

**MAGNETOM Allegra** [UHF Class]  
**3T Dedicated**



# MAGNETOM Family

## The Perfection of Care

The aim of Siemens MR is the perfection of care.

To create products and services that improve the quality of life of all persons who come into contact with them.


We do this by caring for the health of the patient, caring for the quality of the user's work – and caring about the owner's profit.

### *syngo*

Siemens is a leader in cross modality common sense! *syngo*® is a comprehensive computer platform engineered for medical imaging that runs on the majority of Siemens medical products. Different modalities use common intuitive icons to initiate shared tasks such as patient registration, imaging, 3D reconstruction etc.

All tasks and applications within your workflow are covered either with, or at your system: from patient registration, image acquisition, viewing and post-processing to filming as well as archiving. The web-based patient record, for example, provides quick access to important patient information. As an alternative you can view lab results at the console without time-consuming telephone calls to the ward.



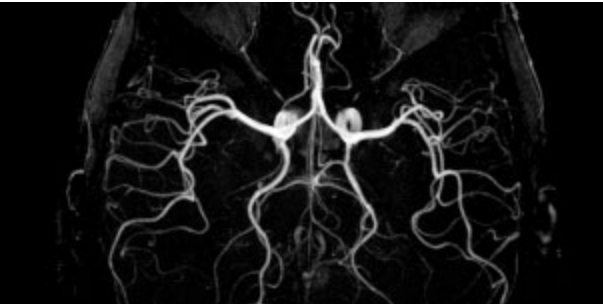
A Siemens MAGNETOM Allegra MRI scanner is shown in a studio setting. The machine is white and blue, with a large circular opening for the patient. A control console with a monitor and keyboard is visible on the left. The monitor displays a grid and some data. The text 'MAGNETOM Allegra' is printed on the side of the machine. The Siemens logo is also visible on the control console.

MAGNETOM® Allegra features the multi modality *syngo* user-interface. *syngo* has been optimized for clinical workflows and validated on the 0.2T, 1T and 1.5T MAGNETOM systems. Easy to use and flexible, *syngo* features the latest MR applications, all available on a simple and powerful interface. Since *syngo* is a multimodality feature, your technologists can easily handle different modalities, such as CT, MR, angiography, and more.

[www.siemens.com/medical](http://www.siemens.com/medical)

## 3T Dedicated

- The ultimate brain machine  
The power of 3T field strength for your clinical and research brain applications.



## 3T Dedicated

- The most compact 3T MR system available  
Cost-efficient siting: your 3T system can be installed in a 1.5T suite.  
Optimal patient-friendliness with the short length of MAGNETOM Allegra.

## 3T Dedicated

- An MR system with superior speed.  
Outstanding image quality and speed, thanks to the Siemens gradient and gradient amplifier technology combined with RF technology enabling integrated Parallel Acquisition Techniques (iPAT).

### **Siemens Medical Solutions: the innovation leader in MR technology**

Always aiming at providing the latest MR advancements in the clinical routine, Siemens has put together an innovative Ultra High-Field (UHF) program. This program develops and integrates technologies optimized for 3T. The Siemens UHF program includes two 3T products in the Ultra High-Field Class.

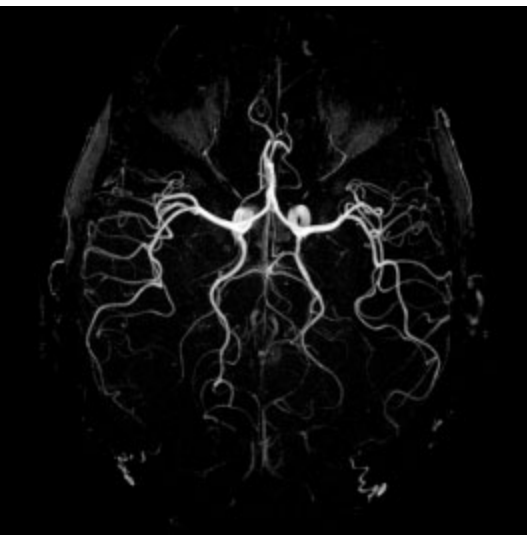
- **MAGNETOM Allegra** –  
the only scanner designed and optimized for 3T brain imaging
- **MAGNETOM Trio** –  
the whole-body MR scanner for unlimited 3T whole-body imaging

# 3T Clinical Power

3T offers twice the signal-to-noise ratio (SNR) of 1.5T MR scanners. This increased SNR allows greater spatial resolution and faster scanning. In addition, MR spectroscopy benefits from improved resolution of metabolites, and reduced acquisition time at 3T. Other 3T advantages include better T1-based techniques such as Time-of-Flight MRA, very high contrast T2-weighted acquisitions, and more robust functional MRI examinations.

Higher spatial resolution at 3T with short acquisition times is the key to increased diagnostic accuracy. Small tumors or stenoses, previously unseen, are now visualized and can be treated at the earliest stages. Shorter acquisition times and 3T SNR enable you to draw up efficient clinical protocols incorporating the most advanced applications such as Diffusion Tensor Imaging or MR spectroscopy into your daily clinical workflow.

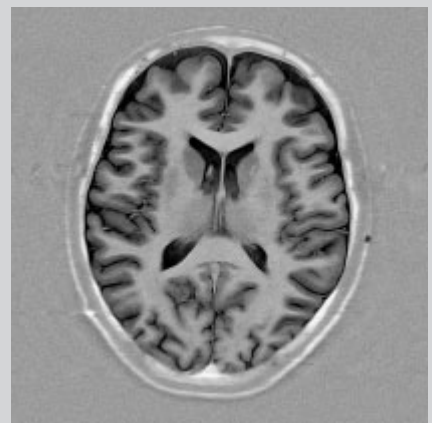
3T has proven its utility in clinical brain MR examinations and is still the field strength of choice for brain research.



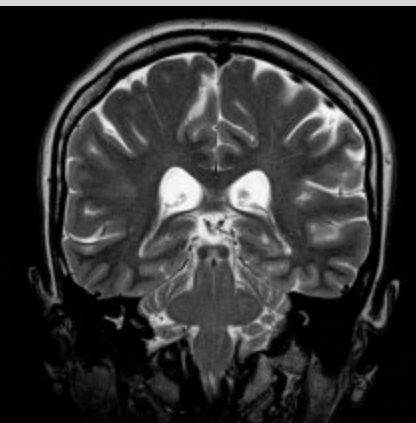
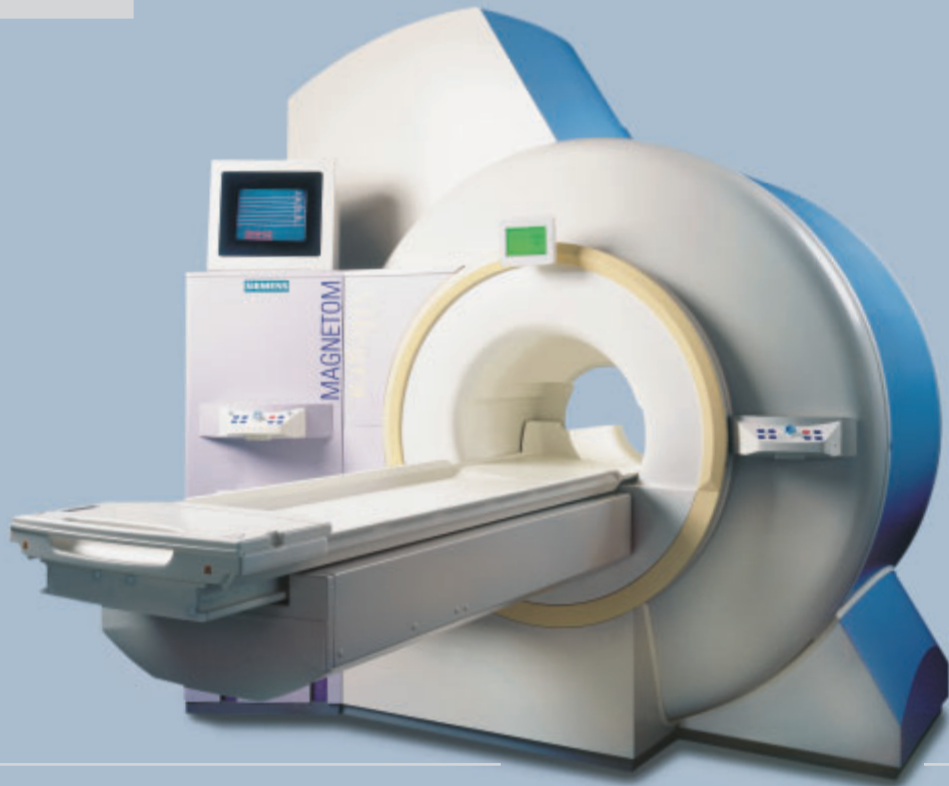
*3T advantages in Time-of-Flight angiography MRA showing up to the Circle of Willis and the distal branches of the intracranial vessels.*



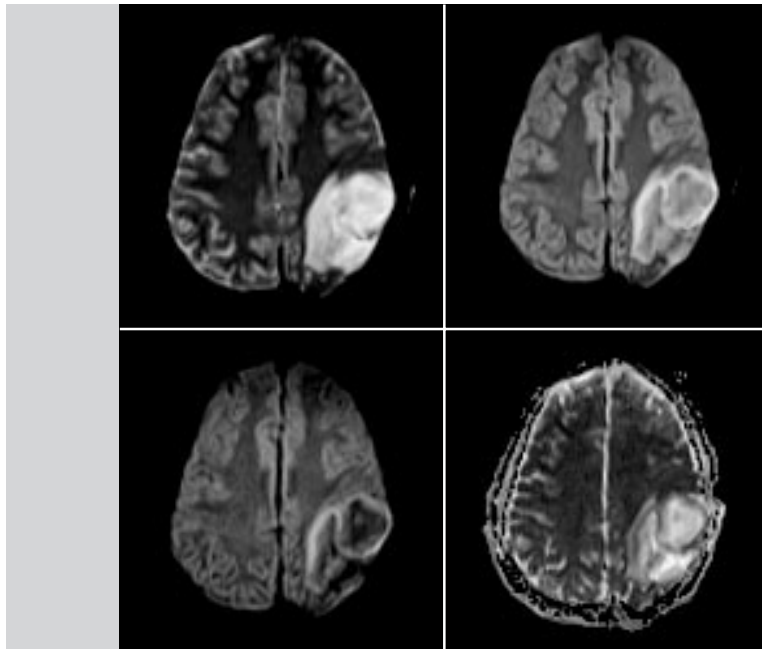
*Excellent visualization of the orbits*



*Inversion recovery*



Coronal T2 imaging



Pediatric imaging at 3T  
Diffusion imaging of a 13 year old child

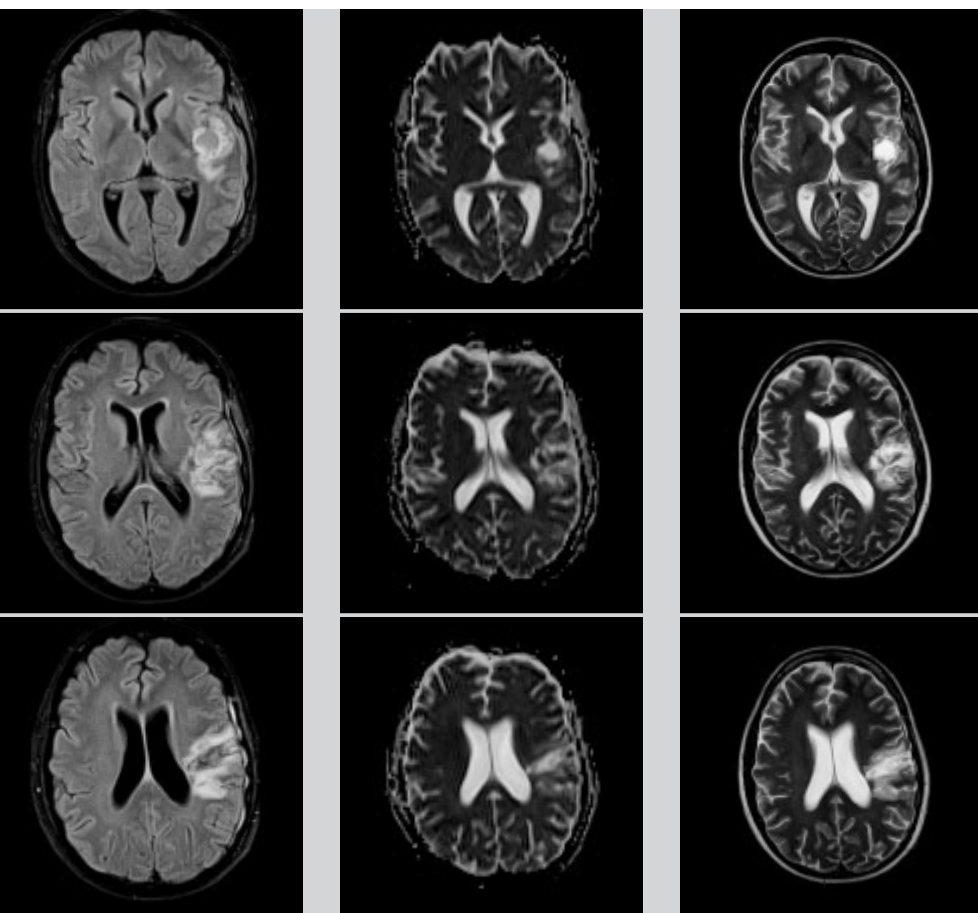
# The ultimate brain machine

## 3T image quality in routine examinations

MAGNETOM Allegra offers all the advantages of 3T field strength for routine brain examinations. The high SNR directly translates into increased physicians' confidence in your T1, T2, Dark Fluid, ToF angiography and other sequences. In addition, the RF technology supports integrated Parallel Acquisition Techniques (iPAT) that help speed up your examinations and increase image quality.

## 3T performance in advanced brain applications

In advanced brain applications, you benefit from the increased chemical shift at 3T in MR spectroscopy, as well as the increased T2\* sensitivity, particularly for functional MRI studies. The high SNR at 3T also enhances applications such as diffusion and perfusion. Moreover, longer T1 parameters enable more robust Time-of-Flight and Arterial Spin Labeling techniques. As a result, MAGNETOM Allegra allows you to maximize your benefits for all advanced brain applications.

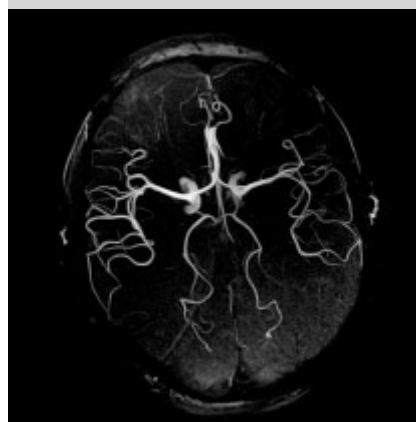


Comprehensive clinical brain protocol at 3T

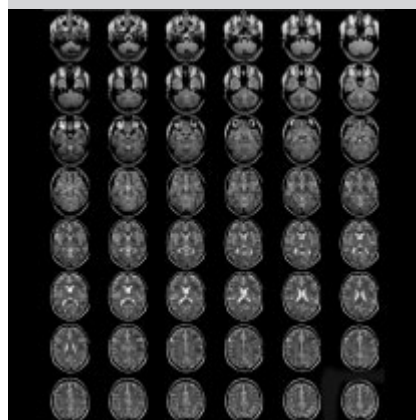
a) Dark Fluid TSE

b) ADC map with InLine Technology

c) TSE Restore



High-resolution (704 matrix)  
ToF of the brain in 4:30 min.



3D Turbo SE for whole brain coverage with low SAR.  
(Courtesy of INI, Hannover, Germany)

# The most compact 3T MR system

## Easy, cost-efficient siting for your 3T MR system

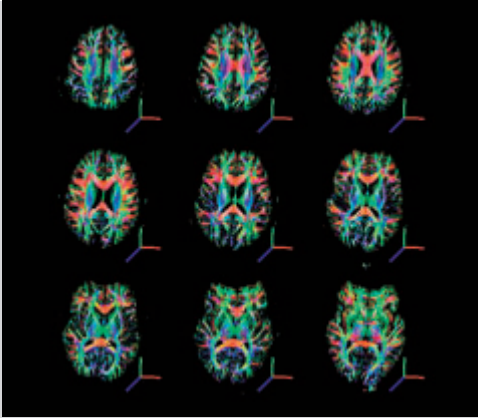
MAGNETOM Allegra is the smallest 3T MR scanner in the industry. With a length of only 1.27 m, MAGNETOM Allegra fits inside a 1.5T suite. MAGNETOM Allegra's light weight makes it possible to install your 3T system even on upper-level floors.

MAGNETOM Allegra has a compact design including 2 electronic cabinets, which can be conveniently placed against a wall to save space. 3T MR siting has never been this easy and cost efficient.

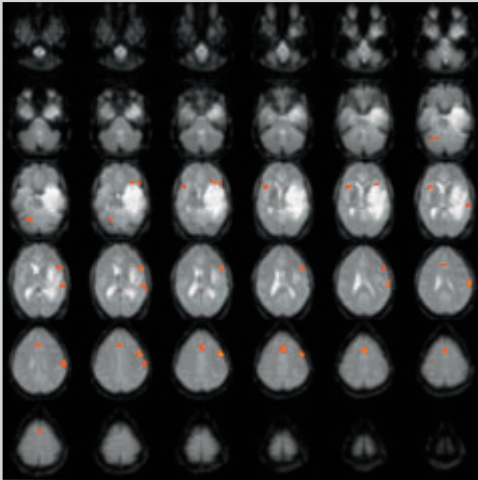
## Patient-friendliness

The short design of MAGNETOM Allegra makes it ideal for pediatric patients, since parents can hold the hand of their child during examinations. Patient-friendliness has been optimized further with a table that can be lowered as far as 46 cm.

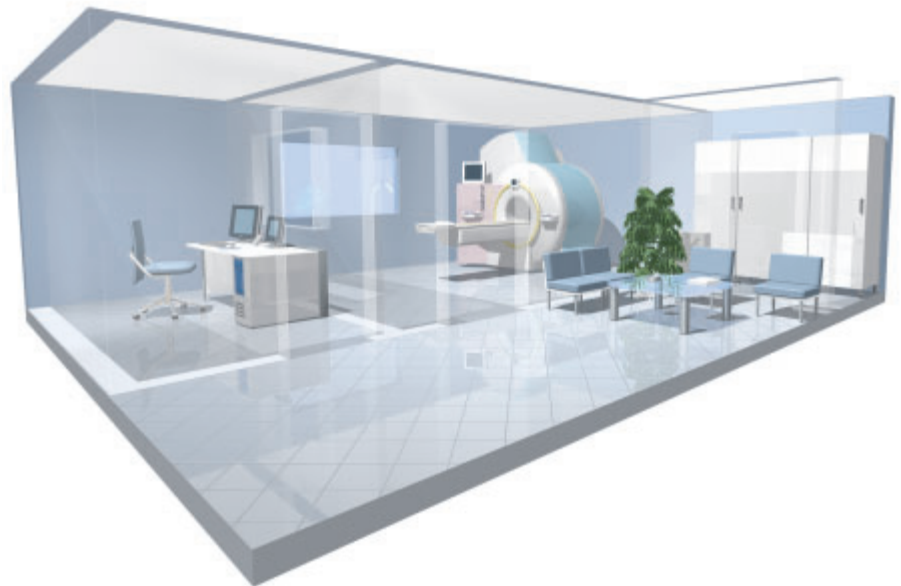
Parents appreciate the short, patient-friendly design of MAGNETOM Allegra during their child's examination.



Diffusion Tensor imaging to represent fiber orientation.  
Courtesy of A. Gass, J.G. Hirsch,  
NMR Research, University Mannheim, Germany



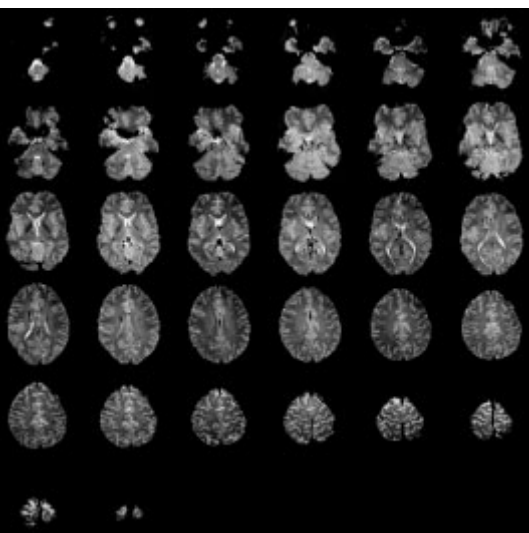
Pre-operative fMRI evaluation using EPI.



# Speed for best 3T image quality and increased efficiency

## The fastest gradients in the industry with slew rate of 400 T/m/s

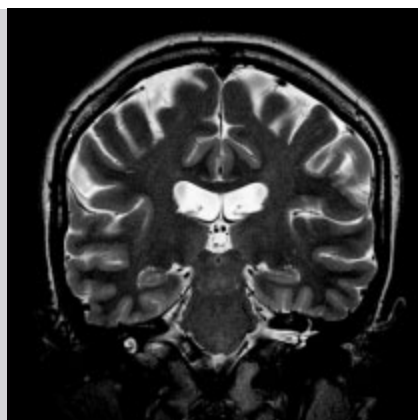
MAGNETOM Allegra features the fastest gradient system in the industry. The gradient system is the essential component that defines the speed of your MAGNETOM Allegra. The gradients perform at 40 mT/m per axis (or 69 mT/m effectively) simultaneously with a 100 microsecond rise time (unique slew rate of 400 T/m/s). This slew rate, operating on the brain-optimized 22 cm FoV, enables extremely fast scanning and minimum echo-spacing, resulting in reduced image distortions in techniques such as echo planar imaging.



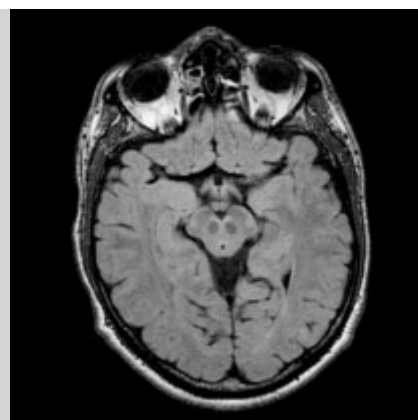
Ultimate performance at SR 400 T/m/s and 40 mT/m  
 $TE_{min}$  15 ms,  $TR_{min}$  50 ms, echo spacing 360  $\mu$ s

## The fastest gradients for the best EPI image quality

Extremely fast gradients enable coverage of the entire brain at a speed of 20 slices per second. The fast gradients minimize the echo-spacing and reduce EPI geometric distortions, enabling excellent image quality.

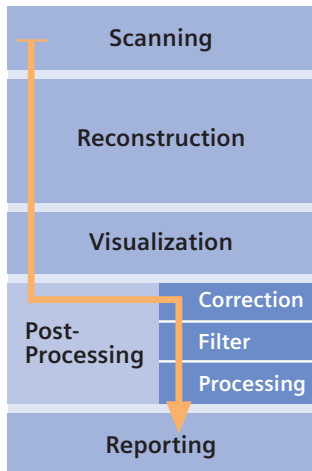


T2-weighted high resolution, slice thickness of 2 mm.

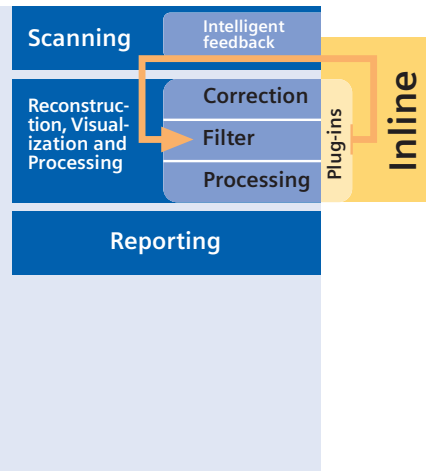


3D Turbo Inversion Recovery, slice thickness of 3 mm.

## Conventional processes



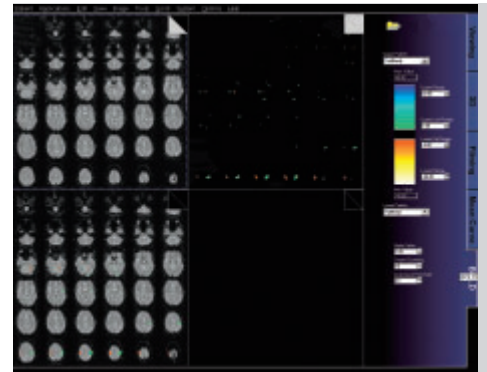
## Inline Technology



MAGNETOM Allegra supports routine and advanced brain applications as well as the associated Inline Technology features under *syngo* MR. Inline Technology makes it possible to obtain direct results at the end of the examination without post-processing. Inline Technology allows automatic MIP calculations, Blood Oxygen Level Dependent (BOLD) processing in real-time including motion correction, diffusion and perfusion calculations. In addition to Inline Technology, MAGNETOM Allegra features advanced taskcards for spectroscopy and imaging applications.

### Inline Technology with 3D PACE

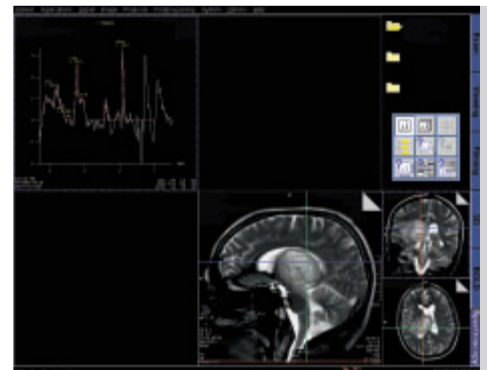
MAGNETOM Allegra supports prospective real-time motion correction in 3D (3D PACE – Prospective Acquisition CorrEction). 3D PACE provides real-time gradient control according to detected head motion. The subsequent functional MRI results show extremely good quality at the end of the examination and without the need for post-processing: one of the many benefits of Inline Technology.



*Inline taskcard for immediate results and the advanced post-processing taskcard.*

### MR Spectroscopy Taskcard

The Spectroscopy Taskcard enables automatic post-processing of all spectra, display of spectral maps as well as metabolite images. The taskcard also enables flexible and interactive post-processing for advanced users.



*Robust MR spectroscopy at 3T  
Brain abscess Courtesy of Neuroradiology dept.,  
Lund University, Sweden*

# EVOLVE

Within EVOLVE\* you can choose between several options. You can upgrade your system to the latest generation or with the EVOLVE Package™ book a regular upgrade of hardware and software. The financial alternative to expensive new equipment is EVOLVE.

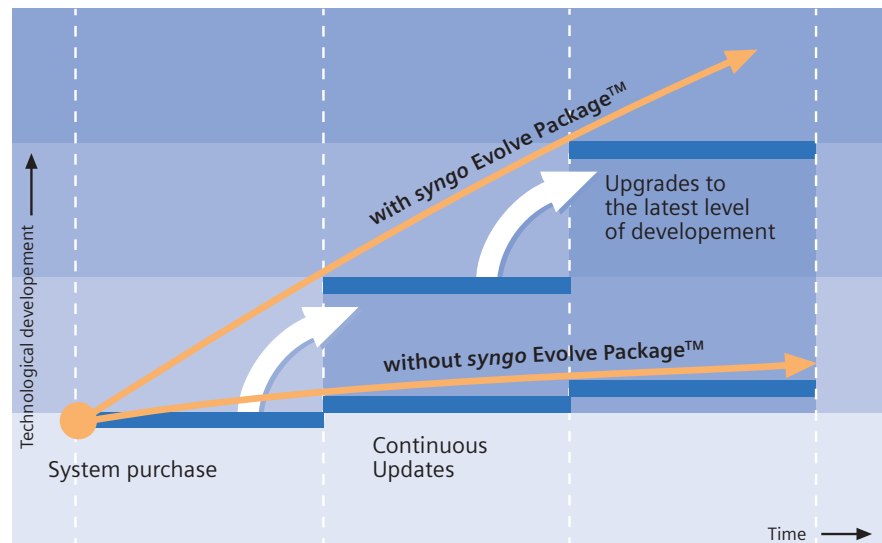
## EVOLVE for MAGNETOM Allegra

We offer complete packages suitable for a number of specific applications. These packages include dedicated application software, coils and expanded system performance.

## Your subscription to the future – the syngo EVOLVE Package

The performance level of computer chips doubles roughly every 18 months. This means that today's leading processors will be obsolete in a few years. Similar time frames are valid for software innovations.

Within the scope of the Siemens Performance TOP maintenance program your hard- and software is upgraded regularly. You will get the image processor and host computer of your syngo-based system updated twice over a period of six years. New software versions will be made available to you. The choice is yours. Depending on your personal requirements, you can select one of our specific EVOLVE programs or the complete syngo EVOLVE Package.



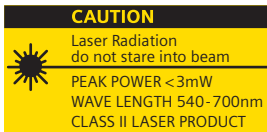
\* In the event that upgrades require FDA approval, Siemens cannot predict whether or when the FDA will issue its approval. Therefore, if regulatory clearance is obtained and is applicable to this package, it will be made available according to the terms of this offer

**MAGNETOM World:  
a network of excellence**

The MAGNETOM World Ultra High-Field Club is a global network of Siemens Ultra High-Field MR users. MAGNETOM World supports workshops and trainings, and enables you to interact with other users, so that advanced information on clinical practice as well as new technologies can be shared. Communication also takes place via MAGNETOM Flash, our customer magazine, and, of course, through our Internet pages at:

[www.med.siemens.com/magnetom/magnetom\\_world\\_new](http://www.med.siemens.com/magnetom/magnetom_world_new)





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This brochure refers to both standard and optional features. Availability and packaging of options varies by country and is subject to change without notice. Some of the features described are not available for commercial distribution in the US.

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