CLINICAL RATIONALE

Dynamic Effects on the Lumbar Spinal Canal: Axially Loaded CT-Myelography and MRI in Patients With Sciatica and/or Neurogenic Claudication, Jan Willén, M.D., Ph.D.; Barbro Danielson, M.D., Ph.D; Arne Gaulitz, M.D.; Thomas Niklason; Nils Schönström, M.D., Ph.D; Tommy Hansson, M.D., Ph.D, *SPINE 1997, Volume 22, Number 24, pp 2968-76.*

- 79% of patients experienced a significant reduction of the dural sac cross-sectional area during axial compression;
- 35% of patients passed the borderlines for relative (100mm^2) or absolute stenosis (75mm^2);
- 36% of patients experienced deformation of the dural sac during axial compression;
- 13% of patients experienced a narrowing of the lateral recess during axial compression.

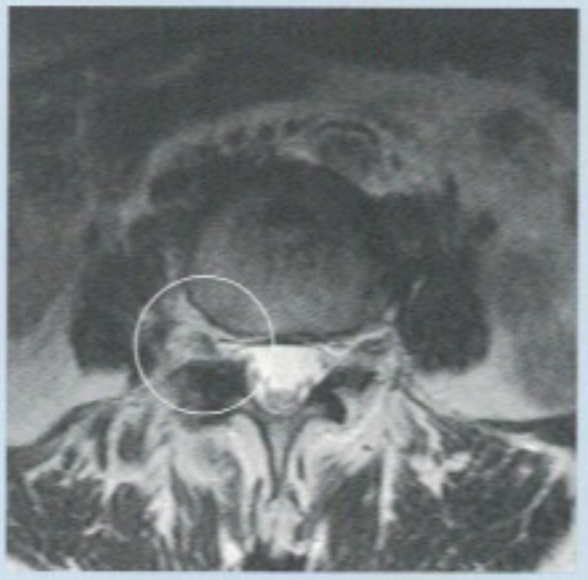
This study recommends axial loading of the lumbar spine in computed tomographic scanning and magnetic resonance imaging and concludes that the diagnostic specificity of spinal stenosis will increase considerably when a patient is subject to axial load.

Study Presented at the 2002 American Society of NueroRadiology (ASNR) 40th Annual Meeting and Symposium. Presented by S. Kahn, J.F. Hemmer, W.K. Earley, J.F. Seeger of the University of Arizona Health Science Center.

- 33% of the patients examined progressed from a non-critical to critical stenosis of the thecal sac with axial loading;
- There was an AP diameter reduction in 50% of levels in sagittal scans and a cross-sectional area reduction in 64% of axial scans at all disc levels imaged;
- 25% of patients with one critical stenotic level developed a second critically stenotic level under axial loading;
- Previously undetected synovial cysts of diverticulae developed at 20 levels during axial loading of 50 patients.

Non Weight Bearing MRI

Weight Bearing MRI



Non Weight Bearing CT Myelogram

Weight Bearing CT Myelogram

** Slices may vary slightly due to patient movement during the axial loading process between scans, or patients being scanned with and without axial load on different days.*