatically applies these values for the entire examination helping you to simplify your scanning process for patients with MR Conditional implants.

Additional information:

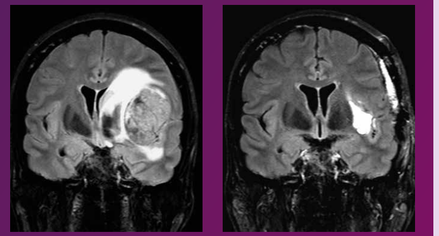
- Streamline your workflow with easy set-up of scanning parameters as to adhere to the implant's safety conditions, for all scans just once.
- Increase referrals of patients with MR Conditional implants to your institution by confidently offering MR imaging to this growing patient population.

SmartExam Brain

Standardized exams for consistent MRI results



SmartExam[1] Brain assists in delivering reproducible planning results in more than 80% of procedures by using intelligent software which automatically plans the scanning geometries, based on your validated scanning preferences. This enables you to standardize your MRI exam process helping you to enhance consistency in follow-up exams of the same patient and from patient to patient.



Enhanced consistency in follow-up exams

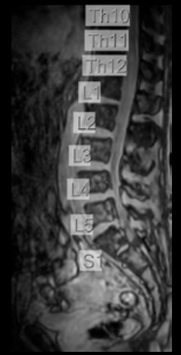
Additional information:

- Dedicated 3D survey scan is included to determine patient positioning.
- Automated planning of the imaging stack is based on anatomic landmarks relating those to a previously defined planning.
- SmartExam planning can be adapted and expanded to fit changing requirements.
- Automated geometry planning can be shared and applied across Philips MRI consoles.

1 SmartExam is not available to patients with MR Conditional implants.

SmartExam Spine

Standardized exams for consistent MRI results



SmartExam Spine[1] assists in delivering reproducible planning results in more than 80% of procedures by using intelligent software which automatically plans the scanning geometries, based on your validated scanning preferences. This enables you to standardize your MRI exam process helping you to enhance consistency in follow-up exams of the same patient and from patient to patient.

Consistent reading for any patient

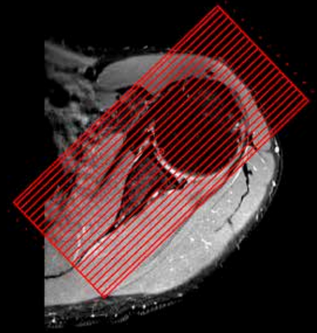
Additional information:

- Dedicated 3D survey scan is included to determine patient positioning.
- Automated planning of the imaging stack is based on anatomic landmarks relating those to a previously defined planning.
- SmartExam planning can be adapted and expanded to fit changing requirements.
- Includes numbering of the vertebrae and automatically matches the planning of the axial stacks to the disc's orientation.
- Automated geometry planning can be shared and applied across Philips MRI consoles.

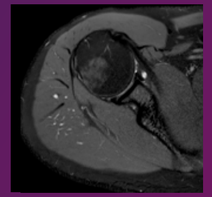
1 SmartExam is not available to patients with MR Conditional implants.

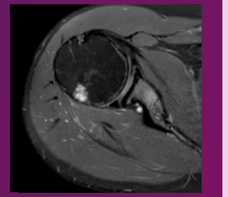
SmartExam Shoulder

Standardized exams for consistent MRI results



SmartExam Shoulder[1] assists in delivering reproducible planning results in more than 80% of procedures by using intelligent software which automatically plans the scanning geometries, based on your validated scanning preferences. This enables you to standardize your MRI exam process helping you to enhance consistency in follow-up exams of the same patient and from patient to patient.





Consistent reading for any patient

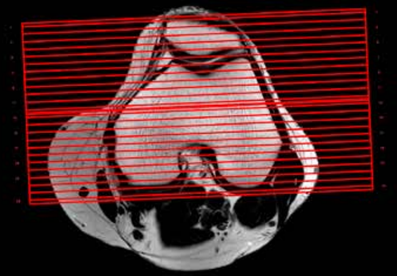
Additional information:

- Dedicated 3D survey scan is included to determine patient positioning.
- Automated planning of the imaging stack is based on anatomic landmarks relating those to a previously defined planning.
- SmartExam planning can be adapted and expanded to fit changing requirements.
- Automated geometry planning can be shared and applied across Philips MRI consoles.

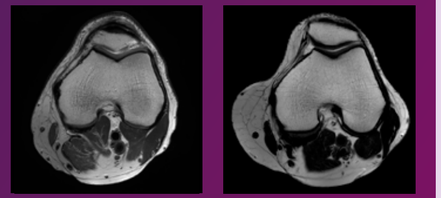
1 SmartExam is not available to patients with MR Conditional implants.

SmartExam Knee

Standardized exams for consistent MRI results



SmartExam Knee[1] assists in delivering reproducible planning results in more than 80% of procedures by using intelligent software which automatically plans the scanning geometries, based on your validated scanning preferences. This enables you to standardize your MRI exam process helping you to enhance consistency in follow-up exams of the same patient and from patient to patient.



Consistent reading for any patient

Additional information:

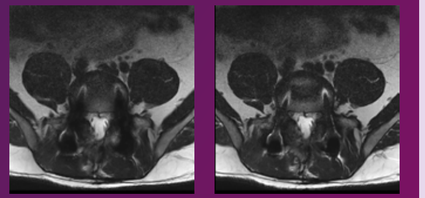
- Dedicated 3D survey scan is included to determine patient positioning.
- Automated planning of the imaging stack is based on anatomic landmarks relating those to a previously defined planning.
- SmartExam planning can be adapted and expanded to fit changing requirements.
- Automated geometry planning can be shared and applied across Philips MRI consoles.

1 SmartExam is not available to patients with MR Conditional implants.

O-MAR

Efficient near-metal soft tissue and bone imaging

O-MAR (Metal Artifact Reduction for Orthopedic implants) allows you to improve visualization of more soft tissue and bone in the near vicinity of MR Conditional orthopedic implants[1]. This allows you to offer post-operative MR imaging to patients with implants who could develop implant-related conditions.



Traditional T2w TSE (left) versus T2w TSE O-MAR (right)

Additional information:

- Reduction of susceptibility artifacts[2] caused by metal implants[1].
- Supports most relevant image contrasts (T1w, T2w, PDw, and STIR).
- Extending MARS (Metal Artifact Reduction Sequence) with the View Angle Tilting (VAT) technique.

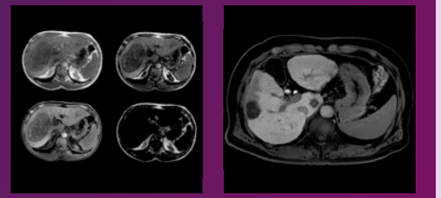
1 Only for use with MR Safe or MR Conditional implants by strictly following the Instructions for Use.

2 Compared to standard high bandwidth spin-echo based techniques.

mDIXON XD FFE

Improve your fat-free imaging performance

mDIXON XD FFE provides more efficient fat-free imaging in routine scan times. Improve your fat-free imaging over large field-of-views and for high resolution imaging. With up to four image types in one single scan, including with or without fat suppression contrasts, mDIXON XD FFE will enable you to enhance your imaging strategies by simplifying your routine FFE procedures.



Multiple image contrasts in one single scan

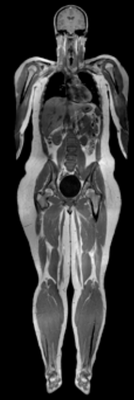
Additional information:

- Improved fat-free imaging over large 400–500 mm FOV and for sub-millimetric resolution[1].
- More efficient, faster scanning[2].
- Increased signal-to-noise ratio[2].
- Acquire up to four image types in one single scan (water only, in phase, out phase, fat only)

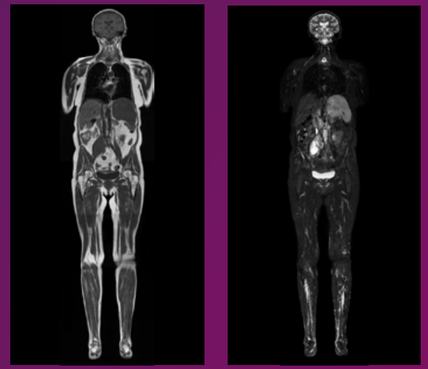
1 Compared to the standard mDIXON algorithm, due to unique 7-peak fat model and improved B0 correction.
2 Due to the unrestricted echo-time (TE) approach in mDIXON allowing more freedom in protocol optimization.

Whole Body

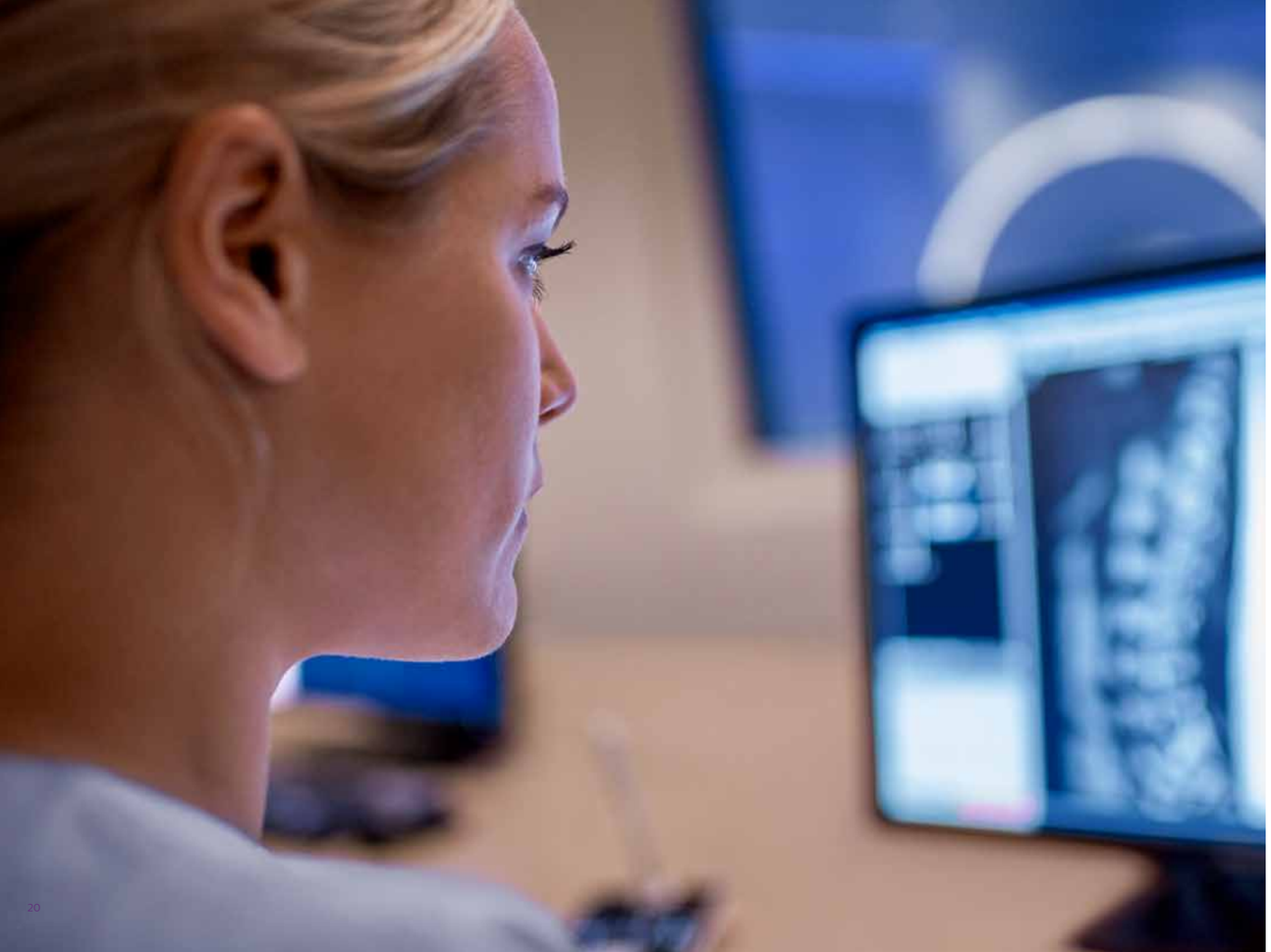
Get comfortable body imaging with head-to-toe coverage



Whole Body package supports automated head-to-toe imaging coverage. By allowing an extended table stroke, it enables whole-body, multi-station, feet-first imaging studies. You can perform all required imaging sequences per station, reducing the amount of required table movements.

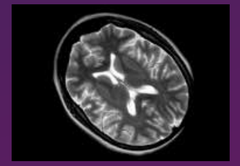


Head to toe imaging coverage

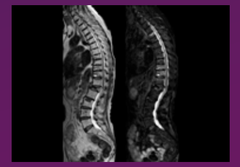


dS **Performance** Suite Pro

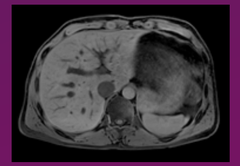
The dS PerformanceSuite Pro complements the dS PerformanceSuite Plus. It brings additional software applications for motion control, fat free performance TSE scan and free breathing liver imaging.



MultiVane XD Page 22
Motion-free imaging in short scan time



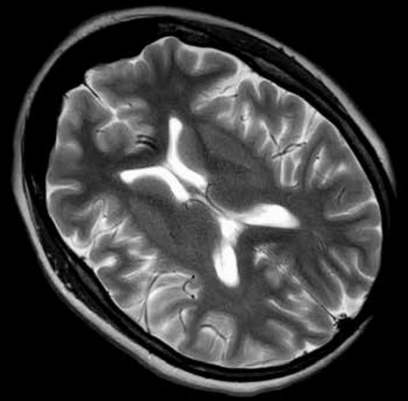
mDIXON XD TSE Page 23
Replace all your FatSat by one single fat-free imaging solution



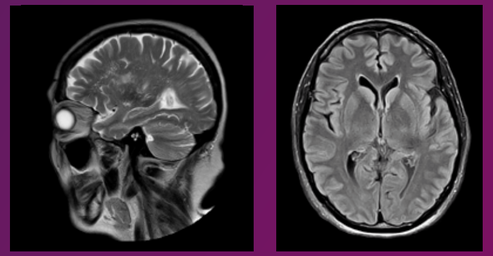
3D VANE XD Page 25
Free breathing abdominal imaging

MultiVane XD

Motion-free imaging in short scan time



MultiVane XD delivers high resolution diagnostic images even in the case of severe patient motion by providing motion correction to a full range of anatomies, in short scan times[1]. MultiVane XD works in multiple orientations and for various contrasts (T1w, T2w, FLAIR) helping you to increase your diagnostic confidence.

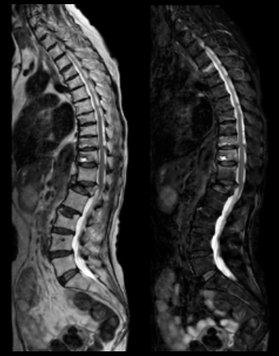


Diagnostic images, even in the case of severe patient motion

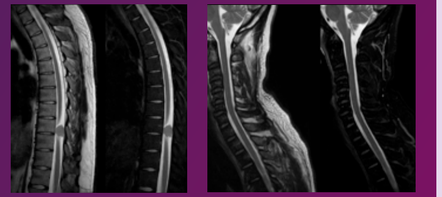
1 Compared to Multivane, thanks to compatibility with dS SENSE.

mDIXON XD TSE

Replace all your FatSat by one single fat-free imaging solution



mDIXON XD TSE brings a new dimension to fat suppression by providing uniform, complete and consistent fat-free imaging, even over large field-of-views and in challenging anatomies. Providing up to four image types in one single scan, including with/without fat suppression contrasts, in routine scan times and resolution simultaneously, you can easily replace your favorite routine TSE scans with it. mDIXON XD TSE will enable you to enhance your imaging strategies by simplifying your routine TSE procedures.



With/without fat suppression contrasts, simultaneously

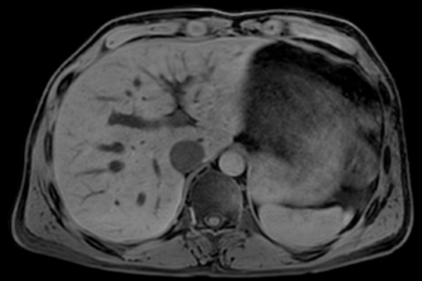
Additional information:

- 30% faster scanning and up to 30% reduced blurring[1].
- Increased signal-to-noise ratio[2].
- Acquire up to four image types in one single scan (water only, in phase, out phase, fat only).

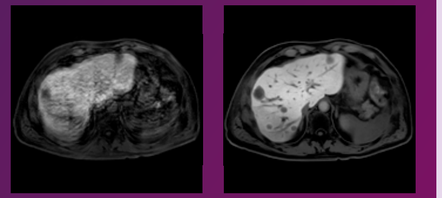
1 Due to its unique 2-echo technology, compared to the conventional 3-echo DIXON TSE techniques.
2 Compared to a standard non-fat-shift corrected fat-free TSE approach.

3D VANE XD

Free breathing abdominal imaging



3D VANE XD supports imaging of the abdomen without the need for the patient to hold their breath, helping you reduce motion artifacts during free breathing[1] and improve patient comfort. With 3D VANE XD, you can now accommodate patients who are unable to hold their breath, including pediatric patients.

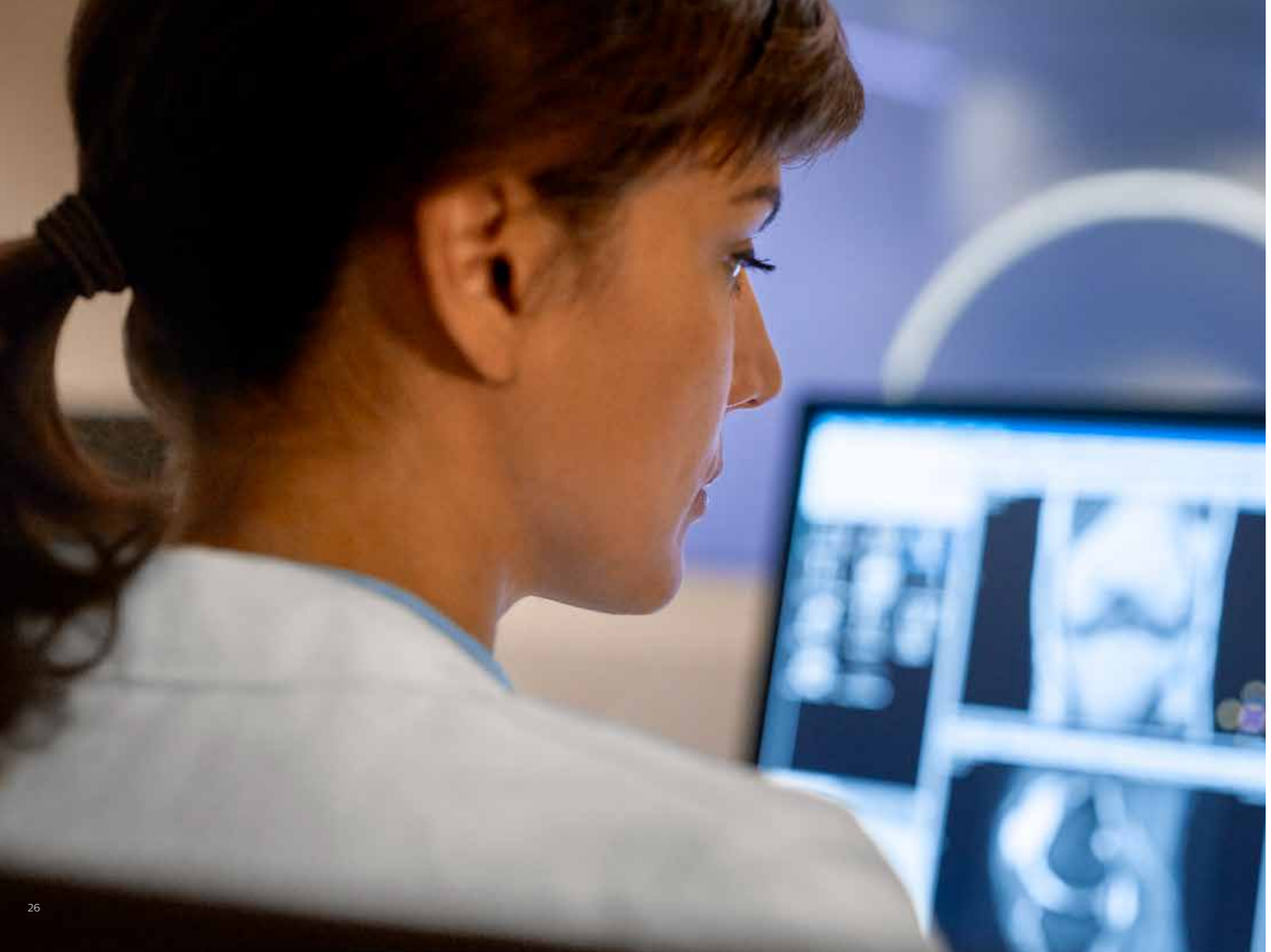


Breathhold mDIXON XD (left) versus a free breathing 3D VANE XD (right)

Additional information:

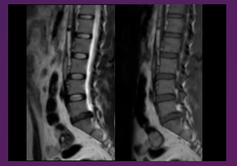
- 3D T1w FFE imaging method.
- Can be combined with fat suppression methods (eTHRIVE, mDIXON XD).

1 Due to radial imaging method, compared to Philips 3D cartesian imaging method.



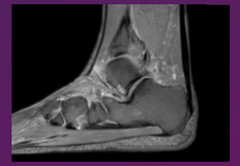
dS **Performance** Suite Premium

The dS PerformanceSuite Premium will complement the dS PerformanceSuite Pro by bringing all Compressed SENSE software applications.



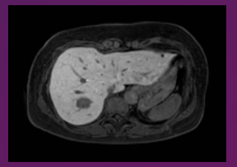
Compressed SENSE Neuro and Spine Page 28

Speed done right, every time



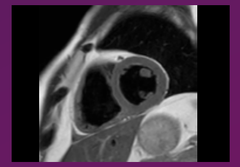
Compressed SENSE MSK Page 29

Speed done right, every time



Compressed SENSE Body Page 30

Speed done right, every time



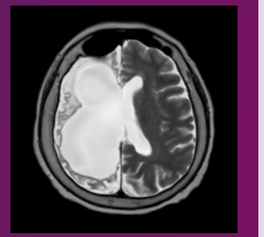
Compressed SENSE Cardiac Page 31

Speed done right, every time

Compressed SENSE Neuro and Spine

Speed done right, every time

To meet the increased demand for productivity, a technology break-through in acceleration is required. Leveraging our long standing leadership position in speed (i.e. SENSE), Philips brings a breakthrough in productivity. Compressed SENSE is about accelerating full patient examinations to empower your staff to focus where it matters the most, enhanced patient care. This new paradigm in productivity is available for Neuro and Spine imaging, for all anatomical contrasts, and not only 3D scans but also 2D scans are significantly faster (up to 50%).



Fast 2D Brain imaging

Additional information:

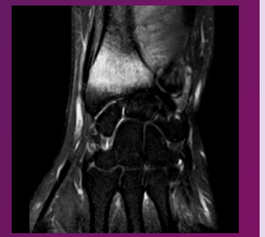
- Available for multiple cartesian scan techniques like FFE, SE, TFE and TSE.
- Available for all anatomical contrasts (e.g. T1, T2, PD, FLAIR, DIR, fat sat).
- A break-through acceleration technique speeding up not only sequences but your entire exam.
- Unique implementation enabling 2D and 3D scans to be up to 50% faster with virtually equivalent image quality[1].

1 Compared to scans without Compressed SENSE

Compressed SENSE MSK

Speed done right, every time

To meet the increased demand for productivity, a technology break-through in acceleration is required. Leveraging our long standing leadership position in speed (i.e. SENSE), Philips brings a breakthrough in productivity. Compressed SENSE is about accelerating full patient examinations to empower your staff to focus where it matters the most, enhanced patient care. This new paradigm in productivity is available for MSK imaging, for all anatomical contrasts, and not only 3D scans but also 2D scans are significantly faster (up to 50%).



Fast 2D MSK imaging

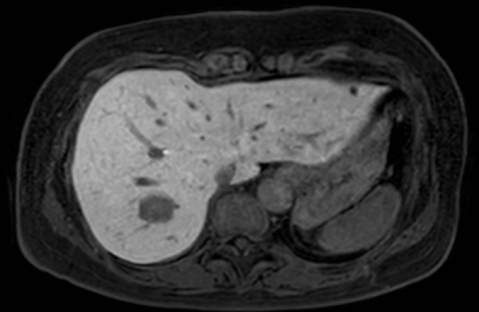
Additional information:

- Available for multiple cartesian scan techniques like FFE, SE, TFE and TSE.
- Available for all anatomical contrasts (e.g. T1, T2, PD, FLAIR, DIR, fat sat).
- A break-through acceleration technique speeding up not only sequences but your entire exam.
- Unique implementation enabling 2D and 3D scans to be up to 50% faster with virtually equivalent image quality[1].

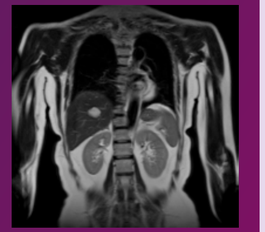
1 Compared to scans without Compressed SENSE

Compressed SENSE Body

Speed done right, every time



To meet the increased demand for productivity, a technology break-through in acceleration is required. Leveraging our long standing leadership position in speed (i.e. SENSE), Philips brings a breakthrough in productivity. Compressed SENSE is about accelerating full patient examinations to empower your staff to focus where it matters the most, enhanced patient care. This new paradigm in productivity is available for Liver, Prostate, Breast and Whole Body imaging, for all anatomical contrasts, and not only 3D scans but also 2D scans are significantly faster (up to 50%).



Fast 2D imaging with a short breath hold

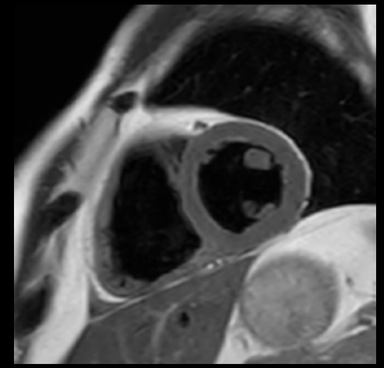
Additional information:

- Available for multiple cartesian scan techniques like FFE, SE, TFE and TSE.
- Available for all anatomical contrasts (e.g. T1, T2, PD, FLAIR, DIR, fat sat).
- A break-through acceleration technique speeding up not only sequences but your entire exam.
- Unique implementation enabling 2D and 3D scans to be up to 50% faster with virtually equivalent image quality[1].

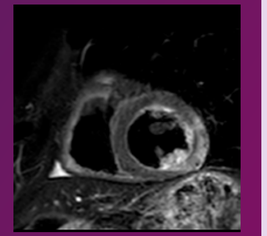
1 Compared to scans without Compressed SENSE

Compressed SENSE Cardiac

Speed done right, every time



To meet the increased demand for productivity, a technology break-through in acceleration is required. Leveraging our long standing leadership position in speed (i.e. SENSE), Philips brings a breakthrough in productivity. Compressed SENSE is about accelerating full patient examinations to empower your staff to focus where it matters the most, enhanced patient care. This new paradigm in productivity is available for Cardiac imaging, for all anatomical contrasts, and not only 3D scans but also 2D scans are significantly faster (up to 50%).

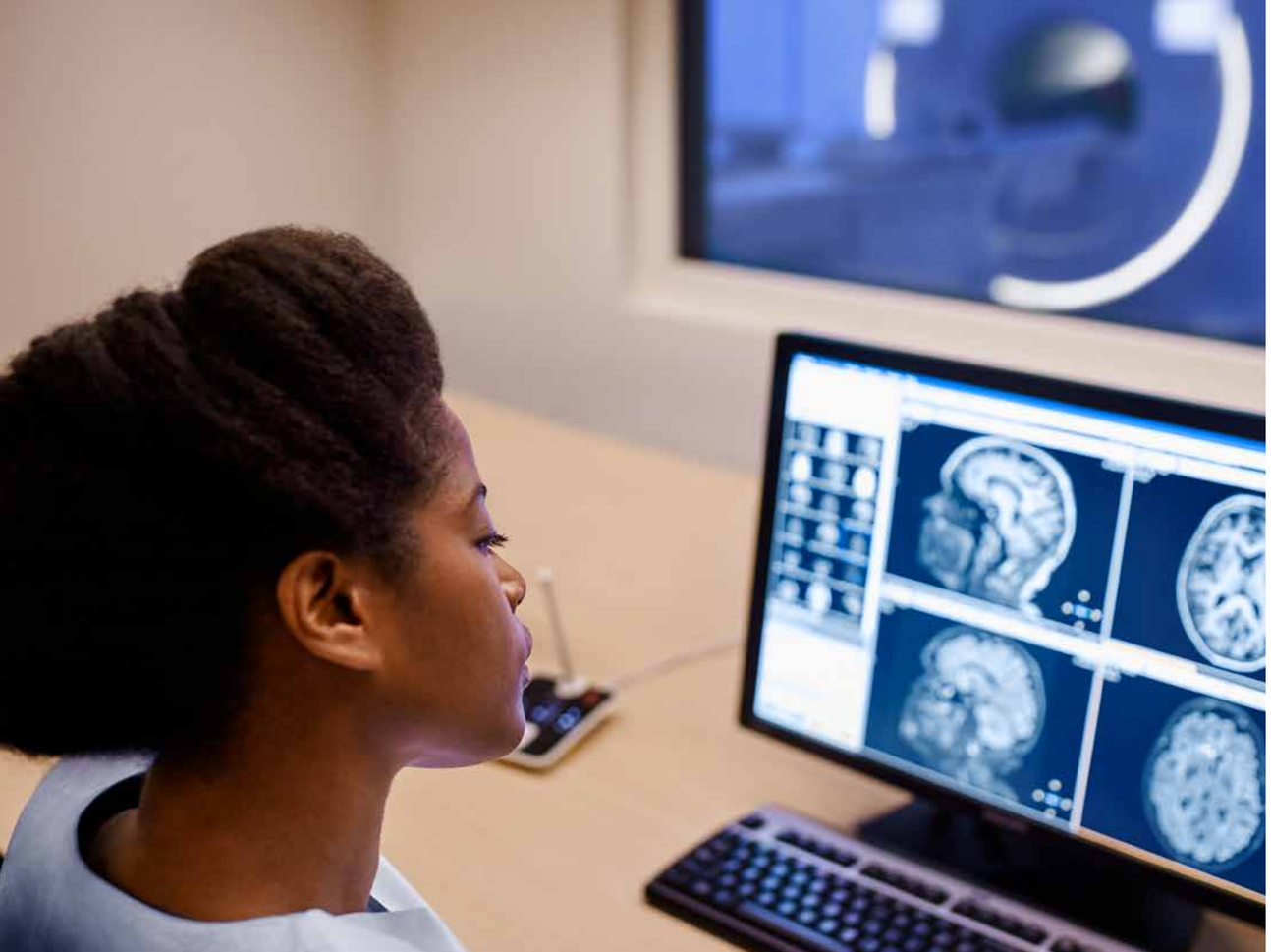


Fast 2D Cardiac imaging with a short breath hold

Additional information:

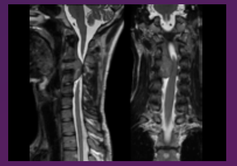
- Available for multiple cartesian scan techniques like FFE, SE, TFE and TSE.
- Available for all anatomical contrasts (e.g. T1, T2, PD, FLAIR, DIR, fat sat).
- A break-through acceleration technique speeding up not only sequences but your entire exam.
- Unique implementation enabling 2D and 3D scans to be up to 50% faster with virtually equivalent image quality1.

1 Compared to scans without Compressed SENSE

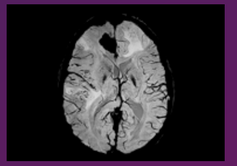


dS **Neuro** Suite Plus

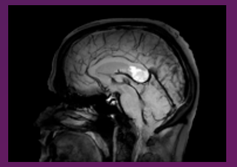
Advanced diagnostics are a crucial part of the treatment protocol for neurological disorders. With its superb 3D imaging of soft tissue, MRI can capture a wealth of structural and physiological information about the brain. Our dStream digital broadband architecture technology, which provides high-quality images at remarkable speed, helps you gain visibility into neurological anatomies and view multi-dimensional data to enable diagnostic decision support.



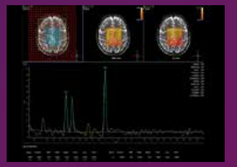
3D SpineVIEW Page 34
View your 3D TSE imaging data in any plane



SWIp Page 35
Exquisite susceptibility contrast



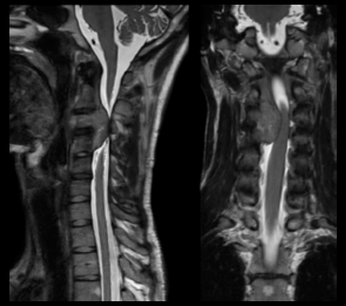
Black Blood imaging Page 36
Enhance your diagnostic confidence for brain imaging



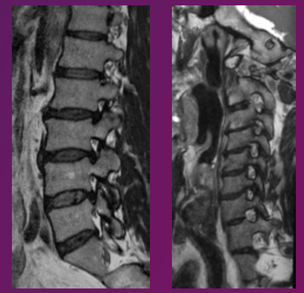
Spectroscopy Page 37
Fully integrated proton spectroscopy

3D SpineVIEW

View your 3D TSE imaging data in any plane



3D SpineVIEW is an advanced 3D TSE technique that lets you acquire high resolution data in multiple directions, including oblique, in one scan helping you enhance your confidence when diagnosing lesions.



Viewing imaging data in oblique directions

Additional information:

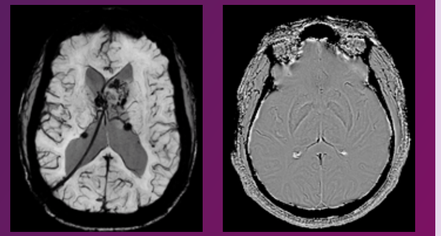
- Isotropic voxel size enabling reformats in any plane without loss of resolution.
- Allows for up to 20% shorter scan times[1].
- Available for a range of contrasts.

1 Due to time-efficient, low SAR flip angle sweep technology. Compared to standard 3D TSE.

SWIp

Exquisite susceptibility contrast

SWIp has a high sensitivity to enhance contrast for deoxygenated (venous) blood or calcium deposits and may help you, when used in combination with other clinical information, in the diagnosis of various neurological pathologies. SWIp offers high resolution 3D susceptibility weighted brain imaging allowing you to easily integrate it into your mainstream practice.



3D susceptibility weighted brain imaging, including phase maps

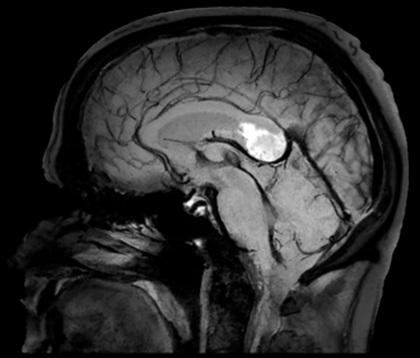
Additional information:

- High signal-to-noise ratio[1].
- Includes detailed phase maps to support advanced diagnosis.

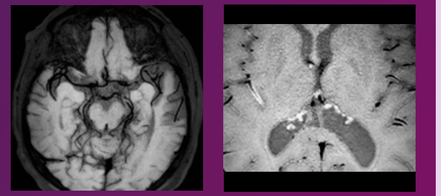
1 Due to multi-echo approach.

Black Blood imaging

Enhance your diagnostic confidence for Brain imaging



Black Blood imaging helps you better differentiate the vessel lumen from the intra lumen blood signal. This enhances your diagnostic confidence by performing your 3D brain imaging with higher and isotropic imaging resolution[1] with a reduction of the intra-lumen brain blood signal[2] over the complete imaging volume.



Reduction of the intra-lumen brain blood signal

Additional information:

- Fast scan times[3] of five minutes.
- 3D isotropic acquisition enables reformats in any plane (including oblique) without loss of resolution.

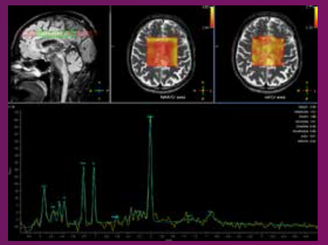
1 Compared to our 2D double inversion methods with same brain coverage and scan time.
2 Compared to our 3D T1w scan without MSDE pre-pulse.

3 Compared to our 2D double inversion recovery methods with same full brain coverage.

Spectroscopy

Fully integrated proton spectroscopy

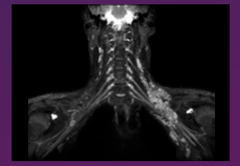
Spectroscopy Specialist provides extra information about the spatial distribution of metabolites in the brain. This package provides a set of single voxel, multi-voxel and multi-slice proton spectroscopy, fully integrated into the MRI console. To reduce scan time, a combination of Turbo Spectroscopic Imaging and dS SENSE can be used. Anisotropic matrix can be used to further reduce acquisition time. Includes SpectroView Analysis package for visualization and processing of all spectroscopic data.



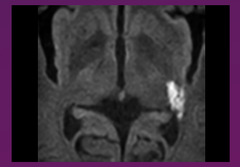
Spectroscopic imaging

dS **Neuro** Suite Pro

The dS NeuroSuite Pro complements the dS NeuroSuite Plus by bringing more advanced neuro applications which are 3D Nerve VIEW, Zoom Diffusion Imaging, and FiberTrak Specialist. Philips' neuro-diagnostic applications empower you to resolve complex questions with more certainty.



3D NerveVIEW Page 40
Review nerve plexus, non-invasively

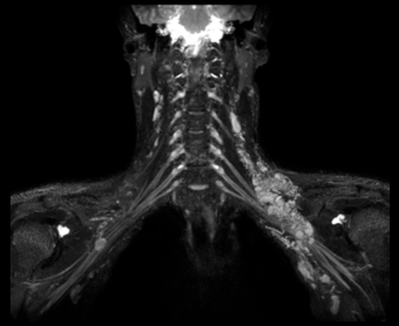


Zoom Diffusion Page 41
Small FOV diffusion imaging for improved image quality

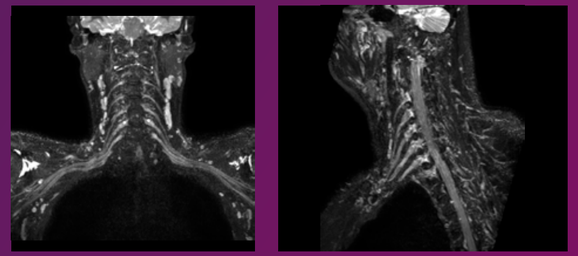
DTI FiberTrak Page 43
Fast, easy clinical fiber tracking

3D NerveVIEW

Review nerve plexus, non-invasively



3D NerveVIEW improves visualization of the brachial and lumbar plexus by providing you with a high resolution T2w TSE acquisition with reduced remaining intra-lumen signal of the veins[1]. In addition, the 3D isotropic imaging method allows for reformats in any plane (including oblique) without loss of resolution helping you to save scan time and improve spinal nerve plexus assessment.

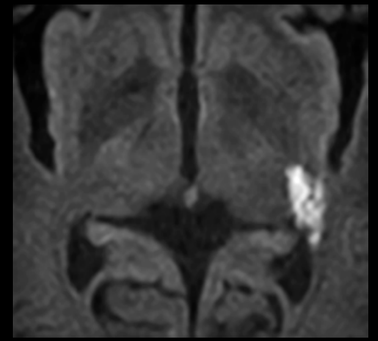


Improved visualization of the spinal nerve plexus

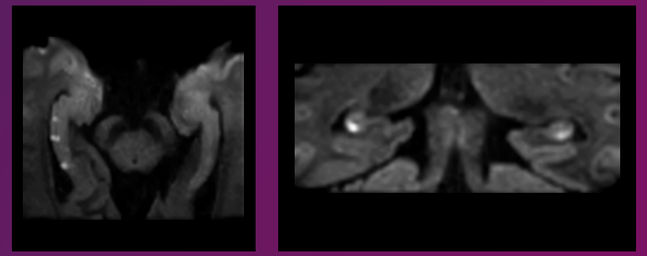
1 By use of MSDE black blood pre-pulse with STIR/SPAIR, compared to our STIR/SPAIR sequence without MSDE pre-pulse.

Zoom Diffusion

Small FOV diffusion imaging for improved image quality

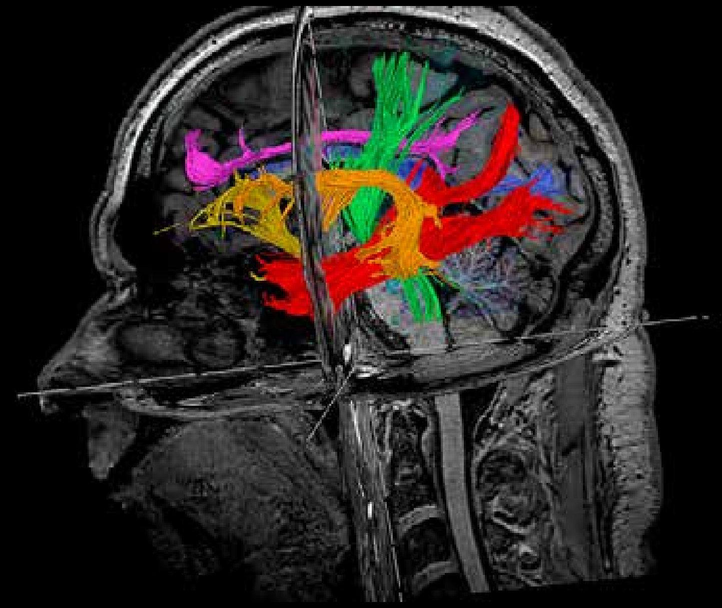


Zoom Diffusion allows you to acquire small FOV imaging, down to 200 x 50 mm, with reduced geometrical distortion, due to reduced EPI echo train length in DWI-EPI compared to conventional full FOV DWI-EPI, and higher spatial resolution, due to smaller acquisition voxel size compared to full FOV DWI-EPI, with same level of geometrical distortion.



Small FOV diffusion imaging with high spatial resolution

DTI FiberTrak



Fast, easy clinical fiber tracking

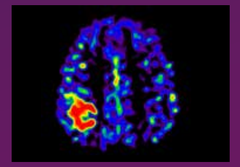
Visualize specific white matter fiber tracts in the brain with Diffusion Tensor Imaging (DTI) data and fiber tracking. This package allows you to trace, analyze and process fibers in real-time with minimal mouse clicks. It supports pre-operative surgical planning, post-surgery evaluation, and general evaluation of fiber tracts around tumors and lesions in connection with functional areas. DTI FiberTrak supports up to 32 directions and 16 b-values and includes automatic calculation of Fractional Anisotropy (FA) maps.

Visualization of white matter fiber tracts in the brain

dS **Neuro** Suite Premium

The dS NeuroSuite Premium complements the dS NeuroSuite Pro by bringing specialized neuro applications. This set of advanced diagnostic applications can help you differentiate yourself from competitors and increase your referral services.

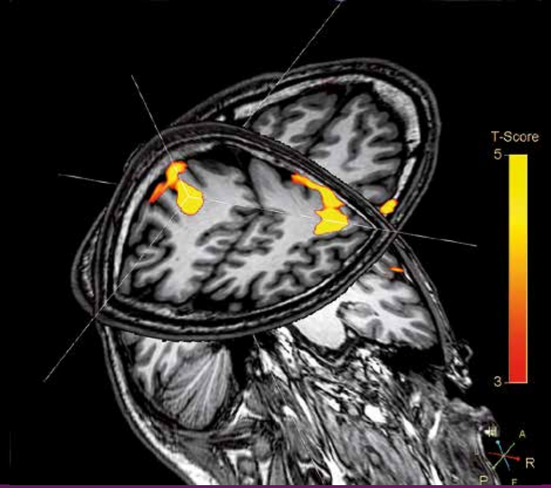
Bold Page 46
Motion-free imaging in short scan time



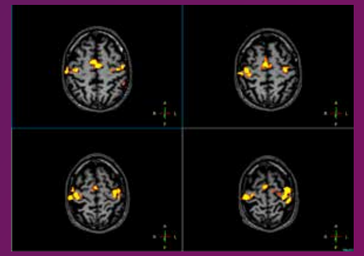
3D ASL Page 47
Replace all your FatSat by one single fat-free imaging solution

BOLD

Fast, easy and reliable fMRI



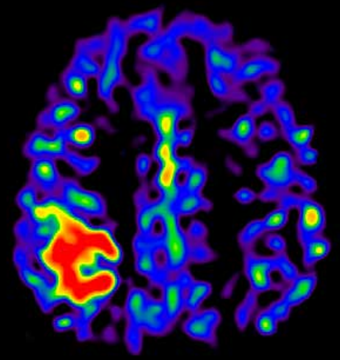
Accurately acquiring fMRI BOLD data during neuro imaging helps visualize task-related areas of activation in the brain. The fMRI paradigms that deliver and control stimuli are fully automated via dedicated ExamCards to make fMRI fast, easy, and reliable. The iView BOLD analysis package provides real-time processing of fMRI BOLD data into functional activation maps.



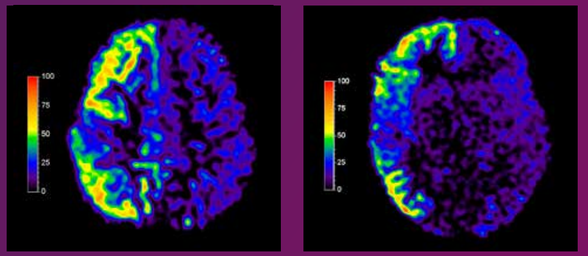
Visualize task-related areas of activation in the brain

3D ASL

Reproducible contrast-free brain perfusion

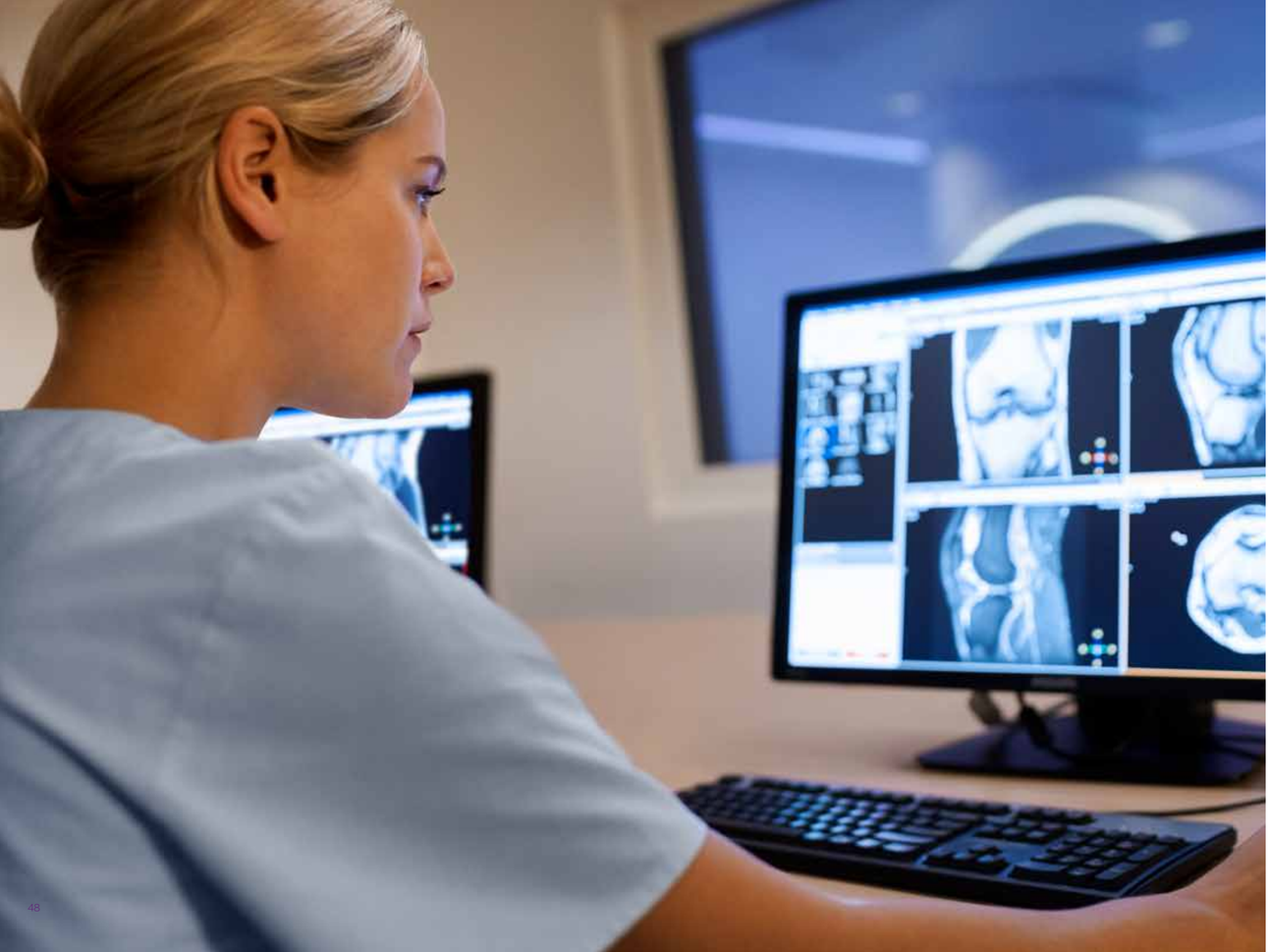


3D ASL enables you to consistently quantify brain perfusion with an accuracy of 15%[1] in a non-contrast manner with full brain coverage, and better background suppression, compared to 2D pCASL method. 3D ASL includes fully automated calculation of color coded ASL maps.



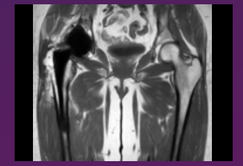
Quantification of brain perfusion in a non-contrast manner

1 Measured on a single Philips 3.0T system for the same volunteer.

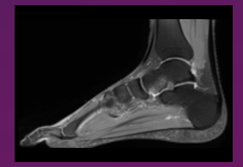


dS **MSK** Suite

Advanced diagnostics are a crucial part of the treatment protocol for MSK disorders. Philips' MSK-diagnostic applications empower you to resolve complex questions with more certainty, especially in cases where metal implants are present.



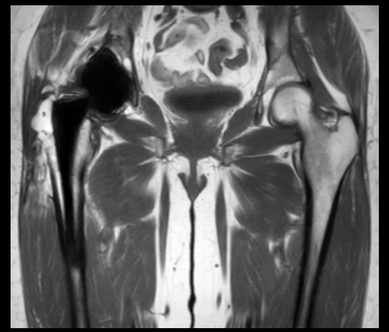
O-MAR XD Page 50
Efficient near-metal soft tissue and bone imaging



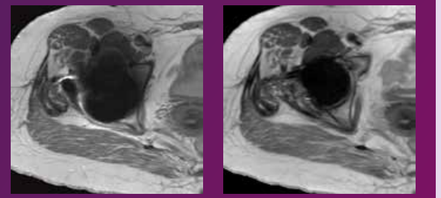
2k imaging Page 51
High resolution imaging

O-MAR XD

Efficient near-metal soft tissue and bone imaging



O-MAR XD (Metal Artifact Reduction for Orthopedic implants) allows you to improve visualization of more soft tissue and bone in the near vicinity of MR Conditional Orthopedic implants[1]. This allows you to offer postoperative MR imaging to patients with implants who could develop implant-related conditions.



Traditional PDw TSE (left) versus PDw TSE O-MAR XD (right)

Additional information:

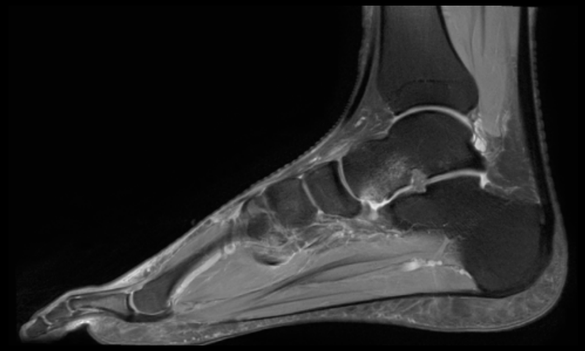
- Reduction of in- and throughplane susceptibility artifacts[2] caused by metal implants[1].
- Supports most relevant image contrasts (T1w, T2w, PDw, and STIR).
- Extending MARS (Metal Artifact Reduction Sequence) with the View Angle Tilting (VAT) and Slice Encoding for Metal Artifact Correction (SEMAC) techniques.

1 Only for use with MR Safe or MR Conditional implants by strictly following the Instructions for Use.

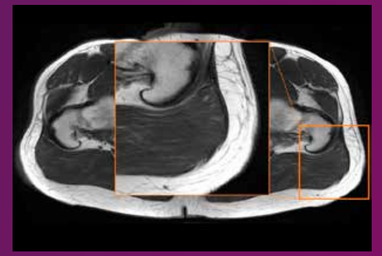
2 Compared to standard high bandwidth spin-echo based techniques.

2k imaging

High resolution imaging



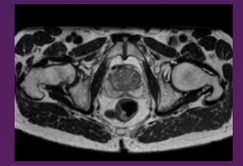
2k Imaging offers a scan matrix of 2048 x 2048, providing high resolution even with large FOVs, or lower resolution scans with a 2048 matrix reconstruction. Compatible with all imaging methods.



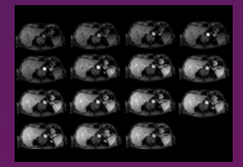
Ultra high resolution imaging

dS **Body** Suite

Advanced diagnostics are a crucial part of the treatment protocol for diseases affecting the liver, pelvic area and breast. With its superb 3D imaging of soft tissue, MRI can capture a wealth of structural and physiological information on the body.



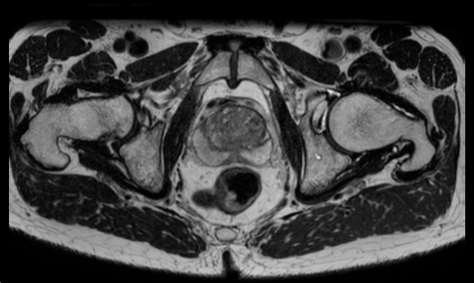
3D PelvisVIEW Page 54
View your 3D TSE imaging data in any plane



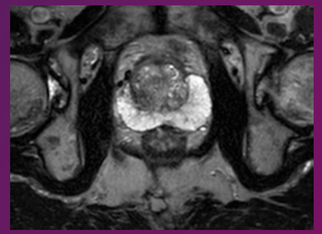
4D-THRIVE/BLISS Page 55
Accelerate dynamic body and breast imaging

3D PelvisVIEW

View your 3D TSE imaging data in any plane



3D PelvisVIEW is an advanced 3D TSE technique that lets you acquire high resolution data in multiple directions, including oblique, in one scan helping you enhance your confidence when diagnosing lesions.



Data in multiple directions, in one scan

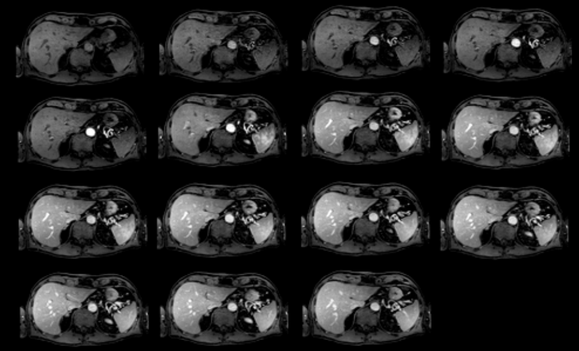
Additional information:

- Isotropic voxel size enabling reformats in any plane without loss of resolution.
- Allows for up to 20% shorter scan times[1].
- Available for a range of contrasts.

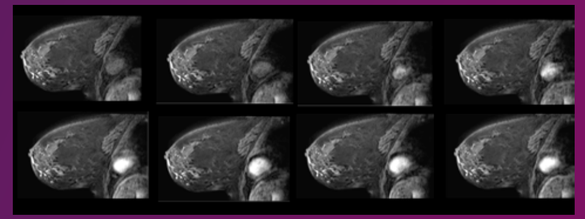
2 Due to time-efficient, low SAR flip angle sweep technology. Compared to standard 3D TSE.

4D-THRIVE/BLISS

Accelerate dynamic body and breast imaging



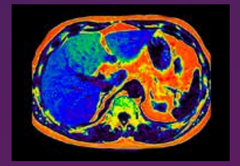
4D-THRIVE/BLISS is a time-resolved 3D technique to drastically accelerate dynamic body and breast imaging through the combination of a keyhole method with CENTRA and SENSE. Combines high spatial resolution with high temporal resolution to facilitate acquisition of multiple dynamic volumetric data sets per breath-hold.



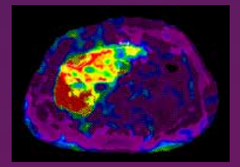
Accelerated, high resolution, sagittal 3D breast imaging

dS **Liver** Suite

Advanced diagnostics are a crucial part of the treatment protocol for diseases affecting the liver and requiring assessment of liver stiffness. MR Elastography empowers you to resolve complex questions with more certainty. This supports non-invasive assessment of differences in tissue stiffness of the liver in a fast breathhold scan, providing you with additional input to help make informed treatment decisions.



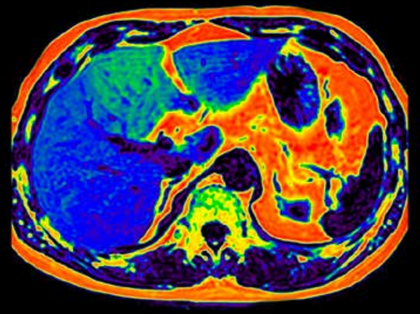
mDIXON Quant Page 58
Non-invasive liver fat fraction quantification



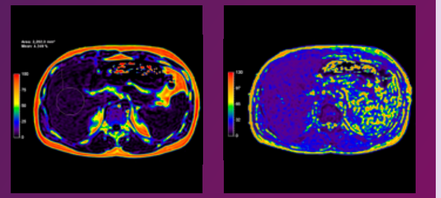
MR Elastography Page 59
Non-invasive assessment of liver tissue stiffness

mDIXON Quant

Non-invasive liver fat fraction quantification



mDIXON Quant brings a fast and simple 3D procedure for non-invasive liver fat quantification by providing high quality 3D fat fraction maps of the whole liver, even for short T2*, with high accuracy (± 3.5%) and reproducibility (± 1.4%)[1] allowing you to expand your MRI capabilities. T2*/R2* relaxation maps are provided to further help your diagnostic assessment.



Fat fraction maps (left) and T2*/R2* relaxation maps (right)

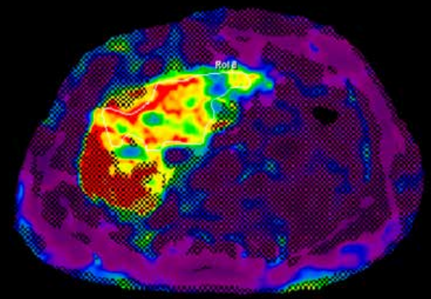
Additional information:

- Single breathhold acquisition.
- Based on state of the art 6-echo acquisition, 7-peak fat modeling reconstruction, correction for T2* confounding effect and low flip angle to minimize T1 bias.
- Fat fraction maps are displayed in colors with a quantification bar.

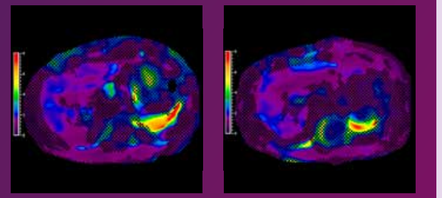
1 Accuracy and reproducibility were assessed using a reference liver protocol, on fat phantoms (range: 0–100%). Reproducibility assessed over systems.

MR Elastography

Non-invasive assessment of liver tissue stiffness



MR Elastography allows for a non-invasive assessment of differences in tissue stiffness of the liver in a fast breathhold scan providing trained physicians with additional input to help make informed decisions about treatment.



Elastograms reflecting tissue stiffness in kPa

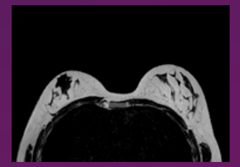
Additional information:

- Image processing is fully integrated at the scanner.
- Automated calculation of Elastograms, reflecting tissue stiffness in kPa.
- Statistical confidence map is provided for reliability assessment.

dS **Breast** Suite

Advanced diagnostics are a crucial part of the treatment protocol for breast diseases. SmartExam Breast enables consistent fat suppression and reproducible image quality of breast examinations, independent of patient or operator. 3D Breast VIEW delivers high resolution isotropic 3D TSE breast acquisitions with short scan times by employing high 3D dS SENSE factors. Isotropic acquisition allows reformats in arbitrary planes.

SmartExam Breast Page 62
Consistent fat suppression for every patient

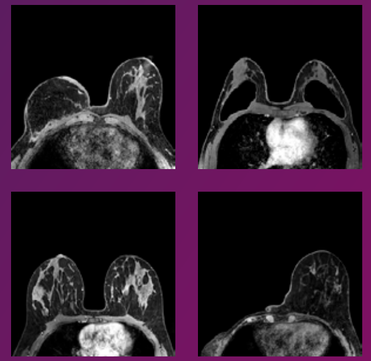


3D BreastVIEW Page 63
View your 3D TSE imaging data in any plane

SmartExam Breast

Consistent fat suppression for every patient

SmartExam Breast[1] provides consistent fat suppression for every patient and assists in delivering reproducible planning results by using intelligent software which automatically plans the scanning geometries, based on your validated scanning preferences. This enables you to standardize your MRI exam process helping you to enhance consistency in follow-up exams of the same patient and from patient to patient.



Consistent fat suppression for every patient

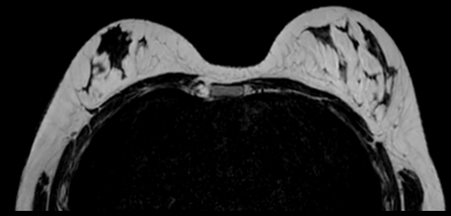
Additional information:

- Dedicated 3D survey scan is included to determine patient positioning.
- Automated planning of the imaging stack is based on anatomic landmarks relating those to a previously defined planning.
- SmartExam planning can be adapted and expanded to fit changing requirements.
- Automated geometry planning can be shared and applied across Philips MRI consoles.

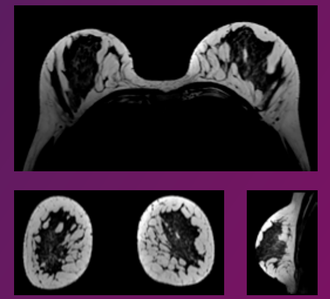
1 SmartExam is not available to patients with MR Conditional implants.

3D BreastVIEW

View your 3D TSE imaging data in any plane



3D BreastVIEW is an advanced 3D TSE technique that lets you acquire high resolution data in multiple directions, including oblique, in one scan helping you enhance your confidence when diagnosing lesions.



Data in multiple directions, in one scan

Additional information:

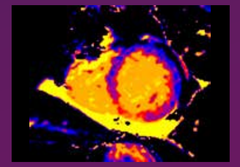
- Isotropic voxel size enabling reformats in any plane without loss of resolution.
- Allows for up to 20% shorter scan times[1].
- Available for a range of contrasts.

1 Due to time-efficient, low SAR flip angle sweep technology. Compared to standard 3D TSE.

dS **Cardiac** Suite Pro

Advanced diagnostics are a crucial part of the treatment protocol for heart disease. A comprehensive suite of cardiac MR tools for ischemic and non-ischemic diseases, including quantitative tissue characterization, can capture a wealth of functional and pathological information about the heart. Philips' cardiac diagnostic applications empower you to resolve complex questions with more certainty.

Cardiac Expert Page 66
Expand your cardiac MR functionality

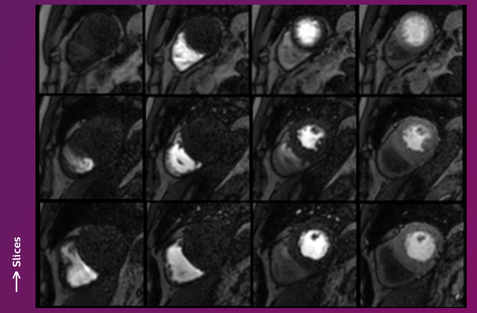


CardiacQuant Page 67
Non-invasive assessment of myocardial tissue

Cardiac Expert

Expand your cardiac MR functionality

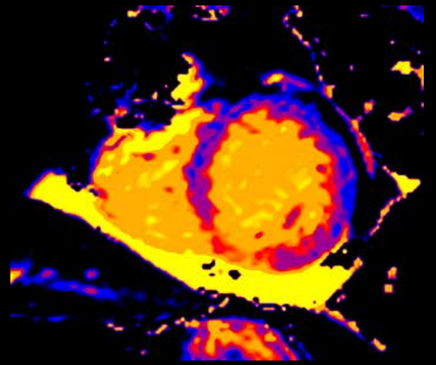
Cardiac Expert supports the acquisition of multi-slice, dynamic tissue studies with T1 weighting and uniform tissue suppression[1] by including Look Locker methods for determining an optimal inversion delay time. Cardiac Expert also provides myocardial tagging[2] to allow assessment of regional wall motion and allows for real-time interactive planning of challenging cardiac views.



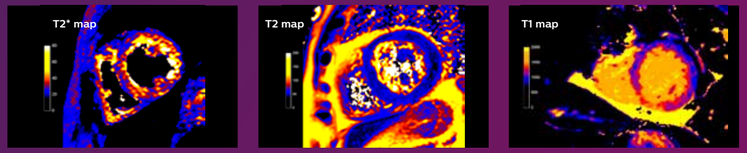
1 With a (B1 insensitive) saturation pre-pulse
2 By means of REST grids

CardiacQuant

Non-invasive assessment of myocardial tissue



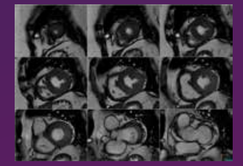
With CardiacQuant you get access to exciting new applications for cardiology, which can help in the non-invasive assessment of myocardial tissue characteristics by providing you with comprehensive graphs and pixel-based, quantitative information in different regions of the myocardium helping you to make early decisions for therapy.



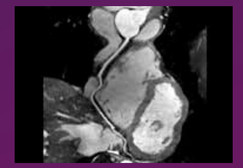
Quantitative T2*, T2 and T1 maps in a single breathhold scan

dS **Cardiac** Suite Premium

Advanced diagnostics are a crucial part of the treatment protocol for heart disease. Philips' cardiac diagnostic applications empower you to resolve complex questions with more certainty. The dS CardiacSuite Premium complements the dS CardiacSuite Pro by bringing both Coronary Acquisition and k-t BLAST.



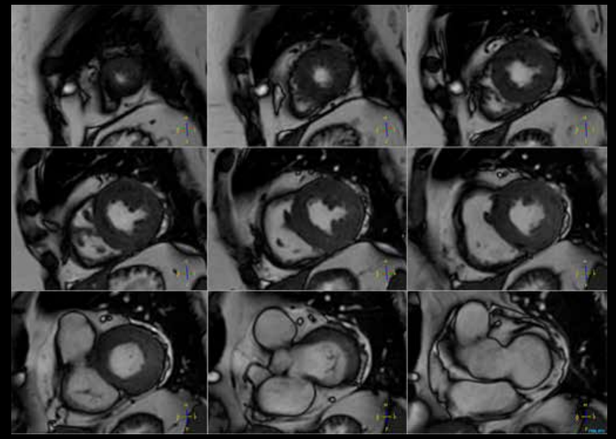
k-t BLAST Page 70
Accelerate your cardiac studies



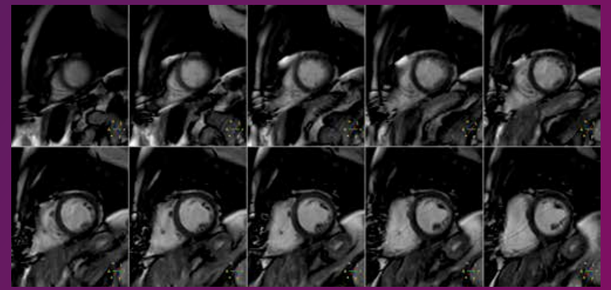
Coronary Acquisition Page 71
Perform non-invasive imaging of coronary arteries

k-t BLAST

Accelerate your cardiac studies

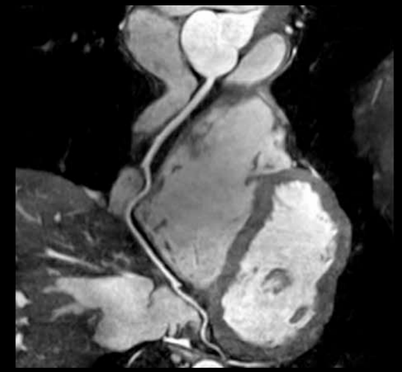


K-t BLAST provides up to five fold acceleration using an alternative parallel imaging technique employing undersampling in time and space. Suited for dynamic and real-time cardiac studies as well as single breath hold, multi-slice cine studies. Can be combined with most other imaging methods.

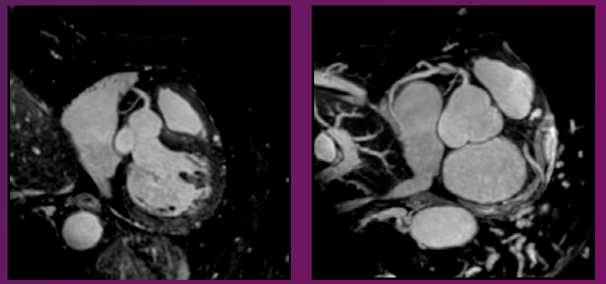


Coronary Acquisition

Perform non-invasive imaging of coronary arteries



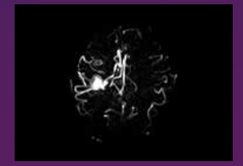
Coronary Acquisition allows for non-invasive imaging of coronary arteries by displaying good contrast between myocardium and vessels by deploying 3D sequences combined with MotionTrak respiratory navigators for real-time motion correction and T2-preparation.



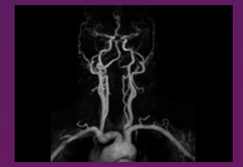
Non-invasive imaging of coronary arteries

dS **Vascular** Suite

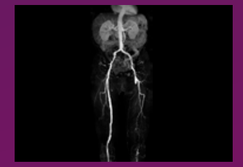
dS VascularSuite premium brings a comprehensive suite of MR angiography methods, including dynamic non-contrast acquisitions and non-subtraction peripheral MRA with mDIXON XD FFE can capture a wealth of structural and physiological information about the blood vessels.



4D-TRANCE Page 74
Contrast-free imaging of brain vascular anatomy



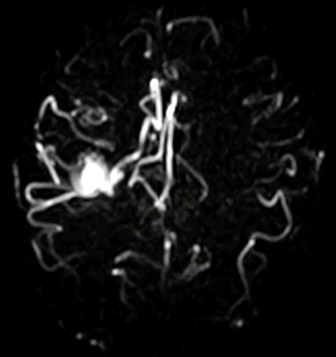
4D-TRAK XD Page 75
Flexibility in your MR Angiography studies



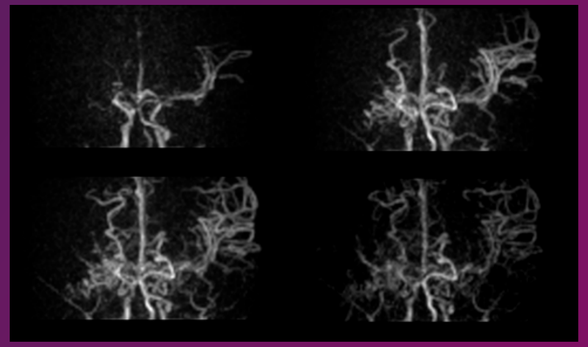
mDIXON XD MultiStation Page 77
Non-subtraction peripheral MR Angiography

4D-TRANCE

Contrast-free imaging of brain vascular anatomy



4D-TRANCE is a time-resolved technique for non-contrast angiography, promoting patient comfort and enabling you to evaluate the patency of the vascular anatomy in the brain using endogenous contrast with MIP visualization of multiple phases. 4D-TRANCE enables high temporal resolution down to 160 msec.

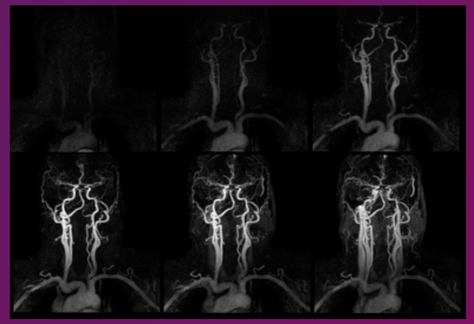


Non-contrast time-resolved angiography of the brain

4D-TRAK XD

Flexibility in your MR Angiography studies

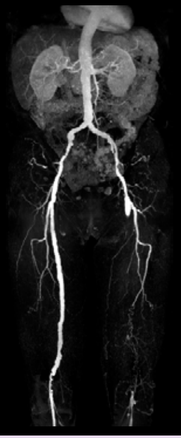
4D-TRAK XD provides a fast, dynamic contrast-enhanced MR Angiography method with flexible sampling of both the arterial- and venous phase, by applying view sharing technique, enabling high spatial and temporal resolution simultaneously.



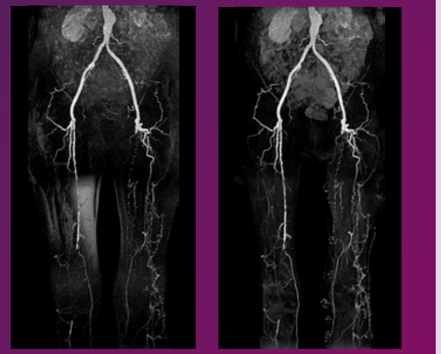
Fast, dynamic contrast-enhanced MR Angiography

mDIXON XD MultiStation

Non-subtraction peripheral MR Angiography



mDIXON XD MultiStation allows you to perform peripheral MR Angiography with improved vessel-to-background contrast in only one single pass1. You will be able to perform your peripheral MR Angiography acquisitions without the use of a subtraction mask, eliminating artifacts that could arise from misalignment, due to patient motion, between the pre and post contrast scan. Enjoy fast, robust peripheral MR Angiography.



MR Angiography with subtraction (left) and in one single pass (right) with improved vessel-to-background contrast

Additional information:

- Subtraction-less peripheral MR Angiography
- Improved vessel-tobackground contrast by 30-36%[1]

1 As opposed to standard MRA technology relying on the subtraction of a pre and post contrast scan.

dS **Pediatric** Suite

The dedicated PediatricSuite exists of a comprehensive pack of pediatric coils and accessories. At Philips, we understand your challenging business environment and your need to increase profitability and grow revenue. This set of coils and accessories can help you differentiate yourself from competitors and increase your referral services.

dS Ped NeuroSpine coil Page 80
High SNR for your pediatric brain and spine studies

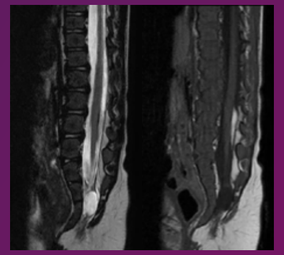
dS Ped Torso coil Page 81
High SNR for your pediatric torso and cardiac studies

Pediatric positioning pack Page 83
Taking care of the smallest patients

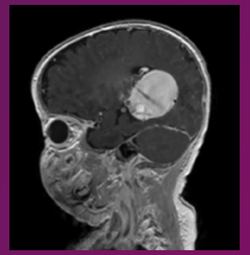
dS Ped NeuroSpine coil

High SNR for your pediatric brain and spine studies

The dS Ped NeuroSpine 8ch coil is an open-design 8-element coil for high resolution pediatric brain and spine imaging. Specifically designed for neonates, but will accommodate pediatric patients up to 10kg. Open, cradle shaped design enables the operator to position and prepare the patient outside the examination room. Examinations of brain and spine can be performed without having to move the patient.



T2w and T1w Spine imaging

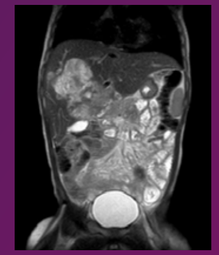


3D T1w Brain imaging

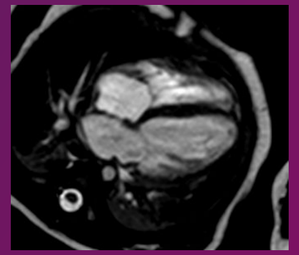
dS Ped Torso coil

High SNR for your pediatric torso and cardiac studies

The dS Ped Torso coil is a dedicated 8-element coil designed to provide excellent pediatric torso and cardiac imaging. The coil is optimized for neonates, but will accommodate pediatric patients up to 10kg. Split design allowing the top of the coil to be taken off, enabling easy access to the patient. An insert cradle can be used for additional patient support. A surrounding mattress is available to accommodate larger patients.



T2w abdominal imaging



Cardiac cine imaging

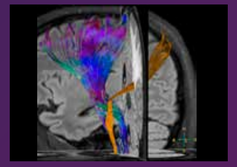
Pediatric positioning pack

Taking care of the smallest patients

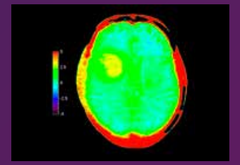
The Pediatric positioning pack for dStream systems consists of a subset of accessories designed to meet the needs of the smallest patients. Included is an anterior coil frame avoiding positioning of the dS Torso coil directly on the patient. Additionally a baby support pad, comfort pad, pediatric knee support and child elevation mattress are included in this package.

A la carte

Next, to all the previously mentioned packs, there is also the option to choose the various software applications individually. All the options that are available on the packaging are also available individually, according to regulatory approval and system compatibility. However, if a package is selected the individual applications of that package cannot be selected a-la-carte. Furthermore, there are also some applications that are only available a-la-carte. These options are MultiBand SENSE, StarQuant, NeuroScience Specialist, FiberTrak Specialist Extension, Real-Time Specialist, and Cardiac Quant Extension.

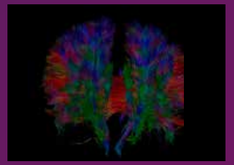


FiberTrak Extension Page 86
High definition fiber tracking in the brain or spine

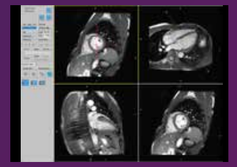


3D APT Page 87
Enhanced diagnostic confidence in neuro oncology

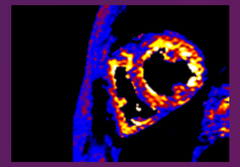
MultiBand SENSE Page 88
High acceleration for your fMRI and DTI sequences



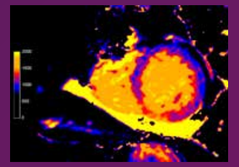
NeuroScience Page 89
Explore brain connectivity



Real-Time Specialist Page 90
Benefit from intuitive planning for cardiac studies



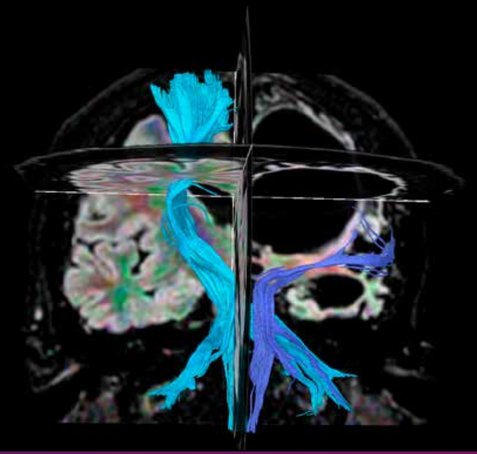
StarQuant Page 91
Non-invasive assessment of myocardial tissue



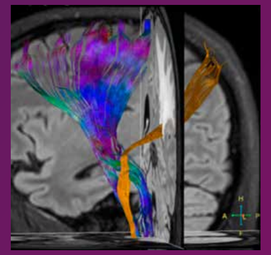
CardiacQuant Extension Page 93
Flexibility in creation of T1 maps for cardiac

FiberTrak Extension

High definition fibertracking in the brain or spine



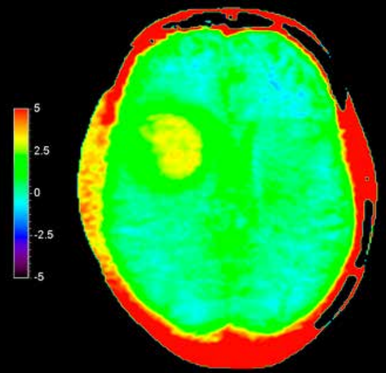
The FiberTrak Specialist Extension package Allows for diffusion imaging with up to 128 b-vectors and 16 b-values, delivering input for very high definition fiber tracking in the brain or spine.



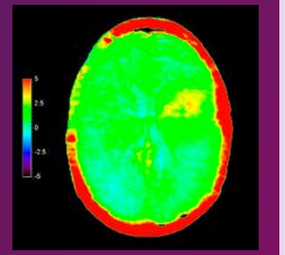
Visualization of white matter fiber tracts in the brain

3D APT

Enhanced diagnostic confidence in Neuro oncology



3D APT (Amide Proton Transfer) is a new unique, contrast-free, brain MR imaging method addressing the need for more confident diagnosis in neuro oncology. 3D APT uses the presence of endogenous cellular proteins, to produce an MR signal that directly correlates with cell proliferation, a marker of tumoral activity. 3D APT can support trained medical professionals in differentiating low grade from high grade gliomas and, in differentiating tumor progression from treatment effect[1,2]



3D APT image

1 Togao et al. (2014) Neuro-Oncology
2 Park KJ et al. (2016) Eur Radiol

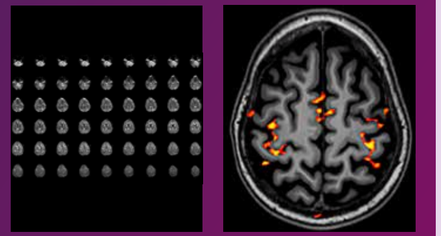
Additional information:

- 3D APTw images are calculated automatically and displayed as color maps
- Whole glioma coverage can be obtained with a resolution of 2.0 x 2.0 x 5.0 mm

MultiBand SENSE

High acceleration for your fMRI and DTI sequences

MultiBand SENSE allows you to use state-of-the-art acceleration factors in the brain by simultaneously exciting multiple slices. Due to a shorter minimum TR for fMRI, larger anatomical coverage or higher temporal resolution can be used. In your DWI/DTI sequences larger anatomical coverage or higher number of diffusion directions can be acquired[1]. With MultiBand SENSE you can perform fMRI and DTI exams with high speed and high resolution, simultaneously[2].



fMRI exams with large anatomical coverage

Additional information:

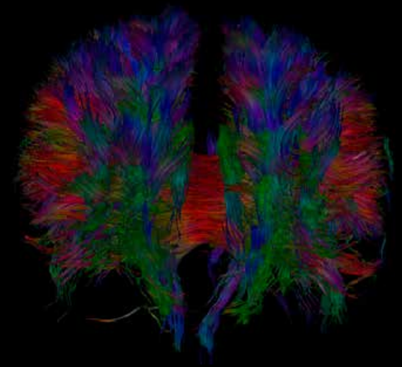
- Accelerate EPI scans in the brain with virtually no impact on SNR[3].
- Reduce scan time in your diffusion weighted protocols up to 73%[4].
- Acceleration factors of up to 8 for fMRI.
- Acceleration factors of up to 4 for diffusion MRI.

1 Due to a shorter minimum TR.
2 High speed due to using MultiBand SENSE and high resolution due to using in-plane dS SENSE.

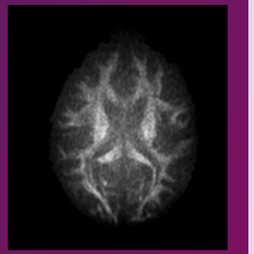
3 Up to an MB SENSE factor of 3.
4 Compared to normal Philips diffusion scanning.

NeuroScience

Explore brain connectivity



NeuroScience comprehensive package helps you to explore brain connectivity by supporting advanced acquisition schemes allowing for high-definition brain fiber tracking, including crossing fibers and advanced fMRI capabilities.



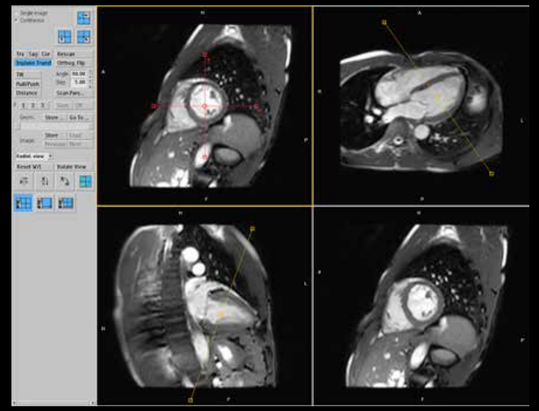
Diffusion acquisition with a b-value of 15.000

Additional information:

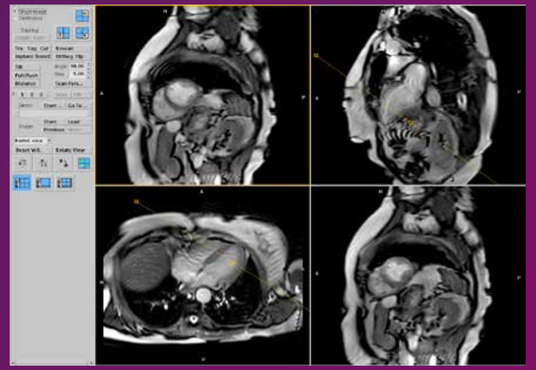
- Allows diffusion-weighted multi-shell acquisitions with up to 32 b-values and up to 128 unique diffusion directions
- Easy workflow for user defined gradient direction input
- Perform your fMRI studies with enhanced nyquist ghost stability and extended data storage (up to 64k images)
- Enables monitoring of consistency in longitudinal fMRI studies with a quality assurance tool, in line with fBRIN standards
- Includes B0 mapping for offline data correction and image processing
- Easy-to-use export tools in various formats, including NIfTI

Real-Time Specialist

Benefit from intuitive planning for cardiac studies



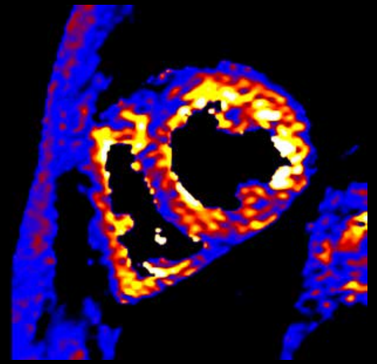
Real-Time Specialist enables real-time interactive imaging for planning, while changing geometry and contrast parameters during scanning with real-time reconstruction. Anatomic views can be stored and recalled for subsequent scans.



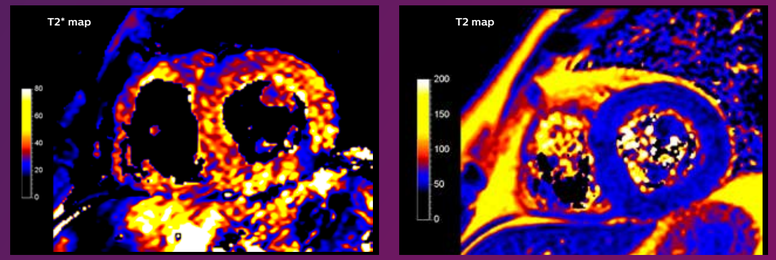
Real-time planning of cardiac studies

StarQuant

Non-invasive T2* and T2 assessment of myocardial tissue



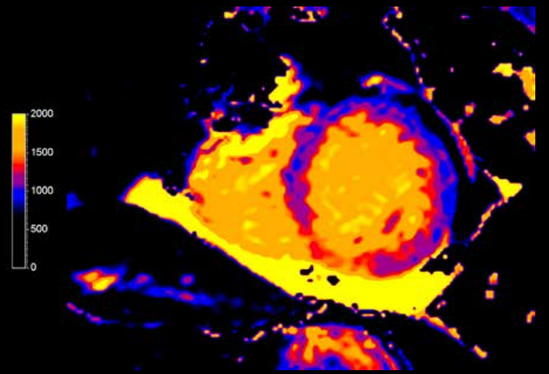
With StarQuant you get access to exciting new applications for cardiology, which can help in the non-invasive assessment of myocardial tissue characteristics by providing you with comprehensive graphs and pixel-based, quantitative T2/R2 and T2*/R2* maps in a single breathhold scan helping you to make early decisions for therapy.



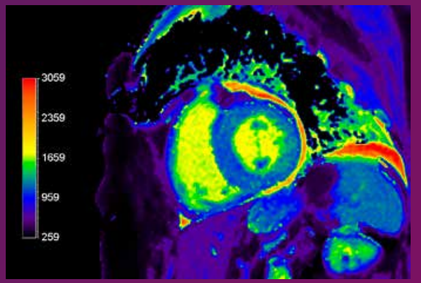
Quantitative T2* and T2 maps in a single breathhold scan

CardiacQuant Extension

Flexibility in creation of T1 maps for cardiac



CardiacQuant Extension is an optional plugin for which adds flexibility for the creation of T1 maps. It allows the option of user defined T1 mapping schemes as alternatives for the predefined “native” or “enhanced” schemes as provided by CardiacQuant.



T1 map

Compatibility overview

	Ingenia 1.5T	Ingenia 1.5T HP	Ingenia 1.5T CX	Ingenia 3.0T	Ingenia 3.0T CX
Comprehensive set of clinical solutions and techniques					
ScanTools Pro	●	●	●	●	●
Towards first time right imaging					
dS PerformanceSuite Plus	●	●	●	●	●
dS PerformanceSuite Pro	○	○	○	○	○
dS PerformanceSuite Premium	○	○	○	○	○
Answer complex clinical questions and grow your referrals					
dS NeuroSuite Plus	○	○	○	○	○
dS NeuroSuite Pro	○	○	○	○	○
dS NeuroSuite Premium	○	○	○	○	○
dS MSKSuite	○	○	○	○	○
dS BodySuite	○	○	○	○	○
dS LiverSuite	○	○	○	○	○
dS BreastSuite	○	○	○	○	○
dS PediatricSuite 1.5T	○	○	○		
dS PediatricSuite 3.0T				○	○
dS VascularSuite	○	○	○	○	○
dS CardiacSuite Pro	○	○	○	○	○
dS CardiacSuite Premium	○	○	○	○	○

● Standard ○ Options

Compatibility overview

		Multiva 1.5T 8ch	Multiva 1.5T 16ch	Ingenia Prodiva 1.5T CX	Ingenia Elition 3.0T S	Ingenia Elition 3.0T X
Comprehensive set of clinical solutions and techniques						
	ScanTools Pro	●	●	●	●	●
Towards first time right imaging						
	dS PerformanceSuite Plus	●	●	●	●	●
	dS PerformanceSuite Pro	○	○	○	○	○
	dS PerformanceSuite Premium				○	○
Answer complex clinical questions and grow your referrals						
	dS NeuroSuite Plus	○	○	○	○	○
	dS NeuroSuite Pro	○	○	○	○	○
	dS NeuroSuite Premium	○	○	○	○	○
	dS MSKSuite	○	○	○	○	○
	dS BodySuite	○	○	○	○	○
	dS LiverSuite				○	○
	dS BreastSuite	○	○		○	○
	dS PediatricSuite 1.5T					
	dS PediatricSuite 3.0T				○	○
	dS VascularSuite		○	○	○	○
	dS CardiacSuite Pro	○	○	○	○	○
	dS CardiacSuite Premium	○	○		○	○

● Standard ○ Options

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