

New Elastography Technique That Provides Direct Estimates of All Strain Tensor Components

Published date: March 14, 2017

Technology description

Elastography is a new ultrasound imaging technique that detects and images the stiffness properties, or strain, of tissues under compression. This new modality can reveal disease properties of tissue that go undetected by conventional ultrasound.

A major drawback of current elastography methods is that they typically use only the axial component of the strain tensor to produce an image. Other tensor components, such as shear strain, elevational strain and lateral strain, are disregarded, even though these components are required to fully characterize the motion of a tissue undergoing compression.

A team of UW-Madison scientists previously developed a technique of parametric ultrasound imaging that employs a multiple angle (angular compounding) acquisition strategy (see WARF reference number P02385US). The UW-Madison researchers have now extended this method to ultrasonic elastography to provide direct measurements of strain tensor components, such as lateral, elevational and shear strain, allowing complete characterization of the tissues being imaged.

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a method of providing direct measurements of strain tensor components in ultrasound elastography imaging, allowing complete characterization of the tissues being imaged.

Application area

Elastography imaging

Advantages

Images all the strain tensor components in elastography, allowing complete characterization of the tissues being imaged

Enables accurate reconstruction of Young's modulus for the tissue or object under study

Could improve elastographic imaging of malignant tumors to aid diagnosis

Obtains strain estimates without the need for interpolation or iterative processing

Institution

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