



Magnetic Resonance Imaging with Fat Suppression

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WARF: P04252US

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a technique to combine the echoes acquired at the beginning and end of the TR in dual-echo VIPR.

Overview

Vastly Under-sampled Isotropic Projection Reconstruction (VIPR) is a magnetic resonance imaging (MRI) data acquisition technique that provides high resolution images at speeds up to 30 times faster than conventional Cartesian methods (see WARF reference number P01008US). By employing VIPR, a team of UW-Madison medical physicists was previously able to create high resolution isotropic images of blood vessels during a two-minute scan without the need for a contrast agent. They also achieved excellent separation of fat and water and extremely short repetition times (TR) by using a radial acquisition (see P03191US). One drawback to this earlier technique was that it required two data acquisitions.

The Invention

UW-Madison researchers have now developed a technique to combine the echoes acquired at the beginning and end of the TR in dual-echo VIPR. This new method suppresses either fat or water in a single acquisition, rather than two, thus significantly reducing the amount of scan time needed. The technique's main use will be to dampen lipid signals and reduce banding artifacts in images created by steady-state free precession (SSFP), a rapid imaging technique of growing clinical interest.

Applications

- High resolution imaging of blood vessels, as well as the head, neck and musculoskeletal system

Key Benefits

- Provides a promising approach to MR angiography and head, neck and musculoskeletal imaging
- Enhances the clinical utility of SSFP (steady-state free precession) techniques
- Cuts scan time by 50 percent over the researchers' previous method
- Promises to increase patient throughput, improve patient comfort and reduce motion artifacts
- This post-processing algorithm is easy to implement.
- Implementation will require only slight increases in reconstruction time.
- Easily extended to SSFP techniques that acquire data at different echo times

Additional Information

For More Information About the Inventors
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- [Walter Block](#)

Related Technologies

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- [For more information on the inventors' original fat suppression technique, see WARF reference number P03191US.](#)

Tech Fields

- [Medical Imaging : MRI](#)

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846

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