

FreeWave upgrade enables faster, more powerful imaging

Western Neurological Associates upgrades Intera 1.5T to Release 2.5 with FreeWave, and sees a significant improvement in image quality and efficiency.

The new MR upgrade from Philips is enabling clinicians at Western Neurological Associates to scan more, with increased patient throughput; to see more, with expanded applications and optimized image quality; and achieve more, with a faster, more efficient scanning system.



The WNA team: Barbara Barney, Elizabeth Martinez, Linda Monty, Stuart Haslam.

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Linda S. Monty, R.T. (R) (MR) (CT), is Imaging Manager at Western Neurological Associates, PC (WNA, Salt Lake City, Utah, USA), which operates a Philips 1.5T MR scanner. The newly upgraded Intera 1.5T keeps its name, but now performs the same as the Achieva 1.5T, and was recently re-accredited by the American College of Radiology (acr). Ms. Monty says the center averages 45 MR examinations each day: mainly brain, spine and MRA, with an increasing amount of orthopedic work.

“We are in a very competitive market, with three new 3.0T systems in our immediate area,” she says. “We upgraded our Intera 1.5T – which was originally at Release 8 level – to Release 2.5 with FreeWave in October 2007, because we wanted to stay ‘state of the art’ without going to 3.0T.”

Ms. Monty says the image quality of the scans at WNA has vastly improved since the upgrade. “We have really noticed the improvement in our neuro imaging, with increased sensitivity of demyelinating lesions in brain, cervical and thoracic regions, increased visualization of the subclavian arteries during a contrast-enhanced aortic arch scan, as well as improved MR angiography of the abdomen with the SENSE XL Torso coil.”

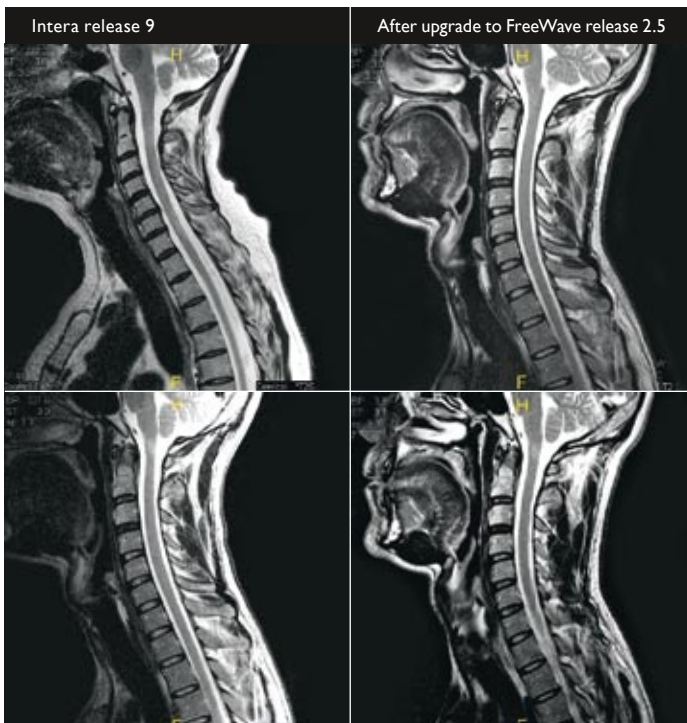


Fig. 1 Multiple sclerosis follow-up

One-year follow-up MRI of 39-year-old male with multiple sclerosis with increasing symptoms. The T2-weighted images show a mild increase in size of demyelinating lesion at the level of C2 near the cervico-medullary junction and a demyelinating lesion in the cervical cord at the level of C5/6. Since the FreeWave upgrade and with the SENSE NeuroVascular coil SNR has improved as can be especially noted in the facial/tongue area and CSF.

Upgrade includes FreeWave for faster, more advanced scanning

FreeWave, included in the MR upgrade, is a scalable 32-channel data acquisition system. The FreeWave platform contributes to reduced exam times, by enabling the latest acquisition techniques and highest SENSE factors.

FreeWave has enabled WNA to use advanced acquisition techniques such as SPAIR for more homogeneous fat suppression, and iViewBold real-time image processing for clear visualization of task-related neural activity, as well as 4D THRIVE contrast imaging for body. In addition, SmartExam capability ensures WNA has access to automated planning, scanning and processing with a single mouse click. These new clinical capabilities have provided higher image resolution and more consistent, reproducible imaging, says Ms. Monty, as well as a remarkable reduction in scan times of up to 30 percent.

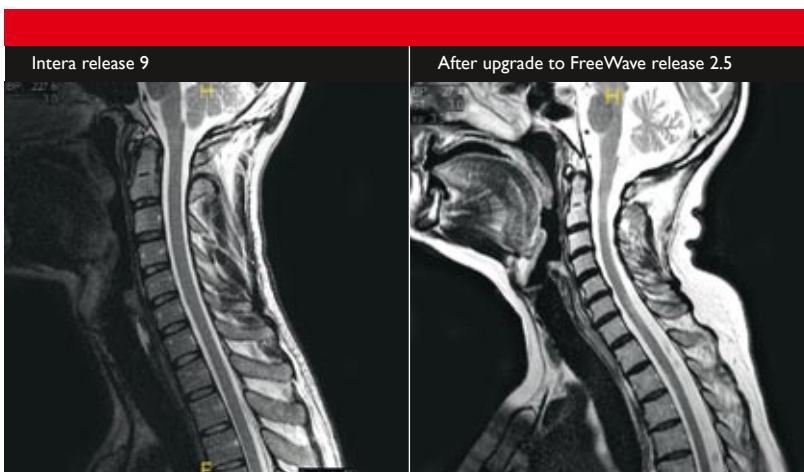


Fig. 2 Multiple sclerosis follow-up

One-year follow-up on 55-year-old female with multiple sclerosis with increasing symptoms of numbness and fatigue. T2-weighted images show ill-defined foci of abnormal intensity at C2/3 through C6/7, T1/2 and T4/5 levels that do not change in overall appearance over time. After upgrade and with the SENSE NeuroVascular coil SNR has improved as can be especially noted in the facial/tongue area and CSF.

“A benefit of the SENSE Head Spine coil has been the reduced wear and tear on our technologists, as they no longer have to change the coils.”



Options include new SENSE coils

With the MR upgrade, new coil options are now available. The 32-channel FreeWave supports a wide range of multi-channel SENSE coils that have added to improved efficiency and patient throughput. The new SENSE NeuroVascular, Spine, Foot/Ankle and XL Torso coils save time and energy at WNA, says Ms. Monty, and contribute to excellent imaging.

“The majority of our imaging practice is now done with the 18-element SENSE NeuroVascular coil and the 15-element SENSE Spine coil,” says Ms. Monty. Although these coils can be used separately, they are often used in conjunction as one 33-element SENSE Head Spine coil for fast total neuro and musculoskeletal imaging. In addition to the inherent improved signal-to-noise ratio and spatial resolution of the dual coils, another benefit of the SENSE Head Spine coil has been the reduced wear and tear on our technologists, as they no longer have to change the coils. “Likewise, our patients are not required to get up in the middle of a Multiple Sclerosis



Fig. 3 Ruptured Achilles tendon right ankle

48-year-old male with pain following stretching. Images demonstrate increased T2-weighted signal within the adjacent subcutaneous tissues and Kager's fat pad and a complete tear of the Achilles tendon with retraction resulting in a gap between torn ends of 4.0 cm. Use of 8-channel SENSE Foot/Ankle coil and upgrade enabled high SNR and good fat suppression. Using SENSE factor 2 in most images shortens scan times.

workup in order to change coils for the spine imaging, thus allowing for a reduction in the total imaging time.” WNA also chose the 8-channel SENSE Foot/Ankle coil, which can be used with the patient’s foot vertical or flexed up to 15 degrees planar. “We have seen a huge improvement in the fat saturation with this new foot coil,” Ms. Monty notes.

The SENSE XL Torso coil was selected for its optimized imaging of the organs of the body, abdomen and pelvis, and has enabled an improvement in MR angiography image quality for both the abdomen-renals along with the arteries of the lower extremities.

Easy upgrade path

The Philips upgrade program offers easy upgrading paths to FreeWave for Intera 1.5T and 3.0T systems of Release 7 and higher. With the new FreeWave capabilities and expanded SENSE coils, the upgrade is designed to support innovations now and into the next decade.



Fig. 4 Abdominal aortic aneurysm follow-up

75-year-old male with aneurysm is re-imaged after upgrade. Normal bilateral renal arteries. The abdominal aorta demonstrates moderate atherosclerotic changes with a saccular aneurysm of maximum diameter 3.96 cm. Images also show that the FreeWave upgrade and new XL Torso coil provide improved SNR and spatial resolution.

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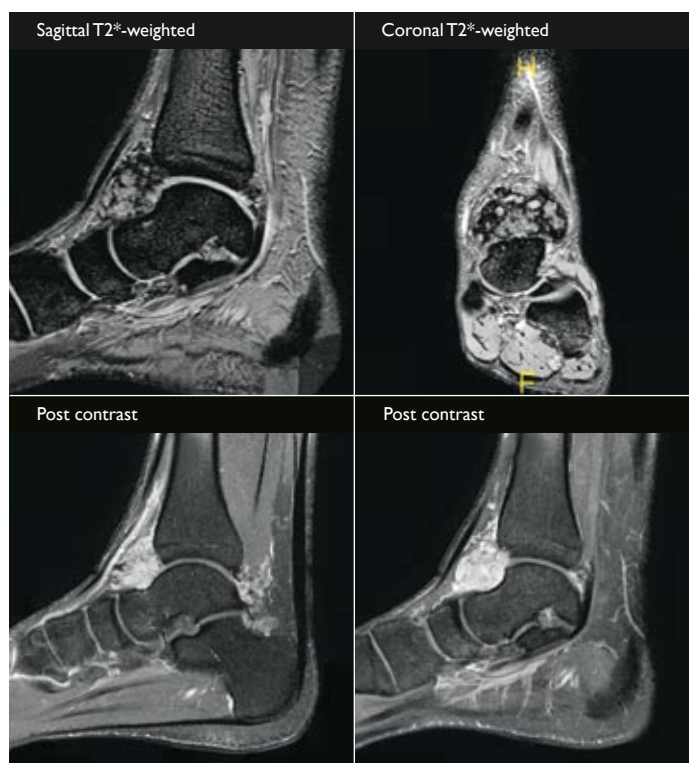


Fig. 5 Lump on top of left ankle

21-year-old male with complaint of lump on top of the ankle for 3-4 years. A mildly lobulated, well circumscribed and ovoid mass lesion is seen anterior to the talus and ankle mortise and deep flexor tendons. Diagnosis of pigmented villonodular synovitis (PVNS) confirmed by surgeon. Acquired with 8-channel SENSE Foot Ankle coil.



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