substantiated in well-controlled or prospective studies.[1,5,6] Of veterans identified as having sustained a concussion/mild TBI, nearly half are "confirmed" to have persistent postconcussive symptomatology in VA and Department of Defense clinical evaluations. This is inconsistent with the natural history of concussion and suggests that the evaluation process itself reinforces misdiagnosis. As sociologist Robert K. Merton wrote in 1948, "The specious validity of the self-fulfilling prophecy perpetuates a reign of error." Harm to service members and veterans results not from scientific perspectives expressed in peer-reviewed journals but from implementation of non–evidence-based policies and programs. The imperative is to act on all available knowledge in a deliberately scientific manner, but above all else, "First, do no harm."

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1. Hoge CW, Goldberg HM, Castro CA. Care of war veterans with mild traumatic brain injury: flawed perspectives. N Engl Med 2006;360 (Web-only supplement). (Available at http://content.nejm.org/content/vol360/issue16/index.dtl.)
2. Raine R, Sanderson C, Hutchings A, Carter S, Larkin K, Black N. An experimental study of determinants of group judgments in clinical guideline development. Lancet 2004;364:429-37.
3. Oxman AD, Fretheim A, Schünemann HJ. Improving the use of research evidence in guideline development: introduction. Health Res Policy Syst 2006;4:12.
4. Alexander MP. Mild traumatic brain injury: pathophysiology, natural history, and clinical management. Neurology 1995;45:1253-60.
5. McCrea MA. Mild traumatic brain injury and postconcussion syndrome: the new evidence base for diagnosis and treatment. Oxford, England: Oxford University Press, 2008:163-7.
6. Iverson GL, Zasler ND, Lange RT. Post-concussive disorder. In. Zasler ND, Katz DI, Zafonte RD, eds. Brain injury medicine: principles and practice. New York: Demos Medical Publishing, 2007:373-403.

Whole-Body Magnetic Resonance Neurography

TO THE EDITOR: Noninvasive selective visualization of the whole peripheral nervous system may be useful but has not been possible. Although the brain and spinal cord are well visualized with magnetic resonance (MR) imaging, peripheral nerves cannot be selectively visualized by commonly used methods, such as T_1-weighted and (fat-suppressed) T_2-weighted imaging, because of the similarity in signal intensities between the peripheral nerves and surrounding structures on these images.[1,2] This report describes an MR-based approach that is capable of selectively visualizing the peripheral nervous system over long trajectories in a single examination: whole-body MR neurography.

We used a 1.5-T system (Achieva, Philips Healthcare) to perform whole-body MR neurography on a healthy 23-year-old male volunteer and a 73-year-old man with clinicopathological findings (numbness in both hands and a tendency to fall) that supported the diagnosis of chronic inflammatory demyelinating polyneuropathy (CIDP). CIDP is a chronically progressive or relapsing symmetric sensorimotor disorder, with a relatively low incidence, leading to peripheral-nerve thickening.[3]

The applied whole-body MR neurography technique is based on the recently developed concept of diffusion-weighted whole-body imaging with background body signal suppression (DWIBS).[4] This diffusion-weighted sequence depicts tissues with a relatively long T_2 relaxation time and an impeded diffusion such as the brain, spinal cord, and peripheral nerves.[4] Furthermore, the use of a short-inversion-time inversion recovery prepulse for robust fat suppression over an extended field of view and heavy diffusion weighting ensure the suppression of unwanted signals, like those of free fluid, fat, muscles, tendons, and blood vessels.[4] Most important, this concept allows image acquisition under free breathing. As a result, the image-acquisition time is efficiently long, as compared with breath-hold and respiratory-triggered image acquisition. This, in turn, allows thin-slice acquisitions and multiple-slice excitations for three-dimensional reformatting and display.[4]

In the healthy volunteer, normal-sized brachial and lumbosacral plexi were visualized, whereas other peripheral nerves could hardly be seen (Fig. 1A). In contrast, in the 73-year-old patient with CIDP, whole-body MR neurography showed symmetrical, widespread thickening of peripheral nerves in the entire body (Fig. 1B).

We have demonstrated the feasibility of whole-

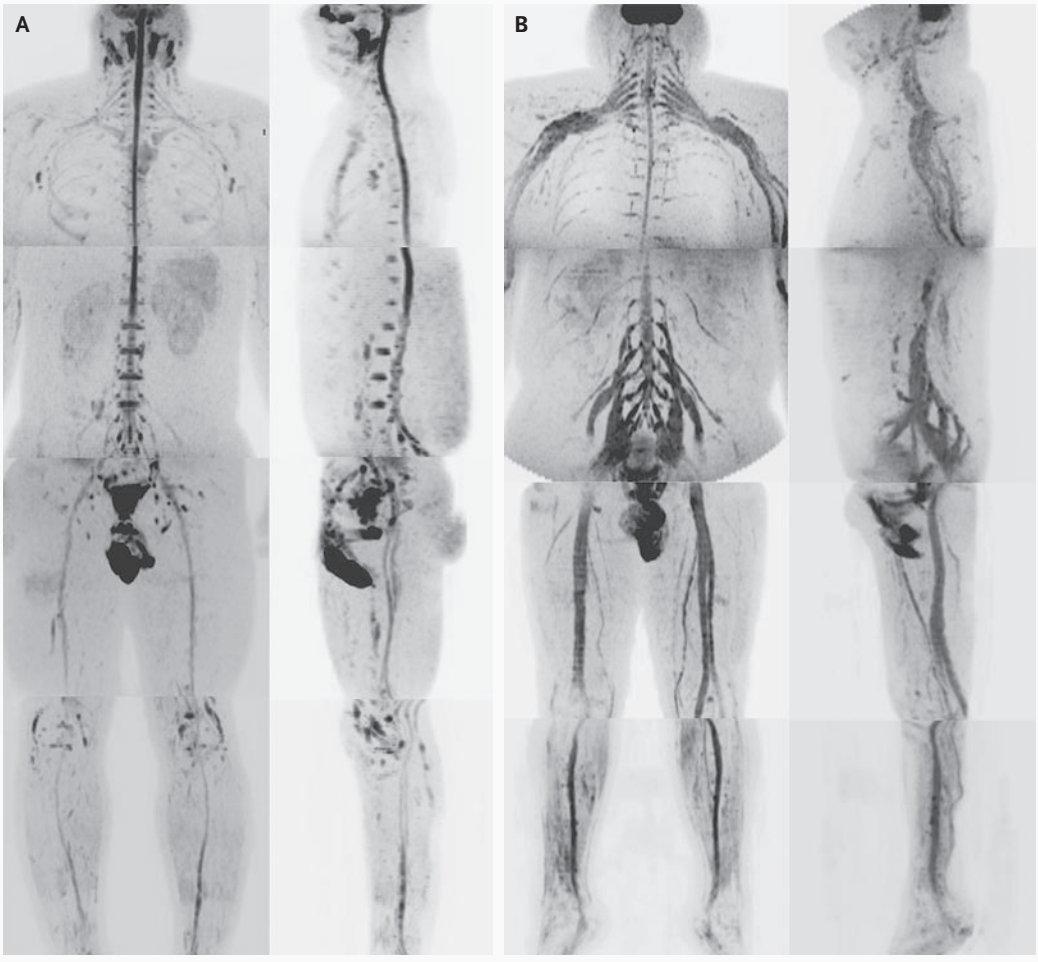

Figure 1. Whole-Body Magnetic Resonance (MR) Neurography in Two Men.

The results of whole-body MR neurography are shown in coronal (left) and sagittal (right) views in a healthy 23-year-old male volunteer (Panel A) and in a 73-year-old man with chronic inflammatory demyelinating polyneuropathy (CIDP) (Panel B). In the healthy volunteer, normal-sized brachial and lumbosacral plexi are visualized, whereas other peripheral nerves can hardly be seen. In the patient with CIDP, severe thickening of the brachial plexus, nerves supplying the arms, the lumbosacral plexus, bilateral sciatic nerves, and bilateral tibial nerves can be seen. The patient's normal prostate, testes, and penis are also well visualized because of their relatively long T_2 relaxation time and impeded diffusion.

body MR neurography with the use of a diffusion-weighted imaging sequence.

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1. Quencer RM. The next frontier in neuroradiology: imaging the peripheral nervous system. AJNR Am J Neuroradiol 1998;19:1001.
2. Maravilla KR, Bowen BC. Imaging of the peripheral nervous system: evaluation of peripheral neuropathy and plexopathy. AJNR Am J Neuroradiol 1998;19:1011-23.
3. Lewis RA. Chronic inflammatory demyelinating polyneuropathy. Neurol Clin 2007;25:71-87.
4. Takahara T, Imai Y, Yamashita T, Yasuda S, Nasu S, Van Cauteren M. Diffusion weighted whole body imaging with background body signal suppression (DWIBS): technical improvement using free breathing, STIR and high resolution 3D display. Radiat Med 2004;22:275-82.