
PHILIPS
Ingenia Elition X
MR Systems
A revolutionary breakthrough
in diagnostic quality and speed

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Every day, healthcare moves forward with innovations in clinical pathways and supporting technologies. For radiology the necessity for high productivity, an improved patient experience while ensuring excellence in imaging can be daunting. The perception is often that MR represents a trade-off between productivity and image quality. The new Philips Ingenia Elition X solution offers cutting-edge MR imaging techniques, while setting new directions for clinical research in 3.0T imaging based on new gradient- and RF designs.

The Ingenia Elition X delivers on superb image quality, and performs MRI exams up to 50% faster[1]. Fast overall exam-time is achieved by improving patient handling setup time at the bore with the touchless guided patient setup, combined with accelerations in both 2D- and 3D scanning. This has been made possible by new gradient- and RF designs as well as Compressed SENSE. Furthermore, the Ingenia Elition X offers an immersive audio-visual experience to calm patients and guide them through MR exams. In a study, with the use of the in-bore solution, Herlev Gentofte University Hospital in Denmark managed to reduce the number of rescans by up to 70%[2], allowing radiologists to handle more patients per day.

1 Compared to Philips scans without Compressed SENSE
2 Based on one clinical customer study performed at Herlev Gentofte University Hospital in Denmark using Ambient Experience and in-bore Connect solution

Results from case studies are not predictive of results in other cases. Results in other cases may vary.


Ingenia Elition

Delivers speed without sacrifice – **every time**

- Enjoy patient setup in under one minute[1]
- Accelerate your exams by **up to 50%**[2]
- Automate your scan planning

A **confident** diagnosis

- Achieve **up to 60%** higher resolution[2]
- Scan your DWI images **up to 30%** faster[3]
- Enhance your diagnostic confidence in neuro oncology
- Unlock new territories in neurofunctional MRI

1 Based on in house testing
2 Compared to Philips scans without Compressed SENSE
3 Compared to Ingenia 3.0T Omega HP R5.3

Dramatically improves **patient comfort**

- Reduce acoustic noise for your patient
- Guide your patients through the examination
- Provide an immersive visual experience

Delivers speed without sacrifice – **every time**

Ingenia Elition X's speed and productivity stem from our commitment to both reach for a well informed and compliant patient as well accelerate MRI exams. Thanks to revolutionary sensing technology, Ingenia Elition X delivers innovative patient comfort and workflow capabilities for faster and more patient friendly exams. The Philips Compressed SENSE unique acceleration technique allows you to speed up the entire MRI examination[1]. With the Ingenia Elition X, you can scan more than five patients per hour[2], leaving more time for you to focus on clinical and research excellence.

1 Compared to Philips scans without Compressed SENSE
2 Based on in house testing, with brain, c-spine, l-spine, liver and knee exams, measuring exam times only

Patient setup in **under one minute**

Philips has combined superb patient comfort with enhanced clinical outcomes to bring you the Ingenia Elition X. The VitalScreen offers guidance and insights on the details of the current patient study. This 12-inch interactive touchscreen provides information on exam duration, which coil to use, patient positioning, physiology signal captors (VCG) and – if applicable – contrast usage and breathhold guidance.

Moreover, the operator no longer needs to set up an old-fashioned respiratory sensor, but receives a continuous and robust respiratory signal without any interaction via VitalEye. This revolution in patient sensing keeps a caring eye on your patient and provides superior image quality[1], for a broad range of patient sizes, thanks to touchless patient sensing. The quality of the physiology signal is better than a belt-based approach based on faster, more accurate detection of breathing.

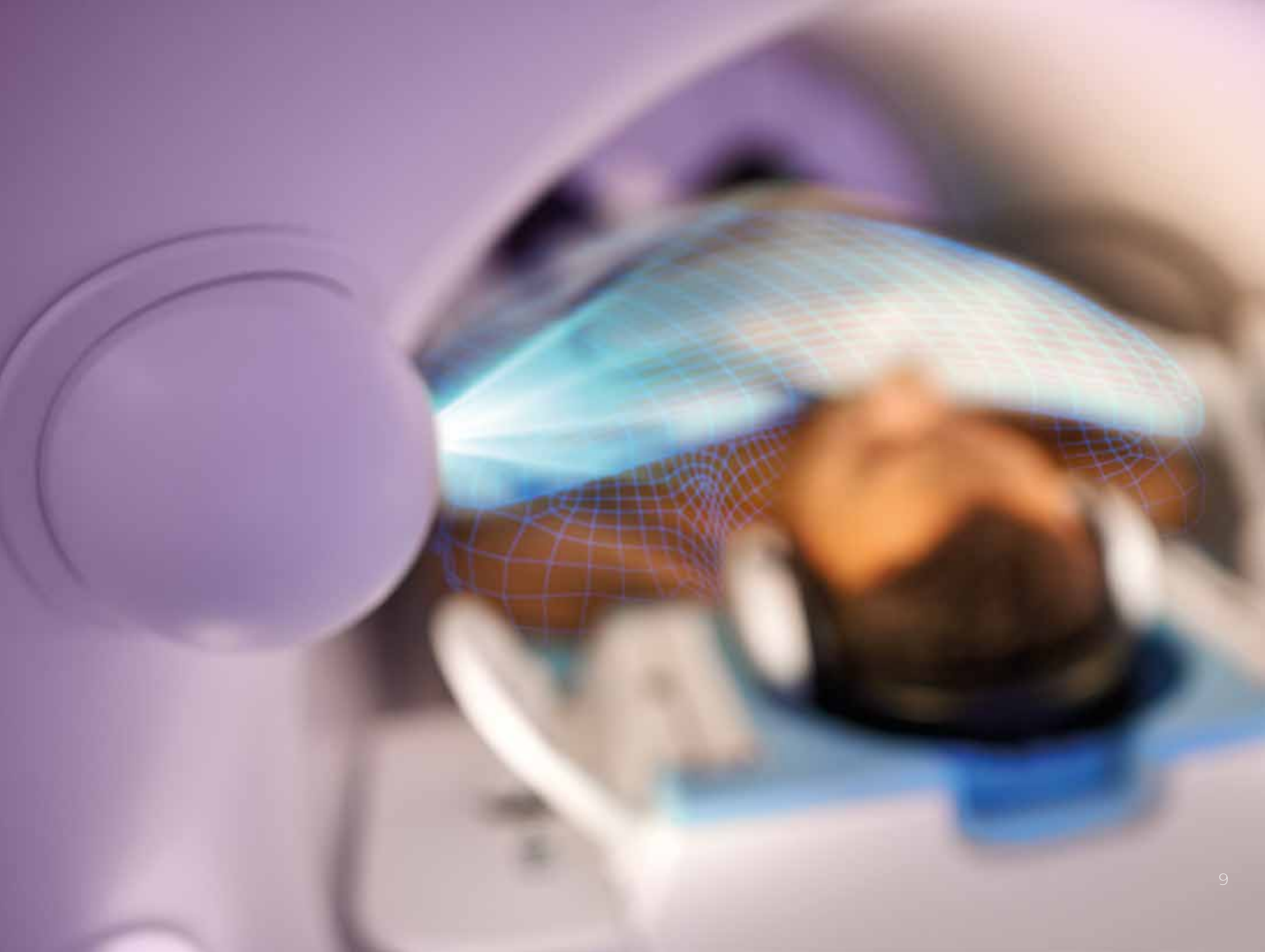
Accelerate exams by **up to 50%**

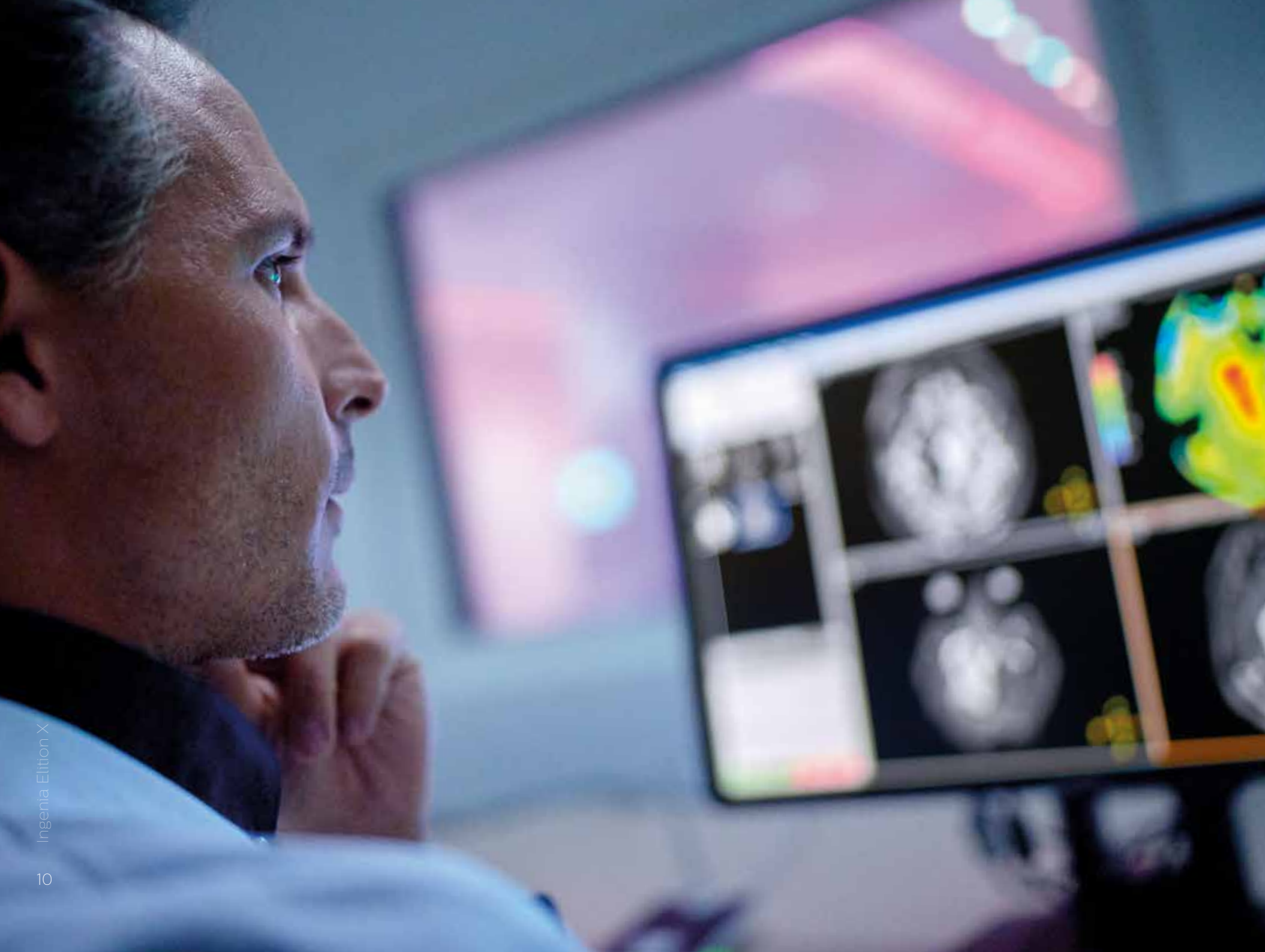
Leveraging our long-standing leadership in scanning speed (i.e. SENSE), Philips now presents a breakthrough in productivity: Compressed SENSE accelerates 2D- and 3D scans by up to 50% with virtually equivalent image quality[2]. But Ingenia Elition X not only accelerates sequences, but the entire patient exam. As a result, your staff has more time to focus on what matters most: enhancing patient care. This new paradigm in productivity applies to all anatomies and anatomical contrasts in both 3D and 2D scans. It's speed done right, every time.

Automate your scan planning

SmartExam[3] supports reproducible planning results for over 80% of procedures. It uses adaptive intelligent software that automatically plans scanning geometries based on your validated scanning preferences. This lets you standardize your MRI exam process, helping you enhance consistency in follow-up exams of the same patient and from patient to patient. SmartExam[3] planning can be adapted and expanded to fit your changing requirements. What's more, you can share and apply automated geometry planning across different Philips MRI consoles.

1 Compared to Philips belt-based signal. Requires an unobstructed line of sight.
2 Compared to Philips scans without Compressed SENSE.
3 SmartExam is not available to patients with MR Conditional implants





A **confident** diagnosis

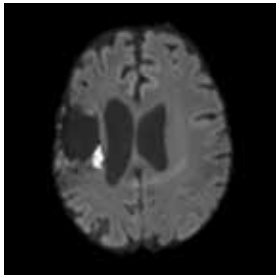
Ingenia Elition X supports confident diagnosis by innovating on all fronts. The new high-end performance gradient and RF design, combined with innovative imaging solutions such as Compressed SENSE and 3D APT help you reach new levels of precision in anatomical and functional clinical imaging.
As a result, you can diagnose the most challenging clinical indications with confidence.

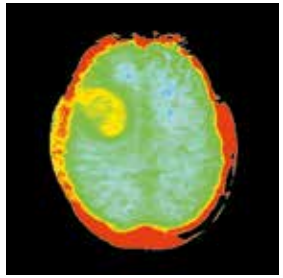
Up to 60% higher resolution

Fully redesigned gradients combined with Compressed SENSE acceleration technology allow up to 60% higher spatial resolution[1] in the same scan time, revealing more details for greater precision. For example, speeding up isotropic 3D MSK imaging enables a switch from multi-orientation 2D imaging to a single high-resolution 3D efficient scan. It's precision made efficient.

Up to 30% faster DWI images

Ingenia Elition X's high-performance Vega HP gradients allow the most advanced imaging techniques on a 3.0T system. Diffusion scans are up 30% faster while appearing sharper[2]. An average of 70% higher contrast resolution can be achieved in diffusion imaging[2]. Due to a TE up to 15% shorter in diffusion imaging, SNR is further improved or used to generate higher resolution with similar scan time[2]. All this makes Ingenia Elition X an ideal choice in clinical routine and oncology applications, even for challenging anatomies.





Enhanced diagnostic confidence in neuro oncology

3D APT (Amide Proton Transfer) is a unique, contrast-free, brain MR imaging method that addresses 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, an indicator of tumoral activity. 3D APT can support trained medical professionals in differentiating low grade from high grade brain gliomas and, in differentiating tumor progression from treatment efffect[3].

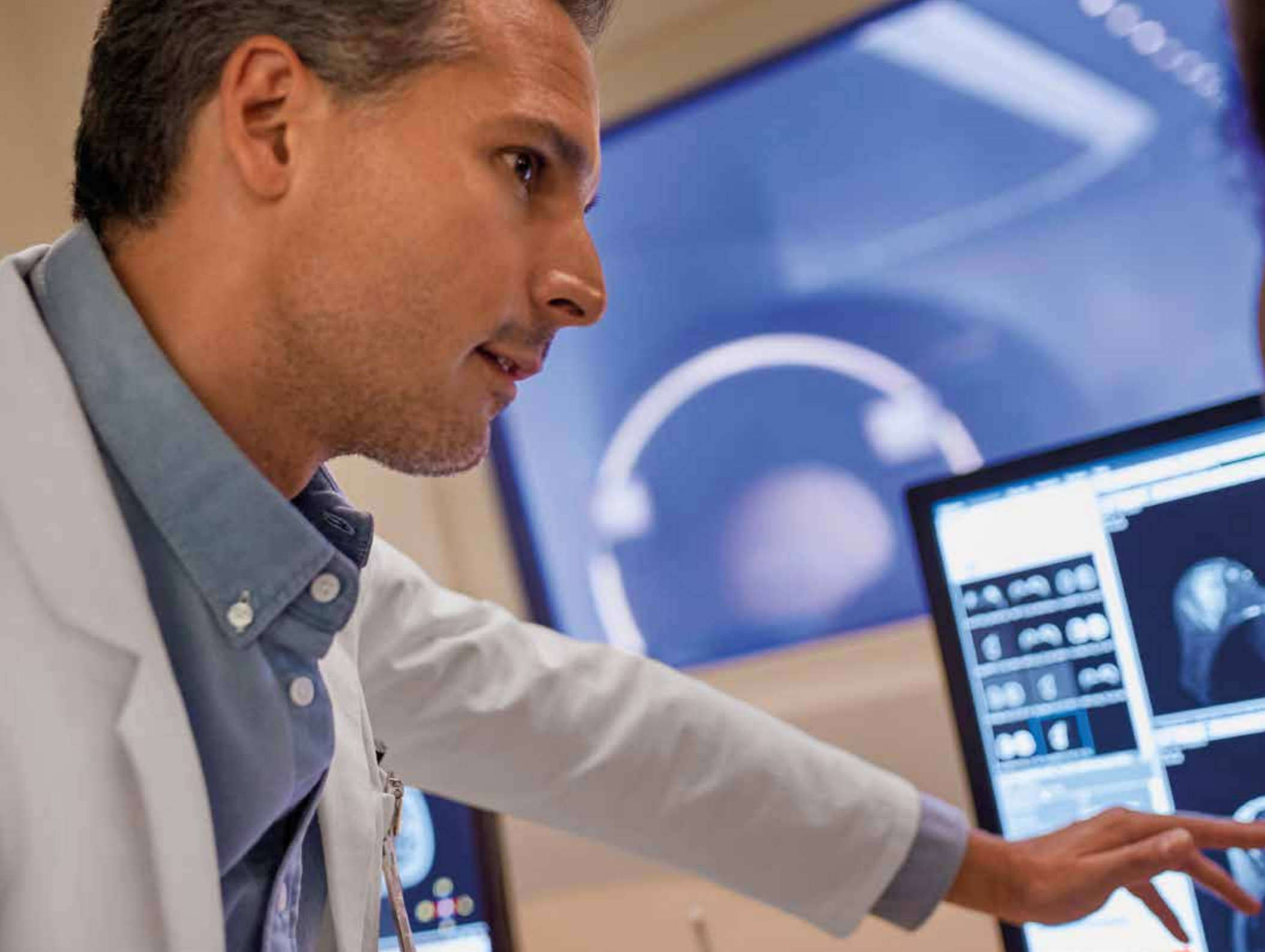
Unlock new territories in neurofunctional MRI

Ingenia Elition X Vega HP gradients deliver up to 23% higher temporal resolution in fMRI studies as well as 30% shorter TR in diffusion imaging for excellent functional imaging at 3.0T[2]. Ingenia Elition X lets you unlock new territories in the field of neurofunctional MRI, unraveling the connections and functional set-up of the brain. This new level of precision and our next-generation wide bore system can attract an array of new funding with human connectome style protocols, and open up research opportunities.

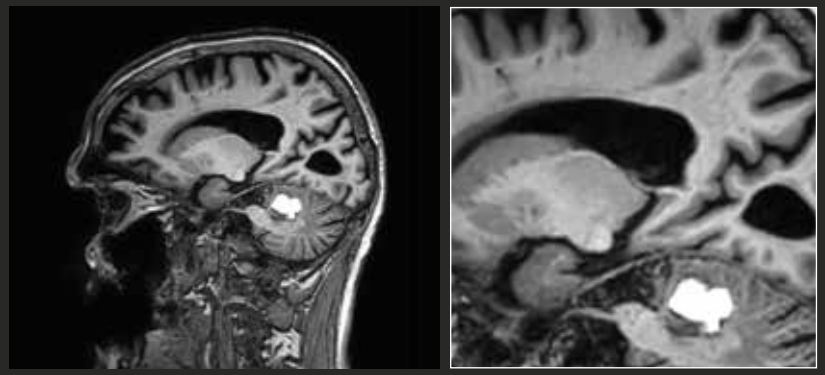
One processing platform for making your diagnosis

IntelliSpace Portal offers a comprehensive set of over 70 clinical applications in multiple clinical domains, including neurology, cardiology, vascular, oncology, and more. This all-round workstation provides you with the right tools when you need them.

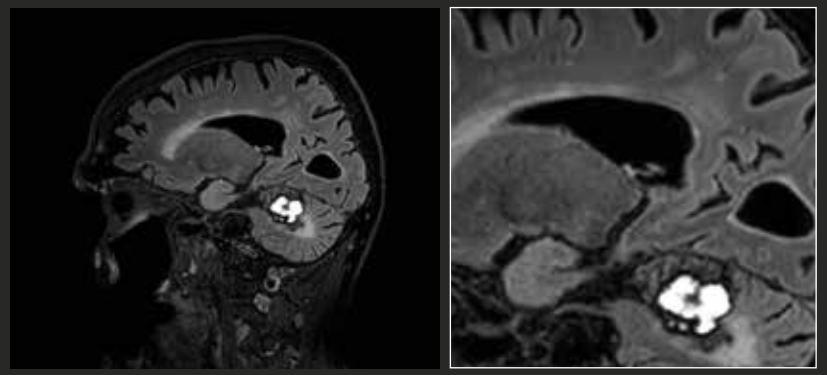
1 Compared to Philips scans without Compressed SENSE
2 Compared to Ingenia 3.0T Omega HP R5.3
3 Togao et al. (2014) Neuro-Oncology. Park KJ et al. (2016) Eur Radiol



Brain



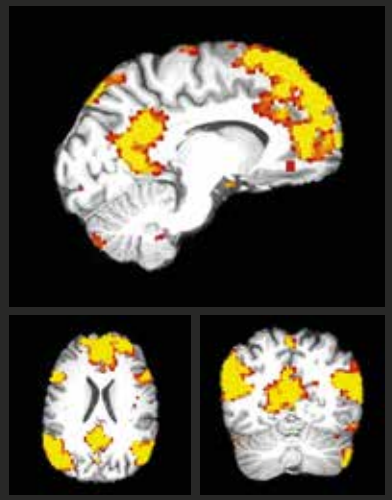
Sagittal 3D T1w TFE, 1.0 x 1.0 x 1.0 mm, 2:26 min
Courtesy: Technical University Munich, Germany



Sagittal 3D FLAIR, 1.0 x 1.0 x 1.0 mm, 3:55 min
Courtesy: Technical University Munich, Germany

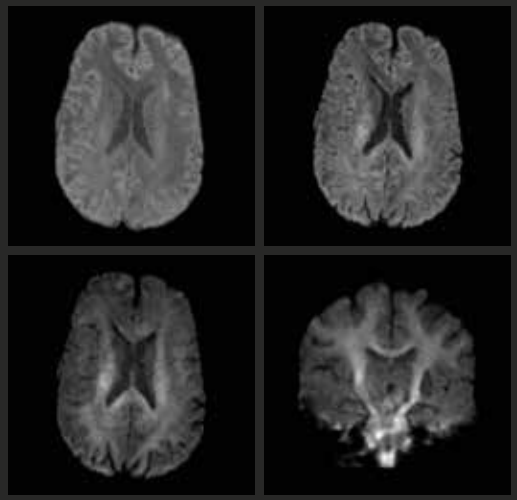
NeuroScience

Resting State fMRI - ABCD research protocol

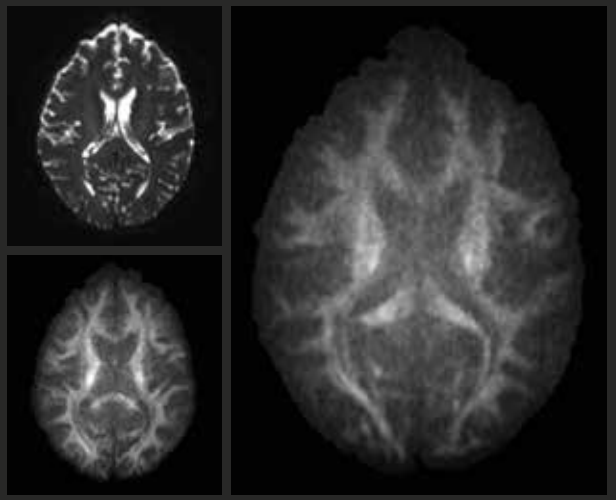


2.6 x 2.6 x 2.8 mm, 17:00 min
TR 700 ms, MultiBand SENSE 4
Courtesy: Academic Medical Center, Amsterdam, The Netherlands

dMRI protocol – ABCD research protocol

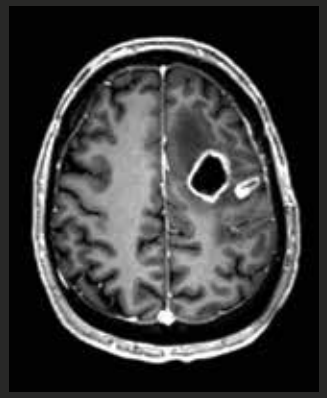


b1000 / b2000 / b3000 / b3000 reformat
1.7 x 1.7 x 1.7 mm MultiBand SENSE 4
TE 97 ms, 102 directions, 15:00 min

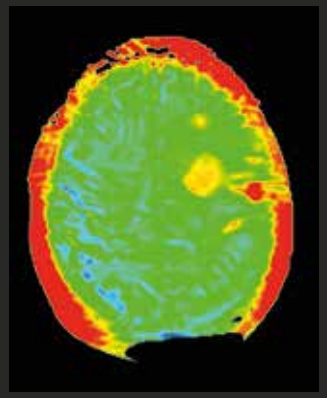


Axial DWI, 1.5 x 1.5 x 4.0 mm
b0, 1:10 min / b5000, 2:43 min / b15000, 4:40 min

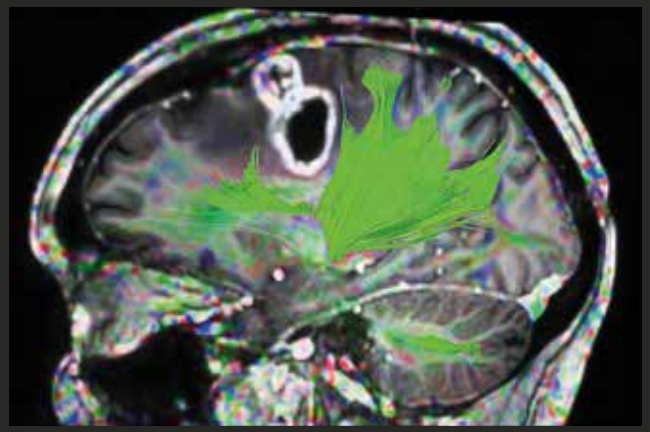
Brain



Axial 3D T1w TFE,
1.0 x 1.0 x 1.0 mm, 2:26 min
Courtesy: Technical University Munich, Germany



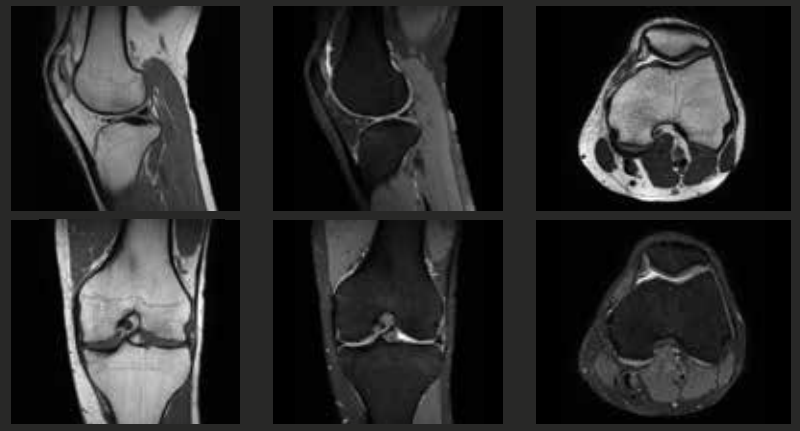
Axial 3D APT,
1,8 x 1.8 x 6.0 mm, 3:45 min
Courtesy: Technical University Munich, Germany



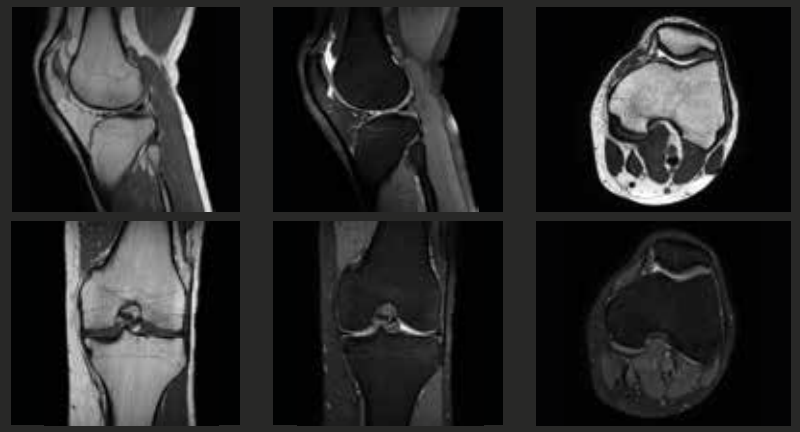
DTI 128 directions, 2.0 x 2.0 x 2.0 mm, 5:00 min
Courtesy: Technical University Munich, Germany

MSK

Without Compressed SENSE, exam time: 23:35 min

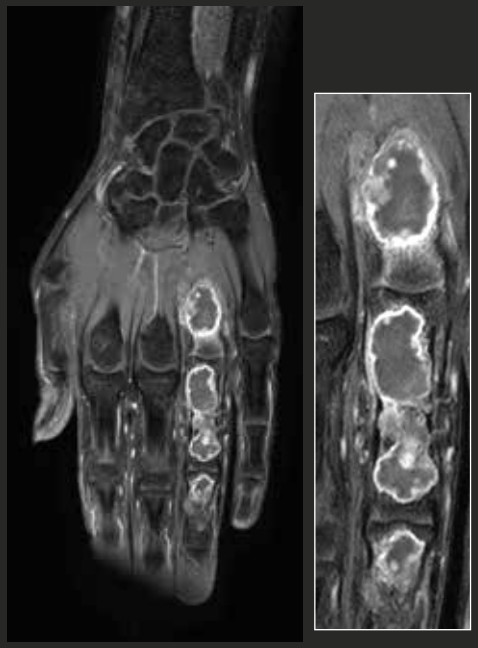


With Compressed SENSE, exam time: 17:55 min

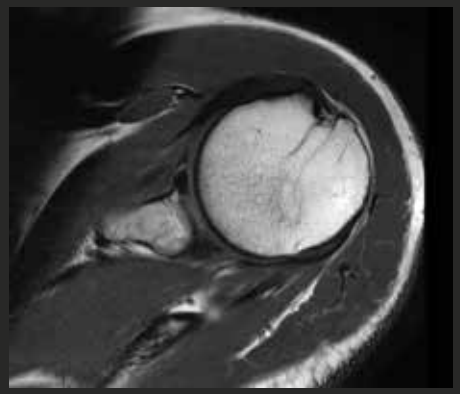


2D Sagittal PDw TSE, 0.3 x 0.4 x 2.5 mm, 3:55 min / 3:25 min (13% acceleration)
2D Sagittal PDw SPAIR, 0.4 x 0.4 x 2.5 mm, 4:25 min / 3:42 min (16% acceleration)
2D Axial T2w TSE, 0.4 x 0.5 x 1.5 mm, 4:29 min / 2:59 min (34% acceleration)
2D Coronal T1w TSE, 0.3 x 0.4 x 2.5 mm, 2:23 min / 1:56 min (19% acceleration)
2D Coronal PDw SPAIR, 0.4 x 0.5 x 2.5 mm, 3:25 min / 1:42 min (50% acceleration)
2D Axial PDw SPAIR, 0.4 x 0.5 x 1.5 mm, 4:58 min / 4:11 min (16% acceleration)

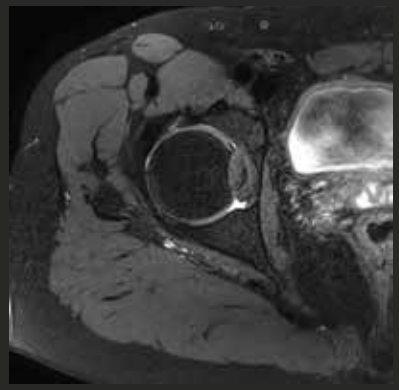
Coronal T1w TSE mDIXON XD with gado (In Phase + Water only),
0.4 x 0.4 x 2.0 mm, 3:46 min
Courtesy: Academic Medical Center, Amsterdam, The Netherlands



Sagittal PDw TSE
0.18 x 0.18 x 1.5 mm, 5:05 min



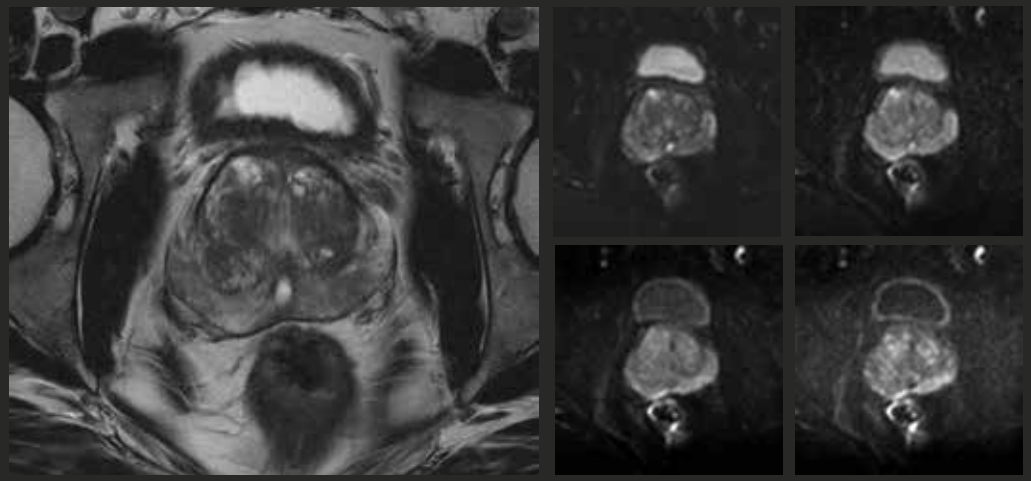
Axial PDw TSE
0.23 x 0.35 x 2.5 mm, 1:53 min



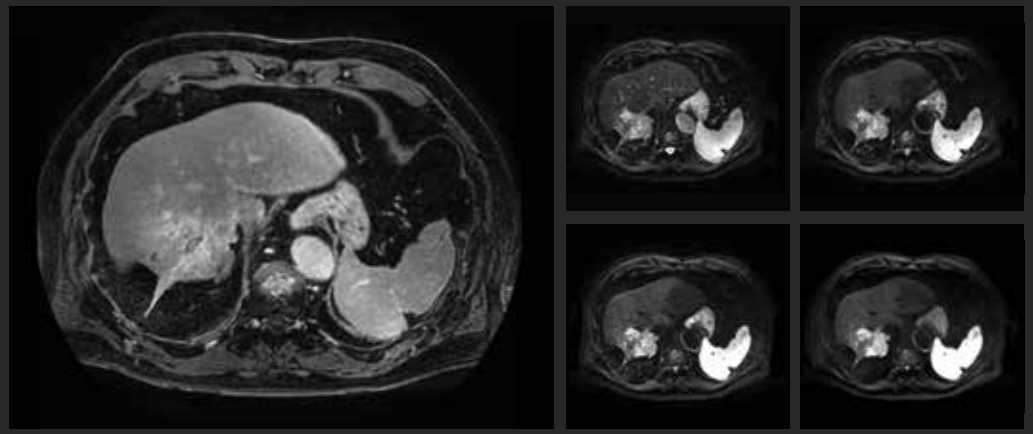
Axial 3D PDw SPAIR
0.8 x 0.8 x 1.0 mm, 6:54 min

Coronal PDw TSE
0.3 x 0.3 x 1.5 mm, 5:05 min

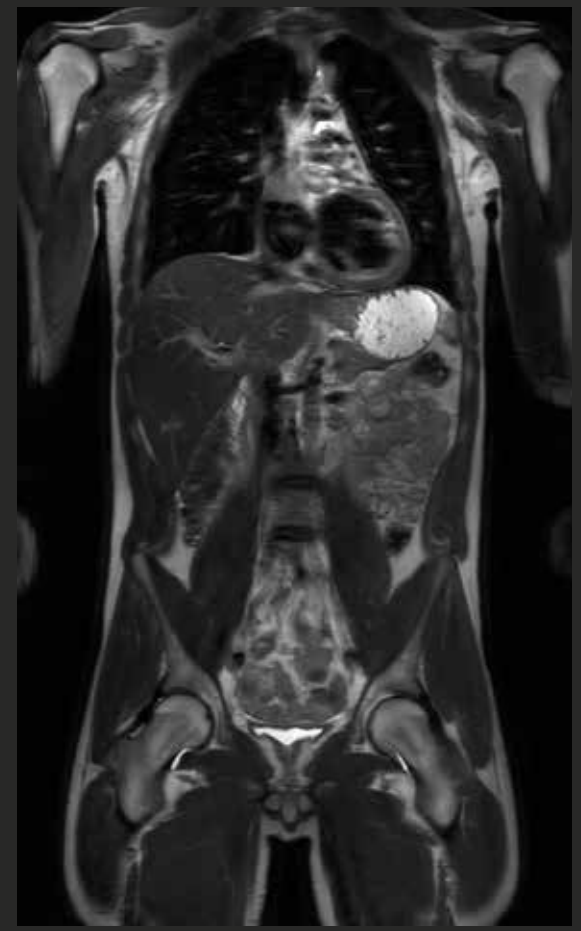
Sagittal PDw SPAIR
0.3 x 0.4 x 2.5 mm, 4:06 min



Axial T2w TSE, 0.46 x 0.57 x 3.0 mm, 5:07 min
Axial DWI b0 / b500 / b1000 / b1400, 2.5 x 2.4 x 3.0 mm, 3:44 min
Courtesy: Technical University Munich, Germany



Axial T1w 3D mDIXON, 1.5 x 1.5 x 2.0 mm, 2:50 min
Axial DWI b0 / b50 / b300 / b600, 3.0 x 3.0 x 4.0 mm, 4:03 min
Courtesy: Technical University Munich, Germany



Coronal T2w TSE – Two stations
1.4 x 1.6 x 5.0 mm, 1:48 min /station


PHILIPS

Dramatically improves **patient comfort**

Your patients are at the heart of Ingenia Elition X. An MR experience that enhances comfort and reduces the likelihood of rescans[1]. With up to 80% acoustic noise reduction, voice guidance, immersive in-bore visuals and a comfortable table, your patients are made to feel at ease, resulting in smoother, faster exams.

1 Results from case studies are not predictive of results in other cases. Results in other cases may vary


PHILIPS

Guiding your patients through the examination

AutoVoice is a fully integrated and automated solution that guides your patients through the MR examination. It indicates scan duration, announces table movements and offers breathhold guidance, helping you enhance patient comfort. The automated breathhold commands are synchronized with the patient's respiratory cycle and can be selected to fit patient conditions, such as expiration versus inspiration. AutoVoice is available in several languages and customizable for local pronunciation or for a staff member's voice if desired. You can also adapt texts and settings to meet individual operator needs and export your customized preferences to other Philips MR scanners.

Reduce acoustic noise for your patient

The Philips unique ComforTone solution draws on our extensive experience to achieve up to 80% reduction in acoustic noise[1] with similar image quality and contrast within the same time slot. You can use ComforTone in routine exams such as brain, spine and MSK but can also apply it with high gradient settings. Thanks to our ready-to-use ExamCards, ComforTone is simple to implement and use, requiring just a few clicks to get started.

Provide an **immersive visual experience**

Philips takes a patient-centric approach to MRI exams. Our unique Ambient Experience lets you and your patients define in-bore lighting, sounds and visuals in line with their personal preferences In a study, with the use of the in-bore solution, Herlev Gentofte University Hospital in Denmark managed to reduce the number of rescans by up to 70%[2] and reduce the number of patients requiring sedation by up to 80%[3], allowing them to handle more patients per day.

Increase **patient comfort**

Ingenia Elition X offers a comfortable table experience thanks to the ComfortPlus mattress. On average, 90% of patients in severe discomfort find it easier to lie still on the ComfortPlus mattress than on a standard mattress[4]. Overall comfort for this group of patients can increase by up to 36%[4]. The clinical images obtained using the ComfortPlus mattress are of a similarly high diagnostic quality to those acquired with a standard table mattress.

1 Compared to scanning without ComforTone
2 Results from case studies are not predictive of results in other cases. Results in other cases may vary
3 Based on a customer case study performed at Lubeck, Germany
4 Compared to using a standard mattress

Stay clinically advanced, maximize imaging investments

Boost your capabilities with proactive upgrades

Technology Maximizer, a cross-modality program designed to boost the clinical capabilities and performance of imaging equipment through proactive upgrades. These proactive upgrades help keep your imaging equipment up to date, which is important for managing security risk. These updates also help to keep your systems well maintained, compliant and protected from obsolescence, which helps decrease unexpected downtime. With Technology Maximizer, your healthcare organization no longer needs to upgrade systems or software on an individual basis. Through regular upgrades and by refreshing existing hardware, this five-year subscription program provides your departments with the latest software and hardware updates while maintaining cost efficiency through a predictable fee. Furthermore, Technology Maximizer Pro automatically providesthe latest specialty applications for a clinical domain. Technology Maximizer provides the confidence that your systems are up to date and compliant at a fraction of the cost of individual upgrades.

Identify potential **improvements and growth**

PerformanceBridge delivers a flexible suite of services to support continuous improvements at hospitals. Define your own pathway to finding and maximizing opportunities and do more with less while maintaining a focus on patient care. Powered by dedicated experts, a forum of your global peers, intelligent tools, data analytics and complemented with training, best practices and benchmarks, our portfolio of solutions helps to inform your everyday decisions. Moreover, it helps you set appropriate and relevant targets that hospital managers can use as meaningful inputs in their quest to identify improvement opportunities.

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