

**evo**<sup>'15</sup>lution

# Dedicated MRI G-scan Brio



**“Today, we have the ability to run one 3D steady state sequence on one plane, and then reconstruct images in any other plane - thanks to MPR (multi planar reconstruction) features. This enables a full, weight-bearing MRI exam in under 10 minutes!”**

Dr. Frieder Mauch M.A., Head of Department, Shoulder and Elbow Surgery and MRI Imaging, Sportklinik Stuttgart, Germany

This testimonial white paper is produced courtesy of Dr. Frieder Mauch, who is a user of Esaote G-scan Brio Dedicated MRI system recently updated to the latest upgrade: eXP Technology included in the Evolution '15 package (EVO '15).

### **How long have you been an Esaote customer?**

I've been an Esaote user since 1997, starting off with the G-scan system, a unique tilting MRI system which allows patients to be imaged in the horizontal and vertical positions.

After that we upgraded to the G-scan Brio version, which was an evolution of the previous product, redesigned from an aesthetic and a performance point of view, using new technology.

The G-scan has the unique benefit of being able to pivot to the vertical position. This means that weight-bearing examinations are possible, opening up new diagnostic possibilities for our patients, particularly for examinations of the central weight bearing system, such as the vertical column.

Knee and other joint images taken under weight bearing conditions are also interesting and offer diagnostic advantages.

### **What is the latest upgrade you have experience of using?**

We recently updated our G-scan Brio system to the eXP Technology platform, included in the Evolution '15 package (EVO '15) which guarantees advanced features in terms of image acquisition/reconstruction.

This Evolution '15 package provides in particular better 3D acquisition, enabling higher spatial resolution (voxel size of < 1 mm) in a reasonable scan time, thanks to improved software and hardware capabilities (GPU).

Obviously, the G-scan Brio also allows images to be taken of weight-bearing joints (unlike whole-body scanners where the patient is supine).

Having two or more images showing what is happening when the joint is bearing weight, and in different positions, can give a better idea of the mechanical issue which might be causing patients pain.

In the past, this examination procedure took longer, involving subsequent patient discomfort and also movement artifacts on the images. Today, we have the ability to run one 3D steady state sequence on one plane, and then reconstruct images in any other plane - thanks to MPR (multi planar reconstruction) features. This enables a full, weight-bearing MRI exam in under 10 minutes!

Short examination times are crucial when scanning patients in the Weight-Bearing or standing position for three main reasons:

- 1) When weight-bearing, patient movements are more common, so reducing scan times becomes crucial to obtain good quality images.
- 2) Often, patients undergo these exams due to back pain, so, for them, the scan time must be as short as possible.

### **What is your personal opinion, from a clinical perspective, of using EVO '15?**

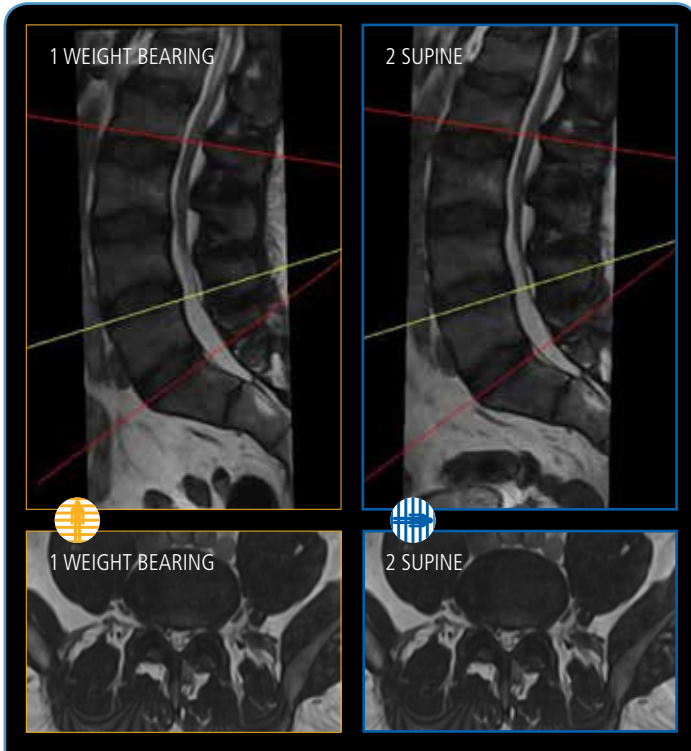
Evolution '15 is able to manage multi-channels coils, such as the new L-spine and C-spine coils, which provide better signal homogeneity and signal-to-noise ratio, thanks to the adoption of multi-channel technology. In particular, for examinations of the vertebral column, the combination of these coils and the new 3D isotropic sequences provide fine anatomical details (such as nerve roots and foramen space) which are traditionally difficult to evaluate with 2D sequences.

See, for example, Case 1 images comparing standing and supine examinations. The important clinical advantage is evaluation of the intervertebral disc, placing the slices at the same level, and orientation in both supine and standing examinations.



## Dr. Frieder Mauch M.A.

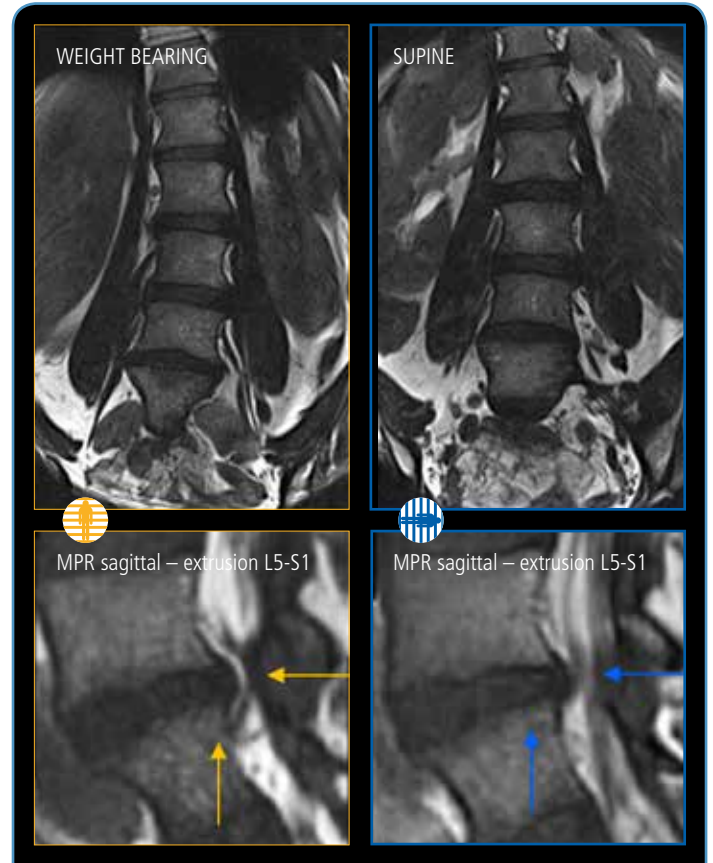
Dr. Frieder Mauch M.A. is a dedicated Member of the German Society of Trauma Surgery and Orthopedics (DGOOC) and Vice Chairman of the imaging section of this society. He is regularly involved in the teaching program of the University of Ulm, Germany.



### Case 1

1. Lumbar Spine patient acquired in WB position with isotropic 3D Hyce coronal (7 minutes - 0.6 mm) and subsequently reconstructed with MPR in sagittal and axial plane with 1 mm slice thickness.
2. Lumbar Spine same patient acquired in supine position with isotropic 3D Hyce coronal (7 minutes - 0.6 mm) and subsequently reconstructed with MPR in sagittal and axial plane again with 1 mm slice thickness.

A more accurate diagnosis is achievable by using the MPR tool which allows users to avoid misleading diagnoses due to incorrect interpretation of biomechanical changes.



### Case 2

3DHyce isotropic COR. Clinical Summary: 42 yrs Old, Female. Increased extrusion visible on MPR sagittal on L5-S1 while standing.

In Case 2, we see the clinical advantage of increased disc extrusion at L5-S1 level while standing. This is evident thanks to a comparison of MPR sagittal in both positions.



 **scan brio**

**Esaote S.p.A.**

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